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THE STATE OF SOUTH CAROLINA
In The Court of Appeals

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APPEAL FROM RICHLAND COUNTY
Court of Common Pleas
Jean H. Toal, Circuit Court Judge

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Appellate Case No. 2025-000065
Civil Action No. 2023-CP-40-04072

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Michael L. Perry and Lonnie Long,..... Respondents,

v.

American International Industries et al.

Of whom Johnson & Johnson; LLT Management, LLC f/k/a LTL Management, LLC; Kenvue, Inc.; and Johnson & Johnson Holdco (NA), Inc. are the ..... Appellants.

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I certify that this Designation does not contain any matters which are irrelevant to this appeal.

# EXHIBIT 19

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STATE OF SOUTH CAROLINA
IN THE COURT OF COMMON PLEAS
COUNTY OF RICHLAND

KELLY PAYNE CLARK AND SHANNON PAYNE LANCASTER, AS CO-EXECUTORS OF THE ESTATE OF SHELBY LINVILLE PAYNE,

Plaintiffs,

vs. C.A. No.: 2020-CP-40-01597

3M COMPANY, ET AL.,

Defendants.
_____/

SARAH J. PLANT AND PARKER PLANT

Plaintiffs,

vs. C.A. No.: 2020-CP-40-01265

AVON PRODUCTS, INC., ET AL.,

Defendants.

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# MOTIONS IN LIMINE HEARING

BEFORE THE HONORABLE
CHIEF JUSTICE (RET.) JEAN TOAL

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DATE TAKEN: Wednesday, February 15, 2023

TIME START: 9:29 a.m.

TIME END: 4:06 p.m.

LOCATION: Richland County Judicial Center
1701 Main Street
Columbia, South Carolina

REPORTED BY: Sheri L. Byers, RPR
EveryWord, Inc.

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E X H I B I T S

(None were proffered.)

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P R O C E E D I N G S

- - -

THE COURT: Good morning, ladies and gentlemen. These are hearings in two cases, Plant and Payne, both scheduled for trial for next Tuesday. Monday being a federal holiday. And we have many matters to go through.

Ms. McVey, do you have -- I couldn't make my printer give me a copy of the latest agenda.

MS. MCVEY: Yes, ma'am. I have a copy of the agenda I circulated before.

THE COURT: Great.

MS. MCVEY: One correction on it. In Payne, instead of a Motion for Summary Judgment of Color Tech, the motion is actually a motion to dismiss.

THE COURT: Motion to Dismiss.

MS. MCVEY: Yes, ma'am. And then Mr. Wilson for Mary Kay asked that his Motion for Protective Order be placed on the agenda.

THE COURT: I saw that.

MS. MCVEY: Which I did. And then he asked for a motion in limine. I just wasn't sure which one, but I made a notation on that.

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THE COURT: We'll get to it in due course of time.

MS. MCVEY: And the only thing preliminarily, we filed motions for pro hac for several people who are going to argue. I brought orders to sign.

THE COURT: Let me come down here for a minute to get those done.

MS. MCVEY: Okay.

THE COURT: Now, I assume with all of these, that they've been through the Supreme Court's approval.

MS. MCVEY: Yes, ma'am.

- - -

(Off the record.)

- - -

THE COURT: All right. The first matter for hearing this morning is in the matter of Sarah Plant against Avon Products. This is 2022-CP-40-01265.

It's Plaintiff Plants -- it's dispositive motions in the Plant case and the first of which is Mary Kay -- Defendant Mary Kay's Motion for Summary Judgment.

Who will speak for the defendant?

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MS. HERZ: Good morning, Your Honor.

Jill Herz for Mary Kay. May I introduce who is here with me and who will speak?

I've got Chris Schwegmann.

THE COURT: Right. Whoever you want to argue, you just send him right up here.

MS. HERZ: Mr. Schwegmann will argue.

THE COURT: Welcome, Mr. Schwegmann. You may proceed.

MR. SCHWEGMANN: Good morning, Your Honor.

Last chance I had to speak with you, I was on that screen downstairs, and we couldn't hear each other.

THE COURT: Thank God we're not doing that today.

MR. SCHWEGMANN: Well, I'm hoping we might hear each other a little better today now that I'm here in person. It's a pleasure to be here this morning.

THE COURT: Thank you, sir.

MR. SCHWEGMANN: Your Honor, I'm sure you've seen the papers, and I don't intend to belabor every point that's made in the moving papers. I was hoping to just highlight a few issues for Your Honor. Plus, I know there's

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plenty of other counsel chomping at the bit ready to be up here speaking for themselves.

Your Honor, first, I would like to focus the Court really on what I'll say three points.

Point one, the South Carolina door closing statute bars these claims. As the Court knows, the plaintiff is not from South Carolina. He's a resident of a different state. And, similarly, Mary Kay is a foreign corporation organized -- principal place of business in Texas and organized in Delaware.

Under the South Carolina door closing statute, the claims, the cause of action has to arise and accrue here in South Carolina.

There's no dispute that the claims accrued elsewhere. The plaintiff was diagnosed with mesothelioma in a different state. Not in South Carolina. This is true for both Plant and Payne, Your Honor, so I'll sort of seek to both now while I have the opportunity.

So the question is: Did the cause of action arise in South Carolina? And the answer here is no. There's no evidence that the claims arose here. They arose in their own states of residence. In fact, that's where these

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plaintiffs purchased the Mary Kay products. That's where they paid for the Mary Kay products. That's where the Mary Kay products were delivered and substantially all the use occurred in their states of residence. Not here in South Carolina.

Now, the plaintiffs cite the Murphy case, which the Court, I'm sure, is familiar with, which really is not applicable at all on the facts. The Murphy case, if the Court recalls, it's the secondhand exposure case where the plaintiff's father worked at a plant here in South Carolina for three years, which was the principal exposure.

That's where -- as a subsequent case held, that's where the exposure originated. Here, that's not the case. The exposure -- the alleged exposure originated in states outside South Carolina.

We submit the more applicable case is the Henderson v. Allied Signal case. In that case, it ties the arising under with the Lohrmann factors. The frequency, regularity, and proximity of the exposure. And here, I think the Court will see that any alleged exposure was

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outside of the state. Any exposure inside the State was fortuitous and incidental.

So we think the door closing statute bars these claims here, and we would ask the Court to grant summary judgment on that basis.

Second point and very similar, personal jurisdiction, there's no specific personal jurisdiction over Mary Kay.

Now, Mary Kay raised this issue by Motion to Dismiss. The Court denied that Motion to Dismiss before the plaintiffs had filed the response and submitted any evidence. We've now taken depositions and all of the plaintiffs have confirmed that they did not purchase the products in South Carolina. Those products were not delivered to them in South Carolina, and they weren't paid for in South Carolina.

There's no general jurisdiction. In fact, general jurisdiction isn't even alleged. And after Diamler, the Supreme Court's opinion in Diamler, there can be no general jurisdiction here.

And with respect to specific jurisdiction, Your Honor, this case is like the United States Supreme Court case in Bristol Myers Squibb,

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where you've got out-of-state plaintiffs suing for exposure that occurred out of state. And any sort of contact with Mary Kay, as the Supreme Court would say, is random, isolated, and fortuitous.

For those reasons, Your Honor, Mary Kay asks that the Court grant its motion on personal jurisdiction grounds.

Third and final point, Your Honor, Mary Kay's also moved on three substantive claims: breach of implied warranty, fraudulent misrepresentation, and conspiracy.

We argue the basis for those in our motion. In response, the plaintiffs failed to provide any evidence to show that there was a contract for sale, which is required for a breach of implied warranty claim.

Plaintiffs failed to produce any evidence in response if there was any representation by Mary Kay or, frankly, any other of the elements of fraud. And finally, failed to produce any evidence for any of the elements of conspiracy.

So for those reasons and because the plaintiffs failed to respond with evidence, Your Honor ought to grant the Motion to Dismiss

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on those three specific claims.

Your Honor, I appreciate your time. Those the points I wanted to make.

THE COURT: Thank you.

All right. Ms. McVey, in response.

MS. MCVEY: Yes, ma'am. Thank you, Your Honor. Theile McVey for Sarah Plant.

Your Honor, just briefly I wanted to go over the substantial Mary Kay exposure both in South Carolina and in Tennessee. It applies to both the exposure testimony but also specifically as to the door closing and to the personal jurisdiction.

Your Honor, Sarah Plant is an unusual plaintiff in that she was diagnosed with mesothelioma as age 34. She is married to a physician, Parker Plant, and they have three children who are now six, four, and two.

She was exposed not through any occupational exposure but solely through her use of talc products, including substantially through her use -- her use and her mother's use of Mary Kay makeup.

Both Mrs. Plant and her mother, Patrice Johnson, testified that in middle school her mom

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used Mary Kay makeup on Sarah and purchased Mary Kay makeup for Sarah.

Her mother testified that she started using that makeup when she was around 12 or in 1998.

She purchased Mary Kay powdered eye shadows, blush, and powder foundations.

There was a Mary Kay consultant that held parties that Sarah attended.

Sarah continued to use that makeup both applying it herself and her mother applying it to her through middle school and into high school. Although she testified she did not replenish that makeup in high school.

She described with specificity that Mary Kay makeup she used included a compact that was -- had a light pink square, came with different eye shadows and blushes, came with an applicator.

In high school, Mrs. Johnson, Sarah's mom, testified that she used Mary Kay products throughout middle school and high school.

Ms. Johnson last testified that she last purchased Mary Kay for Sarah in 2009. But in 2012, Sarah purchased her own Mary Kay starter kit, which included mineral foundation.

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Mary Kay's documents support that. They show -- they confirmed the purchase of the starter kit, including a beauty consultant agreement and sales records.

Sarah purchased it not to sell but to use on herself. And so she used the entirety of that makeup over the next four years. That included lots of powder foundation, blushes, eye shadows, lotions, and other things.

She testified that she used it essentially from 2012 through 2016.

Now, during those both high school, middle school, college, they vacationed in South Carolina several weeks every year. They spent every Thanksgiving here. She testified that she used Mary Kay makeup here.

She testified after she got married, she and her husband moved to South Carolina, and they lived here four years where she also used that Mary Kay product.

Your Honor, the door closing statute says you can't bring a case here if the plaintiff doesn't live here or the tort didn't occur here. And, Judge, as you know, this is a cumulative dose kind of case and so much of the exposure

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occurred here in South Carolina.

For purposes of that summary judgment, we more than meet that burden.

As to personal jurisdiction, Mary Kay had hundreds of sales consultants here in South Carolina. They have failed -- they sold makeup in South Carolina the same way they sold it in Tennessee where Ms. Plant grew up. For personal jurisdiction of the Ford case, we more than meet specific jurisdiction.

Your Honor, I'm happy to go into, if you want me to, some of the legal arguments, but breach of implied warranty does not require a contract. In these kind of cases, it never has. We don't have to have a contract. Although there are sales records showing.

What they put out in the community is that this Mary Kay makeup, they put in all their advertisements, is safe for use. That's the fraud. That's the negligence. That's the breach. It wasn't safe for use. It contained asbestos-containing talc.

Your Honor, the experts in this case have opined, and we have been able to link up the suppliers of Mary Kay talc were Whittaker Clark

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& Daniels, another defendant in this; Charles B. Chrystal is a defendant in the Payne case; and Cypress.

We know that the Mary Kay talc was sourced from the Montana mine and from Italian talc. And we've -- I don't want to go into all the details in our papers. I know you have read them. We show that both the Montana talc and Italian talc have been shown to be contaminated with both amphibole asbestos and chrysotile.

Dr. Longo, in this case, has tested the Mary Kay powdered product, which was shown to have chrysotile in it. That is the defect in the case.

Dr. Haber, who has testified in this case, says that Sarah Plant's exposures to Mary Kay were a substantial factor in the development of her mesothelioma.

Mary Kay never tested their product ever. And stop me if you don't want to hear any more, but one of the big things is they say they relied on their suppliers for this idea of a nondefect. Meaning if you can't detect asbestos in it, it's asbestos free. Now, we'll debate the semantics of that during trial.

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But they set their measurements at .1. Point 1 is a nondetect. Anything under .1 is considered a nondetect. So we go through all the math of all this. What that can really mean is hundreds of thousands of millions of fibers of asbestos in a single Mary Kay container.

THE COURT: I am very familiar with the debate within the industry about what kind of counting to use, what kind of analytical tools to use, and so forth.

MS. MCVEY: Thank you, Your Honor.

With that, I will stop other than to say there was exposure both in Tennessee and South Carolina, substantial exposure. We believe that gets us past door closing and personal jurisdiction of Mary Kay.

Thank you, Judge.

THE COURT: Mr. Schwegmann, in response.

MR. SCHWEGMANN: Your Honor, I'll just take the issues in reverse order. With respect to the substantive claims, I'll tackle fraud first. I heard Ms. McVey say that there are advertisements that say safe for use. Well, Your Honor, not in the summary judgment record.

If you look at the documents that the

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plaintiff attached to its response, there's no such advertisements in that record like that at all. And that's what the Court has to rely on for the purposes of deciding the motion. The record that's before it.

With respect to the personal jurisdiction issue, the plaintiff relies principally on the United States Supreme Court case in Ford, but that case is nothing like this one. That case involved an in-state plaintiff that sued on a car wreck that occurred in state. And what Ford argued in that case is, well, because we designed that car in some other state, there's no specific personal jurisdiction. Well, that's not like this case. This case --

THE COURT: This case is a case where the contention is and supported by experts. These things are always a battle of the experts. But for purposes of this, where I'm looking in the light most favorable to the nonmoving party, there's -- the contention is that Ms. Plant was exposed to Mary Kay products in South Carolina. And the contention is that the cumulation of her exposures to Mary Kay products over a lengthy period of time, some here, some in other places,

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including three years when she lived here, was a substantial factor in her contraction of mesothelioma.

So that's the contention. I know you all are going to try an excellent case where you seek to disprove this, but you're on summary judgment right now.

MR. SCHWEGMANN: That's right. And as a result, I'm relying on the summary judgment record, which included both Ms. Johnson and Ms. Plant's deposition. There's no testimony that after she left college, she used Mary Kay products in South Carolina. In the use of the products in South Carolina is what the United States Court --

THE COURT: There is the verbiage that on vacations, when she was a child, she used those products here and was exposed to her mother's use of the products here.

Now, again, that will be subject to a good deal of debate and whether the jury accepts that as an acceptable exposure limit, I don't know. I don't make those determinations right now.

MR. SCHWEGMANN: Well, for the purposes -- I guess the point I'm trying to distinguish,

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Your Honor, for the purpose of personal jurisdiction, those uses the Supreme Court would say are random, fortuitous, and isolated.

THE COURT: I don't see it that way.

MR. SCHWEGMANN: All right, Your Honor.

THE COURT: I am very familiar with the Supreme Court's pronouncements and the -- what they consider to be random and fortuitous. They don't encompass someone who lives here for an extended period of time but before that, vacationing here not for a day or two but for weeks at a time throughout her childhood.

So I don't -- I don't see the connection between the fortuitous.

MR. SCHWEGMANN: Well, I think -- last point, and I'll sit down, is the issue isn't whether she brought it into the state and used it. That might be the issue for the door closing statute.

But for the purposes of specific jurisdiction under United States court precedent, you don't look to the plaintiffs bringing the product in to perform, but it's whether the defendant here, Mary Kay, purposefully -- whether her use -- whether

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Mary Kay, you look in her case actions, and whether Mary Kay took steps to cause that to happen in South Carolina. And that's not the case. That's what the BMS case says and that's what the other stream of commerce case says. So we don't think it is applicable, and we understand.

THE COURT: I understand.

MR. SCHWEGMANN: Thank you, Your Honor.

THE COURT: All right. That concludes the arguments on this particular claim. Just so I'm sure everyone knows, I rule from the bench. I do it immediately. That's your record, and the court reporter will have it on the record.

So in the case of Mary Kay's Motion for Summary Judgment, the motion is denied.

The door closing statutes requirements that the claim must arise and accrued in South Carolina are met by the more-than-casual exposure to the product as it is alleged in this state. Frequency, regularity, and proximity are similarly -- are made by the evidence so far submitted by plaintiff.

The personal jurisdiction was denied before and is denied again. And the breach of implied

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warranty, fraud, and misrepresentation and conspiracy likewise are alleged sufficiently with respect to activity in this state to survive a Motion for Summary Judgment.

Personal jurisdiction on the presence in South Carolina of Mary Kay is substantial based on what has been submitted.

And the testimony, again, it will be a battle of the experts, but the testimony is that with respect to allegations of breach of implied warranty, fraud, and conspiracy, there is evidence presented at this stage that these products, the Mary Kay products were supplied by mines in Vermont, Montana, and Italy, which contained amphibole, chrysotile, which made its way into the products in sufficient quantities to be capable of being the vehicle for the contraction by Ms. Plant of mesothelioma.

So the motion the denied.

The next motion is Whittaker Clark Daniel's Motion for Summary Judgment.

Counsel for Whittaker Clark Daniels, Ms. Flynn.

MS. FLYNN: Yes, Your Honor. Thank you. Stephanie Flynn.

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THE COURT: Welcome. Good to see you.

MS. FLYNN: Good to see you, too.

Stephanie Flynn for Whittaker Clark and Daniels.

THE COURT: Ms. Flynn, you have a gentle voice, so if you will speak into that microphone, I would appreciate it.

MS. FLYNN: Would it help to move it at all?

THE COURT: You can move it any way you like.

Thank you, ma'am. Perfect.

MS. FLYNN: Your Honor, the basis of our motion on behalf of Whittaker Clark and Daniels is that the plaintiffs cannot actually link talc supplied by Whittaker Clark and Daniels into a product that was actually used by Mrs. Plant, much less show that it was contaminated and that she was exposed to an amount substantial to cause her mesothelioma-related disease.

Up until 2004, Whittaker Clark and Daniels was a supplier of mineral and talc -- mineral and pigment including talc. The uses of the talc, obviously, span far and wide. They're used in a number of products in addition to

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cosmetics and in beauty products and so forth.

Whittaker was not a large company. It was one of many suppliers. I think at most, it only ever had about 120 employees at its height.

And what happens -- this is important. What happens after Whittaker Clark supplied the talc is generally unknown to it. That's because many of the cosmetic manufacturers hold the products close to the vest. They don't want to tell us what products the talc was being used, and they certainly don't want that information to leak out to other product manufacturers.

So in most instances, we had no idea where the talc would have ended up and into which specific products. Even if we sold to a certain manufacturer, it could have ended up in an eye shadow versus a body powder product. And there could have been a supplier for, you know, one of the other -- a different supplier.

So without testimony or evidence or something linking Whittaker to the manufacturer, we just can't say that Ms. Plant -- any of the products that Ms. Plant used can be linked back to Whittaker.

So what we did in this case basically is

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look at each of the specific products at issue to see if we could find that link and see if, one, Whittaker is the supplier to the manufacturer; and, two, if they were a supplier, then if we knew the specific product into which that talc made its way so that we would know if Ms. Plant ever had the potential to have used it.

After going through all the product, I think there were like some 19 total products that were identified in this case. We walked through those products in our summary judgment briefing.

The plaintiffs came back to us in their response and identified three products specifically that they claim Ms. Plant used and to which they claim that Whittaker supplied the talc. There's Gold Bond, Revlon, and Mary Kay.

What we would ask the Court to do is to look at each of those individually. Even if the Court doesn't grant our Motion for Summary Judgment wholesale, maybe the Court might find that there might not insufficient evidence for one product and we can exclude that one and focus on --

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THE COURT: Let me ask you this as we walk through that. I know that Mary Kay is still a defendant, correct?

MS. FLYNN: Correct.

THE COURT: Revlon?

MS. FLYNN: Not a defendant.

THE COURT: Gold Bond?

MS. FLYNN: Not a defendant.

THE COURT: I think you can simply then concentrate on Mary Kay.

MS. FLYNN: Yes, Your Honor. In terms of Mary Kay -- and just before I move on, I mean, our position is that the evidence isn't sufficient to be able to show that we made it into a Gold Bond product or to a Revlon product.

THE COURT: Sure. I understand you concede nothing by not doing that argument. But these entities are no longer defendants in this action, and as we know very well from Smith v. Tiffany, they are not going to be mentioned or your connection with any supplier to them will never be mentioned in this trial.

MS. FLYNN: I will turn to Mary Kay, Your Honor. That connection with Mary Kay is quite tenuous in this case.

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The plaintiffs' claim in their response that we -- that Whittaker Clark and Daniels supplied talc grade 141 from 1997 until 1999. Exhibits they provided in connection with that don't reflect those statements.

More importantly, contrary to the sales records that were produced by Whittaker in this case, which show that Whittaker had no sales in talc 141 after 1990. And that was some -- it was many, many years before the plaintiffs ever purchased any Mary Kay products.

So that's the last indication that we have use of that 141 product that they say was in the Mary Kay from 1997 to 1999.

The plaintiffs also produced formula cards for Mary Kay in this case that says it reflected the use of Whittaker Clark's talc, but that's incorrect. The formulas they produced actually were four formulas with eye shadows that reflected only the use of talc USP Sierra Supreme and no alternatives provided for that.

So even if any of the formulas had identified Whittaker Clark, they were dated 1978, 1979, as well, many, many years before Ms. Plant ever used a Mary Kay product. We

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think that there's a disconnect there. Not only that the dates are wrong, the talc formulas are wrong. They just don't show that we supplied talc during the relevant period of time.

We think the jury should be allowed to speculate in this case, obviously, as to the -- not only with Mary Kay but to the other manufacturers we mentioned in our motion. We think the evidence is insufficient to show -- to make that leap between Whittaker Clark and Daniels and any product that Ms. Plant actually used.

So that doesn't even get to the point of the talc actually being contaminated and then next her being exposed in a level sufficient to cause injury.

But I'm happy to delve into any other questions the Court may have as any association between Mary Kay. We've set that out in our briefing as well.

For those reasons, Your Honor, we would request, because based on the lack of product identification, that that takes care of all of the rest of the issues in our motions.

THE COURT: Thank you so much, Ms. Flynn.

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Ms. McVey.
MS. MCVEY: Your Honor, Mr. Buha is going to argue this one.
THE COURT: What?
MS. MCVEY: Mark Buha is going to argue this.
THE COURT: All right.
MR. BUHA: Thank you. Mark Buha on behalf of the plaintiffs.
First, we need to, I believe, clarify that although there is not a party by the name of Gold Bond that was in this case previously or presently, there was a party by the name of Chattem that was in this case up until very recently, and there is testimony that was introduced in the deposition.
THE COURT: You're going to have to speak up some. I can't hear you very well. That's the first thing.
The second thing, go back and tell me, who is Gold Bond? Who is the corporation that makes Gold Bond?
MR. BUHA: Gold Bond from April 1996 onward is a company called Chattem.
THE COURT: Right. Is Chattem still in

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this matter?
MR. BUHA: They are not presently in this case.
THE COURT: Well, then we don't need to -- anything that's not in this case, we don't need to talk about it.
MR. BUHA: They have been page-line designated.
THE COURT: Sir?
MR. BUHA: Yes. So the testimony of Chattem's corporate representative has been page-line designated. I just wanted to identify that. So although Chattem as a standing defendant will not be in the case, that its testimony, if the Court admits that testimony, as to the Chattem's corporate representative has been page-line designated, and it specifically addresses the distributor issue.
Okay. And so --
THE COURT: Hold it for a minute.
Ms. McVey, I don't understand what we're arguing here.
MS. MCVEY: Yes, ma'am. So I think here -- so you are correct that typically any defendant who has been in this case is not mentioned other

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than the defendants can bring it up for other exposures or whatever.
In this case, why that she -- it wouldn't come in that Chattem was sued in this case. But because Whittaker Clark and Daniels was a supplier to Chattem, the Chattem use would come in to show that Whittaker Clark and Daniels supplied the talc that caused an exposure to Ms. Plant. If that makes sense.
THE COURT: Well, yeah, that makes some sense, but I'm not telling you I'm going to admit that kind of testimony.
MS. MCVEY: And we'll lay -- we'll show it to you, but I think we have to do that in order to show what Whittaker Clark and Daniels, the talc was a substantial factor. Because it's not just Mary Kay. It was other products that she used, and it was their talc. At least that's our allegation.
THE COURT: Okay. Then let's go back here for a minute.
MS. MCVEY: Yes, ma'am.
THE COURT: The Gold Bond -- and I may have to have Ms. Flynn get back up here again. I understand now what you're saying. Whittaker

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Clark supplied these two. They may not be sued, but Whittaker Clark supplied them with products she was exposed to is a part of it.
I'm going to ask you to stand down for a minute, Mark.
MR. BUHA: I'm sorry I didn't make that more clear.
THE COURT: Come on back up here. I cut you off too soon. I'm trying to get this thing moving along in a more sensible way.
But I do understand that we are talking about exposures to products that Whittaker Clark supplied talc for the manufacturer. So you can talk about Gold Bond, Whittaker Clark -- I mean Gold Bond, Mary Kay, and what was the other one?
MS. FLYNN: Revlon.
THE COURT: Revlon. Right. Okay. Go ahead.
MS. FLYNN: Your Honor, as to Gold Bond, they're correct that they have presented the testimony of the Chattem representative, that one time manufactured the Gold Bond product from 1996 to 2014, I believe.
THE COURT: And Whittaker Clark allegedly supplied the talc for those products?

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MS. FLYNN: That's alleged, yes.
THE COURT: Okay.
MS. FLYNN: Our position is that the Chattem representative has testified over and over again that the source of that talc from 1996 to 2014 was Barrett's, and then after 2014 it was Imerys. That --
THE COURT: Well, both of those are sources about which it is contended that the talc was -- had asbestos in it, right?
MS. FLYNN: Those sources are.
THE COURT: You don't agree with that, but ...
MS. FLYNN: Correct. And what I'm saying is that Barrett's supplied it. I'm sorry if I misspoke about that. But Barrett's supplied it and Imerys supplied it. That's our position in this case.
We think that the Chattem representatives testified to that fact over and over again. That Chattem's discovery responses have indicated that those are their suppliers during those years. And that Whittaker's sales records don't indicate sales to Chattem.
THE COURT: Okay.

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MS. FLYNN: In addition to that, they haven't produced a formula card. So even if the connection is made, we still don't know into which products that that talc would have been supplied.
THE COURT: All right. I got that argument now. I understand.
MS. FLYNN: And then Revlon, just briefly. Revlon is pretty tenuous. The information that they supplied again doesn't cover the right time period or the right product.
The plaintiffs have alleged in their briefing that Revlon -- that Whittaker sold talc for Revlon face powder containing talc 141. And they did -- they say it was during a certain period of time. And that time period they have alleged is 1985 to early 1990s.
The problem with that is Ms. Plant's use of Revlon products is not until the mid to late 2002 at the very earliest and much likely later. She says she used it starting sometime during middle school, which would have been very early as to 2002, and she did it when she started to mix up her products and moved on to Maybelline.
So she only ever identified a single Revlon

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eye shadow that she used.
And so simply put, there's just no -- I think the talc they identified not only was it from the '85 to '90, but it was also identified as being used in face powder. She identified eye shadow, and she identified it much, much later in time. So we don't think that link is there.
So those are those two products. And I'm happy to answer any questions you have about those.
THE COURT: Okay.
MS. FLYNN: That's it.
THE COURT: I got the picture now.
So let me just ask you this, Ms. Flynn: Of the three products we're talking about, Mary Kay might -- you don't think any of them have a connection with Whittaker Clark Daniels during the appropriate period?
MS. FLYNN: Correct, Your Honor.
THE COURT: But in terms of use by the Plants, Mary Kay has got more of a connection and Gold Bond and Revlon less so, you say?
MS. FLYNN: More of a connection with the plaintiff? I don't think so -- I would say that

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they have very little connection with the plaintiff really because --
THE COURT: It's her or her mother's use of them. And Mary Kay, there's more meat on the bones about the connection with Mary Kay, mom and daughter. In Revlon and Gold Bond not as much. Is that basically what you're saying?
MS. FLYNN: If I were to measure just their alleged use of the product, I'm not sure where I would weigh that into --
THE COURT: I understand that you say Whittaker Clark Daniels not under any circumstances because that wasn't a period of time when they supplied. But in terms -- you also talked briefly about the evidence of use, particularly in Revlon, when you say 13 was when the period of use was. So you had two things going. Period of use and whether or not the product -- that whether Whittaker Clark at that time supplied the product that would have possibly been used. So you've got two arguments you're making on those, right?
MS. FLYNN: Yes, Your Honor.
THE COURT: Okay.
MS. FLYNN: We didn't sell during the

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relevant period of time when that product was used.

THE COURT: Right.

MS. FLYNN: Yes.

THE COURT: Okay. I got you.

MS. FLYNN: Okay. Thank you.

THE COURT: All right, Mark. All right, sir.

MR. BUHA: Okay. So I think to address Whittaker Clark and Daniels' supply of talc that ultimately went into Gold Bond products that Ms. Plant began being exposed to in about 1998, there are four entities that I'm going to have to describe. Okay.

So there is Barrett's Minerals. That's the company that mined the talc. There's Whittaker Clark and Daniels. That's the company that plaintiffs put forth evidence distributed the talc. Then there is a company called Pharma Tech Industries that was the contract manufacturer that actually assembled the product. And then there was Chattem, Inc., and that is the company that sold the product.

So there are a lot of names flying around.

THE COURT: And again, who was the miner?

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MR. BUHA: Barrett's Minerals. Okay.

And so the testimony that we submitted, I think it's Exhibit 195 of page 235, is testimony of Chattem, who describes that while Barrett's was a supplier, because it was the source of the talc, it was Whittaker Clark and Daniels that was the distributor. And that's what he says plain and simple at page 235.

THE COURT: What do you do about this ID you all have made of the -- what is it called? -- talc 141, which they say they didn't supply, they didn't sell after 1990, what do you do with that argument?

MR. BUHA: With -- you refer as to Mary Kay?

THE COURT: Whittaker Clark Daniels is a supplier. They supplied to people who made Mary Kay. They supplied to people who made Gold Bond. They supplied to people who made Revlon. And the exposure period you are talking about is 1990 forward.

MR. BUHA: Correct.

THE COURT: And the biggest argument Ms. Flynn makes in aid of her summary judgment motion is you identified the talc 141 as the

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Whittaker Clark Daniels component that was supplied for the manufacture of those products that to which Ms. Plant was exposed.

She didn't get -- begin to be exposed until 1998, right?

MR. BUHA: 1988 is the first year. But I think there's one correction that I think needs to be made here is that the talc 141 was the grade of talc with respect to Mary Kay, and that's just one that went to Mary Kay.

THE COURT: Yeah.

MR. BUHA: But there is another grade of talc that went to and was ultimately used in Gold Bond. And it went by a couple of different names. I know all these names get a little confusing. But the grade talc -- and we have it in the sales records.

THE COURT: Well, right now we're talking about Whittaker Clark and Daniels.

MR. BUHA: Whittaker Clark and Daniels.

THE COURT: And they have a grade of talc that goes to these cosmetic manufacturers to make those products, right?

MR. BUHA: Yeah, but they have like probably over a hundred different grades of

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talc. And we only need to talk about two here, and I want to address your question as to talc 141. I want to refer to a grade that's called MP 6030, and also went by the name Talc 1745.

And I think the easiest one for resolving this issue is talking about Gold Bond. That's why I'm steering the conversation that way a little bit because the testimony is from Chattem is that they were the exclusive supplier to Chattem and the company before that up through 2004.

And we don't just have the testimony from Chattem saying that, we have sales records that corroborate it. So we have sales records.

These are Whittaker Clark and Daniels' produced documents. I'm looking at exhibits --

THE COURT: Well, tell me the years we're talking about they were supplied.

MR. BUHA: Yes. So 197 -- Exhibit 197, first in sales going consistently between 1990 and then 2000. And it trails off a little bit, it's less after 2000. But it goes all the way up to 2004. So the period that we're looking at between 1998 and 2004, there are sales of Whittaker Clark and Daniels' talc, MP 6030. And

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it says -- on that same document it says it's coming from Barretts Minerals. That's the mining --

THE COURT: I saw that. I'm familiar with the document you're talking about. I looked at those exhibits, and I know what you're talking about there.

MR. BUHA: Okay. Absolutely. Okay. And so, you know, Whittaker Clark and Daniels, we have exclusive supply from 1998 to at least 2000 -- and I think we can say to 2004 of that Barretts Minerals talc to Pharma Tech, which was the contract manufacturer for the product Gold Bond. And the representative from Chattem describes all of those connections.

And so I think that that exclusive supply gets us where we need to in combination with the testimony of the exposure to asbestos content, knowledge, et cetera.

Now, to talk about Mary Kay and some others, there is a document that we submitted that shows the sales of 60 tons of talc 141 to Mary Kay in 1997. That is a year before the first use of Mary Kay in which she started middle school in 1998.

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Now, I think we have -- with all reasonable inferences that go in our favor, I think that the sale of that volume of talc to Mary Kay, as referenced in that document, creates an inference that she was exposed to that product.

And I want to address --

THE COURT: How does that it create that inference? If we have something -- how many tons was supplied in 1997?

MR. BUHA: The document refers to 60 tons.

THE COURT: 60 tons. Do we have any information about how much of this talc would be used per year in the Mary Kay products or something like that that tied in?

What they're trying to say is when -- 1997 is the last supply. That's not, of course -- what they were trying to say was it was 1985 to 1990. 1997 is a long way away from that, so I would have to ask Ms. Flynn about that. But that's the last time Whittaker Clark and Daniels supplied Mary Kay?

MR. BUHA: With the evidence in the -- that we submitted in response.

THE COURT: That's what you have to have.

MR. BUHA: Yeah. I think there's plenty of

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other evidence that we're going to submit at trial. We'll look at talc 1625, talc 141, talc 1745. We have a number of these things addressed but --

THE COURT: But this is 141 you're talking about?

MR. BUHA: Talc 141 as well as I think talc 1625 would be the primary one that there are sales to. And it's specified in Mary Kay documents, but, candidly, Your Honor, it's not submitted and I need to disclose that it's not submitted in opposition of summary judgment. But that's evidence we're going to put on at trial.

And one of the things I want to clarify is I know that -- I believe we established exclusive supply, or Chattem has to Gold Bond, but I don't think they get to file 19 separate summary judgment motions as to each individual product. We can prove what we need to establish, and we have a genuine issue of material fact as to, one, we shouldn't be precluded from submitting evidence that we have and that we will put on at trial as to some of these other products.

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THE COURT: Okay. I understand your argument.

MR. BUHA: Okay. And any other questions on any issue?

THE COURT: No.

MR. BUHA: All right. Thank you, Your Honor.

THE COURT: Ms. Flynn, your reply.

MS. FLYNN: Yes, Your Honor. Just briefly.

We raised the issue as to all of the different products in our Motion for Summary Judgment because obviously we wanted to narrow the field. We wanted to know what we're looking at here and narrow it down to the product at issue here. And we think that we've adequately done that.

The plaintiff needs to come forward now, and the time is now to do that to show what evidence they have to get them past summary judgment and allow them to make a link between Whittaker Clark and Daniels and some product that Ms. Plant used. They only tried to do that with three of those products. We think they failed in that regard.

THE COURT: I recall quite well the Battle

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Royale we had about discovery in this matter and about getting the information from Whittaker Clark and Daniels about these matters. So, you know ...

MS. FLYNN: Your Honor, I think we did have a Motion to Compel but that was related to financial issues, but I don't think we were involved in any other discovery dispute insofar as this is concerned.

As for the Mary Kay piece, I don't know what they're talking about with the document that says we sold 60 tons of talc to Mary Kay. Our records show that we didn't sell talc 141 after 1990, and that's it. So I don't know --

THE COURT: How about those other two products, 6030 and 1625 or whatever it was?

MS. FLYNN: The only other product that I'm aware of is a sale of 1615, I believe. However, that was used specifically in Facets Dusting Powder, which has no bearing on this case whatsoever.

And that was back in 1979. That's the only formula that I'm aware that indicates Whittaker Clark and Daniels's talc in any regard in these cases. And that's one of the products that I

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was going to discuss in Ms. Payne's case. But that's it.

THE COURT: I'm going to tell you, I'm not going to spend this much time on it. I get your argument.

MS. FLYNN: Understood.

THE COURT: Okay.

MS. FLYNN: Thank you, Your Honor.

THE COURT: Okay. Motion for Summary Judgment by Whittaker Clark and Daniels is denied upon viewing the evidence in the light most favorable to the nonmoving party as I must do.

There is at least some evidence, although, I must say it's pretty thin, that Whittaker Clark and Daniels supplied at least to some of the products that the Plants used during the operative exposure period.

I will say to you that when we get down to trial and admissibility, I may make some determinations differently. This is very preliminary and on the Motions for Summary Judgment. So the motion is denied, but the issue is still very ripe for further consideration.

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All right. Rite Aid Motion for Summary Judgment.

MR. WALLINGER: Justice Toal, good morning. I'm Scott Wallinger.

Are we going to argue only Plant, or would you like me to argue Plant and Payne?

THE COURT: You know, I want to get through this in some reasonable period of time, so I think we all ought to argue both of them.

MS. MCVEY: I would agree for the plaintiff -- especially for Rite Aid.

THE COURT: Thank you. Scott, you may address both plaintiffs.

MR. WALLINGER: Thank you. I'll start with the Plant case, Your Honor.

Your Honor, we provided a memorandum in support of our motion. We also electronically filed an affidavit of the president of my client's company, which I don't know if Your Honor has. It was a separate filing.

THE COURT: I got notified of it late yesterday or early this morning. I can't remember which. I've taken a peek at it.

MR. WALLINGER: If the Court needed me to hand it up, I have a copy.

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Your Honor, my client, Rite Aid of South Carolina, Inc., was formed here in South Carolina in 1977. They operated in that 20-year period from '77 to '97 approximately 105 stores in different parts of South Carolina.

They then went for a period until around 2008 where they had no stores operating in the state, and then they began to operate one store from '08 until '18 in Northeast Columbia, which was out by the hospital off I-77, which, as I understand, has no nexus to the life patterns of either plaintiff.

So what we're really talking about here is the connection of the plaintiffs to stores in the period from '77 to '97.

Plaintiff Plant concedes that she has no knowledge of having ever shopped at a store operated by my client. Her husband testified that he was aware she shopped at a store after 2000 but didn't know what she bought there. And as we know from the corporate history, that store in the period after 2000 would not have been operated by my client but by some other corporation at that point.

And so what this really focuses on is any

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other testimony or evidence that links Rite Aid to sale of a product. I'm defending a products case where I feel my client's entitled to know what product they sold, where they sold it, and what allegedly it had in it.

The mother of Ms. Plant testified, initially in response to my direct examination -- or cross-examination, I should say, she was not aware of any purchases of a powder or cosmetic talc containing product from a Rite Aid brand of store.

THE COURT: Let me ask you this. Cut to the chase. The most likely purchase would be in '77 through '97, when you say that's really the period when Rite Aid was here would be in the Litchfield Beach area. All right. Did you all have the store in Litchfield or surrounds during that time?

MR. WALLINGER: Your Honor, the testimony of my client will be, and I haven't put that in the record for purposes of this hearing because of fits evidence, is that there was no store operated in Georgetown County or in Horry County. So the testimony --

THE COURT: Didn't that affidavit say

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something to that effect?

MR. WALLINGER: Well, what it said is that there was no store operated outside of South Carolina because the company was created to operate stores within the state.

THE COURT: Right.

MR. WALLINGER: But I can represent -- they have a spreadsheet showing where the stores were operated.

THE COURT: But you have credible information, you say, that shows no stores in Georgetown or Horry.

MR. WALLINGER: That's correct. And so we have testimony of Ms. Plant's mother that she believed based upon, you know, some memory of going to multiple drug stores that she might have gone to a Rite Aid either around Litchfield or Pawleys. She didn't testify about what product was purchased other than to say it may have been a powder. But that doesn't get us anywhere relative to what kind of powder or what the contents of it is.

And, of course, relative to the key allegation plaintiffs make that Vi-Jon was the supplier of the powder, we also know that that

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relationship began after 2000. So if Vi-Jon was distributing any kind of powder to Rite Aid, it wasn't a store that my client operated up until '97.

So there is no overlap of Vi-Jon as a source for a talc-containing product. And of course there's no evidence in the record of what product allegedly got bought before '97 or if it was even before '97.

So we don't think there's a scintilla there to meet the elements of any of the causes of action on those issues. And as to Plant, we would ask for summary judgment at this point.

A lot of the plaintiff's rebuttal gets into issues about mining and expert testimony. The only thing I would mention relative to Dr. Haber, who is referenced, is there's no -- Rite Aid is not mentioned in Dr. Haber's deposition. He talks about products in a general sense, but he's giving an opinion that links Ms. Plant's condition for an exposure for that matter to a product that my client sold.

Moving on to Payne. Ms. Payne was a North Carolina resident her entire life. Her family had a beach house, and, I'm sorry, mobile

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home vacation property in what I'll call the lower part of the Myrtle Beach area in the '70s. They then bought a different beach house that replaced the first one in the Windy Hill area, which is closer to North Myrtle Beach and to the North Carolina line.

There's no testimony about going to a specific store. What the two adult daughters of personal -- the statutory beneficiaries have said, they said they thought there was a Rite Aid pharmacy store closest to both the mobile home location during the period of time that that was utilized for vacationing. And that they had some recollection of going to another Rite Aid store that was a few miles up the road, 17 going northeast at other times.

There's no time delineation. But as I've indicated, it would have had to have been -- we're talking strictly about the time period between '77 and '97. And, you know, it's based upon the inventory of stores. We know there wasn't a store in Horry County.

And then again just to make the record of point, they're claiming that Vi-Jon is the culprit of the supplier to whatever product my

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client sold. And that relationship didn't begin until after 2000 so there couldn't have been a sale by my client.

We don't think there's a scintilla sufficient to create a viable inference for the jury that my client is liable in either case on any form or fashion, Your Honor.

THE COURT: Thank you, Mr. Wallinger.

MS. MCVEY: Good morning, Your Honor. Theile McVey again for the Plant and Payne families.

I have to admit that Mr. Wallinger's representation about the facts in this case are accurate.

THE COURT: All right. I will grant the Motion for Summary Judgment with regard to a Rite Aid in both the Payne case and the Plant case. The motion is granted.

And just to be sure about housekeeping, I have recited the Plant 2022-CP-40-1265 into the record. And with respect to Payne, it is 2022-CP-40-01281. And summary judgment is granted to Rite Aid as a defendant in each of these cases, and it, therefore, is dismissed from each case.

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All right. Next is Payne dispositive motions. The first is Charles B. Chrystal. This is the plaintiff's Motion for a Damages hearing and, the defendant's Motion to Lift Default.

I guess we ought to go in reverse order?

MS. MCVEY: That's fine.

THE COURT: Defendant Chrystal, then, come forward.

This is 2A on our agenda. This is the Payne case, and this is defendant Charles B. C-H-R-Y-S-T-A-L.

MR. RAWL: My name is Vic Rawl, R-A-W-L. I'm with the law firm of Gordon & Rees, and I represent Charles B. Chrystal.

THE COURT: Victor, it's very good to see you. How are your parents?

MR. RAWL: Very nice to see you also. They are doing just fine.

THE COURT: Good.

MR. RAWL: Thank you for asking.

So just briefly, Charles B. Chrystal has two motions today. One is a Motion to Dismiss based on 12 B1, 12 B2, 12 B5, and 12 B6, and also a Motion to Set Aside the entry of Default.

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THE COURT: And you may argue those together, of course.

MR. RAWL: Thank you very much, Your Honor.

Just a little background in the start. Initially, Charles B. Chrystal is a company that is formed in New York, and it is headquartered in Connecticut. The -- this is somewhat interesting because the plaintiffs allege that they served Charles B. Chrystal through its registered agent in Connecticut, and it's alleged that they were served back in August of 2022.

But what started here is that there was never an Affidavit of Service filed in the case. The actual Affidavit of Service still has never been filed other than it was attached to Ms. McVey's Affidavit of Default in January.

As the Court knows, that Affidavit of Service is required within ten days of service. And the initial question is why and was there some acknowledgment that there was a problem with the Affidavit of Service.

Now, as the Court knows, often many of us lawyers -- and this is a new client for me, so I don't know with this client, but many lawyers

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track when their clients are sued and then when there are filings. And so if somebody was watching this -- these filings, they would not know that Charles B. Chrystal has been allegedly served with the complaint in this case.

And, you know, in -- excuse me. On January the 12th, '23, plaintiffs, basically four months after they alleged that Charles was served, the first Affidavit of Entry of Default, and still a question of why they waited so long, but that was filed on January 12, '23. That was a Thursday.

And you'll see there's an affidavit attached where the entity states that it quickly arranged to hire counsel. They hired me with Gordon & Rees. I was retained on January 17, 2023, which was a Tuesday afternoon. And then was just three days after, they were notified of the entry of default. And then three business days later, I filed the attached Motion to Dismiss.

And, Your Honor, the Motion to Dismiss was filed first because there is an allegation that my client was never served with a default on papers. He was never personally served. He

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submitted an affidavit saying he was never served. And so, you know --

THE COURT: We're getting apples and oranges in here. I know he claims he was never served with the initial suit papers when Charles B. Chrystal was added as a defendant in this matter. That would have been August 10th, 2022. Then you are also saying that he was not -- is he contending he was not served with the Affidavit of Default?

MR. RAWL: No, ma'am. He received the --

THE COURT: I know you say it's required -- it requires that it be served within 30 days. Okay. Was he ever served -- was he served on January 12th, 2023?

MR. RAWL: With the affidavit of -- with the affidavits of default, he was served with that. He was never personally served with the summons and complaint.

THE COURT: Well, I know he claims that they got a process server saying he delivered it to this house, they show a picture of it and so forth. And say they got another affidavit in there that says Charles B. Chrystal has been sued a lot of different times. This same



process server up in Connecticut has served many papers, same guy, same place.

So you got that going. And you say they never -- they didn't timely file the Affidavit of Service. And then you further say, if I understand it -- when was he served with the Affidavit of Default?

MR. RAWL: He was served with the Affidavit of Default --

THE COURT: On January 12, 2023, right?

MR. RAWL: That was -- it was either he received it that day or it was FedExed that day and he received it the next day. It was within a couple of days. There's no dispute that he received it and got it.

THE COURT: He ultimately got it, and it contained a copy of the Affidavit of Service?

MR. RAWL: Yes.

THE COURT: Okay.

MR. RAWL: It did, yes.

THE COURT: I got it. You say that doesn't comply with 5(b). You're not waiving anything by clarifying that.

MR. RAWL: No, ma'am. With the regard to the Affidavit of Service, it should have been



filed within ten days of the original claim of service.

THE COURT: Sure. I understand.

MR. RAWL: That's my only point, Your Honor.

THE COURT: I understand.

MR. RAWL: And so, you know, first of all, the entity acted quickly and hired me within three business days. Within four business days after that, I was able to do an investigation and file a Motion to Dismiss. And the Motion to Dismiss is based, one, on lack of service; but, two, also, even if it is -- if he is in default, the entity can still challenge the sufficiency of the papers and jurisdiction. And that the Court --

THE COURT: Let's cut to the chase. He -- you got involved. You immediately contacted them and said, you know, I'm involved. Is there any way we can come to any terms about the case? And they say that you never mentioned the problem about service until later.

And that they inquired several times, their lawyer did, McVey's brother, Branham, said, you know, is there some issue of service? And you



all never got back to them or said anything that there was an issue of service. And then ultimately you made this claim to set aside.

MR. RAWL: Well, basically, yes. I mean, what Mr. Branham said is accurate. He did have an email and he did make a request of, you know, counsel -- not me -- whether or not there was an issue with service, they were looking into it and had not responded yet. They never said there wasn't an issue of service. They just did not, you know, say. Of course, this is South Carolina law.

And so when I was retained, and I wasn't retained until the 17th, and so my investigation was very quick. And, of course, you always hear about the entities that are -- the person is in Europe when there's an allegation of personal service in the U.S. And so, you know, when it went through all the factual allegations, you know, one of them is were you personally served as this affidavit says? And as he stated in his affidavit, no, he was not.

And so I got back as quickly to them as I could. I had to do a very fast investigation in order to promptly, you know, file papers. But

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the reason that the Motion to Dismiss was filed first was, one, because, you know, we don't think that the entity was ever properly served. And so, you know, in abundance of caution went ahead and responded with a Motion to Dismiss.

But also even if it was properly served, you know, under South Carolina law, you know, the Court still must have personal jurisdiction, subject matter jurisdiction in order to proceed against the entity. And also even in a default situation.

And also with regard to, you know, if it does have personal jurisdiction, then -- and I'll just cite the cases -- that a default judgment may be avoided or set aside on the grounds that the complaint fails to state a cause of action. That's Mutual Savings and Loan, 274 South Carolina 630 (1980).

A defaulting party does not waive its objection by suffering the injury of default. That's the Masters v. Rodgers case, 283 South Carolina 251 (1984).

And then there's another case, the ancillary rule provides a default judgment granting relief beyond the well-pleaded

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allegations of the complaint. This without authority and must be set aside. That's Blakely v. Wright, 296 [sic] South Carolina 6 (1977).

And basically the Court, you know, state an objection to the -- does not state facts sufficient -- the cause of action is not waived by default. And so based on that law, and then also the law that before default judgment may be entered, the plaintiff must prove that the Court must find there is jurisdiction over the defaulting party. And that's State ex rel. Medlock. And that's 286 S.C. 486, Court of Appeals (1985).

And then later the Limehouse decision. It stated without jurisdiction --

THE COURT: I know that law well.

MR. RAWL: I apologize. I didn't cite it in my brief, so I just want to make sure that the Limehouse case is cited.

So for that reason, one, we moved based on that there was -- the complaint was actually never served on him so, you know, never processed.

Also, we also moved for -- based on lack of personal jurisdiction in the -- on the face of

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the complaint that the plaintiffs literally only restate the -- in a conclusory fashion the South Carolina long-arm rules. And there are no specific facts with regard to jurisdiction over Charles B. Chrystal other than conclusory allegations, which the Court, of course, knows, that says you can't just restate the long-arm factors in the complaint and that be sufficient for jurisdiction.

So in the face of the jurisdictional arguments, we -- well, one, Charles B. Chrystal submitted the affidavit, you know, stating that.

THE COURT: It is just a battle of who's telling the truth. Your client says he was visiting some person other than -- 89 miles away when the service was allegedly served. This guy says I know this guy because I've served him ten different times or whatever, 12 different times, whatever it is, and he described Mr. Bo Prybyla or whatever his name is --

MR. RAWL: Prybyla.

THE COURT: -- the head of Charles -- the Charles Chrystal Company. So it's a battle of them as to who's telling the truth about whether he was sued.

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The process server says he knows this guy, and he served the guy personally.

MR. RAWL: So, Your Honor, respectfully, there are two issues. One, whether or not he was served, and that is going to be a question of fact. Do you believe the process server, or do you believe the entity that -- the person that submitted the affidavit?

The second issue is, does the Court have personal jurisdiction at all of the case.

THE COURT: There's plenty of averment about this Chrystal being one of the suppliers of talc to products that she used that she alleged contained talc that had asbestos in it. So that's what they're in the business of doing is supplying talc.

MR. RAWL: Your Honor, I'm not going to dispute what you're saying. There's nothing in the complaint about any specific product that CBC produced, any product that CBC supplied to, any product that has CBC in it. I mean, with regard to what the complaint states, the complaint only references CBC in -- you know, in the -- I think it's almost a hundred pages -- only references CBC in one paragraph. And what

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that paragraph, you know, states is that -- is that CBC --

THE COURT: I've got that.

MR. RAWL: So, I mean, it's an and/or. So it actually doesn't allege that it supplied talc. And then it states that CBC is, you know, listed as a talc defendant, you know, in the specific language they use.

THE COURT: I understand.

MR. RAWL: So, I mean, there's nothing -- there's no facts that are pled. And as we've heard before, Your Honor, with regard to summary judgment, all these issues have to do with this specific product produced by this specific entity supplied by this supplier. There's nothing on the face of this complaint --

THE COURT: I got that, Mr. Rawl.

MR. RAWL: And so from a standpoint of, you know, with regard to the Motion to Dismiss, you know, the -- my clients submitted an affidavit, you know, showing that it has no ties to South Carolina. It has never sold any products to any makeup in South Carolina.

THE COURT: I understand.

MR. RAWL: And so based on that, the

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plaintiff did a responsive affidavit to the personal jurisdiction issues, focused only on the process server. What I argued in the motion on behalf of Charles B. Chrystal is that the process server did not state how they knew who he was, only these issues. And in response, you know, they got another affidavit from the process server, but the process server only says --

THE COURT: Mr. Rawls, I've got a lot of motions to hear today. I understand these averments very well.

MR. RAWL: And I just want to respond to a couple of things, if you don't mind, Your Honor.

With regard to an entity in default, in these cases, I think it's a very big deal. And so I think it's important to point out that the affidavit from -- the second affidavit from the process server states only that he served this person. Still doesn't say how he knew who it was, still doesn't say he saw a driver's license, still doesn't say he saw a picture. The picture was --

THE COURT: Mr. Rawl, the averment they make in aid of his verification was made in an

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affidavit where he says he knows this guy because he served him ten different times with things for the Charles Chrystal Corporation. He describes him physically. I understand what you're arguing, and I understand what they submitted.

MR. RAWL: All right.

THE COURT: I don't think we need to plow that ground anymore.

MR. RAWL: May I make one point?

THE COURT: I think I understand --

MR. RAWL: All right. Okay.

THE COURT: -- the arguments.

MR. RAWL: So from a standpoint -- the personal jurisdiction arguments are the same ones you've heard, I'm sure, before. The -- you know, he submitted an affidavit with regard to regular personal jurisdiction in this case saying that there are no contacts. He's never sold any product. There is no affidavit that was submitted in, you know, opposition.

THE COURT: You said that before. I understand this argument.

MR. RAWL: The same argument --

THE COURT: Mr. Rawl. Mr. Rawl.

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MR. RAWL: -- heard before in regard to the door closing statute, so I won't repeat that one. And then with regard to, you know, if the Motion to Dismiss is denied, we also have a Motion for Relief from Judgment, which, again, restates those same arguments as the basis for the grounds and also states, you know, as put in the affidavit, you know, Mr. Prybyla's belief that he had not been served. And if he had been served, he would like to be out of default and have to ability to prosecute this matter.

THE COURT: All right.

MR. RAWL: Everything else is in my brief. Thank you, Your Honor. Any questions?

THE COURT: No, sir. Thank you.

MR. RAWL: Thank you so much.

THE COURT: Thank you, sir.

Ms. McVey.

MS. MCVEY: Justice Toal, thank you. I'll be very brief. I just wanted to go over a couple of things.

As you know, this case was first filed in March of 2022. We filed an amended complaint to name Charles B. Chrystal in August 2022.

The registered agent was served on

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August 9th of 2022. Personally served.

THE COURT: Well, there's a -- the -- explain -- some documents say August 9th and some say August 10th. Now, what I'm looking at says August 10th.

MS. MCVEY: So I think he was served on the 9th, and the Affidavit of Service was filled out on the 10th, if my memory serves me correctly. I can pull the documents, if you like.

THE COURT: All right. The affidavit of Mr. Prybyla says the Affidavit of Service was signed by a person -- service affidavit says that on August the 9th, 2022, at 6:36, I received this material. That's what the process server says. And then he says on 8-10-22 is when I served him.

Am I right or wrong about that?

MS. MCVEY: Your Honor, I can pull it if you want, but we can see either the 9th or the 10th. I can get the actual date for you.

THE COURT: All right. Well, it makes some difference because, one, if the Prybyla's affidavit, the guy served, says that he -- on August the 10th at 4:58, he was away from home. If it was served at some time, then that doesn't

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make any difference. And that's what I thought to begin with and made a note when I read this thing the first time. I'm now kind of confused about what exactly the deal is.

MS. MCVEY: Judge, can I get that --

THE COURT: The affidavit, by your argument, this is Plaintiff's Motion for Damages hearing. And this is Charles B. Chrystal's Motion to Set Aside. They quote the thing saying "An unsworn portion of the affidavit is not good. An unsworn portion of the affidavit states, "Came to my hand on Tuesday, August 9, 2022, at 6:36. Executed at 89 Coachlight Circle on Wednesday, August the 10th, 2022, at 4:58 p.m."

So what his affidavit says is he got this material, "comes to my hand August 9th."

He executed service or is he talking to the executed service? I think he is because it says "Executed at 89 Coachlight Circle" -- that's where the guy lived -- "at 4:58 p.m. on Wednesday, August the 10th, by delivering to within named Charles B. Chrystal, by personally delivering to its registered agent, Bohdan Prybyla, First Amended Summons and Complaint

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with Path Report."

Now, I'm quoting out of a document prepared by them, which may or may not be right. I'm not looking at the affidavit right now, but it might be helpful if you do.

MS. MCVEY: Yes, ma'am. Hold on two seconds. I'm sorry.

Judge, I'm going to have to pull it for you. Thank you.

THE COURT: Thank you.

MR. RAWL: Any time.

MS. MCVEY: I'm sorry, Judge. I was trying to be efficient.

THE COURT: After you take a look at it, bring it up here to me. I want to take a look at it.

MS. MCVEY: He is saying -- you're right.

THE COURT: All right. This is an affidavit in the Payne case, 2022-CP-40-01281. It has our caption on it. It says Affidavit of Service. First thing it says, "Came to my hand on Tuesday, August the 9th, 2022, at 6:36 p.m. Executed at Coachlight Circle, Connecticut, 06712, at 4:58 p.m. on Wednesday, August the 10th, by delivering to the within named Charles

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B. Chrystal Company. Personally delivering to its registered agent, Bohdan Prybyla, true copy."

MS. MCVEY: So, Your Honor, you're right.

THE COURT: And then he sworn and subscribed to it on August the 12th, 2022.

MS. MCVEY: You're right.

THE COURT: I think that's the sequence of things. This process server served it on August 10th.

MS. MCVEY: That's right. And that's when the registration says he was out of town.

THE COURT: Right.

MS. MCVEY: I'm sorry about that. I had my date mixed up there.

So the 10th is when he was personally served. He says he was not. We filed an Affidavit of Default -- our Motion for Default on January 12th.

THE COURT: Now, first thing he says is, Rule 5(b) Civil Procedure says you have got to file the affidavit within ten days of service.

MS. MCVEY: Yes, ma'am. So I want to address that because there's a case right on point with that. And that case is Beckham v.

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Durant, and it is 300 S.C. 329.

And what that case specifically says, "Nowhere does Rule 5(b) provide failure to file proof of service within a ten-day period nullifies the service or extends the period of time for a defendant to answer."

So whether we did or didn't doesn't affect they had 30 days from the date of service to answer the complaint.

Your Honor, so what I just want to walk through a little bit what happened before my friend Mr. Rawl got involved. Because there have been many times where something has happened, a lawyer doesn't answer the complaint on time and we always let him out on default. Right? It happens to the best of us. I get it. This, of course, is not Mr. Rawl's problem, right, or any other lawyer problem, I don't think.

But we served that Motion for Default on January 12th. On that same day, we filed the Motion for Default, but it hadn't yet been served on the registered agent January 12th.

We get a call, an email, from a Julia Nolan, who is an attorney for Charles B.

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Chrystal. She contacted us and said, "What's going on with this Motion for Default?"

And we say, "We're happy to talk to you about it. Is there any problem with service? Is there something wrong?"

If we did something wrong with service, we'll let you out. Right?

She doesn't raise anything about service.

January 13th, we, again, say you want talk -- let's talk about this. Let's see what's going on. So Mr. Branham and Ms. Nolan have a conversation. They ask us to withdraw the Affidavit of Default, Motion for Default. And we say tell us why. Is there something with service? Is there something we don't understand? They don't respond.

She only asks for information of the court reporters to get the transcripts of fact witnesses. Which we give her.

January 17th, we still have not heard from Charles B. Chrystal. This is before Mr. Rawl gets involved now. That's four days later.

We call them and say -- or we check with them and say tell us about service. Any problem with service? And we say, by the way, the

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mediation in this case is this week. Why don't you all come to the mediation, we'll figure it out.

January 18th, you enter the Order of Default. The Administrative Order of Default. On January 19th, this is the first time we are contacted by Mr. Rawl, he says, I've now been retained. Okay.

Now, we hadn't served the registered agent until January 16th, but the lawyer for CBC knew about it on January 12th. Which tells me she likely knew that they had been in this case all along. Okay?

January 20th, we speak to -- Mr. Rawl, still at that point on the 19th, doesn't say anything about a problem with service. And I don't blame him. He didn't know yet what maybe some of the issues were.

January 24th, we speak to him again, and he, for the first time, raises the issues with service.

So on January 26 or January 24th, we say, Look, you're saying there's no problem with service. We're saying our process server has served this guy 12 times in a year. And it's

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not like it's some corporate registered agent in a big office building. It's his house. His personal house that he owns. It's not there's a bunch of people being mistaken for the registered agent. And our guy described him in his affidavit.

We say, All right, we hear you Charles B. Chrystal. You say you were out of town. Let us take your deposition. They refuse.

Now, we have made a prima facie case showing default is appropriate. They've refused to give it -- they gave it blanket affidavit, that I personally have trouble believing. But that's all right. That's fair. Let us depose you. They refuse.

And, Judge, under the Graham v. Makawi, Graham Law Firm v. Makawi. It's a Supreme Court case, which I think you authored. 2011 396 S.C. 290. And I have a copy of it, if the Court would like it.

But it says, you know, you can't just have these affidavits that are making these factual statements. You're allowed to do discovery on them, if they ask.

They refuse. Your Honor, that weighs

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against them in terms of whether or not our person was served.

Now, just briefly on personal jurisdiction. CBC was a supplier of talc much like Whittaker Clark and Daniels. We know they supplied just at minimum to Avon and Mary Kay. Those are real players in this case.

The personal jurisdiction, as to Payne, they owned a beach house and a beach trailer here. They spent summers here. She used her makeup here. The talc was here. They supplied talc into South Carolina. They availed themselves of South Carolina. We believe that we survive both door closing and the personal jurisdiction challenges. We believe this default should be upheld.

And here's the other reason. It would be prejudicial. This case is starting next week. They ought to have to sit here in court. They can contest the damages. They won't be able to connect liability if you hold them in default. They can certainly cross anybody on damages.

But if you let them out, we haven't been able to do all the things that we need to do to get ready for that. And that's the extreme

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prejudice to the plaintiff, Your Honor. And I'm happy to answer any questions.

THE COURT: Thank you, ma'am.

MS. MCVEY: Thank you.

THE COURT: Mr. Rawl, in reply.

MR. RAWL: Yes, briefly, Your Honor.

THE COURT: Vic, you want your affidavit back?

MR. RAWL: If you don't mind. Thank you, ma'am.

You know, initially with regard to the 5(b) issue, I will say I think that Ms. McVey is accurate with the way she stated that law. I would only point out that it adds to the confusion with regard to what was going on in the case. So not to suggest that if that service was good, that that's undone by 5(b); however, it does add to the confusion with regard to whether or not and why and would be a basis to get out of default.

With regard to the communication that was had between Plaintiff's counsel and other counsel before me for CBC, I would have to presume that what was said was accurate by Mr. Branham's affidavit. And that they did ask

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about the service -- talked about a few minutes ago.

I don't know that they would have understood all the nuances of South Carolina service. But what is interesting is what Mr. Branham states in his affidavit is that he asked was there any issue with service? She did not respond. They -- counsel before me asked for relief from default. They said no.

So my question is -- I'm not really sure why the question of service was continually asked. I mean, what is it --

THE COURT: I think she explained that. She said, Look, we are easy about that and, you know, we've got a mediation coming up. If we can -- if that's the contention, let's talk about that, participate in mediation, we can get on, move forward. She explained why they cared about that.

MR. RAWL: Yes, ma'am. And so the next thing that happened was I did get involved, and I learned what was put into the affidavit. But before that, I did email Ms. McVey and Mr. Branham and say I'm now representing them. They state they spoke with me on the 19th. That

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was during the mediation.

I said, I'm aware that you've asked for CBC to participate in medication. Can you make a demand? And we had a nice conversation, and they did make that demand.

You know, from the next time I spoke with Mr. Branham is after this affidavit, which is on the 24th. He called me after the Motion to Dismiss, and the affidavit had been filed. And he says, I see your affidavit. He explain he's not been served.

And I said, but that is -- you know as of right now, which is what he stated in the affidavit.

He then asked will you consent to accept service -- can you accept service for the, you know, his deposition? Will this person and the national counsel, you know, agree to be deposed in this case? And I believe Ms. McVey was actually nice enough to attach my email in response. My response was they will not agree to be deposed at this time. There's several bases to --

THE COURT: Mr. Rawl, I'm going to tell you, this little motion is in a calendar that's

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got 70-some motions. We can't go on like this.
MR. RAWL: I will sit down. All I will say was there are lots of grounds to be relieved from default. You know, the factual issue only relates to one of them. I would think that the Court would have to order discovery if that's what you want. And that was the last we discussed it.
Thank you, Your Honor.
THE COURT: Thank you.
All right. The Motion for -- to Lift Default by defendants Charles B. Chrystal is denied. Plaintiff's Motion for Damages hearing is granted. And it will be -- it will occur when the matter is tried.
If the matter is not tried by means of other activity that takes place that resolves the matter, then we will conduct a damages hearing at some appropriate time.
That is the ruling in the case.
All right. All right.
MR. RAWL: Your Honor, may I ask for clarification? I'm not sure I understand. I understand that you have denied the relief.
THE COURT: I've denied your motion. I've

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granted her motion.
MR. RAWL: And is there a date set for the damages hearing then? I'm so sorry.
THE COURT: Mr. Rawl, this case is going to be tried beginning next Tuesday.
MR. RAWL: Yes, ma'am.
THE COURT: In the liability portion of the case, I will not be conducting any damages hearing. In the damages portion of the case, you may participate. If the case totally resolves, I will set a damage hearing for you all at another time. And that's it. I am not spending another piece of time on this case.
MR. RAWL: Okay. If I may just ask, is the jury to be deciding the damages in the damages hearing?
THE COURT: Of course.
MR. RAWL: And is to be the same jury that is hearing the liability in the other matters?
THE COURT: Yes. And I tell the jury the liability is to be presumed with respect to the corporation Chrystal.
MR. RAWL: And just for the record, may I please just state an objection with regard to, one, that would be prejudicial.

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THE COURT: I think you're going to have to put that on the record when the case is tried.
MR. RAWL: And to that, just for the record for now, if it's prejudicial, it will be that the nondamages evidence will be irrelevant. It would be confusing to the jury. But also that to have the same jury --
THE COURT: Mr. --
MR. RAWL: Your Honor, I think the statute --
THE COURT: Mr. Rawl, I am not going to hear arguments about this at this time. That is a matter to be taken up when the case is tried.
MR. RAWL: Thank you.
THE COURT: Thank you, with all love and respect.
MR. RAWL: Thank you, ma'am.
THE COURT: All right. It's a quarter to 12. Court Reporter, how are you feeling?
THE COURT REPORTER: I need a break in a little bit.
THE COURT: Very good. Mary Kay. Motion for Summary Judgment, Payne.
MS. MCVEY: Just briefly. That clock just made me worry. It's not correct. It's actually

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11:08. I'm happy to take a break at any time.
THE COURT: Thank you so much. It is 11:08. I was looking at my watch. As usual, in this courthouse, which is a disaster, not even a clock is right. But okay.
MR. SCHWEGMANN: We can make this one pretty easy, Your Honor, because my arguments are exactly the same as before. I'm attempted to remind the Court of what Mr. Emerson said about consistency, but ...
THE COURT: The hobgoblin of little minds.
MR. SCHWEGMANN: I think that's right, but under the circumstances, our arguments are the same. Thank you, Your Honor.
THE COURT: Thank you, sir, very much.
The same rulings will be made in the Payne case with respect to Mary Kay's very well-pled, well-argued Motion for Summary Judgment. The motion is denied.
All right. Then the next thing I've got on the list is Colgate Palmolive Mennen.
MS. MCVEY: And, Your Honor, that one settled last night. And so I forgot to strike it off.
THE COURT: It is resolved.

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MS. MCVEY: Yes, ma'am.
THE COURT: All right. Then the next I've got is Whittaker Clark and Daniels Motion for Summary Judgment.
MS. FLYNN: Yes. I'm sorry, I can't say --
THE COURT: Hold for a second. Let me be sure I get my place right.
Okay. I'm on the right page now. You may proceed.
MS. FLYNN: Yes, Your Honor. Stephanie Flynn for Whittaker Clark and Daniels.
Your Honor, our basic argument is the same, but the products are different that we're arguing over in this particular one.
We went through, we tried to identify where we could have supplied talc and into what products that Ms. Payne could have potentially used.
The plaintiffs have come back and identified four products they believe that Ms. Payne used and as to which they claim that Whittaker supplied the talc. And that was Avon's Cotillion Body Powder, Colgate Cashmere Bouquet Body Powder, Cover Girl, and Mary Kay.
As to Avon Cotillion Body Powder, the issue

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there is they have all the formulas for Avon Cotillion. But what they submitted in response to our Motion for Summary Judgment were all the formula cards with regard to Skin So Soft.
THE COURT: With regard to which?
MS. FLYNN: Skin So Soft.
THE COURT: Skin So Soft, yeah.
MS. FLYNN: So they didn't supply the formulas that would be required to show the link with Cotillion Body Powder but only the Skin So Soft.
THE COURT: So the products you supplied were Avon Cotillion, Cashmere Bouquet, Cover Girl, Mary Kay, right?
MS. FLYNN: Correct.
THE COURT: And you're saying you've got formula cards for what?
MS. FLYNN: There are formula cards for Cotillion, but they, in response to our Motion for Summary Judgment, they just produced the formula cards for Skin So Soft, which is not at issue in the case.
THE COURT: And you didn't get any formula cards for Cotillion, Cashmere Bouquet, or Cover Girl?

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MS. FLYNN: Not for -- we can get to the other ones. I don't believe so for any of the other ones either, for that matter.
THE COURT: So you didn't get any formula cards. All right.
MS. FLYNN: Correct, Your Honor.
I don't think the formula cards for Skin So Soft really show the link. They show that Charles Matthew is the supplier. But they also said that Ms. Payne used Avon cosmetic powder, which is contrary to the testimony of the daughters. So we think that should be disregarded. And that the plaintiff should be limited to showing whatever evidence they have limited to Cotillion, which they have not done in connection with the Motion for Summary Judgment.
So moving on to Cashmere Bouquet. Cashmere Bouquet, also Colgate's discovery responses show the supplier for that was also Charles Matthew as the supplier.
It seems maybe the plaintiff is going to be making the argument that maybe Whittaker brokered the sale between Charles Matthew. Maybe it was some sort of middleman. But

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Whittaker Clark and Daniels sales records do not show sales to Colgate during that time frame.
We think the evidence they have relied on to try to make that association that we were somehow between another supplier and the ultimate manufacturer is based on hearsay and evidence that shouldn't be admissible at trial, including a deposition from 2013 which Whittaker was not a represented party.
So for that reason -- Whittaker has also addressed some of those questions in the past in connection with some of that evidence that they admitted and has confirmed that they have no knowledge of where Colgate got the talc specifically for Cashmere Bouquet because it was not from Whittaker.
Moving on to Cover Girl, one of the daughters said she recalled her mother using Cover Girl. The other said she did not. Ms. Lancaster, one of the daughters, only recalled her mother's use of a loose and pressed face powder. And I'm not going to stand up here and deny that Whittaker didn't supply to Cover girl. They did. The missing link here is the formula in that regard.

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We know there were other suppliers for Cover Girl products, and we don't think a jury should be allowed to guess as to whether Whittaker talc -- talc supplied by Whittaker made its way into the specific product that Ms. Payne used.

And the last one I wanted to address was the Mary Kay. In this particular case, the plaintiffs claim that Ms. Payne used Mary Kay products and sold Mary Kay products from 1970s into the early 1980s. They also said that Whittaker sold hundreds of tons of talc 1615 and 141 in their brief.

The records of sales, what they show on that is the sale of 141 talc was so minimal, there's virtually no likelihood it would have been actually used in the manufacture, certainly, if anything -- with any large quantity. Back over the seven years, I think there was a total of seven bags sold; one, very early on, and then six at the very end of that period. So not enough to do anything with it.

1615 was supplied in a greater supply, so I'm not going to dispute that. However, the only formula produced by Mary Kay that



references that particular talc code, that 1615, was the Facets Dusting Powder, and that was 1979. And the daughters were asked specifically many times and were very, very clear that their mother did not ever use Mary Kay Body Powder, period.

So we've got no link there between the 1615 and any Mary Kay product or any product rather that Mrs. Payne would have used from Mary Kay.

They've offered again some formulas related to eye shadows, however, the talc supplied for that was talc USPS Zero Supreme from Cypress from.

So for those reasons we especially believe the link between Mary Kay is clearly severed in this case, and that plaintiff should be not allowed to introduce evidence regarding that during the trial of the case.

So for those reasons, Your Honor, we believe there's no evidence of a link between Whittaker and any product Ms. Payne used, and for that reason, we would request Summary Judgment.

THE COURT: Thank you, Ms. Flynn.

All right, sir.



MR. BUHA: So I will focus on three of the products. I will not have any further argument about Cashmere Bouquet or Colgate/Whittaker supplies to that. I will address the Court as the Avon Cotillion, Cover Girl, and Mary Kay.

First as to Cover Girl, there's testimony that there is use of various face powders, blushes, both compact and loose powders from the early 1980s to the late 1990s.

We did, in fact, submit formulas from Cover Girl, and those are at exhibits 148, 152. And those stretch from the years 1976 to 1982. And they say -- they specify talc 1615, which is a Whittaker Clark and Daniels code for Italian talc; and talc 141, which is a Whittaker Clark and Daniels product number, as the Court understands.

So in addition to a statement from Whittaker Clark and Daniels that there are sales records throughout that time period, we do, in fact, have formulas for the very same types of products -- the very same products that Mrs. Payne's daughter identified.

As to Avon, counsel for Whittaker Clark and Daniels is correct. We submitted the wrong



exhibit as to the specific body powder. We submitted as to Avon Skin So Soft rather than Avon Cotillion. I would ask, given that counsel stated that those formulas were provided, if we could supplement the record and switch out the particular exhibit that identifies those formulas because they say the exact same thing.

THE COURT: Even if you don't have it for one of them, you've obviously got some formula cards and so forth that indicates supply of Mary Kay and of --

MR. BUHA: Yes. I think that we have evidence of --

THE COURT: -- Whittaker Clark and Daniels in it with some of the other affidavits you have, right, with the other products?

MR. BUHA: Yes. We have Whittaker Clark and Daniels on other products as well in addition to Cover Girl, Avon, and Mary Kay.

THE COURT: Right.

MR. BUHA: And so, briefly, if anything further is needed, I can just say Avon Cotillion is the same formula as Avon Skin So Soft. We have -- it's a complex set that we have in our brief, but we have sales records showing in

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particular as to one of the two halves of the specified formula for Avon Cotillion and Skin So Soft, Whittaker Clark and Daniels product talc 2450. And then for the other half of that product is an Avon code called Avon 0815, and that in their specifications says talc 4608, which is a Whittaker Clark and Daniels craft number.

And there is an Avon product that we submitted and an authenticated Avon document that says that that particular Avon code had Whittaker Clark and Daniels' labels on it.

Very long way of saying that there are sales records and Whittaker Clark and Daniels' products specified in Avon's formulas, and there is sales records that involve reasonable inference in our favor as to Mary Kay, I think we get there as well.

If there's any further questions, otherwise I'll sit down.

THE COURT: All right, sir.

Ms. Flynn, in reply.

MS. FLYNN: Just very briefly, Your Honor.

We do believe there's a clear, distinct cutoff with the Mary Kay products. That wasn't



specifically addressed.

Cover Girl, the issue I think I admitted we do have sales to Cover Girl for sure. The only question there is Cover Girl has so, so many products, and that's what we don't know. We don't know if it made it into Color Stay, a pressed powder. And we don't know if it made it into whatever they called their many different lines of eye shadows, and that's the disconnect there. We just don't know.

And then Avon not having had the Cotillion Body -- or the formulas submitted in connection within this, we believe that it was only ever an alternative for talc used in the Cotillion Body Powder; and, therefore, it's hard to know whether talc from Whittaker Clark and Daniels would have made it into this specific body powder that Ms. Payne used.

THE COURT: Right.

MS. FLYNN: That's all I have, Your Honor.

THE COURT: All right. This is Payne. We've already dealt with Plant. In this one, Whittaker Clark and Daniels' Motion for Summary Judgment is denied. Looking at the averments in the light most favorable to the nonmoving party



and the multitudinous factor and material submitted on this point, there is at least a scintilla of evidence to suggest that Whittaker Clark and Daniels supplied talc to manufacturers of several of the products that both Ms. Plant and Ms. Payne were exposed to and at least enough information about expert testimony on this point to support at this time the contention that the use of Whittaker products -- products made with talc supplied by Whittaker Clark and Daniels at the exposure times for each of these plaintiffs was sufficient to withstand a Motion for Summary Judgment and sufficient to support at least the averments at this point that the use of these products was a substantial contributing factor to the contraction by each of these individuals of mesothelioma.

And, therefore, the Motion for Summary Judgment is denied.

All right. Chanel. This is Chanel's Motion to Dismiss. Is it a 12(b)(6) motion?

MS. MALIK: It's a Motion for Summary Judgment, Your Honor.

THE COURT: So it's said to dismiss -- but this is summary judgment motion?



MS. MALIK: Yes, Your Honor.

I'm Anne Malik from the --

THE COURT REPORTER: I can't hear you. I'm sorry.

MS. MALIK: Anne Malik on behalf of Chanel for the law firm of Orrick, Herrington & Sutcliffe.

Your Honor, Chanel is only a defendant in the Payne case. And the only identification of Chanel products comes from Ms. Lancaster.

THE COURT: Speak up a little bit, please.

MS. MALIK: I'm sorry, Your Honor.

THE COURT: The only identification issue is what now?

MS. MALIK: The only identification of any Chanel products comes from Ms. Lancaster, Ms. Payne's daughter, who referenced -- described three Chanel products. There's two body powders and one loose face powder. She says that she saw those starting in 1990 and going through when she moved out of the house in 1998.

But for all three products, she says that she never saw her mother use them. She knows they were in her bathroom, she described what

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they looked like, but she never saw her use them. And that includes never having seen her use them at the beach house in South Carolina.

She's very explicit about not having seen her mother use these two body powders at the beach house in South Carolina and, in fact, says, no, we would have sold the beach house by the time that we're talking about her using them.

So under South Carolina's door closing statute, which we've already had enough on right now, there is just not evidence that the action that's alleged to have caused her mesothelioma as regards to Chanel occurred in South Carolina.

Regarding that loose face powder, she does say she might have used it, but Ms. Lancaster --

THE COURT: It says, "I have a vague memory of a white canister on her bathroom sink that had the Chanel logo on it. It looked like a powder."

MS. MALIK: Yes, Your Honor. And she says at page 388, which is attached to our motion --

THE COURT: Right.

MS. MALIK: -- that she had not seen her use that powder.

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"Do you ever recall seeing your mother open that powder?"

"I don't recall that."

So the door closing statute is a little different for us, we think, than it is for some of our codefendants where there is a longer period of use where Ms. Lancaster witnessed her mother using the product and indeed actually used some of them herself.

None of that is true for Chanel, and so respectfully, Chanel asks that a summary judgment be granted.

THE COURT: Thank you.

MS. MALIK: Thank you, Your Honor.

MS. GROSS: Good morning or good afternoon, Your Honor.

THE COURT: Don't worry about that.

MS. GROSS: Rachel Gross on behalf of the plaintiff.

THE COURT: The time is 11:30.

MS. GROSS: Afternoon, I guess. It's almost lunchtime.

I want to back up a little bit and talk about --

THE COURT: Have you given your name to the court reporter?

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THE COURT REPORTER: Yes, ma'am.

MS. GROSS: I did.

Talk about what it meant when Ms. Lancaster, Shelby Payne's daughter, saw the Chanel body powder on her mother's bathroom counter. She was very clear in her deposition that her parents' bathroom was small. I think she described the counter as maybe enough room for the sink, and there was not a lot on the sink.

And so what Ms. Payne did, she would have a tray that she left on the back of the toilet, and she would leave the powders, the body powders, depending on the time period, on the back of that toilet tray that she used the most. Everything else she would store under the sink, but the stuff she used all the time she left out.

That's where Shannon Lancaster saw in particular the Chanel No. 5.

THE COURT: And that would have been not in South Carolina, right?

MS. GROSS: Correct. That was at her home.

Now, in terms of South Carolina, what she

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said about the makeup was the expensive stuff, my mom would put that in her makeup bag and she would take it back and forth between North Carolina and South Carolina. In the years in which she used Chanel, it would have been at the beach house, not the trailer.

She remembered seeing the Chanel logo, the double Cs on the -- I think the quote she said in her deposition was "I remember seeing it and thinking, wow, when did mom start buying the good stuff?"

So first of all, she did testify, we put it in our opposition, that she saw her mother use the No. 5. I think it was page 96, lines 18 through 20.

In terms of the makeup, what she said was, "My mother kept it in her makeup bag. She took it back and forth to South Carolina, the beach house and the home, and there was not a day that my mother was alive where she didn't have a full face of makeup on."

THE COURT: You say it's not direct evidence, but circumstantial evidence.

MS. GROSS: That's correct, Your Honor.

THE COURT: All right.

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MS. GROSS: You know, you and I at least have talked about the idea of mine sources. Your Honor is very aware of how that works. Chanel exclusively used Italian talc, by their own admission, through the 2000s.

Italian talc has been tested over and over gain, as Your Honor knows, the presence of asbestos, repeated findings of tremolite and chrysotile.

So I'm not going to -- I'm not going to waste Your Honor's time talking about door closing anymore. We've talked about that several times already today. But certain circumstantial evidence at least that she used it.

And Shannon also testified that if she didn't necessarily see her mother apply particular body powder, she could smell it on her. Chanel No. 5 had a smell. She described the powder and the shaker top to a T. She described the powder to a T. And there was not a day that Shelby Payne was not alive where she did not have a full face of makeup on, testified to at great detail.

So unless Your Honor has any questions for



me?

THE COURT: No, no questions.

MS. GROSS: All right.

THE COURT: Thank you.

MS. GROSS: Thank you.

THE COURT: Yes, ma'am, in reply.

MS. MALIK: Very briefly, Your Honor.

While there is some testimony that it goes back and forth that she may have seen her mother use the Chanel No. 5 powder in North Carolina, she's very explicit she did not see her use it at the beach house. So at least that's with respect to the body powders, we think that the door closing statute should apply to those and that they should not be able to proceed in this case.

Regarding the face powder, she also says she did not see her mother use it. She did see it in her the makeup bag going back and forth. And unlike other products that she did see her use, this one, it just isn't there. As you said, it's meant to be an inference or a guess that she may have used it.

So respectfully we would say that is not enough. Thank you, Your Honor.



THE COURT: Thank you.

All right. With regard to Chanel's Motion for Summary Judgment, the motion is denied.

Looking at the averments and the evidence submitted in the light most favorable to nonmoving party, there is some direct and a good deal of circumstantial evidence which will suggest that the Chanel products were used in South Carolina and, therefore, the motion is denied.

Color Tech.

MS. MCVEY: Your Honor, Mr. Braly is going to argue this one.

Do you mind if I step out for just a second?

THE COURT: That's all right. All right. You may proceed.

MR. KLEINDIENST: Thank you, Your Honor.

Will Kleindienst here for Color Techniques. I gave the court reporter my card. I have an impossible last name.

THE COURT: Thanks very much.

MR. KLEINDIENST: I'm not going to belabor the arguments. This is our motion to dismiss, similar arguments that you have heard today with



regard to personal jurisdiction and closing door statute.

Just to reiterate the point here, Your Honor, that in Plaintiff's Amended Complaint, they just make a blanket allegation and state the -- they don't allege any products that Color Techniques -- Color Techniques was a supplier of talc, and then they don't make any link between the talc and anything coming into South Carolina.

On the closing door statute, I mean, this is kind of the same argument again. There's no, you know, specificity of any of the products in the complaint. There's no frequency or regularity, proximity of the products in South Carolina.

Additionally, in plaintiff's responses to our Motion to Dismiss, they don't make any arguments that there are any specific products that contain any of Color Techniques' talc -- any product that any of the plaintiffs used.

THE COURT: Now what do you do with this? They do make the argument that Color Technique supplies Avon, Coty, Procter & Gamble, Estee Lauder, Whittaker Clark and Daniels. And

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we've already had a good deal of information about the exposure to products from several of these.

So they have specified in the process of answering your Motion to Dismiss, have they not?

MR. KLEINDIENST: They have, yes, Your Honor. So they the allegations there. They have put them in there.

THE COURT: Well, that's all we've got to go with in a Motion to dismiss situation.

MR. KLEINDIENST: That's correct Your Honor. So in that case they did not get to have -- they haven't specified whether that specific talc -- any of our talcum, you know, has linked back to those products, Avon, Revlon, Estee Lauder, that the plaintiff then used it specifically within the state of South Carolina.

So that's the issue that we, you know -- we take with Plaintiff's argument against our Motion to Dismiss.

THE COURT: Sure. And, of course, we know that with respect to Payne, it's the vacation thing. With respect to Plant, it's several different --

MR. KLEINDIENST: Holidays, yeah.

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THE COURT: -- exposures. So in the process of answering these, the motions, they have done a little more specification of the connection to South Carolina, have they not?

MR. KLEINDIENST: They have said -- yes, they have made those allegations. That's correct, Your Honor.

THE COURT: All right.

MR. KLEINDIENST: I won't belabor the point any longer because Your Honor has heard these arguments all afternoon, so at the point if there's nothing else for, Your Honor, I will let my arguments stand.

THE COURT: Thank you.

MR. KLEINDIENST: Thank you, Your Honor.

THE COURT: Mark, there's no need to argue. I will grant the motion -- I will deny the Motion for Summary Judgment or to dismiss with respect to Color Tech on the same basis that I have recited in other motions of this type. That looking at the elements and the responses in the light most favorable to the nonmoving party, summary judgment cannot be granted at this time.

Now, with respect to Rite Aid of

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South Carolina on the Payne case, motion is granted for summary judgment and Rite Aid is dismissed.

I think we have dealt with Charles B. Chrystal's Motions to Dismiss.

MS. MCVEY: Yes, ma'am.

THE COURT: They have been denied as is his request for default.

So now we move forward to Plaintiff's Motion to Consolidate Plant and Payne.

THE COURT REPORTER: Can we take a break before we start this part?

THE COURT: Yes. 20 minutes of 12. Why don't we resume at 12.

- - -

(A recess transpired.)

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THE COURT: Back on the record. The next matter is Plaintiff's Motion to Consolidate Plant and Payne.

Yes, sir.

MR. ROBERTS: Your Honor, Ted Roberts from Womble Bond & Dickinson. Good morning.

THE COURT: Good morning.

MR. ROBERTS: I'm specially appearing for

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three entities: IMI-Fabi USA, IMI-Fabi, LLC, and IMI-Fabi Diana.

And we have pending jurisdictional motions, personal jurisdictions and door closing motions I do not intend to waive by this appearance. That's it, Your Honor. It's just a housekeeping matter before we start up on that motion --

THE COURT: Yes, sir.

MR. ROBERTS: -- to alert the Court to an agreement of the parties.

THE COURT: Yes, sir.

MR. ROBERTS: We have pulled down all our motions for today with exception of personal jurisdiction. We've allowed the plaintiff to take our corporate representative deposition on personal jurisdiction, which they are doing as we speak.

THE COURT: Okay.

MR. ROBERTS: Accordingly, they haven't deposed yet. We are asking for 15 minutes of the Court's time prior to opening at a time convenient to the Court just to be heard on the jurisdictional motions. And given the speed of the jurisdictional motions that I've seen that morning, I think we can achieve that.

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THE COURT: Okay. So when are you wanting to do that, Ms. McVey?

MS. MCVEY: Your Honor, we can do it the first morning of trial, or we could do it on the papers. We can, you know, submit briefs to you, and you can just read them and rule. I need to get -- I need to understand -- I'm not in the deposition, so I'm not sure what the testimony is. I could get with Mr. Roberts and we can get with you after this hearing.

THE COURT: Okay. Let's to that.

MR. ROBERTS: Perfect. Thank you, Your Honor.

THE COURT: I'll arrange something for you. No worries.

MR. ROBERTS: Greatly appreciate it. Thank you, Your Honor.

THE COURT: Yes, sir.

All right. And now the Plaintiff's Motion to Consolidate Plant and Payne.

Ms. McVey.

MS. MCVEY: Thank you, Your Honor.

We filed this Motion to Consolidate because it makes a lot of sense with both the defendants who are remaining, who I expect to be at trial

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and for the judicial resources of this Court.

You know, Rule 42 allows for consolidation, and you have consolidated cases in the past.

Both the Plant and Payne cases are talc cases. They both involve pleural mesothelioma. The defendants that remained in both cases are Mary Kay, Whittaker Clark & Daniels, and Color Tech.

There is one defendant in Plant that is not in Payne and that is IMI-Fabi. That's Mr. Roberts' client. And there are a couple --

THE COURT: Spell that for me.

MS. MCVEY: It's I-M-I F-A-B-I.

MR. ROBERTS: If it helps, there are three entities under that umbrella. We can call it IMI-Fabi, Your Honor, but there's three separate companies with that title and various endings.

THE COURT: Got you.

MS. MCVEY: And then in Payne, some nondefendants are not in Plant are Chanel, who you just heard from; and Avon; as well as Charles B. Chrystal. But they're in default so they're just be dealing with the damages case.

Your Honor, we are in active negotiations with the IMI-Fabi company and with Avon. So my

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expectation is the only nonsimilar defendant would be Chanel. And it's a makeup product. It's talc. It's the same issues.

The experts for the plaintiff in both cases are very similar. They're exactly the same. It's Dr. Brody, Dr. Haber, Dr. Longo, Mark Bailey, and David Madigan.

THE COURT: David who?

MS. MCVEY: Madigan.

THE COURT: Yeah.

MS. MCVEY: Yes, ma'am. And then in the Plant case, there's an expert by the name of Dr. Ripley. He's her treating physician. He's coming live on Friday. He performed the surgery on Ms. Plant.

THE COURT: And he's spelled?

MS. MCVEY: It's R-I-P-L-E-Y.

THE COURT: Treating physician?

MS. MCVEY: Yes, ma'am. And he is only in the Plant case. But I noticed last night that Mary Kay has named him as an expert in the Payne case as well. I'm not sure how that's going to sort out. But at this point, at least, I guess we have him in both.

And in the Plant case, we have Oliver Wood

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and Sarah Lustig, you know, life care planner and economist, because of her age. Those are very short witnesses.

The defendants are using a lot of the same experts, and you're going to hear about those in just a minute. They're not exactly the same, but a lot of them are the same. My memory of what the Court does is we're going to narrow down some of these experts as we go forward.

And so you know, we had two different pathologists in Plant and Payne, and we are not going to call those at this point since diagnosis is not disputed at this point.

Your Honor, we think all of these reasons, that it makes a lot of sense to consolidate these cases and try them at one time; otherwise, we're trying two very similar cases on two different terms.

I'm happy to answer any questions.

THE COURT: All right. I don't want to have a million different people responding, so let's see how we can structure this.

Why don't I hear from -- Mary Kay, Whittaker Clark & Daniels, and Color Tech are in both, right?

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MS. MCVEY: Yes, ma'am.
THE COURT: Why don't I hear from somebody representing Mary Kay, somebody representing Chanel, and somebody representing Avon.
So let me hear from Mary Kay first.
MS. HERZ: Jill Herz for Mary Kay.
THE COURT: And say your name again.
MS. HERZ: Jill Herz.
THE COURT: H-E-R-Z?
MS. HERZ: Correct.
THE COURT: All right. Ms. Herz.
MS. HERZ: Thank you, Your Honor.
I think the first thing the Court should consider is the Amended General Standing Order dated March 2015 which requires the party moving to consolidate to have made that motion within 45 days of the notice of trial.
I understand that notice of trial was issued on October 3rd, which would mean the plaintiff would have needed to move to consolidate by mid November or about three months ago.
These are different cases and consolidation is not appropriate in our opinion.
Ms. Plant was 34 when she was diagnosed.

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She was born in 1986.
Ms. Payne, I think she was born in 1937. She was just shy of her 85th birthday when she was diagnosed.
Ms. Plant is living and currently the news is good. There's no evidence of disease.
Ms. Payne has passed away about a year ago in April.
These ladies used different products at different times separated by perhaps 25 years in their products use.
It's not the same case. And consolidation was not something that the plaintiffs sought while two separate cases were being litigated and discovery was unfolding.
The plaintiffs sought two separate depositions of Mary Kay's corporate rep, and that's how the case unfolded until now.
We hope the Court does not consolidate these cases now. We think that would be extremely prejudicial, unfair. There was no consideration for economy when these cases were being litigated. And we think -- we think there are deficiencies for the plaintiff in both of their cases, Plant and Payne. And we see the

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effort to consolidate these cases now to hopefully let the Payne case benefit from Ms. Plant, who's still alive with young children, and to let Ms. Plant benefit from the fact that Ms. Payne has succumbed to this disease.
We would like the Court to continue to leave these cases separate, and we'll try these cases separate. We think it would be extremely prejudicial to consolidate. Thank you.
THE COURT: Thank you, Ms. Herz.
You know, I don't think I need to hear anything else. I had some concerns. As asbestos cases are such a tough impact on the system, you know, to get someone that's got as many miles as I've got manage this docket is in itself a reflection of how our dockets are here in South Carolina and all over the country.
And I certainly think there's going to come a time when some asbestos cases, whether they're industrial cases or cosmetic cases or both, could be consolidated because I think that makes a lot of sense. But there are two things that impact here. One is the standing order, and I think it's reasonable to bring that forward.

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I'm not critical at all of Plaintiff's counsel for wanting to try this because we keep doing the same thing over and over again to a lot of -- to a large extent and particularly, the big part of these cases, quite honestly, is not necessarily so much the situation as it involves individual claimants in these talc cases.
It's all about this big divide in expertise about, you know, the companies take the position is the good asbestos and the bad asbestos, and we don't have any asbestos. Emerging testing is now more and more being used to try to contest that claim by the companies that they don't have any asbestos in their products because it comes down to how you define asbestos.
And so much of that involves expert testimony both on the medical and epidemiological side as well as on the geological side and on the company's side. And that's common to every talc case I've ever tried, and I've tried a bunch of them by now.
But in fairness, the difference between these two plaintiffs in terms of not just their age but the times of use is a significant factor

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because it means that various products would have much more chance of being different than if the cases were all either a product that didn't change over time, like the Johnson & Johnson Baby Powder, or a product that was more stable in what it contained over time.

So, Ms. Herz, I'm going to grant your request that this motion be denied.

MS. HERZ: Thank you.

THE COURT: And I think it makes sense. I'm sorry because I think it's a good idea in so many respects, and we're going to find when we try these two cases, if they both are not resolved, that we do the same thing to a large extent, about 90 percent of the trials, each of these cases is going to be spent on matters that are common to the two of them.

But in fairness to you and your colleagues who represent the defendants remaining in these cases, I will pay attention to your argument and deny the motion.

MS. HERZ: Thank you, Your Honor.

THE COURT: Very good.

Now, we move forward to Plaintiff's Alternative Motions in Limine to be Argued.

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What the plaintiff has done, as we know, is kind of divided these notebooks in such a way that we can deal with matters that still need to be argued with matters I previously ruled upon. And I'm not saying I'm absolutely going to do it every single time. It helps to know where I've gone.

And I know that I have Mr. Wilson with some things that are not on here.

Mr. Wilson, what are the -- I don't want them argued right now any lengthy thing, I just want to know what they are.

MR. WILSON: Your Honor, we had the motion in limine that we filed that had several submotions within it.

THE COURT: And this is for Mary Kay?

MR. WILSON: Mary Kay in both cases. A number of those, I think, would be addressed in what was put in the agenda, but there are probably going to be a few.

THE COURT: There may be some hanging issues that need to be addressed. I'm just going to put Mary Kay motions in limine not otherwise disposed at the end of this agenda.

And then what else?

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MR. WILSON: There was one other item.

THE COURT: It's some kind of protection thing?

MR. WILSON: It's a Motion for Protection having to do with our confidentiality designation. That we mark documents in the transcript of the deposition as confidential.

THE COURT: Right. I'm familiar with the situation. This is Mary Kay again, right?

MR. WILSON: Yes.

THE COURT: Very good. I'm going to just put those down at the end and so --

MR. WILSON: Thank you.

THE COURT: I promise you, they will not be left out.

MR. WILSON: Thank you.

THE COURT: And we'll proceed as I have previously indicated so that the next thing is a number of motions that begin with the number 4 on this agenda that we've got.

Plaintiff's Affirmative Motions in Limine to be argued. And the first one is Motion in Limine 12 Alternative Exposures.

And if you will get me a minute to get my notebooks out. I've got to go back to my office

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and get the ones that have this. Sorry, I didn't get as prepared as I should have.

MS. MCVEY: Okay.

THE COURT: So if you all will just be at ease for a minute and let me go get these other motions. I know my bailiff is going to help me out.

Okay. I'm more efficient than I thought I was. I got them right here. Thanks so much.

All right. We're in the ballpark. I've got all my notes and tabs right here.

This is Plaintiff's Motion in Limine Number 12 Regarding Speculative Evidence of Alternative Asbestos Exposure.

MS. GROSS: Rachel Gross on behalf of the Plaintiffs Plant and Payne for this one.

Your Honor, plaintiffs believe in both the Plant and the Payne cases that the defendants remaining intend to attempt to introduce evidence of, quote/unquote, alternative exposures.

In Plant, it would be that her father was a plumber who operated his own business from, I believe in 1985, very shortly before Sarah was born.

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And in Payne, we have the fact that Shelby Payne's husband, Kenneth, when he was still with us, was a paper salesman and part of his job responsibility was interacting at some paper mills to get the wholesale paper to sell it.

THE COURT: Wait a minute. Let me get straight here. The alternative exposure in Plant is Dad's plumbing business?

MS. GROSS: Yes, ma'am.

THE COURT: And in Payne, it's ...

MS. GROSS: Ms. Payne's husband was a wholesale paper salesman.

THE COURT: Husband was wholesale paper?

MS. GROSS: Yes, ma'am.

THE COURT: And she washed his clothes? Bystander kind of thing?

MS. GROSS: If that evidence were in the case.

THE COURT: I mean, that's the contention that that's an alternative?

MS. GROSS: Presumably so, yes, Your Honor.

THE COURT: I got you. Go ahead.

MS. GROSS: I think the best place to start with this is that it's not just plaintiff's experts who say these are not substantial

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determining factors. All of the defense experts themselves have testified, and I was hoping we would have a little projector to go through it.

But every single defense expert who was deposed, whether a causation expert or not, said uniformly across the board both of these, quote/unquote, hypothetical alternative exposures, they're not able to opine on it. They're not able to give substantial contributing factor or any sort of contribution at all or any weight to these theoretical exposures.

THE COURT: So the basic argument is not that alternative exposures could not be placed before the jury, but that these alternative exposures have no support as in expert testimony as a contributing factor to the mesothelioma.

MS. GROSS: Well, yeah. I would argue that they cannot be placed before the jury if there is no expert in the case who is going to assign any sort of weight to these exposures. As far as I know, no res ipsa loquitur in South Carolina. I hate to drop a law school term, but you can't just come in here and argue that.

THE COURT: But, you know, a lot of people

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say circumstantial evidence is just another way of -- to answer to the same tune.

The problem here is that you've got these two points of exposure, but you've got to have an expert that says that these points of exposure were a substantial contributing factor to the mesothelioma. Right?

MS. GROSS: Yes, ma'am. And you also have the attending witnesses in both cases as well. So in Plant, Ms. Plant's father was deposed about this hypothetical exposure as a plumber.

THE COURT: And he said he quit before she was -- he quit working in the plant before -- working in the field before she was born.

MS. GROSS: Yes, ma'am. And then he actually gave a second day of deposition where he unequivocally stated, "I did not expose my daughter to asbestos. I know what asbestos looks like. I used to be a pipe fitter."

We all know what pipe fitters working around asbestos, we know they know what asbestos is. And he unequivocally said, "I did not expose my daughter to asbestos." Full stop, period.

THE COURT: Okay.

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MS. GROSS: In Payne, you have the daughters, at the very minimum, saying our dad wore a suit to work every day. He was not a hands-on kind of guy. His job was to sort of network. And he was salesman. He carried a briefcase every day. He sat behind a desk. He didn't come home dirty or dusty. His hair was done every day. So it's not just experts on both sides.

THE COURT: What did he work in?

MS. GROSS: I'm sorry?

THE COURT: What did he work in? You say wholesale paper. Was it like a Bowaters plant?

MS. GROSS: So that's part of what he did was he would go in and out of paper mills like a Bowater or a Kimberly Clark.

THE COURT: You know, I've tried a lot of these Bowater cases and other kinds of paper products and things, and bystander pickup, it was a huge deal back in the day. These places were very dusty, and I don't care whether you took a briefcase to work or not, you hung around paper mills for any length of time, you had some possible exposure or take-home ability. Isn't that so?

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MS. GROSS: If you were to work in the field, I would agree. I also believe, just as a side note, I thought Bowater had a separate entrance for people who worked in the front office.

But regardless of that, Your Honor, you also have Kelly Payne who worked with her father for a couple of summers at some point, and she was able to testify that that's not what he did. He wasn't the guy who would go out where the pulp-making process was happening at Bowater, therefore, his bystander or hypothetical exposure is a thing. It's just --

THE COURT: So he was in the front office, so to speak --

MS. GROSS: Yes, ma'am.

THE COURT: -- filling orders?

MS. GROSS: Yeah, filling orders or buying the paper after it was already made to go sell to other companies. This was not -- Mr. Payne was not the guy --

THE COURT: In production.

MS. GROSS: I'm sorry?

THE COURT: In the production area.

MS. GROSS: That's right. That's right.

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So it's not just the experts here. And I'm happy -- I was going to go through them all, but I'm either happy to hand them up to you or I can go through -- I will save you time.

THE COURT: I have looked at them. Those flash drives drive me crazy. My computer doesn't like them. But, anyway, I did the best I could.

MS. GROSS: I printed it out. I'm happy to hand it up to Your Honor. But there is no expert in the case on either side that's going to come in here and say that they have enough information or that this exposure is a contributing factor.

THE COURT: Okay. I think I understand your argument.

Now, we've got a million defendants here. So who is going to speak?

Ms. Herz, are you going to take it?

MS. HERZ: Thank you.

THE COURT: Very good.

MS. HERZ: Let me go in reverse order. Let's talk about Payne since that seemed to be the last one that was being addressed.

And the defendant Mary Kay has designated

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Dr. Robert Ripley. Robert Taylor Ripley, M.D., as an expert.

THE COURT: Robert Ripley?

MS. HERZ: Yes, R-I-P-L-E-Y.

THE COURT: He's a treating physician.

MS. HERZ: And they designated him as an expert as well, and we designated him as an expert.

MS. MCVEY: Only in Plant.

THE COURT: Which one did he treat?

MS. HERZ: He treated Sarah Plant. We designated him in both cases as an expert.

THE COURT: All right. Okay.

MS. HERZ: So Dr. Ripley did medical school at Vanderbilt. He did a residency --

THE COURT: I'm familiar with the background.

MS. HERZ: Head of the Mesothelioma Treatment Center. He says that there are, you know, over 3,000 products that contained asbestos. I deposed him. He said did you know cigarette filters were made of asbestos? I want to talk about different exposures, Your Honor.

He -- the Plant -- the Payne daughters, rather, they remembered the exact eye shadow

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product their mother used when they were six and eight, but they couldn't remember what cigarettes both parents smoked until they were 25 and 30 years old, the brand. We'd like to be able to question them. It's a credibility issue.

THE COURT: Well, we've got another thing that's going to talk about whether you can get into smoking at all. I rarely allow that to be done. I realize that Kent's micronite filters may have had asbestos in them, but that's something I rarely put this complicated case in posture of.

So what I'm wanting to know about Ripley is, does Ripley testify specifically about either of these women having an alternative exposure?

MS. HERZ: He said in Plant -- so now I'm jumping back to Plant. He said, The classic exposure was a plumber. Sarah's father, Eric Johnson, did give a day and a half of testimony, when I deposed him on cross for the first couple hours. And consistent with his website, Quality Plumbing, he said he was a one-man operation. For the first ten years, his office was at his

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house.
THE COURT: Ms. Herz, he said that he had finished doing fieldwork by the time this child came into existence. That's what he testified to.
MS. HERZ: He did say that later, and I think it's a fact issue for the jury about whether he actually stopped. His website doesn't say that. And the first several --
THE COURT: Well, you haven't got anybody that says otherwise. All you've got is Ripley saying it's a classic place where you can get it. It doesn't say anything about anything he knows about Dad.
MS. HERZ: I'd like to be able to question both Mr. Johnson about it in front of a jury and Dr. Ripley. And I heard he's coming live to testify.
THE COURT: Who is Mr. Johnson?
MS. HERZ: The dad.
THE COURT: Yes. Okay. Well, all right. I understand your contention. Is that basically it, that you want Ripley and Johnson to talk about alternatives? That would be with respect to Plant, right?



MS. HERZ: Plant.
THE COURT: Okay. How about Payne?
MS. HERZ: On Payne, the family started a general contracting business around 1994 in their documents that show that they had that until 2014. So about 20 years. Mother, Shelby Plant, was the president of Payne Properties, this general contractor.
THE COURT: What was the asbestos exposure there?
MS. HERZ: To the extent they did do work on any existing homes, we'd like to be able to question the daughters about that. We think these are fact issues.
THE COURT: Well, let me ask this question.
MS. HERZ: Yes, ma'am.
THE COURT: If the lynchpin of all this is going to be to have a medical expert or causation expert that will say that in Payne's case the construction company and in Plant's case the father's plumbing business --
MS. HERZ: I forgot to tell you.
THE COURT: -- had an exposure such that it was a substantial contributor to their contracting mesothelioma, what witness have you



got for each of these cases that would say that?
MS. MCVEY: Mr. Ripley might say that. I forgot to tell you about one other expert. I'm not sure how I forgot. The defendant hired Ervin Ritter, professional engineer, P.E. His expertise is plumbing. He designed plumbing systems. He oversaw --
THE COURT: But he's not a doc. He can't tell you that they -- it was a substantial contributing factor. He can tell you a lot about pluming as a place where you got a lot of asbestos.
MS. HERZ: Correct. Dr. Ripley, I'd like to question him about it. He's the one who confirmed. He brought it up.
THE COURT: But at the moment, in the information that we have factually, Ripley does not say with respect to either of these defendants that this construction company or the plumbing was a substantial contributing factor, does he?
MS. HERZ: He does not at this time.
THE COURT: Okay.
MS. HERZ: And then the last thing I should have told you out of the gate, but I think



Your Honor knows, when Sarah Plant first went to her original oncologist in Louisville, Kentucky, he said, "Were you ever exposed to asbestos?"
And in her records she said, "Potentially from my father, a plumber."
THE COURT: Right.
MS. HERZ: She goes to Houston, to the mesothelioma clinic, and he says, "Were you ever exposed to any asbestos?"
And Dr. Ripley said, "I remember asking her that. I remember her telling me. She said possibly from my father who was a plumber."
We'd like that evidence to get in front of the jury. We think it's compelling. She never mentioned talc. She never mentioned makeup. She mentioned her father. That's where the whole story starts.
Then Ervin Ritter, the plumbing expert, says plumbing products were known to contain asbestos. Dr. Ripley said it's the classic --
THE COURT: I understand that piece of it. Okay.
MS. HERZ: So thank you.
THE COURT: Okay. I will grant the Plaintiff's Motion in Limine Number 12 with

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respect to Speculative Evidence of Alternative Exposures. At this point, what I have in front of me is not something that demonstrates that there will be any expert witness who will testify that these two alternative exposures of a plumbing business with respect to Plant and the construction thing and the father's wholesale experience created an exposure to asbestos that was a substantial contributing factor to the contraction by these ladies of mesothelioma.

I don't know what's going to happen before the case is tried. If this matter matures in some kind of way that I don't know about now, then it may be that this can be revisited. But at the present time, I'm granting the plaintiff's motion, MIL Number 12.

MIL Number 4, Betty Bell. This is plaintiff's motion in limine number --

MS. GROSS: I think it was our original 4.

THE COURT: Hang on.

MS. MCVEY: If you look at the cover sheet. Your Honor, may I approach? This is the cover sheet.

THE COURT: The cover sheet says number 4.

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MS. MCVEY: But it's in tab 2. Should be in tab 2.

THE COURT: I read it. I recall making notes about it. Wait a minute.

MS. MCVEY: Okay.

THE COURT: You all just be patient with me for a minute.

Okay. I got it. Plaintiff's Motion in Limine Number 4 to Exclude Evidence or Argument Related to the Matter of Betty Bell Against American International Industries.

Ms. McVey. Or excuse me --

MS. GROSS: It's me again. You're stuck with me for a few more.

Rachel Gross again on behalf of the Plants and the Paynes.

Your Honor, this first came up -- this issue first arose at the trial -- the Chapman trial in California you've heard about at a couple of prior hearings. In that case, Avon sought --

THE COURT: Now, I got this one. This is Ms. Bell.

MS. GROSS: Yes.

THE COURT: She was part of the blind

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study, and they want to get into -- they want to attack Moline, the expert on the basis of her having been -- they somehow think that undercuts the credibility of the Moline study --

MS. GROSS: Yes, ma'am.

THE COURT: -- to have the Betty Bell issue.

I'm not going to have a trial within a trial. I'm going to grant this motion in limine.

MS. GROSS: All right.

MR. THACKSTON: Your Honor, can we be heard?

THE COURT: No.

MR. THACKSTON: Your Honor, I was counsel in the Bell case. There's some major misrepresentations on this --

THE COURT: Let me tell you something. We've got a little rule in South Carolina that says that when the judge invites the argument, argument will be received. If the judge does not invite argument, the judge -- I don't have to have this hearing on any of these motions. I can decide all of them on the face. Okay?

Now, I'm a little testy, but let me tell

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you something, I have got a lot of motions here, and there is not a way in the world I'm going to have a trial within a trial about what happened in some California case with respect to the Moline study. That is not -- that is something that's such a side issue in this case, I'm not getting into it.

MR. THACKSTON: Your Honor, it has nothing to do with the California case. It has to do with a 41-page federal opinion.

THE COURT: I don't care whether it has something to do with a 41-page federal opinion. This is attack on the credibility of one of about -- the notebook's full, flash drives full of articles, literature, briefs, and everything else about this big split that there is in the world today about what causes mesothelioma.

I'm not going to spend a bunch of time talking about the Moline study and whether one of the ladies in the Moline study, because she filed a comp claim, somehow lied about not having had mesothelioma before she was in the study or Moline covered it up.

That's -- we're not going to get into something like that.

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MR. THACKSTON: Your Honor, I just ask to be able to approach the bench if it comes up, and I can explain the context. If they're relying on -- there's only two studies in the world where they claim that show talc causes mesothelioma. Moline and Emory. And --

THE COURT: Well, I disagree with you wholeheartedly. There are -- I've tried a bunch of talc cases. There's a lot of claims around here that generally center on mines that are specific to a lot of different talc, both cosmetic talc, baby powder, and all other kinds of talc.

So the idea that this thing is some kind of simple feature -- I'm now spending more time arguing with you about this thing than if I just rule on it.

And what I'm ruling on is I'm not going to receive any evidence about the Betty Bell versus American International Industries case and the evidence that was apparently dealt with in that case with respect to decision.

MR. THACKSTON: I understand, Your Honor. And as counsel in the Bell case, I can tell you what was represented in the California case and

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what's represented to you in these motions is not true.

THE COURT: Well, I hear that all the time, but it all depends on what your definition of asbestos is. So that's enough. We're going to get into that many times before this day is over.

Thank you, sir.

All right. I granted that motion.

All right. Number 3 is Moline -- or Moline, Maddox, and Kradin.

This is Plaintiff's Motion to Preclude Evidence of Johnson & Johnson Lawsuits Against the Experts Moline, Emory, Kradin, and Maddox.

MS. GROSS: Yes, ma'am. That one sort of ties in with the one you just ruled on. As a result of whatever went down with this Betty Bell situation or partly to do with it, Dr. Moline, Dr. Kradin, Dr. Maddox, and Dr. Emory were all four sued individually by LTL Management, the spinoff of corporate restructuring entity of J&J, for fraud. And we just think -- I think, Your Honor, understands pretty clear that that's not relevant evidence. Those lawsuits are not relevant to absolutely

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anything in this case.

And it's also worth noting that those lawsuits were stayed, I believe, yesterday at an LTL bankruptcy hearing in New Jersey. So there's been no resolution or any sort of anything that's gone on with those cases. And it just hasn't been in this courtroom or as part of these trials.

THE COURT: Well, again, we've got enough we've got to try in this case. I'm not going to spend one minute of time --

MS. GROSS: Great.

THE COURT: -- with lawsuits about experts. So I grant the motion to preclude evidence of Johnson & Johnson lawsuits against these experts.

Frankly, I don't know whether that would be a good thing or a bad thing for the defendants. Some people might sympathize with them. But we're not going to go down that rabbit hole.

Motion is granted.

All right. The next one is the so-called worst-case scenario. This is Plaintiff's Motion in Limine Number 21 to exclude the "Worst-case scenario" testimony of Dr. Barlow and

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Dr. Shamel. Shamel?

MR. BUHA: Shamel. Did I say that right?

MS. GROSS: Either way.

THE COURT: All right. All right. Come forward. Let's get with it.

MR. BUHA: Mark Buha on behalf of the plaintiffs. And to be clear, we are moving -- I think that the language of some briefing was focusing on Barlow and Shamel, in particular, but we're moving to exclude this opinion. And it is expressed by a number of different causation-related experts on behalf of the defense.

THE COURT: I'm going to make it real simple for you, Mark. This thing is a battle of the experts. And there are two very, very different approaches to the experts for the plaintiffs' and the experts for the defendants' take of how they test and what they call asbestos and what they don't call asbestos.

And the jury is going to get a full flavor for what each side has to say with respect to this so-called worst-case scenario that Barlow -- she's the one that puts it in there and this other doctor picks up on it.

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They don't have any data. They don't have a whole lot of things that would support what they say is the worst-case scenario. They try to downgrade how bad the asbestos is. That's a ripe subject for cross-examination by plaintiff, but I am not going to exclude the so-called worst-case scenario.

So I deny the motion.

MR. BUHA: Understood. Thank you.

THE COURT: Number 5, the Motion to Exclude Dr. Attanoos.

MS. GROSS: Yes, ma'am.

I'll try to make this one pretty brief, Your Honor. But the good news is that, as I'm sure you saw, we moved on the same issue for the next three motions, so I think if we can get through this one, it will save us a lot of time.

I want to spend the most time talking to Your Honor about this so-called spontaneous defense where Dr. Attanoos and these other experts, but for purposes of this motion, Dr. Attanoos intends to testify that Ms. Plant and Ms. Payne both had these naturally occurring mesothelioma, no asbestos exposure anywhere to nothing, and I say it is, therefore it is.

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The problem with that argument is that, you know, and I know that this issue has been argued before Your Honor before, so I'm trying to cut through some of the arguments you've heard previously. But as you know, before Dr. Attanoos started testifying in asbestos talc litigation, his opinions about female -- particularly pleural mesotheliomas were vastly different than they are now.

Before, you know, in his own textbook he wrote that medical opinion is united and accepting that most malignant mesotheliomas are related to asbestos. 60 to 75 percent of female mesothelioma patients had a known history of asbestos exposure and also knowing lots of people sometimes forget or don't know where their exposure came from.

You flash forward since, I believe, Johnson & Johnson was the first defendant to retain him in asbestos talc litigation. And now all of a sudden most pleural and almost all peritoneal mesotheliomas -- peritoneal in both genders, pleural just for women -- appear unrelated to asbestos. A substantial portion of mesotheliomas now magically have no asbestos

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exposure, and there's really no sort of explanation as to where this drastic change in his opinion comes from.

As it pertains to the Plant -- excuse me, I'll start with Payne. It's a little easier.

The Payne case in particular, Dr. Attanoos admits that she had no genetic testing done whatsoever, but still in the same vein opines that her mesothelioma must have been naturally occurring.

Where we get into problems with that in particular is that Dr. Attanoos testified in 2019 that you did indeed need to see a genetic testing or some sort of genetic panel before you can determine a mesothelioma is spontaneous or naturally occurring.

He testified in the Johnson and Greenlee v. Johnson & Johnson case on April 17th, 2019, starting on page 86, line 14. Well, I'll start with the answer, line 17.

"You would need genetic testing to see if there was any constitutional basis to say whether the individual had a cancer previous position. In an ideal setting, if there was suitable material where you could test, and

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there is in this case, of course, material could be used to test for constitutional germline mutation, then that would be the ideal group by which he would. That would be one level of investigation and ultimately before you would say that this is a naturally occurring mesothelioma."

We deposed Dr. Attanoos in these cases. I believe Mr. Rawl deposed him last week and asked him the very same question: Dr. Attanoos, don't you need to see genetic testing before you can opine that a mesothelioma is naturally occurring?

And no. He said, No, you don't need to see that.

So four years later, not even, back in 2019 you have to see it; 2023, the case needs are a little bit, you don't have to see it, so, therefore, I can say it's naturally occurring.

That is the definition of unreliable expert testimony when an expert changes their testimony to suit the needs of the case.

You compile that with the fact that Dr. Attanoos also wants to specify that Ms. Payne has a history of cancer.

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Ms. Payne had a small lesion removed from her left check in 1999. And other than her mesothelioma, that is the only cancer she had.

He also wants to intend -- he also intends to testify it's possible that she had this hereditary risk of cancer. Even though she's had no genetic testing, he wants to testify to that. But then the same vein he says her medical and her quick demise doesn't really suit somebody who would have a hereditary factor of mesothelioma.

Then you switch over to Payne -- or Plant, excuse me. Plant -- Sarah Plant, as we've already discussed, was diagnosed very young. She was diagnosed at the -- unfortunate would be not even a good enough word -- age of 34 with pleural mesothelioma.

She, unlike Ms. Payne, has undergone genetic testing. And she is the carrier of a BRCA 2 gene mutation. And with the medical literature and Dr. Ripley, her treating physician, that you heard Ms. Herz discuss earlier, all say that while that can cause some sort of DNA repair problem, you still have to have the predicate exposure to asbestos. In

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other words, it makes them a little bit more susceptible to lower levels of asbestos exposure.

When you read Dr. Attanoos' report, which I don't have at my fingertips, he uses the word "causal." He says, "Her BRCA gene played a causal role in her mesothelioma."

So he's not going to come in here and say, yeah, one caused the other, because that would be too obvious. But he's going to come just about as close as you can to saying that Ms. Plant's mesothelioma was naturally occurring and it's because of this BRCA 2 gene mutation. Which not only is not consistent with any recognized scientific literature that I've seen, but it's also in opposite to South Carolina law, which is pretty clear eggshell plaintiff law -- excuse me -- where the Johnson citing Raynon. I think you wrote Raynon. But regardless, the plaintiff must be taken as she is found.

So Dr. Attanoos cannot come in here and say BRCA caused or played a causal role in Sarah Plant's mesothelioma. Sarah Plant must be taken as she is. Now it merely makes her more susceptible.

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We moved on another topic. I'm happy to answer questions about it, but I think it's pretty self-explanatory. But Dr. Attanoos is also going to come in here and pair these particularly troublesome opinions about the spontaneous defense. He's also going to say, Oh, PS, none of the talc that these women used had asbestos in it. And he casually says this without reviewing any corporate documents, any testing.

I think he was sent all of the defense expert reports, but he hasn't seen -- he certainly hasn't seen anything from the plaintiffs at all. Plaintiff's experts. He hasn't seen any of the raw data. So he's seen, for example, Matt Sanchez's final report, but none of the actual data from the testing he's done.

THE COURT: Okay.

MS. HERZ: I can keep going, but I'm also happy to let you -- if you have any questions.

THE COURT: Let's see who's going to speak on the other side.

MS. GROSS: Let's see. Okay.

MR. THACKSTON: May I, Your Honor?

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THE COURT: Yes. Now you -- just a second. Let me let her sit down.

MS. GROSS: Thank you, Your Honor.

THE COURT: Now you are?

MR. THACKSTON: Robert Thackston for Whittaker Clark & Daniels.

THE COURT: And you all are planning to offer Dr. Attanoos as a witness?

MR. THACKSTON: Yes, Your Honor.

THE COURT: All right.

MR. THACKSTON: Your Honor, everything that was just said goes to cross examination and the weight of the evidence. And if an expert can't testify -- I'm not saying Dr. Attanoos is going to say anything different from what he's ever said before. But if the expert witness is saying something inconsistent with what the witness has said in the past is a bar, then the plaintiff's case is going to be a lot shorter than they expect. Because they have a couple of witness who will admit that they're going to say something dead opposite of what they said under oath before not very long ago.

So that's not a grounds to eliminate an expert testimony at the motion in limine stage.

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On the issue of the genetic predisposition. The genetic situation with Mrs. Plant is so serious that her sister got prophylactic hysterectomy and double mastectomy. It's a very serious genetic defect that causes cancer having nothing to do with asbestos.

And so to prevent the witness -- Dr. Attanoos is a world-renowned expert. And if there really is absolutely no scientific basis for him to say that, the plaintiff will certainly bring that out on cross examination. But these are not proper matters for a motion in limine. This all goes to cross examination and the weight of the expert's testimony.

Thank you.

THE COURT: No, sir. Stay right there.

MR. THACKSTON: Yes.

THE COURT: I've got some questions of you.

Dr. Attanoos has appeared before me in several different trials. And in the last case where Dr. Attanoos -- we had quite a hearing about the ambit of Dr. Attanoos' testimony and what it would be. And we did that because our -- the deliberations that I had then were guided by the expert testimony pronouncements of

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our court, our Supreme Court, in such cases as Watson v. Ford Motor Company, in which it's not enough for an expert to be a great expert in a particular field. They also have to have knowledge of the very specific thing upon which they are going to opine.

And in the case of Dr. Attanoos, in the case -- last case I tried with him, he was going to offer an opinion about the cause of the plaintiff's mesothelioma. And the opinion that he was going to offer was that her mesothelioma was caused spontaneously, idiopathically, or genetically. He had done no testing and had no information at all about her upon which to base that testimony.

He also had all kinds of other opinions about that mesothelioma is not just a signature cancer caused by asbestos, that it can be spontaneously occurring, and all this kind of stuff. Based not on any testing he had ever done or any scientific work he had ever done but more on his review of the literature that another expert kind of like him that does the same thing.

So I told Dr. -- I heard a lot of argument

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about this, and I finally decided I was through debating it this way. I would allow Dr. Attanoos to testify and be subject to cross examination, as you suggest, that all his opinions including whether he changed. I mean, heck, Dr. Roggli, the father of the discovery of mesothelioma, got in the testifying business and changed his opinions. So I know that happens.

Dr. Roggli, another one that testifies all the time, he's done some changes in his opinion.

But in the case of this particular opinion by Attanoos, following the guidelines of the South Carolina Supreme Court in Watson V. Ford Motor Company, I did, as a gatekeeper should do, and analyzed the matter and determined that he could not testify that her cancer, her mesothelioma was caused spontaneously; genetically; or that it was idiopathic, which is just a fancy word that says I don't know what caused it.

So I don't know what I wasn't going to allow under any circumstances. It's no value to the jury to say I, a particular witness, don't know. And that's what idiopathic is.

So I was left with spontaneous and genetic.

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He had no specific information upon which he could opine about her cancer. So I would like to let him testify to that.

He got right up in this witness box, and he tried to disobey my order. And then when we had a jury dismissed and discussed this matter some more, and I cautioned the witness, and the jury came back, he then defied me again and was asked a question that he thought would be a platform to say this, "But I can't say this" and then pointed up at me.

I can't have a witness testify in any case I try that cannot accept the rulings of the Court about the constraints of testimony. There are going to be a lot of other witnesses here who talk about the spontaneous and idiopathic and genetic, and we'll talk about those because I don't think one argument is going to take it all.

But respect to Dr. Attanoos, I am going to grant the plaintiff's motion to exclude the testimony of Dr. Attanoos because I find that there is nothing in the materials that have been submitted to me. I have read these extensively. I've been very troubled about Dr. Attanoos, and

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I have looked in detail through these flash drives and all the material that's been submitted to me about his testimony and what it will be and what it's been in other cases and so forth.

And I find that -- and what it would be in this case and what he has and has not looked at in this case. And I find that he is not qualified to express an opinion about the cause of the mesothelioma of Sarah Plant or of Ms. Shelby Linville Payne. And for that reason, not saying anything about his otherwise qualifications as an expert, but saying that he does not have any information sufficient to testify in these two particular cases, I am granting the motion.

MR. THACKSTON: Your Honor, I don't know anything about the other cases. I just know that --

THE COURT: Yes, sir.

MR. THACKSTON: -- in this case -- absolutely, I'm not questioning the Court. I'm just saying in this case, there's a very significant genetic finding with respect to Ms. Plant. And I understand --

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THE COURT: Well, I have not heard anyone talk about BRCA as causing mesothelioma. And what Ms. Payne has, she may have the propensity for many other kinds of cancer, but mesothelioma is a signature cancer. It's caused by asbestos. And that's what she's got.

MR. THACKSTON: Okay.

THE COURT: And to say that BRCA, genetic factors, I have those too. I survived breast cancer. Thank the Lord. But I have seen no expert testimony in the cases I've tried so far, and we have two more cases in which they're going to want to have other witnesses, and I'm going to ask them exactly what they're going to say.

But I looked at Attanoos' material in great detail, and there's not one piece of scientific information that is contained in his material that says BRCA causes mesothelioma. And that's what -- Watson v. Ford Motor Company was a case that involved cruise control. They had a theory that, the defense did, that it was some extra magnetic interference that caused the cruise control to fail.

They had this guy from England who was an

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expert in extra magnetic fields, but he didn't know one thing about a cruise control. Never seen one, never worked on it, never tested it with magnetic fields or anything like that.

So in Watson v. Ford Motor Company that very esteemed gentleman from England, who might should have been disqualified on the gatekeeping basis to testify in that case because his expertise could not inform any kind of reasonable expert opinion. That's what I'm saying about Attanoos.

MR. THACKSTON: I understand, Your Honor. I think there will be a dispute -- the evidence will dispute that mesothelioma always means exposures to asbestos because there are cases that are -- can't be explained especially in people who would have had to have been exposed when they were one to four years old like Ms. Plant. But I'm not arguing with the Court. I understand your ruling.

THE COURT: All right, sir.

Now, that deals with Dr. Attanoos.

Now, the next one is -- okay. We did the worst-case scenario. We did Attanoos. What was --

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MS. GROSS: Dr. Diette is next, Your Honor.

THE COURT: Dr. Gregory Diette. I hope I'm pronouncing that right. You can help me out there.

This is plaintiff's -- this is Plaintiff's Motion in Limine to Exclude the Testimony of Dr. Gregory Diette.

Am I pronouncing this correctly?

MS. GROSS: I think it's Diette, Your Honor.

THE COURT: Diette.

MR. KLEINDIENST: That's correct, yes.

THE COURT: Dr. Diette. All right.

MS. GROSS: So this one is a little bit different, Your Honor. We're not necessarily trying to strike Dr. Diette in his entirety.

This motion is entirely focused on two issues: The first of which is, again, his opinion that these mesotheliomas are spontaneous; and, second, his opinion that none of the talcum powder that either of these women used had asbestos in it.

So, again, I'll start with the spontaneous issue.

THE COURT: Now, Dr. Diette is a

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pulmonologist, right?
MS. GROSS: Yes, ma'am. I think he also might be an epidemiologist, but he's a pulmonologist.
THE COURT: He's at Johns Hopkins?
MS. GROSS: Yes, ma'am.
THE COURT: And he -- his -- COPD is his primary deal?
MS. GROSS: That's correct. COPD and asthma is his main focus.
THE COURT: Okay. Now, what is it you want me to do with respect to Dr. Diette?
MS. GROSS: To cut to the quick, we'd also move to exclude Dr. Diette being able to offer the testimony that Ms. Plant and Ms. Payne's mesotheliomas are spontaneous, naturally occurring, idiopathic, whatever word they want to use, that's what we would like to start with as a preliminary matter.
THE COURT: Okay. Spontaneous, naturally occurring.
MS. GROSS: Or idiopathic.
THE COURT: Or idiopathic.
Now, he also has opinions about cosmetic talc and whether it has asbestos in it, doesn't

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he?
MS. GROSS: Yes, ma'am. So that's the second component that we were moving on here is that we would like to move to strike him as he has no foundation that I'm aware of to come in here and say that the talcum powder that either Ms. Plant or Ms. Payne ever used in their entire life had asbestos in it.
THE COURT: And that's because he's one of the acolytes of the school of how you test it. And he doesn't ascribe to the notion that amosite and chrysotile -- I mean is that the deal? He's one of the ones that says that's not --
MS. GROSS: That's a small part of it.
THE COURT: The cleavage fractures, all of that kind of stuff?
MS. GROSS: That's exactly right, Your Honor. And then the other part of that is, of course, he hasn't seen anything. He hasn't reviewed any documents. He hasn't seen any testing data on either side. He hasn't seen -- he might have seen an expert report here and there, but he hasn't seen anything. He doesn't know anything about any testing that may or may

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not have found asbestos in any of these powders.
THE COURT: Okay. So that's the two things that he was going to be offered for, and you say with respect to one, he has no background in either the geology, like Sanchez, or the epidemiology or so forth that could by way of specific testing mode -- methodologies and so forth to be able to testify about this.
MS. GROSS: Yeah, I think that's partially right. I think it truly is in terms of the no asbestos in talc that any of them used ever at any point in time, and yet it really is primarily, Your Honor, that he hasn't seen anything.
THE COURT: And with respect to spontaneous, naturally occurring, and idiopathic, does he say genetic?
MS. GROSS: He does. He's another one that claims the BRCA gene. And the thing about Dr. Diette in particular that makes his opinions on this extra problematic in particular to the Plant case, is that when he was being asked questions about the Payne case, he said, "I didn't see -- I consider clinical evidence." And he defined clinical evidence in the

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deposition, I'm sure you saw it, as medical records. That's it. That's medical evidence to Dr. Diette.
And because it didn't say in Ms. Payne's medical records she was exposed to asbestos in cosmetic talcum powder and therefore could not have been a cause of her mesothelioma.
THE COURT: Okay.
MS. GROSS: And on the converse side with Ms. Plant, the difference here is that there are multiple medical records from her actual treating physician. I think there's three separate ones that say her mesothelioma is more likely than not or possibly or is not. There's all kind of different language. But it is not a result of her BRCA gene. And he says he did see those, but he doesn't care.
So the methodology of counting the medical record when it doesn't say the absence of information in medical record, but completely discounting when there actually is relevant information in the medical record, those -- I don't know what kind of methodology that is, but it's not reliable.
THE COURT: Okay. All right. That's your

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position on Diette?
MS. GROSS: Yes, ma'am.
THE COURT: Who is going to speak for keeping Diette?
MR. PRIEBE: All right. Good afternoon, Justice Toal. My name is Dustin Priebe, P-R-I-E-B-E.
I have not appeared before you in the past. It is a pleasure to be here today and a pleasure to appear in front of you here this afternoon.
I represent Avon Products, Inc. Avon offered Dr. Diette, but a little bit of clarification in terms of how Avon is using Dr. Diette in this case. And I say this case because Avon previously resolved Plant. As of right now, Avon is only in the Payne case.
THE COURT: All right.
MR. PRIEBE: And counsel made some statements about active negotiations, which I agree with, but as of right now --
THE COURT: Listen, that's not something I pay attention to. You're here, the trial is going on, go right ahead.
MR. PRIEBE: As it concerns Avon, Avon has offered Dr. Diette for purposes of the Payne

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case.
And Dr. Diette's testimony was somewhat misstated in Plaintiff's counsel's argument. Dr. Diette, first of all, will just testify to the general premise that both sides' experts will acknowledge that a percentage of mesotheliomas is not caused by asbestos. Whether you call it spontaneous, you call it idiopathic, or something else, it's just the well-recognized premise by both plaintiff and defense experts and in the medical literature and epidemiologic literature that certain mesotheliomas are not caused by asbestos.
THE COURT: And which mesos are they?
MR. PRIEBE: Pleural mesotheliomas. Any of the mesotheliomas in this case are not caused by asbestos. It's just a general principle.
Dr. Diette has a very well-informed opinion. And as the Court, I believe, noted or is aware of, Dr. Diette is not only a pulmonologist at Johns Hopkins, he is also an epidemiologist.
And Dr. Diette will testify, one, he's reviewed all of the plaintiff's medical records or Ms. Payne's medical records. He is also very

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well familiar with all of the epidemiology as it concerns cosmetic talc.
And as I suspect Your Honor is aware, there is a great deal of epidemiologic literature as it concerns cosmetic talc. Various miners and millers of cosmetic talc have done -- analyzed and discussed ad nauseam in mines all across the country and across the world, in fact. And in some cases the actual people who were out there all day long mining, milling, this cosmetic talc --
THE COURT: I have heard those arguments so many times. See, that just shows you, it can't possibly be any small little traces and so forth. But, you know, we moved on from that.
MR. PRIEBE: I understand that. I don't want to rehash any ground. But it concerns Dr. Diette. His opinion is -- and we have a different expert.
Avon has a different expert, Mr. Segrave, who is a geologist, who will actually testify about the review of all of the different Avon product formula cards, the mines from which they came; past Avon testing data, which includes the fact that at points of time even the FDA pulled

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the Avon product off the shelf and all tested negative for any trace of asbestos.
So it is certainly not an uninformed opinion nor is it something to where Dr. Diette has not seen all the pertinent data both as it concerns the scientific literature and as it concerns the specifics of both this case in Ms. Payne and Avon.
His opinion is simply going to be a causation opinion in terms of spontaneous mesotheliomas absolutely occur. That is something that takes place. And based on the epidemiological literature based on what he's seen both in Ms. Payne's medical records and the underlying documents in the case including other expert opinions is what he'll rely on.
THE COURT: Spontaneous and naturally occurring and idiopathic are all proxies for I don't know. Isn't that correct?
I mean, genetic is something different. We can talk about that separately. But idiopathic, spontaneously occurring, naturally occurring is I can't identify. I don't know. Isn't that right?
MR. PRIEBE: Well, I think that's perhaps

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one way of saying it. But I think in terms of the medical professionals, I think what they would say is that it's not -- the cause for it is not specifically known.

THE COURT: Well, some people -- it's one thing to say I don't know, but to translate "I don't know" to affirmatively "This is what it is" is that's what I'm still having some trouble with.

MR. PRIEBE: I understand that concern.

THE COURT: And the science hasn't backed that that I've seen so far in any of this material. I've read this literature. In fact, it's expanded so much since I last tried a talc case, I feel like I've gone to graduate school again.

You can't find anything that positively has a scientific basis in testing or diagnosis of this kind of thing that can translate that spontaneous and idiopathic and naturally occurring into this is what caused. And he's a causation witness. The only causation thing you get into at all is genetics. He's not a specialist in that at all, is he?

MR. PRIEBE: I understand -- I think I

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understand the Court's concern. Please tell me if I have this incorrectly.

THE COURT: He's a brilliant man. He's a very fine physician. He's well-respected. He's a top-notch university -- all conceded. And I don't mean to cast any aspersions on his ability.

But I'm trying to see what he brings to the table in terms of the purpose for which he is offered, which is the cause of these mesotheliomas.

MR. PRIEBE: I completely -- I think I understand Your Honor's concern. And I think it's perhaps just how you're phrasing it.

If the Court's concern is there's going to be an affirmative statement this was spontaneous and came from nothing, I think the point -- that's the term generally used in a lot of medical literature, including some literature used by the plaintiff's attorneys, or I think that's a very easy shorthand way to frame it.

But truly what Dr. Diette is going to be testifying to is that it was not this talc product specifically as it concerns Avon. It does not Avon's product that caused this

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mesothelioma. That's really going to be the basis of the testimony.

THE COURT: That's good -- that's not the product of some independent piece of information that comes about -- that -- with respect to the physiology of Ms. Payne or Ms. Plant. That conclusion, it was not Avon's product, is the result of all the experts that say, oh, when it past a certain point, it's not really asbestos, or it's a not a cleavage fracture or it is a fragment or it is -- that's a whole different ball of wax. That's him, and he's not a specialist there. But he knows the literature. He's going to say based on what he knows, that these products don't contain asbestos.

MR. PRIEBE: I don't think --

THE COURT: And therefore, those products could not have caused her mesothelioma, which she undoubtedly has. They both have.

MR. PRIEBE: The opinion is slightly different than that, Your Honor.

THE COURT: How?

MR. PRIEBE: Dr. Diette will not simply come up and say, "These products don't contain asbestos," that's --

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THE COURT: He can't say that.

MR. PRIEBE: That's somewhat of a different area of expertise. We do have a geologist that will say that. Who can testify about --

THE COURT: Sanchez?

MR. PRIEBE: This is not Sanchez. We have -- Avon, in this case, or the Payne case has Mr. Segrave.

THE COURT: Right.

MR. PRIEBE: He will testify to that point. And we're certainly not planning to have Dr. Diette usurp that. Dr. Diette's opinion is slightly different. It really is a statement of there are mesotheliomas that are not caused by asbestos. There are -- everyone acknowledges that point.

And it then carries over in also to the epidemiological literature that discusses all the talc miners and millers and all the epidemiologic literature. So it's not --

THE COURT: Again, here's the problem. There's a lot of debate about it. It's not universally accepted that there are mesotheliomas that aren't caused by asbestos. I know you say that. But that's -- you're going

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to hear the other side to say they don't accept that, and they are going to have experts to say, no, that's so in any circumstances. So that's not universally accepted. But that's not what this witness is being asked to do.

Dr. Diette is being asked to say on a causation basis that asbestos didn't cause Plant and Payne's mesothelioma. It was spontaneous. It was naturally occurring. And he doesn't have the information to be able to make an affirmative diagnosis. That's what's got me troubled.

This business of saying kind of what's out there more generally about this debate among everybody is one thing, but affirmatively diagnosing these two women by saying asbestos did not cause their mesothelioma -- asbestos from Avon products did not cause their mesothelioma is not a reflection of his knowledge about them. It's a reflection of his belief that Avon doesn't have any asbestos in its products.

MR. PRIEBE: I don't --

THE COURT: And then just one step beyond that, if Avon product doesn't have any asbestos

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in them, then he jumps to the next step, ignoring whatever other exposures besides Avon might be, to say these women have a mesothelioma because it was spontaneously and naturally occurring and is idiopathic and maybe even genetic.

I don't know where he gets the information to be able to make that statement to a jury.

MR. PRIEBE: I can walk the Court through that very briefly. But to the Court's first point about the spontaneous mesothelioma or just mesothelioma that's not caused by asbestos. However the Court wants to phrase it. That is a effectively, universally acknowledged principle.

Plaintiff's own expert, Dr. Brody, has testified in every case he's ever been in for the plaintiffs to readily acknowledge the fact that, no, there are a certain number of mesotheliomas.

THE COURT: It's one thing to testify to that, and it's another thing to have as your background that in every case you've examined a woman's mesothelioma in these talc cases your opinion is that it was naturally occurring, idiopathic, spontaneous. Because if there's

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some universal acceptance of spontaneity in mesothelioma, it's for some very rare, small part of the mesothelioma world, which itself is a very rare cancer.

MR. PRIEBE: And everyone will agree with that. No one is going to say that a large number of all mesotheliomas --

THE COURT: Well, how is it that a miracle occurs in all these mesothelioma cases that I try that this very rare cancer, and even more rarely spontaneous, that's the answer in every one of these cases.

MR. PRIEBE: And I think to some extent, Your Honor, a number of the talc cases do have alternative exposures. So it is not always the case where there is just solely exposures to cosmetic talc. In a number of them -- and I don't think Dr. Diette's testimony, I don't think it would be an accurate classification to say that when Dr. Diette testifies it's always spontaneous or the result of no other --

THE COURT: But what's the bottom line? I've probably debated you too much about this thing. We've got plenty more left to do here.

MR. PRIEBE: To quickly sum it up for

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Your Honor.

THE COURT: Yes, sir.

MR. PRIEBE: The testimony is certainly not intended at all to be anything in terms of having inadequate foundation to somehow make a conclusion about what this was or was not, but simply to testify that based on what he has seen from the epidemiological literature, that, number one, a percentage of mesotheliomas have no known cause. They're not caused by asbestos. And that based on what Dr. Diette has seen both in terms of the epidemiological literature, as it concerns Ms. Payne particularly, that's how he has arrived at this decision.

What I would suggest, respectfully, Your Honor, is that some of these topics will be explored in the context of the trial in general. And as Your Honor mentioned, she had the opportunity to listen to Dr. Attanoos in his testimony and then to assess that as it came in.

And I would respectfully suggest that maybe the better approach with Dr. Diette, since what he is testifying to is not just based on something he pulls out of the sky or something that is done without any adequate investigation

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or assessment, but it's based on all of the facts in this case and as it concerns cosmetic talc in general and Avon specifically.

The better approach may be to simply allow some of that evidence to come in at trial and then make a determination about what Dr. Diette will and will not testify to in terms of an ultimate conclusion. Especially because the plaintiffs have already said they're not moving to exclude Dr. Diette entirely, he will be testifying in the trial.

THE COURT: Okay. Okay. All right. Diette is the next one, and then we've got Weill and Feingold. Those are two others that we've got the same thing. I want to hear about the other two plaintiffs, and I'll come back to defense, I think, on Weill and Feingold.

No, not you yet. They've got to make an argument first.

MR. PRIEBE: I'm going to jump in very briefly, Your Honor. At this point, I believe it is also only Avon who has Feingold in the Payne case. And I suspect Your Honor is tired of hearing from me, so I will step aside.

THE COURT: I have to get their argument on

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first. The other one is trying to exclude Feingold. I'll call on you.

Understood. I will hold off on Weill because that's the only person we have left. I'll let others address Feingold.

MS. FLYNN: Your Honor, if I may interrupt just briefly.

THE COURT: What's the problem?

MS. FLYNN: Your Honor. Judge Toal --

THE COURT: Yes.

MS. FLYNN: -- we filed most of our briefing last night so I'm not sure if you got a chance --

THE COURT: I have Avon -- I couldn't believe I got that that late at night after I just brought my husband home from a heart surgery. But, yes, I have huge boxes of Avon stuff.

MS. FLYNN: I understand.

THE COURT: Now --

MS. FLYNN: Specifically as to Dr. --

THE COURT: You want me do go back and get this with respect to this issue?

MS. FLYNN: No, Your Honor. I was just going to say that we did file two briefs on each

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case with Dr. Attanoos specifically in addition.

THE COURT: For Dr. Attanoos?

MS. FLYNN: Dr. Attanoos. I wanted for you to have those.

THE COURT: I have those. I pulled those out this morning at 4:00 in the morning and read them.

MS. FLYNN: I appreciate it, Your Honor. Would you like this notebook anyway?

THE COURT: What's that?

MS. FLYNN: Would you like a notebook with our opposition --

THE COURT: Well, I've got the notebook. Let me see what you've got.

MS. FLYNN: Ours is different in that we do --

THE COURT: This is your Avon. I got Avon -- the stuff was delivered to my house -- yesterday afternoon or yesterday evening.

MS. FLYNN: Yes, Your Honor. That didn't include our briefs.

THE COURT: This is what?

MS. FLYNN: Yes.

THE COURT: Avon has a big huge one.

MS. FLYNN: Some of those were filed last

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night.

THE COURT: Yeah, I can do that, get online now and read them. This, you have not given to me yet?

MS. FLYNN: Correct, Your Honor. A lot of those were filed last night, which was the deadline for those.

THE COURT: Yeah, I just wish I had been given it -- I could have done some of this over the break.

Where in this is the --

MS. FLYNN: Dr. Attanoos --

THE COURT: Yeah. Come around. I read Avon's.

- - -

(Off the record.)

- - -

THE COURT: All right. Now, let's get back to where we were.

Okay. Diette -- and I have held on ruling on Diette for a moment. And so what the suggestion is, is that I hear Feingold next since Avon -- that's the one that's offered by Avon.

So Plaintiffs?

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MS. GROSS: So we're doing Feingold before Weill?

THE COURT: This is Motion to Exclude Feingold.

MS. GROSS: Rachel Gross.

THE COURT: Okay. I'm just stretching it out a little bit. Go ahead.

MS. GROSS: All right. So, Judge, the arguments, again, for Dr. Feingold, Plaintiffs seek to strike his spontaneous opinion meaning that both Mrs. Plant and -- oh, no, this is which legal --

THE COURT: Feingold is just going to do spontaneous, right?

MS. GROSS: He's going to do spontaneous, and he's also going to say there's no asbestos in any of the talc.

THE COURT: Right. And he's doing naturally occurring or genetic, as I read this.

MS. GROSS: I think that's right. He is going to say I think naturally occurring and spontaneous are the same --

THE COURT: And he's also being to say cosmetic powder --

MS. GROSS: Right. That's exactly right.

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That's exactly right. What he says more specifically about spontaneous is he's going to come in here and testify that 90 percent of all mesotheliomas in women, all mesotheliomas in women are spontaneous.

THE COURT: And what does he base that on?

MS. GROSS: It's a great question, Your Honor. And quite frankly the reason we made the motion, there's no reliable scientific literature that says 90 percent of all mesotheliomas are spontaneous. This isn't just a disease where all of a sudden women's bodies starting failing us in the last ten years. It's just not.

THE COURT: Okay.

MS. GROSS: And when you pair that with his opinion that, oh, p.s., talc doesn't have asbestos in it, it makes that opinion extremely problematic to inject into a jury.

The arguments for why, they're all the same in the briefs that I know Your Honor read as in all the other ones, all the literature he relies on that doesn't support his opinions in any way.

What makes his "cosmetic talc doesn't contain asbestos argument" extra particular is

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that he said in his report that the most recent laboratory -- and this is a direct quote. "The most recent laboratory examinations properly performed with modern, analytical methods have not revealed any asbestos or asbestiform minerals in talc itself."

But he doesn't cite to any testing to support that. His cite is to another paper written by Amanda Burns, who is a defense expert in this case.

THE COURT: Okay.

MS. GROSS: So I'm not sure what the foundation is for that opinion. I can keep going, Your Honor, if you have any specific questions, I don't want to --

THE COURT: Let me hear from him.

MS. GROSS: Okay.

THE COURT: That's Feingold.

Avon.

MR. HALL: Sorry, Your Honor. I think there was some confusion.

MS. GROSS: It's Chanel, Your Honor.

THE COURT: Chanel. Pardon me. Pardon me. Take it back.

MR. HALL: Your Honor, Stephen Hall on

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behalf of Chanel.

THE COURT: Yes, sir.

MR. HALL: And for the record, Your Honor, I think even in their opposition -- or excuse me, even the motion in limine for excluding Dr. Feingold's testimony, there was some confusion as to what his opinion would be.

First, Dr. Feingold will not provide an opinion that the talc does not contain asbestos. That's not his opinion. He does form the opinion that there are cases of mesothelioma that occur whether it has not been known asbestos exposure.

And to correct counsel's number, it was that out of -- it was 12.5 percent of cases.

THE COURT: How many?

MR. HALL: 12.5 percent of cases with no known mesothelioma recurring -- occurring mesotheliomas. But out after that number, 70 percent of those were women. So it's not to say that 90 percent of --

THE COURT: Wait a minute.

MR. HALL: -- mesotheliomas in women are not the cause of asbestos.

THE COURT: Wait a minute. Tell me again

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what you say Feingold says about --
MR. HALL: Yes, Your Honor. Dr. Feingold bases his opinion on several studies that have reviewed the occurrence of a mesothelioma without known exposures to asbestos. And out of that, it has been confirmed that 12.5 percent of those mesotheliomas had occurred without known exposures. But of that study, 70 percent of that 12.5 percent were women. Not to say that 90 percent of mesotheliomas that occurred in women are --
THE COURT: And what's the universe of unknown cause mesotheliomas? Does he have a -- does he give a number about that?
MR. HALL: Well, for one of the studies that he cites to that was they followed 272 patients and that -- and out of those 272, that's where the 12.5 percent was confirmed that there were not any known exposures to asbestos. And of that 12.5 percent, 70 percent of those were women.
THE COURT: Okay. All right. Okay.
MR. HALL: Also in their motion in limine, they seek to exclude Dr. Feingold's testimony on the worse-case-scenario basis. I think

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Your Honor has already ruled on that to say that that would be allowed.
THE COURT: That's correct. Subject to cross examination.
MR. HALL: So there are only two points in which Plaintiff seek to exclude Dr. Feingold. One being the worst-case scenario, and then the second point would be whether or not he had the expertise to opine as to the fact that there are occurrences of mesothelioma where there's no known asbestos. And I think counsel for Avon laid it out perfectly to Your Honor of what that opinion would formulate.
But I think one other point to add to that is as we get to the trial and as evidence is presented --
THE COURT: Well, Buddy, I'm going to tell you, we're going to be in trial before you can blink your eyes twice.
MR. HALL: I know, Your Honor. But what I'm saying is as the evidence is presented, to the extent there is no evidence to suggest that any asbestos was contained in Chanel products, then I believe it should be allowed for Dr. Feingold to explain that there are

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occurrences of mesothelioma where there's no known asbestos exposure.
I'll rest there unless Your Honor has any questions.
THE COURT: All right. What they say -- this 90 percent business, the way they get to that is this: There's this guy, Bertram Price, who's a mathematician and his work is funded by a bunch of talc miners, vermiculite miners, and manufactures of asbestos-containing products.
And Price is the one that comes up with the concept that 90 percent of mesotheliomas in women are spontaneous and unrelated to asbestos. How Price, the mathematician, comes to that extraordinary conclusion, I don't know.
But the contention is that your Dr. Feingold relies on Price.
MR. HALL: That's only one study he relies on, Your Honor. What I just quoted you is a study from Yates. And there are several studies, and this -- and those are just one example. They picked out one that, you know, would cause some contentions here.
THE COURT: Here's what I don't want to have happen. Here sits Feingold and, you know,

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he's got all kind of thoughts about mesothelioma in general and so forth. He's a pulmonologist. What I'm concerned about is his going beyond his industry opinions about mesothelioma and cosmetic products and whether they have asbestos in them and gets into expressing a medical opinion about the cause of Ms. Payne or Ms. Plant's mesothelioma.
Because if he's going to be put up there to come down by saying, My testimony is that their mesothelioma was caused by spontaneous situation, a naturally occurring situation, or idiopathic, meaning we don't know what caused it, that's what I'm concerned about Feingold having any kind of ability to opine about these two women and the cause of their mesothelioma.
Because what you recited to me doesn't sound like it in any way qualifies him to talk about these women and their particular meso. He's got some ideas generally about the topic, but what qualifies him to say specifically what caused their mesothelioma?
MR. HALL: Your Honor, he's only being presented for the Payne case.
THE COURT: All right.

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MR. HALL: But I think it's a finer point, Your Honor, is that Dr. Feingold had the expertise and knowledge to understand that there are occurrences of mesothelioma that do not involve known exposures to asbestos.

THE COURT: Fine.

MR. HALL: But before we get to his opinion, there needs to be evidence that Ms. Payne was exposed to asbestos-containing talc manufactured by Chanel.

THE COURT: You can sit him in the jury box and say, hey, I didn't hear any evidence that says she was exposed to anything I think is asbestos, therefore, because I didn't hear anything, it's my opinion that absolutely her mesothelioma was not caused by asbestos-containing products but rather spontaneously, naturally occurring, idiopathic. And that's what I'm concerned about.

That's -- if anything, a jury determination is certainly not a determination he is qualified to make just because he looks at what the evidence adduced in court is about her exposure.

MR. HALL: Your Honor, I want to refine that point just a little bit further because

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that -- the testimony wouldn't be that emphatically I will testify that my opinion is that it had to be some spontaneous occurrence. It's the explaining to the jury, who will be given tons of information, and if they get to the point where they haven't received any information about the asbestos content of any talc product made by Chanel, what would they do then?

This expert comes to explain that there are instances where there are mesotheliomas where there is no known exposure to asbestos. So then the jury has the opportunity to reconcile, based on the information that they have received from fact witnesses and from experts, whether or not that exposure or exposure to Chanel products was the cause for her mesothelioma.

THE COURT: And, Mr. Hall, I'm not nearly as uncomfortable with that. I'm not nearly as uncomfortable with that. Our friends on the Plaintiff side, they don't think you ought to be able to say any of that.

But what I'm uncomfortable about is having him take that next step and say here's what caused the mesothelioma.

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MR. HALL: And I understand that, Your Honor.

But preventing him from testifying about the occurrence of mesotheliomas without the known exposure to asbestos at all, precluding him to testify at all about that would prevent him from making that testimony that you're more comfortable with if he's completely excluded from testifying to that point.

THE COURT: I get that. I mean, I can put some limitations on it.

MR. HALL: That's all we ask, Your Honor.

THE COURT: Okay. I think I understand your position.

MR. HALL: Thank you, Your Honor.

THE COURT: All right. That's Feingold. Now we still have this Weill. Dr. Weill. Plaintiffs are going to talk about Dr. Weill, and then you are going to have somebody that's going to say you don't want him excluded.

So Dr. Weill. Then I'm going to rule on all of them. Go ahead.

MS. GROSS: Unsurprisingly, we're moving on the same topics. We are moving to exclude Dr. Weill to come into this courtroom and say

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that Ms. Plant and Ms. Payne's mesotheliomas were spontaneous. We also moved on the worst-case scenario, but Your Honor has already ruled on that, so you can totally ignore that part of the brief. You've already ruled on that.

And then, again, his opinions that there's no asbestos in talc, completely lacking foundation. I won't belabor the point. When I deposed Dr. Weill, he admitted Ms. Payne never had any genetic testing, and he's going to come in here and say that her mesothelioma was spontaneously as a result of some sort of genetic issue.

He admitted that there was no testimony regarding an alleged family history of cancer, so he can't come in here and say she had a history of cancer like some other experts are doing.

Just like some other experts we've talked about already, he hasn't reviewed any testing results of products ever. Not just for Payne and Plant. I specifically asked him, "And that's for ever, Dr. Weill, you've never reviewed any testing on any talcum products

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ever?" And he said, "Yes."

Your Honor already keyed in to the Bertram Price argument, so I don't need to belabor that point either. But it truly is the same argument.

THE COURT: Okay. I got you. All right.

Who's going to argue for the receiving Weill?

MR. PRIEBE: Good afternoon, Your Honor. Sorry, it's me again, for Avon.

THE COURT: No apologies necessary. You did a good job before.

MR. PRIEBE: Thank you, Your Honor. I appreciate it.

This is Avon just limited to the Plant case. And I think Avon may be the only person currently in the case Payne with Dr. Weill.

But I just want to just clarify, I disagree with how the plaintiffs have stated what Dr. Weill's opinion is going to be.

There's no question Dr. Weill, like a number of other experts, will mention what we call this spontaneous or idiopathic opinion that's been covered ad nauseam. So I won't raise that again.

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But Dr. Feingold is certainly not going to opine that talc doesn't contain asbestos. It's completely different.

THE COURT: I mean, you have to say that because here's what he said, "Have you ever reviewed, Doctor, any testing results of Cashmere Bouquet Talcum Powder for the presence of asbestos?"

"No."

"Have you ever reviewed testing results of Avon talcum powder products for the presence of asbestos?"

"No."

"And that's ever and all time, not just for the Payne case, true?"

"True."

MR. PRIEBE: That's correct, Your Honor. And so that was an incorrect summary of what Dr. Fein -- or Dr. Weill's testimony will be.

Dr. Weill is going to opine on the fact that even assuming a scenario where the talc was contaminated by .1 percent, it would not increase that person's risk for contracting mesothelioma. And that's going to be based on his, of course, certainly extensive medical

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training and also based on the medical literature.

THE COURT: And here's another quote by him that kind of gives me a little bit of heartburn. He says that "A significant proportion of mesothelioma cases had no prior history of asbestos exposure with a larger proportion of female cases reporting no exposure to asbestos."

But then he says he doesn't know anything about the products these ladies used.

So I don't know how you say, as he did, that their mesotheliomas were spontaneous when he hasn't -- he doesn't have any real specific knowledge at all about the products or the ladies.

MR. PRIEBE: And his testimony will be slightly different, Your Honor. I think I understand your concern. But Dr. Feingold is simply going to opine more of a macroscale with respect -- there's not going to be any type of causation such as Your Honor was discussing what we're talking about.

It's going to be more of a macroscale based on what's shown in the literature and what we know from various epidemiological studies, not

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any one particular talc product. But what Dr. Feingold will discuss is in all well-supported literature, and he will discuss the articles that he's relying on and cites to, but with respect to a certain population of people who have contracted mesothelioma, they just don't have any known asbestos exposure of any form. And however you want to label that in terms of it being idiopathic or whatever else, his testimony will then be that even assuming that the talc here would have been contaminated by .1 percent or something along those lines, it wouldn't have increased a person's risk.

THE COURT: That's what he says, of course.

MR. PRIEBE: He's not talking about, oh, Ms. Payne -- it's more than general principles based on the medical literature and the epidemiological articles. So the testimony that --

THE COURT: Of course the testimony of others is going to be that a lot of these products were well above .1 percent of asbestos content in them.

MR. PRIEBE: And Avon is here. We'll certainly be disagreeing with that, and the

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Court can hear all the evidence in question. But I think as it concerns this particular motion in limine for Dr. Weill, I think the premise that the plaintiffs stated for why they wanted him excluded doesn't exist. And anything else, you can hear the testimony and make the decision as it comes in.

THE COURT: I understand.

MR. PRIEBE: Thank you, Your Honor.

THE COURT: Here's the ruling with respect to --

MR. RAWL: Your Honor, I apologize. Feingold is in Plant still?

THE COURT: Sir?

MR. RAWL: I apologize. I'm Vic Rawl on behalf of Color Techniques.

THE COURT: For what?

MR. RAWL: Feingold is still in Plant for Color Techniques, and it was stated by Avon that Feingold was not in Plant. But Feingold still is in Plant.

THE COURT: For Color Tech.

MR. RAWL: So I'm not going to repeat what --

THE COURT: Very good. That's helpful.



Thanks, Vic.

MR. RAWL: The only difference is in Plant, Feingold did actually have slides and did the pathology and reviewed the slides of the lung tissue to confirm there was no asbestos traces in the lung tissue, which was also another basis for the reliance of his testimony in that case.

Thank you.

THE COURT: All right. Okay.

I don't know what to make of that, to be honest with you, Vic.

Here's what I'm inclined to say. In reviewing the slides and saying you don't see any asbestos in them, we can deal with when that comes up if Feingold testifies for Color Tech.

But here's what I'm going to rule. I am going to partially grant and partially deny the plaintiff's motion in limines with respect to Dr. Gregory Diette, Dr. David Weill, and Dr. Allan Feingold.

And the limitation is going to be this: I am going to -- I wrote it down. I am going to rule that those witnesses may testify generally about cosmetic talc and about asbestos and cosmetic talc and about how that affects the



contraction of mesothelioma.

They will not be allowed to opine about the cause of the mesothelioma that has been contracted by Sarah Plant or by Shelby Linville Payne. So they can be a part of the expert testimony about this subject. Of course, as time moves on and they begin to testify, I may have some rulings that will still be required to be made as the trial moves forward. But I am not going to forbid them from testifying as requested. But I am going to limit their testimony, and I pray that my limitation will be obeyed by them, as it was not by Dr. Attanoos.

Because that's the way I would like it to be is they can testify as experts. Of course, they will be subject to some rather severe cross-examination. As we know, that's all part of what takes place.

But they will not be able to testify specifically about the cause of mesothelioma in Plant and Payne.

So that's the ruling on those.

THE COURT REPORTER: Can we take a break when you finish this section?

THE COURT: Sure. Let me look at where I



am right now, and we'll take a break.

THE COURT REPORTER: Perfect.

THE COURT: Okay. I'm not taking a lunch break. Everybody will just have to suffer. Let's be back here at -- it's now about a little more than five minutes to 2. Let's come back at here at 2:15.

- - -

(A recess transpired.)

- - -

THE COURT: This is the authenticity of Chanel's --

MS. GROSS: Yes, ma'am.

THE COURT: All right. Plaintiff's Motion in Limine to Preclude the Argument that Chanel samples tested for asbestos are unauthentic. The testimony of Dr. Longo and Dr. Compton.

MS. GROSS: It's a mouthy title. I can probably sum it up for you a little bit more concisely.

Really what this MIL is about, Your Honor -- Rachel Gross on behalf of the plaintiffs again. -- is that Chanel in any case across the country, in any jurisdiction, comes in and says that all of the testing that MAS or

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MBA, the labs that Compton and Longo are at respectively, any testing that they've done on a Chanel product that has found asbestos, they're not authentic, they're counterfeit. And they make these grandiose arguments about how there's this raging counterfeiting of Chanel beauty products.

And in this case in particular, one of their experts, Jennifer Pierce, regurgitated that same opinion. I'm not quite sure how she's qualified to opine on that. She's not a counterfeiting expert, as far as I know.

But regardless, MAS tested between 2019 and 2020, 42 samples of Chanel powder. There were some body powders, and then there were a few face powders. There were three face powders and 39 body powders.

And in that time, 40 of those 42 samples, MAS found to be positive for asbestos. About half -- I think half -- I think or not about half. I think half were tremolite and half were chrysotile. Which is entirely consistent again with what Your Honor and I talked about earlier this morning, the fact that Chanel exclusively used Italian talc.

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THE COURT: Right.

MS. GROSS: Which historically has tested positive for both tremolite and chrysotile. Entirely consistent results.

Several -- I have right here. I wrote it down here, three of the body powders --

THE COURT: You've got it in your thing.

MS. GROSS: Yes, ma'am.

THE COURT: Three of them and Ripley.

MS. GROSS: Yes.

THE COURT: 12 are the Simon Greenstone Panatier Law Firm.

MS. GROSS: That they came directly from Chanel.

THE COURT: And 21 were purchased by that law firm online.

MS. GROSS: 15 of which arrived to MAS still sealed.

THE COURT: Right.

MS. GROSS: You have all that. So there's no real chain of custody concerns unless -- with Chanel coming in here and making the argument that are counter -- potentially counterfeit, what they're asking the jury to speculate is that somehow somebody -- whoever the seller was

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online or Chanel themself, if that's where the products were purchased directly from, somehow got ahold of noncommercially available asbestos or some chrysotile somewhere and somehow got it into the body powder. Some of which were still sealed and somehow got it through the little holes. I mean, it doesn't make any sense.

And when I deposed Chanel's corporate representative, I asked her very cleanly, "Okay. How can Chanel authenticate their products? How can you make sure that what's being tested, whether it's already been tested or in the future is authentic and not counterfeit?"

She said, "I don't know. Legal knows that. I don't know. I have no idea."

So you have Chanel telling you we have no idea how to determine this. Maybe our lawyers do, but I don't really know. Then I followed up on that and I asked her in the deposition if Chanel had ever quantified how often their products are actually counterfeited because they say there's rampant counterfeiting.

And she said, "I don't believe so. I don't know."

And that's on pages 155 through 156 of her

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deposition.

So Chanel also refuses access to their formulas, so you can't actually -- that's all in the briefing, Your Honor, so you can't actually determine -- there's no way anybody can determine if they're actually counterfeit because they claim it and then refuse access to all --

THE COURT: Did they finally give you their formulas?

MS. GROSS: No, ma'am. What we received in this case was redacted, and it's not in the briefing, but I will tell you that I asked a representative how many of those formulas are obsolete? Meaning they don't exist anymore.

And she confirmed to me in the deposition that all the Chanel No. 5, which is the product -- one of the products that Ms. Lancaster testified about, as Your Honor knows, were all obsolete. So I'm not even sure why they're redacted, but they are.

So that's where we're at is to have Chanel come in here with the argument to the jury that they could possibly be counterfeited with no foundation for that or have it carried out by

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their expert, who really has no qualification to opine on it, is incredibly prejudicial.

And unless Your Honor has any questions, I think that pretty much sums it up.

THE COURT: Okay. All right. Who speaks for Chanel?

MS. MALIK: Anne Malik again for Chanel.

Your Honor, a couple of things on this. Ms. Gross said that there isn't a way to determine if the products are counterfeit absent the formulas. And as our motion makes clear, this argument really only goes to these eBay and online seller products. We're not talking about the other products that Dr. Longo tested.

THE COURT: So how many of the products are you talking about?

MS. MALIK: I believe the number is 21.

THE COURT: So you all are talking about a significant --

MS. MALIK: It's chunk, yeah. And of the --

THE COURT: What is the foundation for the claim that they are counterfeit?

MS. MALIK: So first of all, counterfeiting is a huge problem for --

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THE COURT: What?

MS. MALIK: Counterfeiting is a huge problem for Chanel. And Chanel's head of intellectual property, Adrienne Hahn, her job is basically to address counterfeiting and work with international authorities, U.S. Customs Border & Patrol on seizures of counterfeit goods.

So as part of that job, she has to know what all the packaging looked like and what was available when. She's looked at these products, the images that Dr. Longo provided, and, I mean, there are products in there that never existed in that configuration. That Chanel never sold a black shaker top with a gold band. They don't exist. So they have to be counterfeit. The package can't be a genuine Chanel product.

There are other ones that have other indicia on the package that they are not real. And we are absolutely not going to have any witness advance the argument that someone went out and deliberately put some chrysotile or something into these products. Never.

What we would say is that there are products out there that are counterfeit products

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and that these products do not match genuine Chanel products. That's it. We don't want to have Dr. Pierce do any of this. I know she said something in her deposition that is not -- I represent to you we will not have her say that. This is all from corporate testimony from people who know the products, know what the packaging was, and it's a proper set of -- piece of fact testimony for the jury to weigh against Dr. Longo's findings and --

THE COURT: Why didn't you give them the product formulas? That would be a way of -- the product formulas are supposed to be given in all these cases. We going to have a little step-to about you all's motions for protection and all, I guess, before this is all over with. There's a real simple way to solve this thing.

MS. MALIK: My understanding, Your Honor, is that Chanel, Inc., doesn't have product formulas.

THE COURT: Oh come on. No way.

MS. MALIK: That's what I've been told.

THE COURT: No. They have something somewhere that says what they put in their stuff. They would have to have that. They

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could have all kind of problems if they didn't do that.

MS. MALIK: My understanding is they don't.

THE COURT: Huh?

MS. MALIK: My understanding is they don't, Your Honor. That's what's been represented to me.

THE COURT: That -- you can tell Chanel I am very concerned about that kind of assertion. It is counter to anything I have ever experienced with the many corporations I've dealt with in a 55-year history of being in the law and doing a lot of defense work in my time. That doesn't calculate for me.

MS. MALIK: These aren't formulated by Chanel, so ...

THE COURT: Huh?

MS. MALIK: They aren't formulated by Chanel.

THE COURT: Who are they formulated by?

MS. MALIK: The big Europe entity. A different company.

THE COURT: Chanel is not going to escape responsibility for giving information about its products by saying some foreign corporation

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actually formulated it. It's got the Chanel Cs all over it, and they put it in the stream of commerce. And now we've got a situation where contention is made about it, and they're saying we don't have any formulas. I can't -- I can't rack my head around that.

I'm not fussing at you. You're as fine a lawyer as ever, as ever there was in my court, so it's not on you.

MS. MALIK: No, I understand, your Honor.

THE COURT: And your colleagues who are representing Chanel. But they need to understand that I don't understand that assertion. It's contrary to any kind of normal corporate practice I have ever heard about. And it's not something where they can say, hey, these foreign people did this, we don't have any formulas. And particularly not in the cosmetic industry. That doesn't just -- they practically invented formula cards.

MS. MALIK: But, Your Honor, even without formulas, the packaging itself that Dr. Longo --

THE COURT: Well, I hear that a lot, but I mean to tell you, black and gold were the standards for Chanel when I was a kid coming up.

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MS. MALIK: But they never made this particular product. And there's six of them in Dr. Longo's report, and they just never ...

THE COURT: Well, they got to, you know -- they aren't going to give any information about their formulas and their products, but they are just going to say, hey, we never made this one. Is that what it boils down to? It doesn't look like what we make.

MS. MALIK: I mean, the amount of talc, the source of the talc has all been provided. I believe the only thing that would -- the other thing would be fragrance information, which is my understanding other defendants don't provide as well.

THE COURT: Well, I don't see how they could give that without giving the formula for the whole kit and caboodle and ball of wax. I'm not understanding that. Please convey that to them.

MS. MALIK: I will.

THE COURT: Okay.

MS. MALIK: Thank you, Your Honor.

THE COURT: All right. That's Chanel.

I will grant the motion to preclude the

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argument that the Longo, Compton testing was of samples that are not -- that are counterfeit, not authentic. Just doesn't seem to be any basis other than some cursory observation of one photograph for contending that. It is highly prejudicial if it's said and it turns out not to be so, so I grant the motion.

All right. Motion in limine 23 to Preclude Evidence, Testimony or Arguments re: N-O-A-E-L.

MR. BRALY: Good afternoon, Your Honor. Benjamin Braly for the plaintiffs in both Plant and Payne.

The acronym that's commonly referred to as NOAEL, like Christmas, but with an A in it. It stands for no observable adverse affect level.

And what this motion really tees off on is the specifics of a range of numbers that are given as a threshold below which chrysotile-based exposures cannot cause mesothelioma. That range is extraordinarily high. And I know numbers sometimes get lost in the wash. But the numbers are 208 to 415 fiber cc-years, which is what two papers authored by the same chemist author, Jennifer Pierce, wrote once in 2008 and again in 2016, published.

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Those numbers and those specific values, the 208 to 415 fiber cc-years are then parroted by every single defense expert that will come and testify specific to chrysotile asbestos and its abilities to induce mesothelioma. We provided citations for that.

Dr. Attanoos will testify about it -- well, maybe not now -- but other experts will provide the same testimony relying on the same paper.

The problem here and the issue here is not a battle-of-experts issue. This is not an issue where an expert is going to come in and say, You need mountains of chrysotile asbestos to cause mesothelioma. We know that would be somebody's opinion. We would expect it to happen.

The issue here has to do with this specific paper and how they reach this conclusion. And specifically what I mean by that is that this paper claims to be a thorough review of all the literature that could be found, claims to have reviewed 350 studies. And ultimately they come up with four. They reviewed four papers.

And they went through each of those four papers with a certain methodology in mind that they didn't follow -- and I can talk about that

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to your heart's content, if you're interested.
-- to reach these numbers which were engineered to create a threshold in the literature for chrysotile asbestos. They couch it as NOAEL, as no observable adverse effect level. So they don't have to call it the threshold.

But one of the coauthors of the paper, Dennis Paustenbach, actually testified in a deposition that it very much is a threshold-based paper. And they created this for the express purpose of being able to tell judges and jurors that nothing below these specific numbers cause any harm.

The four specific studies have all sorts of problems that are outlined in the briefing. The most glaring of -- that's germane to all four of them is that they would take numbers that were measured under an old industrial hygiene technique and then convert those total dust findings to fiber cc findings, which can't be done.

And they acknowledge in the paper that it can't reliably be done. And specifically for the paper that had the highest reported values of mesothelioma, it was a paper called Lacquet,



L-A-C-Q-U-E-T, from 1980. The authors actually state in their paper that they are making guesses at best, reestimating dust concentrations, and then they come up with exposure levels that literally make no sense at all.

Exposure levels like 1600 to 3200 fiber cc-years of exposure up to -- or down to 800 to 1599 fiber cc-years of exposure.

And as it's reported in our briefing that people --

THE COURT: Let me just say this.

MR. BRALY: Sure.

THE COURT: I know what your argument is about Lacquet, McDonald, Alvin, Theolota, the NOAEL that Paris put out for mesothelioma on chrysotile, the Paris' 2016 update, I know about all that.

Some federal courts have excluded some of Paris' stuff, but a lot of this is just the battle of the experts, in my view.

MR. BRALY: So battle of the experts would be true if this were just chrysotile requires more exposure kind of thing. This motion deals specifically with the values being hoisted in



the paper itself. Because it becomes part of the circular logic of defense experts.

THE COURT: I understand that.

MR. BRALY: All right.

THE COURT: I think they got a lot of difficulties with them. But I am reluctant to get down in that kind of a granular basis to start. I mean, there are a bunch of these papers that don't make any sense based on the chronologic both ways.

MR. BRALY: Sure.

THE COURT: And I just don't think that's my job to get in here -- we're now talking about papers. It's you all's job to make these experts look less than reliable if they rely on unreliable stuff, but I am not going to grant this.

MR. BRALY: Thank you very much.

THE COURT: All right. That's denied.

All right. This is the motion in limine with respect to Dr. David Howwit or Howitt.

MR. BUHA: Thank you, Your Honor. This is Mark Buha on behalf of the plaintiffs.

THE COURT: Let me see if I can find this thing first. Hang on for a minute.



MR. BUHA: It's at tab 12.

THE COURT: How about hand me up this one that is Howwit. I remember seeing it, but it's not in the correct tab.

Wait a minute. Hold it. Hold it.

MS. MCVEY: It should be tab 12, Your Honor.

THE COURT: Yes, wait a minute. I got it.

Okay. I got it. This is Dr. David Howwit, Ph.D.

MR. BUHA: Yes, Your Honor. We would preclude Dr. Howwit. We identified -- we are moving to exclude him entirely, and we identify four specific bases. I will add a fifth basis based on the second day of his deposition which occurred just last week.

But this is a material scientist for Mary Kay who has never testified in an asbestos or talc case, has never tested a bulk sample for the presence of asbestos. His experience is limited to work in the late '80s and early 1990s. And he offers the opinions that no talc in Mary Kay ever contained asbestos.

He offers state-of-the-art opinions. He offers opinions about criticizing Dr. Longo. He

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offers opinions about alternate exposure, which I think his opinions about alternate exposure regarding Ms. Plant's father being a plumber. And a distinction, he's offering the opinion that each time that Ms. Plant or Ms. Payne washed her face, that they inhaled asbestos fibers from the water that they were using.

He offers a number of opinions about asbestos -- inhalation from asbestos-contaminated water.

And I believe that can be subsumed within Your Honor's ruling on motion in limine 12 at the beginning of today.

And the fifth bases that I want to identify is Dr. Howwit's opinions not just about this disagreeing with Dr. Longo, not that he believes he's using a different methodology or inappropriate methodology or he came to the wrong result, but that he testified repeatedly that he -- Dr. Longo falsifies data, is intentionally misleading. He testified that Dr. Longo commits perjury.

He testified he's actively conducting experiments where he is deliberately creating dust clouds in his laboratory in order to create

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false results, and a number of opinions and statements about Dr. Longo's intentionality, and he's essentially accusing him of criminal behavior.

THE COURT: Now, where does some of this Weill stuff come from? Is that in his deposition?

MR. BUHA: So unfortunately, the second day of his deposition occurred on February 7th. And I just have gotten a rough draft recently. We weren't able to submit that.

THE COURT: But that's in the depositions --

MR. BUHA: That's his testimony --

THE COURT: -- falsifying all that kind of thing?

MR. BUHA: And in Volume I of the testimony that was submitted, he said I think three times falsified.

THE COURT: Okay. I got your argument. Let's get the other side in here.

MR. BUHA: Okay.

THE COURT: Ms. Herz.

MS. HERZ: Thank you, Your Honor.

Your Honor, did you receive -- I think it

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was filed on Monday -- the defendant Mary Kay's opposition to this motion in limine?

THE COURT: I'm sure I did, and I'm sure it's back in my chambers if I need to pull it or if you want to hand it up to me, that's good.

MS. HERZ: I'm going to hand you mine. I've got notes on it, but nothing bad. It's just underlining and stuff. That might make it easier.

I wrote down Your Honor's position that this is a battle of the experts. And for the first time, as I understand in one of these cases, there is an expert in material science and testing.

I think it's important to understand the backdrop of David Howwit -- Dr. David Howwit's testimony, and it begins with Dr. Longo.

Dr. Longo has testified, you know, hundreds of times. He's testified from coast to coast. And he used to testify until recently that TEM was the only way. The best way, if you really wanted to know, put it in the TEM.

But in this case, he testified a product -- a Mary Kay -- allegedly a Mary Kay product from the '80s, and he put it in the TEM and it showed

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no asbestos.

And this is an area of expertise of Dr. Howwit. Dr. Howwit has a bachelor's degree in material science from Oxford. He then got a Ph.D. in material science from the University of California Berkeley. He opened a testing lab. He's taught for 30 years. He's a professor emeritus at the University of California, Davis on material science and testing methods. And this is where Dr. Howwit is going to focus his testimony.

Regardless of what the plaintiff asked him over two days worth of depositions, Dr. Howwit is going to testify --

THE COURT: What is he basically going to say? PLM is great? TEM is not needed or what?

MS. HERZ: TEM -- just as Dr. Longo has testified many, many times, TEM is the test. If you want to detect trace amounts of asbestos, TEM is the method.

What Dr. Longo did when he didn't see any asbestos in the Mary Kay product, he then reverted to a method using an optical microscope. And he's got now a method, we'll call it the Longo method, he's got a method,

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Judge, that hasn't been published, hasn't been peer reviewed, and now he wants to say he found .003 to .006 percent chrysotile in this Mary Kay product that Dr. --

THE COURT: This is the heavy liquid separation thing is what --

MS. HERZ: A version of it. It's not that.

THE COURT: I don't know whether it's good, bad, or indifferent. But here's what I'm concerned about. I don't like this idea of coming in here and accusing people of criminal activity and faking things and all that kind of thing, what the young man for the plaintiffs was talking about what he said in his deposition. That -- he doesn't have any basis for that. I mean, that's beyond the battle of the experts. That's in the pejorative language about the other side is not an analysis of the science. It's an accusation of them committing crimes.

I'm -- he's got to know a lot more than he knows right now for me to allow him to do that kind of thing. That's what's got me concerned.

I mean, this whole business of testing -- and we've had material science before. Listen, in the J&J cases, we had all kind of material

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sciences testify. So I'm not unfamiliar with this slice of the testimony.

But I am concerned if he has never tested about state of the art or testified about the state of the art or any of that stuff, whether he is someone qualified to express opinions about these things.

MS. HERZ: Well, he is.

THE COURT: People can be educated and be the most admired academic in the United States of America or around the world, and that's not the test that the gatekeeper looks at in terms of allowing their testimony because we tell -- I tell jurors, each one of them gets up here, I say, you know, by reason of the training, education, experience and by reason of my determination, this person is qualified to do something nobody else can do in front of you. You ordinarily are the complete judge of everything, but these people can express an opinion, which is normally something only you do back in the jury room. They are allowed to express an opinion, and I will approve them being able to do that.

And if he's not somebody who's qualified to

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do those kinds of things, he should be the most wonderful academic in the world, but he can't -- I'm looking at whether he's got the information and background to do it. And what I am a little concerned about is this pejorative side of his testimony, this thing of, hey, one of the things we're going to do with Longo is smear him up a little bit.

Listen, there's plenty to do without disagreeing about the methodologies and that kind of thing.

MS. HERZ: That's easy to solve. Do we agree, Your Honor, then Dr. Howwit can't smear Dr. Longo in this courtroom but his qualifications on testing methods and material science, he's used TEM, he's looked at asbestos in TEM, he's looked at asbestos in PLM, he's taught students for decades to use TEM. He knows the testing methods. He's read not just in this case, the testing studies of Dr. Longo, but he's read them in dozens of cases.

THE COURT: Well, you know, his opinion about PLM testing is an outlier. It's not mainstream. That's the first thing.

What I can tell from what you got in here

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and what they've got in their thing.

MS. HERZ: He --

THE COURT: And then when he follows the methodology that Howwit says is the way you validate a detect limit, then what -- Howwit comes around and says, well, he must have done -- he must have faked it in order to come up with the results he got. That's the part of it that worries me.

MS. HERZ: Your Honor, Dr. Howwit is eminently qualified on the subject matter that Dr. Longo wants to come testify about. And that's testing methods, testing methods to determine asbestos. Dr. Howwit's published in his field.

I think I heard you say in some other experts that somebody had not reviewed testing in this case or products in this case. Dr. Howwit has. He is a rebuttal expert.

THE COURT: Of course, he's a rebuttal expert and using -- and the big deal is always what kind of test you use. It's J whatever it is that the cosmetic fragrance crowd came up with. There's a big dispute about whether that is an accurate test. That's the basis upon

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which they said for years there wasn't any asbestos in any cosmetics. That's the basic test that Howwit uses. That's what he says is reliable.

MS. HERZ: TEM.

THE COURT: Well, he uses TEM, but he also -- his main thing he will do is say that this -- that the consumer fragrance crowd's test, that J whatever, you know what I'm talking about.

MS. HERZ: J4-1.

THE COURT: And, you know, that's -- I mean, even the FDA doesn't say that anymore. They recently came out with some stuff that says very different now. And that white paper, I know you all hate the white paper, but the white paper is certainly something that rebukes this notion that these -- that, you know, below 1 percent -- .1 is another burden.

So there's a lot out there now about this testing, and if this guy is going to be allowed to talk about what some believe is outlier kind of testing now, I am very concerned about him putting it in high gear and trashing people who have a different view. Particularly Longo. That's what's got me concerned.

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When you say he's going to testify, and it doesn't sound like you're saying he's not going to mention the same Longo. It sounds like that's what he's here for is to smear the representation of Longo.

MS. HERZ: Dr. Longo tested the Mary Kay products from -- that was mailed to him from California. And Dr. Longo has testing results of that product, and Dr. Howwit looked at those testing results. And that includes when Dr. Longo looked at it under state of the art, what everybody agrees is the only way, and that's TEM. And Dr. Longo did not find asbestos, and Dr. Howwit's going to talk about that.

And then Dr. Longo reverted to a method that is not published, not peer-reviewed, and nobody, nobody follows. In fact, the white paper says TEM is the way.

THE COURT: Yes, I agree with you. I actually have read the white paper. I'm going to tell you, that is some devotion to duty.

MS. HERZ: And so Dr. Howwit should be allowed to testify about Dr. Longo found nothing in TEM and why that is the gold standard now.

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Dr. Howwit also says that he was --

THE COURT: What does he say about the one that he has been discredited by TEM, which is that old one the cosmetic fragrance folks love so much?

MS. HERZ: Well, what he says is I was there -- meaning him -- he was there in the 1970s, and there were very few TEM machines and maybe even fewer people qualified to use it and J4-1. And I think Dr. Longo says this, too, Your Honor. It was as good as it got then. It was as good as it got then.

And, of course -- of course everybody now uses TEM except if Dr. Longo doesn't find the asbestos, then he --

THE COURT: You've said that about six or seven times now. I get that's why you are mad at him.

Okay. I'm going to hand you back up, Ms. Herz.

MS. HERZ: Your Honor, under 702 South Carolina Rules of Evidence --

THE COURT: Who's talking? Wait a minute. Wait a minute. We got -- you're talking. Let's get back to the microphone where she can pick

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you up.

You have something to say about 702?

MS. HERZ: I think Dr. Howwit is eminently qualified under 702. He'd assist the tryer of fact, he's qualified, and his methodology is reliable. He's going to talk about TEM and its reliability, and PLM, and this new unpublished peer-reviewed method that is not -- is not reliable. And that's why Dr. Longo --

THE COURT: Well, here's the thing that they complained about is he opines that none of the talc contained in -- the talc in Mary Kay contains asbestos. That's his testimony. Right?

MS. HERZ: They asked him that, but they also asked him --

THE COURT: No, no, no. Dr. Howwit testifies that there's no asbestos in Mary Kay talc, right?

MS. HERZ: On Volume I, page 128, 2 through 22, I believe if I'm reading correctly, "The opinion I have concerning Mary Kay products specifically is that there is absolutely no evidence of any kind that there is asbestos in this talcum product."

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Meaning the one Dr. Longo tested.
THE COURT: Well, that's not the way -- that's what concerns them. If you don't consider but one specific Mary Kay product and then make that determination, that is hardly a determination of the universe of Mary Kay products.
Now, Longo tested a bunch of Mary Kay products.
MS. HERZ: I think he's tested one. This one. I think everybody agrees it's one. This is it.
THE COURT: Okay. All right. So Longo's just tested one, and he's just tested one.
MS. HERZ: Yeah.
THE COURT: That confuses me. But you all are --
MS. HERZ: The first one ever, this case.
THE COURT: Well, I maybe better read this one again. I don't know how I feel about this.
I know one thing, if I let him testify, I am not going to let him testify that Longo doctored samples, that Longo lied, that Longo -- smear him in any kind of way. I'm not going to let that be done. So that's got to be out of

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the equation.
But what to let him testify about, he's never testified about state of the art or any of that stuff in any other courtroom. This will be the first one. And I don't know what else he has ever done great as he may be academically.
MS. HERZ: He's been an expert many times in other cases involving testing methods.
THE COURT: Well, he goes beyond testing methods now to make an affirmative endorsement of Mary Kay being asbestos free. That's what he's up there to do, and that's what he does.
MS. HERZ: Yeah, he reviewed Dr. Longo's testing in this case and points out --
THE COURT: Ms. Herz, let's not go -- all right. There are going to be a lot more than just Dr. Longo's test that's going to assert there's asbestos in Mary Kay products, so let's understand that. And so we will drill down on a narrow little point about what Howwit is going to base what he says on it.
And I'm still very concerned about letting loose a witness that has very little experience in state of the art and this particular thing give broad opinions because, frankly, the stuff

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I read before about Howwit that I got back in the office does not seem to zero in on just one little test Dr. Longo did. It's a much broader opinion about Mary Kay and about asbestos and cosmetic talc in general. And that's what's got me concerned.
I don't know if he's got the background for that, and I know he's got a bone to pick with Longo. And I don't like witnesses like that. They're going to slip up. I'll let them testify and then, by gone, they violate what I asked them to do and start going in front of a jury and it's kind of hard to unring the bell like that.
So that's what I'm concerned about.
MS. HERZ: I understand your concerns. Dr. Howwit is a rebuttal expert. He's here to talk about what Dr. Longo looked at in this case, and the problems with it. And he can be -- he can be informed of the Court's decision to not smear Dr. Longo, only to discuss the problems with his testing, what he did find, what he didn't find, why he didn't find it.
THE COURT: Okay. Well, let's just do this. All right. I am going, at minimum, limit

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this guy's testimony. So let that be known. And I'm going to look at this stuff again and make a note to myself that Howwit needs to be revisited before we start the trial. I won't leave you hanging until the end about what to do about it. Okay?
MS. HERZ: Thank you, Your Honor.
While I've got your ear, because I know you want to keep moving.
THE COURT: Yes, ma'am.
MS. HERZ: Which case will be tried next week?
THE COURT: You just don't know. We got to decide that after we finish all of these motions.
MS. HERZ: All right.
THE COURT: All right. That's Howwit.
Okay. The next one is motion in limine 19. Motion in limine regarding comments by the FDA that talc and food is generally recognized as Safe. GRAS.
All right, Plaintiff.
MR. BRALY: Ben Braly for the plaintiffs.
There is an acronym, GRAS, Generally Regarded As Safe, that the FDA assigned for the

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use of talc with food in consumable products. And it is part and parcel of the defense playbook to stand up in opening or to mention it with an expert either on our side or theirs that isn't it true that the FDA has found talc to be generally regarded as safe.

This is about as misleading a statement as can be made, and it requires a discussion in trial that is nothing more than a waste of time. Because the application of generally regarded as safe has to do with food. It has nothing to do with inhalation.

THE COURT: I agree.

MR. BRALY: Okay.

THE COURT: I understand the difference.

MR. BRALY: Thank you, Your Honor.

THE COURT: I will allow some argument on this, but I'm not inclined to let us go down that rabbit hole.

James.

MR. ELLIOTT: Your Honor. James Elliott for Avon.

Your Honor, I understand your position thus far. Just as an intro, I'd adopt all the arguments that are in our brief that we served

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and provide to Your Honor.

Your Honor, the FDA has designated food grade talc as being generally recognized as safe since 1965. Any talc process using the U.S. Pharmacopeia Standard, there's no basis to conceal that, Your Honor, from the jury.

Cosmetic talc is processed by the same standard USP. The food grade talc comes from the same sources, same mines, Your Honor. The evidence is relevant.

The plaintiffs are free to cross-examine the witnesses on the strength of that determination, the background for that determination; however, the finding of the FDA, a regulatory body, with regard to cosmetic talc is admissible.

We attached exhibits, Your Honor, to our brief. One of which is a statement from the World Health Organization's International Agency for Research in Cancer. And what they say is the FDA regulates talc, and that it is generally recognized as safe for use in cosmetics.

And the basis for the finding of food grade talc is based on testing of the same exact talc that the FDA has done over the years and not

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found to be asbestos containing.

A theme in the plaintiffs' case is they want all the good information that comes out of the FDA to come into evidence. They want all the bad stuff as to their case to stay out. And this is an example of an effort to do that, Your Honor.

THE COURT: Well, here's my only issue about that, James, is relevance and possible confusion of the jury. There's a world of difference between ingesting this stuff and inhaling it. And all the cancers we're talking about are cancers whose pathway has been inhalation of asbestos. Whether it ends up being pulmonary, whether it ends up being ovarian, or whether it ends up being in the prostate, whether it ends up being in other mesothelial areas.

Mesothelioma is a cancer of something that is -- has a mesothelium. And the human body, the ways you get to those organs is through inhalation of the asbestos, as I understand it, and not through ingesting asbestos.

And so talking about how safe it is to ingest it misses pretty badly the point that

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that is -- that cancers of the mesotheliums are cancers that come about through a route of inhalation. And it's the process of inhalation and then the ability to stay dormant in an organ for so many years of latency. When you ingest things, they move through the alimentary canal and are excreted. And they don't get into the mesothelial cells.

So that's something that I'm sure that if we go down that rabbit hole is going to be something that is explained to the jury. You all want it to make the jury feel like, oh, this is not some terribly dangerous thing. This thing is safe. It can be ingested. But that's not what we're talking about here. That's what's got me concerned.

MR. ELLIOTT: I understand, Your Honor. But a couple of things is that the FDA is not going to allow or determine that talc that they've tested that goes in a food additive that has asbestos to be deemed generally safe, Your Honor.

And I believe that we --

THE COURT: I don't understand the FDA's pronouncement to be a pronouncement that

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asbestos is a safe food. Their pronouncement, as I understood it, there was some little monographing that I read is about how ingested matters go through the system as opposed to inhaled materials.

MR. ELLIOTT: There's an explanation of that, but that's what they say. But ultimately that talc that is used in the food additives, that the FDA has said is generally regarded as safe.

THE COURT: Well, see, that's what I don't want to have you be able to say in front of the jury. The fact that the FDA does not exclude from the marketplace or recommend no use in the marketplace asbestos in food additives is something that I don't have any trouble with doing.

But saying that because they don't exclude it, they have made the determination that it is safe for inhalation is not true at all. And making it saying it's safe has nothing to do with its properties as an inhaled material, which they have now made pretty clear is unsafe. And they have gone over the years even more strongly towards having to test for it and

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everything else.

MR. ELLIOTT: My only point -- an additional point, Your Honor, is though that exact talc that they tested for the food additive purposes is sourced from the same mines that --

THE COURT: So what?

MR. ELLIOTT: Because they're not finding asbestos in it. We want to be able to explain that. Explain the --

THE COURT: That's a convoluted way to explain it. Again, you know, are they saying it's the talc, the pure talc from the mine that's okay? Are they saying, hey, if you put asbestos-containing talc, it's okay?

MR. ELLIOTT: No. They're saying that the talc that is used in food additives, which is sourced from the same mine as asbestos talc, is generally regarded as safe.

THE COURT: And that's a determination one might argue that is because it doesn't have asbestos in it.

MR. ELLIOTT: True.

THE COURT: Right?

MR. ELLIOTT: Yes, ma'am.

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THE COURT: Well, then, other than jury confusion and making them feel like, hey, maybe they're wrong about this. He didn't have any asbestos in this talc. There's asbestos in this talc.

MR. ELLIOTT: And they can put forward evidence of that. But we should also be able to put forward the evidence of the FDA's research over the years and the findings that went into their conclusions that --

THE COURT: I don't think there's one -- one that said talc in food which has got asbestos in it is okay. They didn't say that.

MR. ELLIOTT: I agree with that.

THE COURT: Huh?

MR. ELLIOTT: They did not say that.

THE COURT: The very fact that we are having a conversation like that is -- I am going to deny the motion to exclude it. But I'm going to tell you, I am going to be watching like a hawk. If we get into the business where that jury is suggested in any way by anybody that the talc that they said was okay was talc that had asbestos in it, then we're going to have quite a step-two.

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MR. ELLIOTT: Understood.

THE COURT: And your witnesses go down that road, there's going to be some instructions to the jury and some presumptions made because I will do that in a heartbeat if my ruling is ignored. And my ruling is you cannot tell that jury that the FDA approved talc that had asbestos in it as safe.

MR. ELLIOTT: Understood.

THE COURT: Okay?

MR. ELLIOTT: Yes, ma'am.

THE COURT: All right.

MR. ELLIOTT: Thank you.

THE COURT: All right. This is 20. FDA approved talc. Okay. That's 20.

Let's go to 15.

MR. BRALY: All right. This is a little bit hand-in-glove with the prior one. This is a motion to exclude the representation that the FDA has approved cosmetic talcum powder or said it is safe. They haven't. The FDA has no premarket authority to make such a determination. The FDA does not preapprove products on a safety basis. They don't have that authority.

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And the statement I'm believing is going to be made is that the FDA said that all of this was okay. That the FDA reviewed, you know -- did their own testing or whatnot and made this determination.

The FDA doesn't have the authority to order recalls. They don't have the authority to dictate what companies choose to put in their products or not.

THE COURT: Here's my problem with this --

MR. BRALY: Sure.

THE COURT: It's going to be hard to make this ruling that you all are not going to open the door on because you are going to certainly, when you talk about the history of this thing, want to show that, you know -- I mean, McCrone found asbestos in cosmetic talc in 1972.

MR. BRALY: Right.

THE COURT: And then the CFTA got on and forced them to back down for -- you know, had a 211 and so forth and so on because the cosmetic industry did not want the FDA to recognize that -- those tests. You all are going to go through all of that.

MR. BRALY: You're right.

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THE COURT: And so, you know, I can make a ruling like this. You're going to open the door back because you're going to be talking about this.

MR. BRALY: The FDA did not make a determination that asbestos in talc --

THE COURT: The FDA still doesn't license talc or say when it can or cannot be put on the market.

MR. BRALY: That's right.

THE COURT: That's fine. I just -- I could say they -- the claim that FDA has ever approved talc or said it was safe, I'll agree that they can't claim that the FDA has approved cosmetic talc or declared it safe. I agree, I can't do that.

MR. BRALY: All right.

THE COURT: They don't do that and never have done that and still haven't done it.

And, you know, I will grant that motion. But it is a limited grant because, A, it doesn't preclude him talking about the history of what the FDA did.

MR. BRALY: Sure.

THE COURT: And it certainly, you got to be

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careful about opening the door when you recite the history. Okay? You understand what I'm saying?

MR. BRALY: I do. I appreciate it.

I just wanted to point out Exhibit 18 to this motion was an FDA letter from March of 2014 specific to our prior motion, which explicitly stated that the designation of G-R-A-S, or GRAS, doesn't speak at all to issues regarding inhalation. Which is part and parcel of what we just talked about.

THE COURT: That's fine. If they get into it and defy my rulings, then where I told them to go or not to go, you got that letter, you can drop it right in there.

MR. BRALY: Thank you very much.

THE COURT: Okay. All right.

Now, the next one is 20 -- we just did 20. 22. Motion in limine to exclude any expert opinions regarding pooled analysis of unrelated talc mines or epidemiology studies of talc miners from Norway, Austria, and France.

Okay.

MS. GROSS: Another mouthful for a title, but really this boils down to, Judge, mine's not

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at issue. I'm fairly certain it's undisputed by everybody that the talc mines at issue in either the Payne or Plant cases are not Austria, France, or Norway.

The easiest way I can think to make this MIL make sense was that the composition of a raw talc mine --

THE COURT: I don't want to hear all --

MS. GROSS: You don't want to hear --

THE COURT: Why does it make any difference?

MS. GROSS: This is why. Because what they do -- there's this 2017 paper. I'll cut to the chase. There's this 2017 paper written by Finley and Marsh. We talked about it in our motion, where they do this combined study of Italy, Norway, France, and Austria. It's a study, and I can go through it if you want, but Your Honor has read the motion where it's a study that's designed to dilute the results.

Norway, France, Austria are not at issue in the case. There's no talc that came from those mines to any of the products that are at issue in either of the cases, and that study was designed to dilute the results.

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THE COURT: That's a study on people's reliance list. Do you think they are really going to spend any time putting up an expert that's going to deal with that? If so, it's going to be very easy to exclude.

I deny it.

MS. GROSS: All right.

THE COURT: Okay. Motion in limine number 2. This is to exclude BAP1 genetic references at trial.

This is the suggestion that a BAP1 mutation caused the mesothelioma of Sarah Plant or Shelby Payne.

Ms. McVey, as I understand it, there's no evidence that can be introduced that these genetic mutations caused mesothelioma; am I right?

MS. MCVEY: Well, that's even one step removed. Here, there has been no genetic testing for Ms. Payne, so there's no evidence that she had the BAP1 gene anyway.

And for Ms. Plant, there has been genetic testing, and she did not have it. So we're just trying to exclude any evidence of that.

THE COURT: So -- but, I mean, even if she

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did --

MS. MCVEY: Agreed.

THE COURT: -- she's an eggshell plaintiff. I mean, that's our ruling in South Carolina that many other states follow, is, you know, you come with a preexisting condition, you're an eggshell plaintiff.

MS. MCVEY: It just makes a complicated issue that we don't have to complicate here because there's no evidence that any of them have it. So we're just trying to exclude it so we don't have to deal with it.

THE COURT: Let me see what they got to say.

Anybody want to defend this?

MS. MCVEY: Maybe they're agreeing.

THE COURT: All right. Well, I grant the motion.

All right. That's number 2.

MIL 16 is exclude evidence or argument that the asbestos markers are required to diagnose asbestos-induced mesothelioma.

MR. BUHA: Your Honor, this is Mark for the plaintiff. In the interest of time -- in the interest of time, unless you have any questions,

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we'll rest on our briefs.

THE COURT: Is anybody going to defend this? Yes. Our newly admitted pro hac.

MS. YEU: Jooyoung Yeu from Latham Watkins on behalf of Mary Kay. J-O-O-Y-O-U-N-G, last name is Y-E-U.

Good afternoon.

THE COURT: By the way, that illustrates something you pro hacs that got in, be sure the court reporter picks up your name and the fact that you're admitted pro hac. I signed a bunch of them today, so be sure you reflect it in the record. I think you want your clients to have you get credit for being here.

Go ahead.

MS. YEU: So, Your Honor, I think this was an easy one to the extent that they are concerned someone is going to come in and say you need asbestos markers or else there's no way it can be asbestos-related meso. No one is saying that, so their motion is moot.

To the extent they're trying to exclude discussion of asbestos markers altogether, there's no basis for their motion.

So in addition for the reasons stated in

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our papers, although the plaintiffs themselves have committed to relevance of asbestos markers, Your Honor, you look at page 7 of their opposition, Defendant's motion in limine regarding ovarian cancers and other diseases, they say, and I quote, There are set standards for when it is appropriate for a medical doctor to attribute mesothelioma to asbestos exposure. The presence or absence of markers of asbestos exposures such as asbestosis and pleural plaques are factors to consider in attribution.

So there is nothing -- so they have admitted relevance, Your Honor. And there's nothing unduly prejudicial about that information, Your Honor. These are factors that plaintiffs themselves admit should be considered when you're considering whether this disease was caused by asbestos, and it goes straight to causation which is at the heart of these cases.

So, Your Honor, I'm sure you're aware there are -- there is an absence of asbestos markers in both Ms. Payne and Ms. Plant's cases. And so we would respectfully submit that this motion should be denied as either moot to the extent their motions is just seeking the narrow, you

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know, kind of opinion that no one is saying, or, you know, it should be denied because our experts should be allowed to talk about the lack of asbestos markers here.

THE COURT: Okay. Thank you.

MR. THACKSTON: I have one real quick.

THE COURT: I think she did a pretty good job --

MR. THACKSTON: She did a fantastic job.

MS. MCVEY: We agree with the first part she said.

THE COURT: I know. I'm fixing to fix this.

MR. THACKSTON: Your Honor, Robert Thaxton for WCD. The only point I would add is from an expert testimony standpoint, that their experts, when there is the presence of a marker, they testify about that as additional evidence for their causation opinion. And so I think it's just fair game to say on the flip side of that, when there's an absence of markers, you have to look at other things. It's a dose-related disease, and if you have -- the higher the dose, the more likely that there will be physical markers.



Thank you, Your Honor.

THE COURT: Well, I am not going to let anybody say that you have to have markers in order to be -- in order to claim that you have asbestos-induced mesothelioma. There's also going to be testimony that asbestos is a signal -- or a signature tumor. I think that's well within the -- what the science says.

It's certainly okay to introduce testimony that pleural plaques are another way to determine that asbestos was there. But I will grant this motion to which says simply that you can't try to present evidence that you don't -- you can't have mesothelioma unless you have a marker. It's additional evidence.

And I don't -- I went sideways and all kind of ways with your explanation about you have to look at other things and so forth and so on. I don't want that to be taken as my approval for saying that you can object to them saying mesothelioma is a signature tumor because that is mainstream conventional wisdom, as I understand it. Okay.

MS. MCVEY: These are the things you have ruled on in the past --



THE COURT: What's that?

MS. MCVEY: The next page is all the ones that I think you have previously ruled on in other cases so we don't need to argue them, but you may want to put your rulings on --

MS. HERZ: I know we would like to be heard on some of these, Your Honor. So as you go through, we may or may not need to be heard.

THE COURT: Well, I'm just going to run down them right quickly then. You can't put up the picture of Dr. Longo and the Georgia flag because it has the Confederate flag in it. Granted.

You can't say, hey, I complied the government regulations; therefore, I'm not liable.

MR. ELLIOTT: On that one --

THE COURT: What's that, James?

MR. ELLIOTT: James Elliott.

THE COURT: Come to the microphone so she can hear you and I can.

MR. ELLIOTT: James Elliott for Avon. Just briefly on the compliance with government regulations, I just want to make sure we're clear on what your ruling is. And what you



typically allowed is that we can put forward government standards, and whether we comply with them or not is not a get-out-of-jail-free card, but the evidence of that as to the standard of care is admissible.

THE COURT: Specific evidence of government regulations is permitted. I've allowed it. Specific evidence of what you say you did with respect to those regulations, that's allowed. You can't say, Hey, I complied; therefore, I don't have any liability even though there's tons of asbestos. You can't say that.

So I think I've stated what I believe in the past on this.

MR. ELLIOTT: Thank you.

THE COURT: Ms. Payne smoking, Ms. Herz.

MS. HERZ: Thank you, Your Honor.

Other than what we discussed as far as alternative exposure, I think what --

THE COURT: Yeah, the Kent micronite filter. Oh boy. The doctors used to advertise for that one.

MS. HERZ: I think one of the things you're going to hear from the plaintiffs in this case is that the defendants didn't put a warning.

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THE COURT: Oh yes. Yes. Yes.
MS. HERZ: And, of course, cigarettes had a warning.
THE COURT: I know that's what you all want to do is say, hey, she didn't obey the cigarette warning. I've ruled before it's too prejudicial, had limited probative value and it's too prejudicial. And I have consistently not allowed that to be done.
MS. HERZ: All right. Thank you.
THE COURT: All right. That's Ms. Payne smoking.
Corporate hearsay.
MR. SCHWEGMANN: Good afternoon, Your Honor. It is Chris Schwegmann again. This time again for Mary Kay.
THE COURT: Chris, I'll help you a little bit and just say this: You know, the corporate representative is going to use company records extensively to testify about a lot of things that the corporate representative has no direct knowledge about. Those business records, his or her information about them is perfectly legit.
MR. SCHWEGMANN: Your Honor, that's all I needed to hear. Thank you.

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THE COURT: Yeah. Yeah. So I don't expect one corporate rep to personally know everything that's in those corporate records. If it's in the corporate records, those letters and everything come in, yes, of course you can testify as to that.
MR. SCHWEGMANN: Thank you, Your Honor.
THE COURT: Okay. So I've granted the motion but it's only to the normal kind of hearsay you're talking about. Not anything to do with business records.
MR. SCHWEGMANN: I understand.
THE COURT: Publishing of Plaintiff's complaint.
Anybody else want to tackle Smith v. Tiffany?
I'll say for the record, I do not allow the publishing of a plaintiff's complaint. The sole purpose of which will be to show all these multitudinous defendants that were sued are no longer in the case.
Our Court, interpreting a legislative enactment, the Contribution Among Tortfeasor Act in South Carolina has repeatedly ruled that absent defendants cannot be placed before the

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jury. And that would, therefore, cover this matter of publishing the complaint with all those names.
The way these cases are tried, the juries are directed to find -- if they find that exposure to a particular defendant's products was a substantial contributing factor to the development of mesothelioma, they are directed to render a verdict of plaintiff's damages.
And then afterwards, I will conduct proceedings aimed at the contributions among joint tortfeasors issued. So that is how the Court has directed matters be done. This is not a policy decision I would be able to make. It's frankly not a policy decision that the South Carolina Supreme Court made. It is a policy decision directed by the legislative enactment and its various amendments.
And many plaintiff pleadings have been made by the particular toxic tort bar where things are complex, that these rulings may not be suitable for complex torts. And I have an urge to take a policy position in that regard as a trial judge. As a trial judge, I certainly can't do that. And for the Supreme Court so

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far, it has said we can't do that either. That's got to be the legislature that makes the policy decision.
So that for everybody's convenience is how I will rule on matters related to discussion or referring to nonpresent defendants or severed defendants.
So that's granted as usual.
Disparaging the plaintiff's attorneys. Of courses, nobody is going to disparage anybody in my courtroom. Not the defense bar, not the plaintiff's bar. We're not going to refer to out-of-town lawyers or anything of that like. All lawyers are completely and fully respected by me, and I believe all the lawyers in here trying this case, so if you have any concern, if you develop a concern through the course of the trial, of course you tell me immediately. And if I need to instruct the jury, I will do that.
Orders from courts on experts. I am the gatekeeper of expert testimony, and so I don't allow the jury to be -- have discussion about what other courts have argued.
Now, certainly other courts' rulings can be talked to until the cows come home in terms of

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having legal arguments about what can be done in the course of the trial or what charges I will make to the jury or anything of that nature because the law comes from many sources.

But in terms of having the jury -- and it comes up generally in experts. I have the California rule, out of order and couldn't be allowed to testify and disqualified to testify, I don't do that kind of thing.

I make the rulings and those are the rulings that control here. I don't let the jury be told that they could evaluate what some other court might have done with regard to an issue or with regard to a witness.

So I will continue with that ruling.

MR. ELLIOTT: Your Honor, can I just make a comment on that?

THE COURT: Sure.

MR. ELLIOTT: I'm sorry, James Elliott for Avon.

THE COURT: Sure.

MR. ELLIOTT: In the course of cross examination of an expert in court, direct really, and they say something along the lines of they've been excluded from testifying as an

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expert or something along those lines?

THE COURT: No, I don't let you do that.

MR. ELLIOTT: We cannot then use that order from another court to cross-examine and say, yes, you have, for example?

THE COURT: If you want to cross-examine them on their qualifications and start going through what the other court said and so forth, that's fine with me. You can -- but you can't say didn't the state of California, you know, Superior Jurisdiction 23 disqualify you from testifying? You can't ask it that way.

MR. ELLIOTT: Understood.

THE COURT: But you can ask a lot of questions about, you know, what their qualifications are and whether they need to know what they're talking about.

MR. ELLIOTT: Understood.

THE COURT: Plaintiff's agree to withdraw the Motion in Limine 15 on Mr. Segrave on beneficiation.

Plaintiffs agree to withdraw the motion in limine Number 17 on commercial definitions of asbestos.

And now we come to Mary Kay's Motion for

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Protective Order.

Hold it for a minute. Have I got that up here?

MR. SCHWEGMANN: Your Honor, it's relatively simple issue.

THE COURT: Can I just look for a minute, please?

MR. SCHWEGMANN: Of course, Your Honor. I just don't know if it's that going to be in that binder.

THE COURT: Well, let's try. I remember the motion, so let's try. I probably got it in my notebook back there.

MR. SCHWEGMANN: Your Honor, Mary Kay respectfully asks the Court to protect the confidentiality of its product formulas.

When you and I last spoke on October 27th, we had a hearing over that issue. The Court entered at that time a confidentiality order which allowed Mary Kay to protect the confidentiality of those formulas.

Now, during the hearing, Your Honor said twice, I think it's on page 79, and it might be 86, "I'm going to protect the confidentiality of the formulas."

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Shortly after that hearing, Mary Kay produced all of its documents, including the formulas. And the only thing that Mary Kay marked confidential was the formula cards. That's it. No other documents.

And sort of in reliance on what the Court said, unlike some of the other defendants in the case, I'm not casting aspersions, we didn't even redact the nontalc ingredients. So we gave the formula cards. We gave completely unredacted and we marked it confidential in our belief and reliance that those would be kept confidential.

And so shortly after -- well, I guess a couple of weeks ago, my colleagues on the plaintiff's side filed their Motions for Summary Judgment in their responses and they included in their appendices the formula cards and filed it with the public record.

Now, I didn't fuss with them about it because I know how it goes when you're trying to respond to, you know, 15, 20 Motions for Summary Judgment and you're trying to get all the materials together. I get that.

They then challenged, after they had already violated the confidentiality order, then

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they said, well, we want to challenge whether this stuff is actually confidential.

Well --

THE COURT: I already determined it was.

MR. SCHWEGMANN: That was my belief and understanding as well.

So what we respectfully ask the Court to do is just really protect the confidentiality. The confidentiality order that the Court signed allows -- and there's a provision in it, I think paragraph 9, that says, look, if there's an inadvertent filing of something that's confidential, that that can be either recontacted or taken from the record.

We're not asking for sanctions. We're not asking for anything like that because I know how it goes when you've got so many parties and so many documents at issue. We just ask that those formula cards be redacted from the Court's record.

THE COURT: Absolutely will be. Absolutely will be. And further, all right, the plaintiff will be directed that you can't be sharing these with other lawyers in other cases. That's the very reason they wanted to have them made

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confidential is they didn't want you to go share them around with other people. If they want -- if other plaintiffs want these things, they are going to have to go through what you did to get them.

That's basically the reason you did it, correct?

MR. SCHWEGMANN: That's correct. And that's it, Your Honor. Thank you.

THE COURT: We'll take care of that and -- all right.

How about work with Theile to get up an order that redacts it from the record, and Z will tell Theile how to do that when she gets back.

MS. MCVEY: Can I just respond real quickly, and then I want to fix it because the formulas were supposed to have been filed under seal.

I apologize. There's a process that we take to the clerk. I'll figure that out. I apologize. And I'll work with them.

THE COURT: Exactly.

MS. MCVEY: Your Honor, just briefly, though, they designated everything as

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confidential. The deposition of the corporate representative, the deposition -- all sorts of stuff is confidential.

THE COURT: That's all he asked for was formula cards.

MS. MCVEY: I hear you. The front page of the deposition says it's confidential. I just want to be careful of --

THE COURT: I don't hear him asking about anything except to ensure that these formula cards are protected.

MR. SCHWEGMANN: It is just the formula cards that are at issue. Those are the only documents we marked confidential.

Now, to be sure, when we started that deposition, I didn't know what they were going to ask about.

THE COURT: Sure. I think we're on the same page, Theile. You just work with him to file an order sealing the formula cards.

MS. MCVEY: And just one last thing. And I don't want to irritate you about this, but the formulas they are saying are protected are obsolete. They don't use --

THE COURT: That's okay. This has to do

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with the exercise of my authority to guarantee to him that they would be confidential in my records. And so that's what I want to continue to do.

MS. MCVEY: Yes, ma'am. I hear you. And the only other thing is when -- we're going to have to be able to use these formulas in trial?

THE COURT: Yes. Of course, the record of the trial, they will be like you do with confidential material, even confidential material that goes to the jury, although, I don't see why in the heck they would want them, but they would have to be maintained in a confidential file.

MS. MCVEY: But the jury would be able to see?

THE COURT: Yes.

MS. MCVEY: And the witnesses will be able to see?

THE COURT: And take them back up and make them confidential in terms of --

MS. MCVEY: The other thing is as we go forward, if we get a punitive finding against Mary Kay, we would need to have their net worth information. Whittaker Clark and Daniels has

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given us their net worth information. It wouldn't come in, obviously, as evidence until we get a punitive finding, but I want to make sure that would be available to us.

THE COURT: It probably would be.

MS. MCVEY: Okay.

THE COURT: Again, you know, I'm just simply working with what I got right now that. That will be a bridge to cross, and that's a technical bridge.

MS. MCVEY: I just want to make sure it's out there in the universe since we're starting trial next week.

THE COURT: We'll fix that. We'll figure that out.

MS. MCVEY: Thank you, Your Honor.

THE COURT: Now, that's the protective order. We've taken care of that.

Now we've got these MILs previously ruled on in numerous other cases. Bifurcate punitive damages. I routinely grant this.

Anybody got anything to say about it?

What I do is I bifurcate these trials. And the only thing that happens in the trial of -- the merits part of the thing, the liability

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part, is that on the verdict form, I include something that asks if they find for the plaintiff. Then it asks them to answer the question of whether the jury finds the conduct to be willful, wanton, and reckless. And if they find that, I don't say anything about what's then going to happen. They just do that.

And then, of course, if they do find that, then I go to the next stage, and we have the second half -- the second part of the bifurcated trial, which is the punitive damages piece.

So that's what I do, just so you know.

Lay opinions that products have asbestos, you know what I think about that. I don't think anybody here would fuss with that.

Court routinely grants this motion unless the witnesses have some specialized knowledge. And the reason we make that determination, particularly for lawyers who are not South Carolina based, South Carolina's expert witness case, the best one is the one about -- there's one about blood spattering and there's one about hunting dogs and dogs that alert on something, like marijuana dogs and so forth.

And in those particular cases, you allow

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experts that aren't by education training but by experience. They are laypeople, I guess you would say, but they are very experienced in some particular thing that the jury wouldn't know about without expert testimony. Like how dogs alert on a -- how dogs are trained to alert on drugs or things of that nature. So a layperson that does that training would be allowed to go before the jury.

But certainly laypeople are not going to be allowed to testify about asbestos being in products unless they have some very specialized knowledge about it.

And the no comment about documents that aren't produced, don't get into all of that.

Now, what we got here is a Mary Kay motion in limine -- motions in limine not otherwise disposed. Mary Kay Motion for Protection. And then we have our friends IMBI or something like that.

So which one do we want to do first?

MS. YEU: I'm happy to go first, Your Honor. I would like to address Mary Kay's motion in limine.

THE COURT: All right. This is Mary Kay's

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motion in limine not otherwise disposed of?

MS. YEU: Yes.

THE COURT: Do I need to get out a whole other notebook or do we know where --

Now, this is the stuff Mr. Wilson sent me.

MS. YEU: Yes. So this is our motion in limine to exclude the opinions of Dr. William Longo as it relates to Mary Kay.

THE COURT: You're going to have to say that for me again.

MS. YEU: Yes.

THE COURT: This is a motion in limine to exclude Longo?

MS. YEU: To exclude --

THE COURT: Longo from testifying --

MS. YEU: -- as it relates to his one test of Mary Kay.

And so I'm not sure if you have a copy. I'm happy to give you --

THE COURT: I've probably got it in the office. If you have an easy way for me to look at it, I'll take it right here. I've got it all marked up in there, but since we're on a roll. I can try to not take a recess if I don't have to.

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MS. YEU: So that is our motion in opposition.

THE COURT: All right. I got this.

MS. YEU: So Mary Kay filed a motion to strike Dr. William Longo's opinions that are relevant to Mary Kay which center on his testing of one sample of what plaintiffs claim is a 36-year-old bottle of Mary Kay face powder, and Dr. Longo's claims that he found trace amounts of chrysotile in that sample.

We made a few arguments in our motion that I will highlight. Just three here. First, that plaintiffs have failed to establish a sufficient chain of custody for the sample which renders Dr. Longo's testing of that sample unreliable, inadmissible.

As Your Honor may have read in our papers, this so-called Mary Kay face powder, it was provided to Dr. Longo by a woman in California named Melanie Villabisencio. The container that she provided to him was opened and it was covered in dirt. We deposed Ms. Villabisencio, Your Honor, and she confirmed a few things.

First, that she doesn't know and never heard of Ms. Payne or Ms. Plant.

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Second, the face powder that she sent to Dr. Longo belonged to her mother, and that she sold that powder to her mother over 30 years ago.

And, third, between the time she sold that powder to her mother over 30 years ago to when her mother passed away just a few years ago, she has no idea what her mother did to the powder, how she stored it, who may have used it, whether her mother dumped it out and replaced it with some other powder, how it was stored.

Ms. Villabisencio just doesn't know. She said didn't keep a tracker on the powder. She doesn't know the life of the powder.

So we're left wondering, Your Honor, what exactly this powder is or where it was for over 30 years. We don't know -- you know, Dr. Longo likewise testified he has no idea. And that alone is sufficient merit exclusion. Courts have done the same with respect to samples that Dr. Longo in particular has tested in past.

So we cite to Weirick v. Brenntag, Your Honor, which is California State Court case. And I want to highlight one particular concern that the Court noted when he excluded

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Dr. Longo's testing of certain samples with similar chain of custody issues, is that given the low levels of asbestos to which he, plaintiff's experts are referring, the samples must have a chain of custody that prevents contamination.

In other words, Your Honor, when we're talking about very small amounts of asbestos you have to be more individual aren't about chain of custody issues.

Our second argument, Your Honor, is that even assuming there were no chain-of-custody issues, Dr. Longo's testing methodology that he used for this Mary Kay powder is unreliable.

And I know Your Honor is familiar with Dr. Longo, but what you might not be as familiar with is how Dr. Longo has evolved his testing opinions over the last two to three years.

Your Honor, you may recall that Dr. Longo testified in this court in the Bethany Johnson matter that you have to use an electron microscope to identify asbestos and talc. That's called TEM. He's testified over and over in courts across the county you have to use TEM as the best method. It's the only method.

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Here, Your Honor, as Ms. Herz noted earlier, Dr. Longo looked at the Mary Kay sample, the one Mary Kay sample that's at issue in this case, Your Honor, using TEM, using the exact method he's testified are reliable in this court before. He didn't find any asbestos using that method.

And then you see in his report a few weeks later, he redid a test and used a different type of microscope called an optical microscope, or PLM, which he previously testified, and I'm quoting, Your Honor, "is useless for analyzing cosmetic talc or chrysotile."

An FDA working group, the working group paper that plaintiffs love to refer to, they agree PLM is not helpful for identifying asbestos in talc. And the reason for that, Your Honor, is that the detection limits on the PLM microscope are typically .025 percent. And Dr. Longo is claiming here that he's able to see using his PLM microscope amounts of 0.003 to 0.006 percent. And he quantifies that using his PLM microscope that he previously testified is useless for analyzing cosmetic talc.

And he doesn't follow up his testimony with

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TEM anymore, Your Honor. He doesn't try to validate what he's seen. He just avoids TEM together.

And to justify these unprecedented low detection limits of his PLM microscope, useless microscope, he's started to say he's using a new sample preparation method, which he started to explore sometime in 2020 based on documents produced by Johnson & Johnson. And he calls it the Colorado School of Mines Method based on like a private letter that the school sent to Johnson & Johnson. And when he --

THE COURT: All that stuff about the Colorado School of Mines back in the '70s was explored in detail in the J&J cases I tried. In fact, Bostic, the one I tried twice in Darlington, you know, we did everything from have to put old, frail Dr. Blount up to talking about the Colorado School of Mines and its test.

You are in the weeds big time on this. You've got a way to cross examine him, if you want to, on what he used and how he used it, what his samples are like, and whether Ms. Villa, whatever her name was, had a sample that was reliable. But I'm not going to exclude

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Longo. I'm just not going to do that.

MS. YEU: Understood, Your Honor.

There is one additional opinion that Dr. Longo makes that I don't think has been addressed previously, or at least I don't see anything addressed in opposition. It's we also challenge his opinion which he says in his report that anyone who used the powder that he tested would have significant exposure over backgrounds to chrysotile asbestos.

And he goes a step further and he says, "Any individual who used any Mary Kay face powder at any time would likewise be significantly exposed to chrysotile asbestos."

He has no foundation for these opinions. He is not an industrial hygienist. He's not a statistician. He never performed any kind of exposure analysis that would indicate how much asbestos became airborne. He can't reliably or clinically say that every Mary Kay product contains asbestos based on his testing of one 36-year-old sample that arrived in an open, dirty container. I mean, this is pure speculation, Your Honor.

And the only basis he appears to have is

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his newfound belief that all talc, regardless of where it comes from, Norway, France, wherever, it contains asbestos. And that's something he said in his deposition, Your Honor.

THE COURT: That's something you can jump all over him about if that turns out not to be the right thing. But, you know, we have had boodles of experts that go back and forth on this method of testing, and that's the one of the big clashes of the battle of experts in these talc cases.

And so I can tell you, I'm not going to exclude your experts on that basis. I'm not going to exclude Longo's. You have a very huge -- he has evolved over time, as have your folks, about how to test these old samples of cosmetic materials.

MS. YEU: Understood, Your Honor.

THE COURT: You've got it on record. You are protected on the record.

MS. YEU: Thank you, Your Honor.

THE COURT: Protected for appeal, but I deny the motion.

MS. YEU: Thank you, Your Honor.

THE COURT: Okay. Now where are we?

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And, ma'am, would you like your materials back that I -- thank you, ma'am.

MS. YEU: Thank you.

THE COURT: I appreciate you letting me use them.

All right. Okay. Now, we got Longo. What else have we got? We got the motion for protection. How about --

MR. SCHWEGMANN: So, Your Honor, Mary Kay filed other Motions in Limine, but based on listening in the courtroom today and understanding the rulings you've already made, I don't feel that there's any need to argue the motions in that other.

THE COURT: Let me just put this on the report right now, then, to be sure you are protected. Mary Kay has filed other motions in limine, the topics of which have been ruled on by the Court. Mary Kay does not relent in its contention that its position is correct about these matters. To the extent that the Court feels differently, Mary Kay's position is recognized and protected.

MR. SCHWEGMANN: Thank you, Your Honor.

THE COURT: Now, how about that little

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thing where we had that group that has IA something. How about those folks?

MR. ROBERTS: Your Honor, just Ted Roberts for IMI-Fabi. Just to refresh.

The Deno law firm is deposing our corporate representative today on personal jurisdiction. The deposition was just wrapped up. We have pending personal jurisdiction, motions to dismiss and summary judgment. By agreement of the parties, they need an opportunity to now oppose having heard from our corporate rep. We wanted them heard in a short, quick hearing at the Court's convenience on Tuesday?

THE COURT: Yes, that will be granted.

MR. ROBERTS: Thank you, Your Honor.

THE COURT: Ms. McVey, I'm going to turn back do you. Have we finished all of what we need to rule upon?

MS. MCVEY: From my perspective, we do. But I don't know what else --

THE COURT: I'm going to turn to the Defendants. No worries there.

MS. MCVEY: From my perspective, we have.

THE COURT: Because the final thing that needs to be decided is what's going to be

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tried --

MS. MCVEY: Right.

THE COURT: -- and in what order. So before I get there, is there anything else pretrial?

Let me say a few kind of overall things. You all know that right as trial begins, I'm going to want you all to be working with my law clerk on jury instructions. I try to do that early in the trial and so that when we reach that stage, we will have put on the record my rulings. And we will have -- I will have created a complete set of jury instructions.

Just to let you know, I give the jury a copy of the jury instructions. I allow the jury to take notes.

With respect to the qualification of the jury, that will be done on Tuesday morning at 9:30. I can't promise you we will start doing it immediately at that time because the jury needs to all get -- the venire needs to get into the jury room downstairs and then be brought up to -- this thing opens into a bigger courtroom, and that's where we qualify the jury. I think it's on this floor when we do.

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And so the jury will all be brought up here. I will have wanted you to submit beforehand any voir dire questions that you would like for me to ask. Just for the benefit of those not from South Carolina, in South Carolina we don't have lawyer-directed voir dire. All voir dire questions are asked by the judge. But I look at voir dire requests, and we have a little seance about that before we begin with the jury.

There are general qualification questions, of course, and then I voir dire the jury on specific questions about specific lawyers in the case, specific defendants in the case, and so forth.

MR. BRALY: Your Honor, do I mind if I ask a question real quick?

THE COURT: Sure.

MR. BRALY: Understanding the answer is going to be as soon as possible, is there a time by which you want us to have questions submitted for voir dire?

THE COURT: Well, I would like to get them as soon as I can, but, remember, if I don't receive them by the time I qualify the jury, I'm

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not going to even think about asking just because I won't time to.

MS. MCVEY: And what we usually do is we exchange questions amongst ourselves.

THE COURT: All requests for voir dire and all requests for jury charges should be exchanged with each other first. And generally you folk work those out. But if you can't work them out, just let me know and I'll work them out.

MS. MCVEY: And, Judge, just our plan is hopefully this week we want to get a list of exhibits we want to preadmit.

THE COURT: Yes.

MS. MCVEY: These are authentic business records type things. We'll exchange them with the other side. I had a seance last week, and they're ready to go.

THE COURT: Right. And the other thing is often in opening statements, and certainly in closing statements, you will have a PowerPoint deck or some other kind of collection of the things you would like to show the jury as aids to your arguments. Exchange those with each other. And if there are fusses about them, I'll

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resolve them before your presentations to the jury would take place.

MS. MCVEY: Yes, ma'am. And what we'll plan to do, as we've done at every trial, is the night before, I'll email the parties and court with the names of the witnesses we are planning on calling, the exhibits we are planning on using, that sort of thing.

THE COURT: Essential that I have all witness lists now. I -- if I had a complete two weeks, I would try -- I would try to try these -- both these cases. I will try the first case the first week, two days for the plaintiff, two days for the defendant, reply for the plaintiff, then charge it to the jury and the jury deliberation. Then, if necessary, punitive damages deliberation.

The last two I tried -- that was a year ago right now. I tried a case the first week. It went to the jury on Thursday rather than Friday. It was a classic product ID situation. The verdict for defendant. Very sympathetic plaintiff, but product ID was not shown. And the verdict was for the defendant.

The next week all but two defendants in a

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bystander liability, wife on a take-home, two corporations in the town they lived in were the only ones left. We went to the jury on Thursday on that one, amazingly.

And we -- the jury returned an actual damage verdict of $21 million, and then they went to the -- or, yeah, then went back to consider the punitive damages, and it was I think $11 million in punitive damages. You just never know.

But I tried -- I try to try them in a week. It's up to you to use your time as you see fit, but I generally tell you don't use a whole bunch of experts. You've got to limit yourself and focus yourself because you also have other issues about liability to tend to now.

In these cases, I just don't know whether I can do it in four days. I did it in four days both times, but I don't think I can do it in four days. And, therefore, I think we're going to have to pick.

The plaintiff is kind of driving that conversation, so I first turn to Ms. McVey. And, Ms. McVey, I ask you, do you have a decision at this moment as to which one to try?

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MS. MCVEY: We do, Your Honor. And mostly because -- not mostly -- totally because Ms. Plant is living.

THE COURT: Yes. Living plaintiffs, of course, those cases are accelerated on the docket.

MS. MCVEY: And so I think we would love to be able to get both of them, consolidated, that's why we moved for that. Of course, you ruled against us on that issue.

THE COURT: Right.

MS. MCVEY: So, Your Honor, I know now because Monday I thought -- I didn't pay attention, but we didn't have Monday. We've now got an expert that can't come until Friday. So I think we're going to have to roll into the second week. And I promise we will be efficient with our time.

We also, as you know, under Jolley, we have subpoenaed the corporate representatives of the defendants to be here, and we will call them in our case in chief.

THE COURT: Yes. That's generally done by plaintiffs.

MS. MCVEY: Correct.

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THE COURT: Particularly the talc cases. I mean, Dr. Hopkins and I know each other well. He's really nice fellow.

MS. MCVEY: Yes, ma'am. So we'll be more specific, but for now, we would expect the corporate representatives in the courtroom on Tuesday.

THE COURT: That means that Sarah Plant will be tried.

MS. MCVEY: Yes, ma'am.

THE COURT: And the Payne case, you now have rulings that should inform what people want to do with Payne. But if defendants remain after further discussion amongst the parties, we'll talk again about how to schedule Payne.

MS. MCVEY: Yes, ma'am. And, Your Honor, I have no expectation that Plant is going to settle, so I don't want to -- no expectation.

THE COURT: But if Plant settled and Payne was still alive, we would try Payne.

MS. MCVEY: Yes, ma'am.

THE COURT: Right. Now, questions before we get gone here.

James Elliott, I start with you, my friend.

MR. ELLIOTT: Question. Thank you. Is

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Payne depending on when Plant settles? For example, if you get into Wednesday with Plant and then it resolves?

THE COURT: You know, I think we'd want to talk about that, but I would -- you know, I mean, the last asbestos case I started was after those two I went to verdict on, and we got through opening arguments and several witnesses and then the case settled.

So, you know, if that kind of thing happened, then I would go to Payne. If it were still alive.

MR. ELLIOTT: Right. And then the question -- the second question, then, is picking the jury. Do you want to pick juries for Payne and Plant on Tuesday? I took that as no, but ...

THE COURT: I say no, but we will tell the clerk's office to be assiduous about indicating to the remaining jurors that they are subject to call. So they'll take care of making that happen for us.

MS. HERZ: Your Honor.

THE COURT: Ms. Herz.

MS. HERZ: Thank you. Can we just have

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some clarity on who is -- who the defendants are in Sarah Plant that's going to trial next week?

THE COURT: I'm sure that the plaintiffs will tell you as soon as they know.

Are you able to tell us now, Ms. McVey, who is left?

MS. MCVEY: Your Honor, it's a little bit of a moving target, so I'm not trying to be disingenuous. I know it's Mary Kay, Whittaker Clark and Daniels. There's a personal jurisdictional issue. And there's Color Techniques.

THE COURT: Yes. So the possible defendants are three -- Mary Kay, Color Tech, and Whittaker Clark & Daniels.

MS. MCVEY: And IMI-Fabi is still in.

THE COURT: And IMI-Fabi is still in because, you know, we have something to rule on perhaps depending on what happens with this deposition.

So there are four in Plant.

MS. HERZ: Okay. Thank you.

THE COURT: Do we have anything to say about Payne in terms of who is currently in it just for the information?

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MS. MCVEY: It's the same defendants with the additional Chanel and Avon. And, I'm sorry, Charles B. Chrystal.

THE COURT: And Charles B. Chrystal. It's just -- is it in both or just in Payne?

MS. MCVEY: Just in Payne.

THE COURT: Just in Payne. That answer -- I know Mr. Rawl is up and wondering. So that answers your question?

MR. RAWL: Yes, ma'am. Thank you, ma'am.

THE COURT: Okay. All right.

Other questions?

MR. ROBERTS: Chief Justice Toal, being the person who tried the five-day trial before you and ended up short on a Thursday in closing, I just want to confirm that schedule and flesh out a little bit.

Is it your expectation, like it was in the Manning trial, which I tried, that the plaintiffs will rest on Wednesday? And the reason I ask that is because we're going to have to share time getting the defense organized to pull it off in two days for multiple defendants.

I understand Ms. McVey has a witness that might be taken out of order.

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THE COURT: If she doesn't settle that first case, Plant, then she'll be starting Tuesday, and she'll still be going on Friday.

MR. ROBERTS: Well, I understood you said two days defendant, two days --

THE COURT: As I did it before, but I can't do it this time because of what she said, and that's why we're just going to try one.

But how about if Plant settled like, you know, before we pick the jury? We'd go right on to Payne, and we would try it.

How about if Plant -- I got my Plant jury and we went through kind of like we did in the recent one Jessica Dean tried, and we went through opening arguments and a little bit more and then it settled.

I'd go to Payne. If I got past about Wednesday, I would really question whether I would get Payne in. I would consult with all of you all about that.

Is that targeted enough? I don't want to mess anybody up by not giving you the certainty I know you want.

MR. ROBERTS: Understood, Your Honor.

THE COURT: Very good. All right.

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Questions by anybody else?

James?

MR. ELLIOTT: I have a question just with regard to remaining motions in limine. I hate to even have to this late in the day bringing all this stuff up, it gets difficult. But do you want to -- do you want to put off the motions in limine in Payne until that case is up later?

THE COURT: Well, I suppose we could do that, although, what I said to one of your colleagues was this: There are probably very few motions in Payne that aren't already things that have been ruled upon. So what I tell you is this: Your position is stated in your notebooks. It's completely protected. If we don't get back to it, and I stay with that ruling, you're completely protected for everything you argued and anything you might want to argue. All right.

If we need to revisit it before we try Payne, I won't exclude that possibility. There may be some things as things develop you want to bring up. I will allow you to do that, James.

MR. ELLIOTT: Understood, and that's great.



I'm at a little bit of a disadvantage in the talc cases. This is the first time I've ever argued.

THE COURT: And McVey has not tried one before.

MS. MCVEY: I haven't, Your Honor. See, and, look, I'm confident, James. I tell you.

MR. ELLIOTT: But I have not heard your rulings on the motion is my point.

THE COURT: She's got a notebook, James. That notebook she's got, it lists out my rulings for each one of those things. There's two notebooks on MILs, and the second one is the ones -- it's got -- you'll have in your hands. Probably you're probably -- you're like me, you're inundated with all kind of paperwork. But there exists a notebook that can give you every bit of that.

MR. ELLIOTT: I think that's fine. And your caveat is to bring it up?

THE COURT: You can bring it up. Absolutely.

MR. ROBERTS: One last point, Your Honor, in the last few trials you placed time limits on our opening statements.



THE COURT: Yes, I always do that. I try to get you all to come up with an agreement on it. But generally, you know, it's been around 45 minutes or so, something like that, for the opening statement.

MR. ROBERTS: Thank you, Your Honor.

THE COURT: If you all decide there's something -- if you want to suggest something different, you let me know.

MS. MCVEY: Yes, ma'am. We'll be -- I expect ours will be about an hour, and hopefully, it will be shorter. It's depending on who's left.

THE COURT: Might as well say it's going to be an hour apiece.

MS. MCVEY: Each side, right?

THE COURT: Each side.

MS. MCVEY: Your Honor, the only thing I was going to add --

THE COURT: Each side, yes. And I think it should be an hour given the fact that you've got several defendants. So it's an hour apiece.

MS. FLYNN: Your Honor, Stephanie Flynn for Whittaker Clark & Daniels.

I understood you to say a little bit



earlier that you were going to consider our brief as it relates to Dr. Attanoos. So I don't expect --

THE COURT: Yes. Attanoos. But I tell you what, I have heard that man's name pronounced so many ways.

Yes. I will consider your briefing on Attanoos. And, frankly, I stand now, and I think -- I don't think there's anything that will change my mind. But, yes, I will consider it. If there's something in there and I say, oh, man, I've got to revisit that, I will let you know by tomorrow.

MS. FLYNN: Yes, Your Honor. I appreciate that. And if you are willing to consider it, I understood your rulings as to the other experts. I think they are deposing Dr. Attanoos on the same grounds. So if they are allowed to testify to the same limitations, I think it will be an acceptable comprise as well if you are so inclined.

THE COURT: I think -- I mean, I think I've done the experts, have I not?

MS. MCVEY: You have, Your Honor. And we believe that Attanoos is different than the

others.

THE COURT: Attanoos is very different. That's why I took him separately because his relates to the inability to follow my directions, first; and, second, his lack of any kind of foundation for being able to opine about the naturally occurring or idiopathic or any of those kind of causes as the cause of mesothelioma -- as genetic as the cause of the mesothelioma in Plaintiff Payne. I find that he would not have the proper background to be able to do that.

MS. MCVEY: Thank you, Your Honor.

THE COURT: What else?

MS. MCVEY: I think that's it. From us, at least that's it.

THE COURT: Okay. What else from anyone else? Going. Going.

I'm deeply grateful to all of you for putting up with this kind of a process, but I don't know any other way for giving -- for how to try to fit this docket around everything else that I can do except to just sit here and get it done.

Court Reporter, you're the best.



THE COURT REPORTER: Thank you, ma'am.

MS. MCVEY: Thank you, Your Honor.

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(The hearing concluded at 4:06 p.m.)

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CERTIFICATE OF REPORTER

I, Sheri L. Byers, Registered Professional Reporter and Notary Public of the State of South Carolina at Large, do hereby certify:

That the foregoing proceedings were taken before me on the date and at the time mentioned on page 1 and the proceedings were recorded stenographically by me and were thereafter transcribed under my direction; that the foregoing transcript as typed is a true, accurate and complete record of the proceedings to the best of my ability.

I further certify that I am neither related to nor counsel for any party to the cause pending or interested in the events thereof.

Witness my hand, I have hereunto affixed my official seal this 17th day of February, 2021, at Lexington, Lexington County, South Carolina.

_____

Sheri L. Byers,
Registered Professional Reporter,
Notary Public
State of South Carolina at Large
My Commission expires:
October 30, 2023

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|---|---|---|
| STATE OF SOUTH CAROLINA | ) | IN THE COURT OF COMMON PLEAS |
| | ) | |
| COUNTY OF RICHLAND | ) | FOR THE FIFTH JUDICIAL CIRCUIT |
| **MICHAEL L. PERRY** and **LONNIE L. LONG,** | ) | **C/A NO. 2023-CP-40-04072** |
| Plaintiffs, | ) | *In Re:* Asbestos Personal Injury Litigation Coordinated Docket |
| v. | ) | |
| **AMERICAN INTERNATIONAL INDUSTRIES,** et al. | ) | |
| Defendants. | ) | |

**PLAINTIFFS' MOTION IN LIMINE NO. 20 REGARDING ADMISSIBILITY OF DOCUMENTS WITHOUT SPONSORING WITNESS**

Plaintiffs, by and through their undersigned counsel, move to prohibit Defendants and their attorneys from arguing that otherwise admissible documents are not admissible without a sponsoring witness.

## INTRODUCTION

In the past, Johnson & Johnson ("J&J") has argued that, even when its own documents are stipulated to be authentic business records or otherwise are shown to be admissible under the hearsay and authentication rules, they are still inadmissible unless Plaintiffs offer them through a sponsoring witness. A sponsoring witness is only necessary when his or her testimony is needed to establish authenticity or admissibility under the hearsay rules—not when those predicates are otherwise established.

## ARGUMENT

There are two primary predicates to the admissibility of documents: admissibility under the hearsay rules and authenticity. If those things can be established without the participation of a

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sponsoring witness, then no sponsoring witness is required.

**A. Hearsay**

There are many ways to establish that a document is not hearsay or falls within a hearsay exception.

1. The statement is not hearsay.

*a. A statement not offered for the truth of the matter asserted*

"'Hearsay' is a statement, other than one made by the declarant while testifying at the trial or hearing, offered in evidence to prove the truth of the matter asserted." Rule 801(c), SCRE. When a statement is not offered "to prove the truth of the matter asserted," such as when it is offered for notice, it is not hearsay. *See Butler v. Gamma Nu Chapter of Sigma Chi*, 314 S.C. 477, 481, 445 S.E.2d 468, 471 (Ct. App. 1994) (document not offered for truth of the matter asserts, but rather as evidence of notice, is not inadmissible hearsay).

*b. An admission by a party opponent*

An admission by a party opponent includes:

> (A) the party's own statement in either an individual or a representative capacity, or (B) a statement of which the party has manifested an adoption or belief in its truth, or (C) a statement by a person authorized by the party to make a statement concerning the subject, or (D) a statement by the party's agent or servant concerning a matter within the scope of the agency or employment, made during the existence of the relationship, or (E) a statement by a coconspirator of a party during the course and in furtherance of the conspiracy.

Rule 801(d)(2), SCRE. Documents produced by J&J include memoranda by senior executives and employees directly involved with talc testing and talc-related issues. These are admissions by a party opponent and so are admissible as non-hearsay statements.

2. The document falls within a hearsay exception.

There are several exceptions to hearsay that may be relevant to Defendants' documents,

only two of which will be addressed here.

*a. Statements in ancient documents*

Because this case will involve events took place long in the past, there will be evidence in decades' old documents. Statements in ancient documents are an exception to the hearsay rule. Rule 803(16), SCRE. They include "[s]tatements in a document in existence twenty years or more the authenticity of which is established." *Id.* If authenticity is established then, there is no need for a sponsoring witness to confirm that the document is more than 20 years old. This fact will be evident from the face of the document, either because it is dated or because statements in the record give an indication of its vintage.

*b. Business Records Exception*

The business records exception allows for the admission of:

> [a] A memorandum, report, record, or data compilation, in any form, of acts, events, conditions, or diagnoses, made at or near the time by, or from information transmitted by, a person with knowledge, if kept in the course of a regularly conducted business activity, and if it was the regular practice of that business activity to make the memorandum, report, record, or data compilation

Rule 803(6), SCRE 803. Rule 803(6) calls for a sponsoring witness because the proponent of the evidence "must "show[ ] by the testimony of the custodian or other qualified witness" that the document fits within the criteria of the exception. Even in such a case, though, a sponsoring witness would not be required if the opposing party acknowledged the document was a business record.

In this case, Defendant J&J has acknowledged that a wide range of its documents are authentic business records under the South Carolina Rules of Evidence. **Ex. 1**, Stipulation Regarding Documents Produced by Johnson & Johnson. To the extent Rule 803(6) calls for a witness to verify that the record fits the criteria of the rule, the stipulation does so. J&J reserves



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the right to object to authenticity or status of business records "in the event that subsequent investigation related to such documents reveals a good-faith basis for the assertion of such an objection." **Ex. 1** at ¶¶ 2-3. That event cannot include the need for a sponsoring witness for all its documents when their authenticity and status as business records has been stipulated to.

**B. Authenticity**

"The requirement of authentication or identification as a condition precedent to admissibility is satisfied by evidence sufficient to support a finding that the matter in question is what its proponent claims." Again, J&J has stipulated to the authenticity of a great many of its documents. **Ex. 1**. There is no need for a sponsoring witness as to those documents. Testimony of a witness with knowledge may be one way to satisfy Rule 901, Rule 901(b)(1), but it is certainly not the only way. And in fact, pursuant to Rule 903, SCRE, "The testimony of a subscribing witness is not necessary to authenticate a writing unless required by statute or by the laws of the jurisdiction whose laws govern the validity of the writing." Rule 901b)(8).

Rule 901 provides a number of illustrations for authenticating documents, not intended to limit the means by which a document can be authenticated. Rule 901(b). For example, some documents produced by J&J can also be authenticated as ancient documents if the document "(A) is in such condition as to create no suspicion concerning its authenticity, (B) was in a place where it, if authentic, would likely be, and (C) has been in existence 20 years or more at the time it is offered." Given that these documents were found in J&J's files and appear to be unaltered, documents more than 20 years old can also be authenticated in this way.

There are a number of ways that Plaintiffs can establish the admissibility of documents—both through J&J's stipulation and through applications of the hearsay and authentication rules.



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There is no justification for requiring Plaintiffs to present this evidence through a sponsoring witness, which is also not a legal requirement in South Carolina in the face of these stipulations.

## CONCLUSION

By means of J&J's stipulation and application of the hearsay and authentication rules, Plaintiffs will be able to show the admissibility of J&J's documents without relying on a sponsoring witness. There is no reason a sponsoring witness should be required. Therefore, Plaintiffs respectfully request that the Court grant this motion in limine no. 20.

Respectfully submitted,

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July 10, 2024
Dallas, TX



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# EXHIBIT 1

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| STATE OF SOUTH CAROLINA<br>COUNTY OF RICHLAND | ) | IN THE COURT OF COMMON PLEAS<br>FOR THE FIFTH JUDICIAL CIRCUIT |
| MICHAEL L. PERRY and<br>LONNIE L. LONG,<br><br>Plaintiffs,<br><br>v.<br><br>AMERICAN INTERNATIONAL<br>INDUSTRIES; et al.,<br><br>Defendants. | ) | Case No.: 2023-CP-40-04072 |

**STIPULATION REGARDING DOCUMENTS PRODUCED BY JOHNSON & JOHNSON**

Defendant JOHNSON & JOHNSON ("Defendant") and Plaintiffs Michael L. Perry and Lonnie L. Long ("Plaintiffs") (collectively, the "Parties") stipulate as follows:

1. Defendant acknowledges that it has produced documents to undersigned counsel for Plaintiff bearing the following bates numbers: JNJ 000000001 – JNJ 000886976, JNJTALC000000001 – JNJTALC000637172, JNJTALC000637178 – JNJTALC000856158, JNJTALC000856160 – JNJTALC000859413, JNJTALC000859991 – JNJTALC000860020, JNJTALC000860022 – JNJTALC000860253, JNJTALC000860255 – JNJTALC000914737, JNJTALC000915284 – JNJTALC001268948, JNJTALC001268954 – JNJTALC001269585, JNJTALC001270278 – JNJTALC001278364, JNJTALC001281925 – JNJTALC001476701, JNJTALC001477063 – JNJTALC001480294, JNJTALC001480301 – JNJTALC001535063, JNJTALC001536785 – JNJTALC001546645, JNJTALC001546825 – JNJTALC001546877, JNJAZ55_000000001 – JNJAZ55_000020679, JNJH29W_000000001 – JNJH29W_000013948, JNJI4T5_000000001 – JNJI4T5_000007114, JNJMX68_000000001 – JNJMX68_000023312, JNJNL61_000000001 – JNJNL61_000120335, JNJS71R_000000001 – JNJS71R_000016834,

PHA 000000001 – PHA 000046701, WTALC00000001 – WTALC00010995, and JNJTALC_PM_00000001 – JNJTALC_PM_00000048.

2. As to the documents in the form produced by Defendant that are identified in paragraph 1, Defendant acknowledges that, based on reasonable review of such documents conducted as of the date of this Stipulation, the documents satisfy the elements of authenticity under Rule 901 of the South Carolina Rules of Evidence. However, Defendant reserves the right to object on grounds of authenticity to any of the above-described documents in the event that subsequent investigation related to such documents reveals a good-faith basis for the assertion of such an objection. If this were to occur, Defendant agrees to make its representative available for deposition for questioning on the relevant document(s) and to do so at least one month before trial in this matter, or as soon as reasonably practicable if the facts that form the basis for such an objection become known later than one month before trial, notwithstanding Defendant's reasonable efforts to ascertain such facts sooner.

3. As to each document identified in paragraph 1 and authenticated in paragraph 2, Defendant stipulates that each such document satisfies the elements of Rule 803(6) of the South Carolina Rules of Evidence. However, Defendant reserves the right to object on grounds of hearsay to any of the above-described documents in the event that subsequent investigation related to such documents reveals a good-faith basis for the assertion of such an objection. If this were to occur, Defendant agrees to make its representative available for deposition for questioning on the relevant document(s) and to do so at least one month before trial in this matter, or as soon as reasonably practicable if the facts that form the basis for such an objection become known later than one month before trial, notwithstanding Defendant's reasonable efforts to ascertain such facts sooner.



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4. In addition, as to Exhibits 9-12, 15-16, 18-47, 49-51, 53-55, 57-58, 61-63, 70-80, 84-86, 89, 91, 93, 95-96, 99-102, 106-113, 115-131, 133-137, 140-141, 147-152, 155, 158-167, 170-171, and 174-175 to the corporate representative deposition of Johnson & Johnson Consumer Inc. and Johnson & Johnson (John Hopkins) taken in *Anderson v. Borg-Warner Corp.* on April 11-12, 2018, and Exhibits 5-13, 16-37, 38-45, 47-66, 68-81, 83-86, 91-99, 103-106, 109, 111, 113-116, 119-134, 136-138, 141-146, 148-149, 153-154, 155-165, 167-172, 174, 177-178, 180-185, 187-195, 197-201, 203-206, 208-211, 213-216, 218, 220-221, 224, 226, 231-236, 258-260, 262, 265, and 268-269 to the corporate representative deposition of Johnson & Johnson Consumer Inc. and Johnson & Johnson (John Hopkins) taken in *Herford v. AT&T Corp.* on August 15-18, 2017, Defendant stipulates that each of the documents described in this paragraph satisfies the elements of Rule 803(6) of the South Carolina Rules of Evidence.

5. As to all documents subject to the agreements set forth in paragraphs 2 through 4 above, the Parties expressly reserve their right to object to the admissibility of any such documents, in whole or in part, on all other applicable grounds, including but not limited to, hearsay within hearsay, relevance, lack of foundation (other than to the extent established herein), unfair prejudice, and risk of juror confusion, as well as any violations of rulings on the Parties' motions in limine and other stipulations between the Parties.





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By: Blake T. Williams Dated: 4/19/2024

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| COUNTY OF RICHLAND | ) | FOR THE FIFTH JUDICIAL CIRCUIT |
| **MICHAEL L. PERRY** and **LONNIE L. LONG,** | ) | **C/A NO. 2023-CP-40-04072** |
| | ) | |
| Plaintiffs, | ) | *In Re:* Asbestos Personal Injury Litigation Coordinated Docket |
| | ) | |
| v. | ) | |
| | ) | |
| **AMERICAN INTERNATIONAL INDUSTRIES,** et al. | ) | |
| | ) | |
| Defendants. | ) | |

**PLAINTIFFS' MOTION IN LIMINE NO. 22**
**MOTION FOR EVIDENTIARY SANCTIONS AGAINST JOHNSON & JOHNSON, LLT MANAGEMENT LLC, JOHNSON & JOHNSON HOLDCO (NA) INC., AND KENVUE, INC.BASED ON SPOLIATION OF EVIDENCE**

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This exact motion was filed, argued, and ruled on previously by this Court in the *Hood (McBrayer) v. Acme Markets, Inc., et al.* case. This motion was filed in *McBrayer* on September 27, 2021.[1] This Court held a hearing on the relief sought on October 28, 2021.[2] On November 5, 2021, this Court issued an order on this motion.[3] This Court previously granted in part and denied in part Plaintiff's motion.[4] Notably, this Court previously held in response to Plaintiff's request for spoliation instructions that the jury will be instructed that it may presume[5]:

> 1) That when Johnson & Johnson introduces a test result, for tests performed by Johnson & Johnson or commissioned by Johnson & Johnson, that is negative for asbestos, reports "no quantifiable asbestos," or contains similar language, if the evidence shows Johnson & Johnson destroyed or unreasonably failed to preserve underlying data related to the test, the jury may presume that the missing data showed asbestos fibers were present.
>
> 2) When Johnson & Johnson argues any positive tests for asbestos, for tests performed by Johnson & Johnson or commissioned by Johnson & Johnson, were the result of lab contamination but Johnson & Johnson failed to retain evidence related to the "blanks" used as a control for such contamination, the jury may presume the blanks were free from asbestos.

This Court's Order further ordered that the "instructions are directly connected to the missing evidence and what it appears likely the evidence would have shown."[6] Plaintiffs request this identical order and instruction to the jury be given in this matter.

Plaintiffs, through undersigned counsel, respectfully move for (a) two adverse inference instructions and (b) two Orders limiting Johnson & Johnson and Johnson, LLT Management LLC, Johnson & Johnson Holdco (NA) Inc., and Kenvue, Inc. (collectively "J&J") as a sanction

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[1] *See* **Ex. 134,** Plaintiff's Consolidated Motion for Evidentiary Sanctions against Johnson & Johnson and Johnson & Johnson Consumer, Inc. Based on Spoliation of Evidence ("McBrayer Motion"), *Hood (McBrayer) v. Acme Markets, Inc.,* C/A No. 2020-CP-10-03946 9th Judicial District, County of Charleston, dated September 27, 2021.
[2] ***See*** **Ex. 135,** Transcript of Record, dated October 28, 2021 at p. 32.
[3] ***See*** **Ex. 2,** Order on Plaintiff's Consolidated Motion for Evidentiary Sanctions against Johnson & Johnson and Johnson & Johnson Consumer, Inc. Based on Spoliation of Evidence ("McBrayer Order"), dated November 5, 2021.
[4] *See id.*
[5] *See id.* at p. 10-11.
[6] *See id.*

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for spoliation of evidence. Plaintiffs have combined these four requests into this consolidated motion because much of the evidence interrelates.

J&J has had its talcum products and its source talcs tested for asbestos for decades—at least back to the 1950s. Hundreds of tests have been completed. J&J is guilty of spoliation through its failure to preserve (1) underlying data that support (or fail to support) test reports, (2) control blanks that would show whether laboratory air was contaminated with asbestos fibers, and (3) historical talc samples in its possession. J&J knew from at least 1969 that it faced litigation over its talc products, and it knew this evidence would be important to that litigation, but it discarded and/or recklessly failed to preserve it. Plaintiff asks this Court to instruct that the jury may presume:

1) that when J&J introduces a test result that is negative for asbestos, reports "no quantifiable asbestos," or contains similar language, if the evidence shows J&J destroyed or unreasonably failed to preserve underlying data related to the test, the jury may presume that the missing data showed asbestos fibers were present[7]; and

2) when J&J argues any positive tests for asbestos were the result of lab contamination, but J&J failed to retain evidence related to the "blanks" used as a control for such contamination, they may presume the blanks were free from asbestos contamination.

In addition, because it destroyed, discarded, or recklessly failed to preserve historical talc samples it knew would be needed in anticipated or pending litigation, J&J should be precluded from presenting any argument, evidence, or testimony that suggests Plaintiffs have tested in insufficient number of bottles to support her experts' causation opinions. Similarly, where J&J's testing, or testing done at its request, reported asbestos or asbestos minerals in its talc J&J in

[7] J&J revealed approximately 500 additional TEM evaluations were performed of its product but have never been produced to plaintiffs. See, **Ex. 126** at #16. Because this revelation is so recent, it is unclear what evidence exists concerning those tests. Should those tests have been performed and J&J is unable, in response to a motion to compel for example, to produce the tests or underlying data supporting the tests, those tests should likewise be subject to an inference that they found asbestos in J&J's product.

litigation attempts to discredit its own findings or undermine the weight of the testing by noting the absence of the underlying data. The requested evidentiary sanctions are a reasonable and warranted response to J&J's actions.

## INTRODUCTION AND SUMMARY OF ARGUMENT

J&J developed a pattern of discarding or recklessly failing to preserve testing data and historical talc samples, even when it knew it faced litigation related to its talcum powder products and knew how important this evidence would be. Until 2017, J&J failed to disclose such testing existed, preventing plaintiffs from taking steps to preserve whatever underlying data survived during earlier litigation. Now J&J wants to rely on evidence of historical test results favorable to them when they destroyed the underlying data for those tests—**even though** J&J has acknowledged that this missing data is critical to understanding test results.

Likewise, J&J has discarded or failed to preserve documentation on laboratory control blanks. When test results do report asbestos fibers, J&J and its experts often blame their presence on laboratory contamination. Without evidence of asbestos fibers in blanks, used to control for asbestos in the air, any contamination claim is unsupported. But J&J has discarded or failed to preserve these blanks. In the few cases where they exist, they fail to support claims of laboratory contamination—making their absence in other tests that much more important and more suspect.

Finally, J&J has discarded or recklessly failed to preserve talc samples from testing and from its own historical museum of its products. This matters because J&J often claims that plaintiffs' tests finding asbestos in J&J's product are insufficient to demonstrate the content of the talc the plaintiffs would have been exposed to. But J&J knew decades ago that mesothelioma was a latent disease that would take decades to develop, and it knew that its own product samples would likely represent the vast majority of historical samples available to test. Nevertheless, J&J



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destroyed, discarded, or failed to preserve these samples—even long after it was involved in talc litigation.

In each of these three categories of evidence, the pattern is the same: J&J makes claims about the evidence but has failed to retain the underlying data that would allow Plaintiffs to challenge J&J's claims and allow the factfinder to verify those claims. The sheer volume of evidence and data that has gone missing indicates that the absence of that data is not isolated or unintentional. Rather, it has long been J&J's litigation strategy to make misleading assertions about the evidence while preventing Plaintiffs from correcting the record or presenting the whole story to the jury. J&J's conduct warrants the requested evidentiary sanctions.

## FACTUAL BACKGROUND

Plaintiff Michael Perry was diagnosed with mesothelioma in July of 2023.[8] He described his Johnson & Johnson usage as constant throughout his life.[9] He recalled using J&J baby powder from 1974 or 1975 until 2019.[10] As a child, Michael played sports and was a swimmer.[11] His mother made sure that he kept a bottle of Johnson & Johnson's baby powder in his hockey bag.[12] Before applying his hockey pads, he would put the powder in his shoulder and leg pads.[13] When he was swimming, he would apply the powder after he was done swimming for the day.[14] Mr. Perry testified that he and his family were brand-loyal to Johnson & Johnson, stating "We always used it. We all touched it. We all trusted it. . . . . that was part of our culture."[15]

[8] **Ex. 1**, Deposition of Michael Perry Vol. 1 at 17:15-18.
[9] Id. at 38:21-39:2.
[10] Id. at 40:9-41:8.
[11] Id. at 60:5-10.
[12] Id. at 60:13-15.
[13] Id. at 60:15-19.
[14] Id. at 60:20-22.
[15] Id. at 87:22-88:6.



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**A. <u>Plaintiffs submit evidence of asbestos content from a variety of sources. J&J and its consultants' reports from the 1950s to 2000s constitute a fraction of Plaintiffs' evidence on asbestos content.</u>**

Plaintiffs establish the asbestos content of the talc[16] in JBP through numerous sources, including (a) J&J and its consultants' reports from the 1950s to 2000s,[17] (b) J&J's admissions,[18] (c) third-party testing,[19] (d) scientific literature,[20] (e) recent tests of vintage JBP samples[21] and (f) lung tissue of JBP-exposed persons.[22] Plaintiffs' experts will opine that JBP contained asbestos.

J&J also has many types of evidence at its disposal to support its position that JBP does **not** contain asbestos and never has—including hundreds of documents provided by its suppliers that are included in its historical testing records.[23] Only very specific subsets of documents are the subject of this motion.

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[16] JBP contained talc from (a) southern Vermont from 1967-2003, (b) Val Chisone, Italy in 1979-1980 and (c) China in 2003 onward. **Ex. 21**, J&J's responses to interrogatories, *Breakell v. 3M Co.*, at pp. 16-17.

[17] *See*, *e.g.*, **Ex. 4**, Report of Dr. Webber, 6/10/2021 at pgs. 21-26 (summarizing J&J internal documents); **Ex. 5**, Demonstrative summarizing reports of asbestos in JBP admitted in evidence 8/21/2019; **Ex. 6**, Demonstrative on findings of asbestos minerals and/or asbestos in 696 talc samples 3/31/2021.

[18] For some non-exhaustive examples, *see*, *e.g.*, **Ex. 7**, Memorandum from J&J's Dr. Nashed 7/29/1971 (stating "the talc used in Johnson's Baby Powder is obtained from a selected mine in Vermont where the ore consists … [of] only trace amounts of fibrous minerals (tremolite/actinolite)"); **Ex. 8**, Memorandum from J&J's D.R. Petterson 4/26/1973 ("… we are also confident that fiber forming or fiber type minerals could be found. The usefulness of the 'Clean Mine' approach for asbestos only is over … Our Baby Powder contains talc fragments classifiable as fiber. Occasionally sub-trace quantities of tremolite or actinolite are identifiable (optical microscope) and these might be classified as asbestos fiber."); **Ex. 9**, Memorandum from Dr. Nashed 10/23/1973 (recognizing J&J "may have problems" if more sensitive testing techniques are used to analyze J&J's talc).

[19] For some non-exhaustive examples, *see*, *e.g.*, **Ex. 10**, Ernest F. Fullam Inc. report to (codefendant) Whittaker, Clark & Daniels, Inc. (reporting 675 chrysotile and 3,225 amphibole fibers per milligram in Vermont cosmetic talc); **Ex. 11**, Luzenac report on Argonaut 5/23/2002 (finding fibrous tremolite with "extremely high aspect ratios").

[20] *See*, *e.g.*, **Ex. 12**, Blount, A.M., *Amphibole Content of Cosmetic and Pharmaceutical Talcs*, Environmental Health Perspectives, Vol. 94, pp. 225-230 (1991) (finding sample I – Vermont talc used in JBP – contained tremolite "fibers" with aspect ratios of at least 15:1); **Ex. 13**, Steffen et. al. *Serious ovarian cancer caused by exposure to asbestos and fibrous talc in cosmetic talc powders – A case series*. J Occup Environ Med. 2020; 62(2):e65-e77.

[21] *See*, *e.g.*, **Ex. 14**, Report of Dr. Rigler 6/11/2021 (discussing results on 72 samples of the talc in JBP dated from the late 1960s to early 2000s and other contemporary analyses); *see also* **Ex. 4** at pgs. 32-33 (summarizing recent analytical results of JBP); **Ex. 13**; **Ex. 15**, Excerpt of Mark Bailey's Report on Vermont talc 11/16/2020.

[22] *See*, *e.g.*, **Ex. 13**; **Ex. 16**, Moline, J., et. al., *Mesothelioma associated with the use of cosmetic talc*. J Occup Environ Med. 2020:62(1):11-17; **Ex. 17**, Emory, TS. *Malignant mesothelioma following repeated exposures to cosmetic talc: A case series of 75 patients*. Am J Ind Med. 2020 June; 63(6):484-489.

[23] *See* **Ex. 125 and 89**, J&J's Interrogatory Responses, *Eggers v. Colgate-Palmolive Co.*, Response to Interrogatory No. 5.1 and attached Exhibit 1.

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Among other types of evidence, a significant part of the evidence that Plaintiffs intend to introduce consists of J&J's internal documents, specifically reports of J&J[24] and its hired consultants.[25] Such consultants include, among others, (a) Battelle Memorial Institute,[26] (b) Colorado School of Mines Research Institute ("CSMRI"),[27] (c) Mt. Sinai,[28] (d) Dr. Hutchinson (University of Minnesota),[29] (e) Walter C. McCrone Associates ("McCrone"),[30] (f) Dr. Reynolds (Dartmouth),[31] (g) EMV Associates,[32] (h) R.J. Lee[33] and (i) Dr. Blount (Rutgers).[34] J&J and its own consultants repeatedly reported asbestos in the talc in JBP.[35] Such evidence establishes J&J's negligence and serves as substantive evidence of asbestos content.

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[24] For some non-exhaustive examples, *see*, *e.g.*, **Ex. 19**, J&J notebook 8/10/1972 (reporting tremolite "fibers or rods/needles" in J&J cosmetic talc); **Ex. 20**, J&J memo 4/19/1973 (noting tremolite fibers in four JBP samples).

[25] **Ex. 4** at pgs. 21-26; **Ex. 5** (summarizing documents from 1957 to 2004); **Ex. 6**. For clarity, Plaintiff note that Windsor Minerals, Inc. was a wholly owned subsidiary of J&J that mined and milled J&J's southern Vermont talc during the years 1967 to 1988. **Ex. 123**, O'Shaughnessy Deposition, 6/30/21 at 464:14-20.

[26] *See*, *e.g.*, **Ex. 4** at pg. 21 (reporting Battelle told J&J that its talc contained trace levels of tremolite with minor amounts as "fibrous aggregates" in 1956 and 59 of 59 samples containing tremolite in 1959); **Ex. 125 and 89**, J&J's Interrogatory Responses, *Eggers v. Colgate-Palmolive Co.*, Response to Interrogatory No. 5.1 and attached Exhibit 1.

[27] For some non-exhaustive examples, *see*, *e.g.*, **Ex. 22**, CSMRI report 4/14/1971 (reporting "tremolite-actinolite needles" in "Vermont final product"); **Ex. 23**, CSMRI report 7/7/1971 (finding tremolite-actinolite by x-ray diffraction in five of six "Vermont product" samples); **Ex. 24**, CSMRI report 2/26/1973 (finding tremolite-actinolite and "possible serpentine fibers").

[28] **Ex. 25**, J&J memo 7/9/1971 at pg. 4 (stating Mt. Sinai's Dr. Langer "demonstrated to me the presence of some very fine fibers" of "chrysotile asbestos"); **Ex. 26**, Dr. Langer to J&J 11/10/1971 (telling J&J that Mt. Sinai "observed trace amounts of chrysotile asbestos" in JBP); **Ex. 27**, J&J memo 9/9/1975 (stating Dr. Langer found tremolite and anthophyllite in JBP before Edinburgh conference); **Ex. 28**, J&J memo 10/3/1975.

[29] **Ex. 29**, Excerpt of report of Dr. Hutchins 1972 at pg. 4 ("It is felt therefore that chrysotile asbestos does exist in the specimens of Shower to Shower and Lewin supplied to this laboratory.").

[30] For some non-exhaustive examples, *see*, *e.g.*, **Ex. 30**, McCrone report 10/27/1972 (finding a "total tremolite content" of 0.5% and 0.2-0.3%, including "tremolite rods"); **Ex. 31**, McCrone report 2/11/1974 (finding chrysotile in two of three samples); **Ex. 32**, McCrone report 3/11/1974 (confirming chrysotile fibers and no contamination in prior sample); **Ex. 33**, McCrone report 7/8/1974 (reporting tremolite and/or chrysotile fibers in four "production samples"); **Ex. 34**, McCrone report 7/1/1975 (finding "asbestos" fibers and bundles in numerous talc ore samples, including cosmetic ore); **Ex. 35**, McCrone report 11/5/1975 (finding "rather high" amounts of asbestos fibers); **Ex. 36**, Windsor Mineral, 5/24/1976 (stating "HC" samples pertain to cosmetic talc).

[31] **Ex. 37**, Dr. Reynolds report 3/1974 at pg. 6 (finding actinolite as the "dominant fiberform amphibole phase").

[32] **Ex. 38**, EMV Associates report 4/4/1977 (reporting a "large fiber bundle" and fiber of tremolite).

[33] *See*, *e.g.*, **Ex. 39**, RJ Lee report 3/14/1988 (finding 0.0024% chrysotile and 0.014% "fibrous tremolite").

[34] **Ex. 12** (1991 published paper); **Ex. 40**, Dr. Blount to J&J attorney 4/23/1998 ("I believe that Johnson & Johnson's Vermont talc contains trace amounts of asbestos …").

[35] *See*, *e.g.*, **Ex. 5** (summarizing documents from 1957-2004); **Ex. 6** (summarizing positive findings in 696 samples).

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Despite hundreds of tests reporting otherwise,[36] J&J claims its cosmetic talc never contained any asbestos.[37] J&J (a) attempts to discredit each test finding asbestos and (b) relies on test results largely finding "non-detects" and "no quantifiable asbestos." [38] As explained below, such results reflect J&J's often using testing techniques not powerful enough to detect asbestos and J&J's creating protocols that mandate analysts not report some asbestos fibers.

## B. J&J maintained the results but not the underlying data on chemistry, size and shape of the structures at issue. J&J's failure benefits J&J and hurts Plaintiffs.

### 1. Data on chemistry, size and shape of particles are at the heart of the dispute.

Whether the talc in JBP contained asbestos will be a central issue at trial. Answering that question requires determination of the proper (1) definition for asbestos in the context of evaluating health effects, (2) methodology to detect the presence of trace levels of asbestos in talc[39] and (3) interpretation of the data generated, including the chemistry, crystal structure, size and shape of the particles or structures examined. There is substantial disagreement on these points, and consequently, the parties' experts often reach different conclusions based on the same evidence. Without the underlying data for J&J's tests, it is impossible to determine what the results would have been if a different definition were applied, different methodology used, and/or different interpretation made. For these reasons, the underlying data is at the heart of the dispute. However, most of the reports from the 1950s to 2000s produced by J&J contain only the final results with the underlying data missing. Consequently, Plaintiffs have no concrete evidence from which to counter J&J's test results—to show that the underlying data reflect the presence of asbestos when another definition is applied or when the results are interpreted by a different expert.

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[36] **Ex. 5** (summarizing J&J documents 1957-2004); **Ex. 6** (reporting 696 positive samples); *see also* **Exs. 10-40**.
[37] **Exhibit 41**, Excerpt of the J&J designee Dr. Hopkins 7/22/2019 (am) at 43:3-7.
[38] **Exhibit 42**, J&J's responses to discovery (excerpt) in Eggers.
[39] S*ee*, *e.g.*, **Ex. 15** (Mark Bailey report) at pgs. 39-42 (criticizing J&J's testing procedures and protocols.)

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J&J's own experts agree that information on the number, chemistry, crystal structure, size and shape of the particles is necessary to evaluate the accuracy of the results reported by J&J and its consultants. In 2004, when another laboratory reported finding anthophyllite asbestos in JBP, J&J's consultant RJ Lee told J&J that it needed the following data to evaluate the report:[40]

1) The count sheets that show the number and size of the structures that were seen.
2) Photos that show if these structures are cleavage or asbestiform.
3) EDS (Energy Dispersive Spectra) to show the elements present and their ratio.
4) The SAED (Selected area Electron Diffraction) patterns to show the crystal system-similar to XRD.

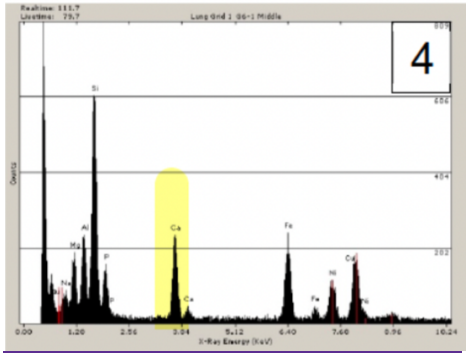
McCrone, J&J's consultant for many years, usually attached to its results (a) "bench sheets" or "count sheets," (b) photographs and/or (c) EDS data. Bench sheets report each particle examined: its chemistry (whether it is one of the asbestos types and which one), length, width, aspect ratio and other features.[41] Photographs show the particle's length and width, but also its shape, such as potential curvature, bundling, etc. And EDS data provides information on the chemical elements in a particle examined. The elemental makeup can then be compared to the reference standard for identification. J&J acknowledges the following:

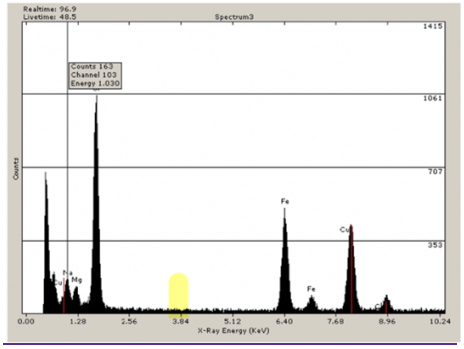
> Talc and all the asbestos minerals can, however, be unambiguously defined by determination of their unique chemical structure of each mineral by such methods as X-ray diffraction. Talc has the unique chemical structure $Mg_3Si_4O_{10}(OH)_2$; whereas, the asbestos minerals have different chemical structures. For example:
>
> tremolite - $Ca_2Mg_5Si_8O_{22}(OH)_2$
> chrysotile - $Mg_3Si_2O_5(OH)_4$
> anthophyllite - $(Mg,Fe)_7Si_8O_{22}(OH)_2$ [42]

A recent disagreement between experts demonstrates the significance of having EDS data available for analysis by both sides. J&J's expert Dr. Matthew Sanchez claimed in another case

[40] **Ex. 66**, RJ Lee to Mr. Ashton of J&J 3/9/2004.
[41] *See, e.g.*, **Exhibit 50**, McCrone to J&J 12/17/1990.
[42] **Ex. 109** (J&J re: Dutch Organization 9/20/1973) at pg. 2 (JNJTALC 000291476).

that the tremolite asbestos the plaintiffs' expert identified in a sample was misidentified.[43] The plaintiffs' expert disagreed with Dr. Sanchez based on a comparison of (a) the EDS data from Dr. Sanchez's test of the sample with (b) the chemical signature for crocidolite, the type of fiber Dr. Sanchez claimed was present in the sample. Dr. Sanchez's EDS data appears on the left and the EDS reference standard for crocidolite appears on the right.



The plaintiff's expert pointed out that Dr. Sanchez's EDS graph shows calcium present in the sample, and crocidolite does not contain calcium. The location for calcium is highlighted in both graphs.[44]

These graphs are examples of the type of data generated when analyzing the chemistry of a fiber. With access to the chemical analysis, Plaintiffs' experts can evaluate and critique the conclusions drawn by J&J's experts. Because Plaintiffs do not have access to such data for most of J&J's historical testing, Plaintiffs have no means to question the test results and potentially present alternate interpretations of the evidence—because that evidence doesn't exist anymore.

**2. J&J's experts use a narrow definition for asbestos not generally accepted.**

For context in evaluating the effect of the missing underlying data, J&J's expert Dr. Matthew Sanchez of the R.J. Lee Group applies the most stringent or narrow definition for

[43] **Ex. 87**, Report of Dr. Sanchez in Hirshberg (excerpt) 4/2/2021 **at pg. 13-14**.
[44] The identification of fiber types—crocidolite vs. tremolite, for example—because only some fiber types are found as accessory minerals to talc. Crocidolite would not be expected to be found with talc, so if the fiber were indeed crocidolite, it would mean that the fiber was not connected to talc exposure.



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asbestos possible,[45] suitable only for commercial-grade asbestos in bulk construction products.[46] Under this definition, for structures/fibers to qualify as asbestos, they must (in addition to being the right mineral) have (a) 20:1 aspect ratios, (b) fibrils narrower than 0.5 micrometers ("um") and (c) a series of shape characteristics like parallel fibers, bundles with splayed ends and fiber curvature.[47] Requiring these characteristics to identify an asbestos fiber is not helpful when trying to identify asbestos as a health hazard, and applying it results in a dangerous undercounting of asbestos fibers. As the U.S. Geological Survey ("USGS") recognizes, different contexts call for different definitions for asbestos:

> Asbestos has been defined by works in many disciplines including those in the commercial asbestos industry and the mining industry, those in the regulatory community, and the mineralogical and geological sciences. … [T]he definition of asbestos (and related terminology) can vary depending on the source and purpose. For example, a definition of asbestos appropriate for the asbestos cloth industry, which might require a very long, thin, highly flexible fiber might be different from that used in the asbestos cement pipe industry which could utilize a more brittle and perhaps shorter and wider fiber. Both of these definitions could be vastly different from those used in the health community, where the concern is exposure, risk and ultimately disease.[48]

Outside the litigation context, J&J's talc expert Bill Ashton also recognized these distinctions in 1977:[49]

when analyzing sheet silicates for asbestos. Unfortunately, one main factor is that asbestos has now developed variable definitions, depending on whether the point of view is mineralogical, industrial, medical, or regulatory. The medical definition is most concerned with whether or not the particles are biologically active; the industrial definition is dependent upon flexibility and weavability; the mineralogical definition upon crystallography; and the regulatory definition upon size and aspect ratio.

[45] **Exhibit 43**, Expert report of Dr. Sanchez report 7/30/2021 at pg. 20.
[46] **Ex. 4** (Dr. Webber report) at pg. 9; **Ex. 15** (Mark Bailey report) at pgs. 4-6.
[47] **Ex. 43** at pg. 20.
[48] **Ex. 44**, (Excerpts of) Mineralogy and Morphology of Amphiboles Observed in Soils and Rocks in El Dorado Hills, California, USGS Open-File Report 2006-1362, at pg. 37; *see also* **Exhibit 45**, *Misidentification of Asbestos in Talc* by J&J's Mr. Ashton 1977 at pg. 1 (339) ("… asbestos has now developed variable definitions depending on whether the point of view is mineralogical, industrial, medical or regulatory. The medical definition is most concerned with whether or not the particles are biologically active …").
[49] **Ex. 45**, Jerome B. Krause and William H. Ashton, *Misidentification of Asbestos in Talc*, National Bureau of Standards Special Publication 506, Proceedings of the Workshop—Asbestos: Definitions and Measurement Methods held at NBS, Gaithersburg, MD, July 1977 (Issued Nov. 1978)(emphasis added).

When evaluating JBP as a product that allegedly gave Michael Perry cancer, the commercial viability of an asbestos vein or commercial asbestos products is irrelevant.[50]

The USGS rejected R.J. Lee's use of a commercial definition for asbestos because "properties of commercial-grade asbestos such as flexibility and tensile strength have not been shown to directly contribute to health effects and should not be the sole basis for exclusion of materials that may otherwise meet demonstrated health-related criteria such as length, width, hulk chemistry, and perhaps surface chemistry."[51] In the context of evaluating health effects, generally accepted criteria for determining whether to count a given structure as asbestos include confirming the right (a) mineral (*i.e.*, one of the six forms of asbestos), (b) length (5um, later 0.5um), (c) width (less than 3um) and (d) aspect ratio (3:1 or 5:1).[52]

**3. Where tests find no asbestos, "no quantifiable asbestos" or similar results, the absence of underlying data hurts Plaintiffs.**

J&J's counting protocols, like its definitions, served to prevent analysts from reporting the presence of asbestos in JBP. J&J required its consultants to report "not quantifiable" levels of asbestos even when they identified asbestos in a sample.[53] J&J's procedure required microscopists to report the presence of asbestos only if they found 5 or more fibers of the same type.[54] Thus, even if an analyst identified as many as 16 asbestos fibers (four fibers each of tremolite, actinolite, anthophyllite and chrysotile), J&J's TM7024 protocol mandated the report

[50] **Ex. 44** at pg. 37 (recognizing the definition Dr. Sanchez uses was "developed to specifically analyze for commercial-grade asbestos in media where there may be reason to expect its presence").
[51] *Id*. at pg. 42.
[52] *See, e.g.*, **Ex. 4** at pgs. 6-13; **Ex. 15** at pgs. 4-6; **Ex. 62**, Executive Summary of Preliminary Recommendations by the Interagency Working Group on Asbestos in Consumer Products, 1/6/2020 at pg. 5.
[53] J&J tested a vanishingly small amount of its talc. From 1971 onward (over 40 years), J&J's expert, Dr. Sanchez, agreed J&J only tested 365 samples (8 per year) of J&J's talc products or talc ore sources by transmission electron microscopy. **Ex. 108**, Testimony of Dr. Sanchez (excerpt) 5/22/2018 at 488:1-9. Because each sample examined is very small (*see* **Ex. 46**), the total quantity of talc J&J tested by TEM amounts to 1/100$^{th}$ the weight of a breath mint.
[54] *See*, *e.g.*, **Ex. 46**, J&J's TM7024 8/21/1995.



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merely state "not quantifiable." In public statements, "no quantifiable asbestos" became "asbestos free."

Two examples illustrate the importance of bench sheets and/or data indicating the number of fibers found (distinguished from reported results under J&J's protocol): (1) an exchange between J&J and its consultant McCrone in 1985 and (2) an instance in 1990 where the bench sheets still exist. First, in a report dated August 22, 1985, McCrone states it detected "chrysotile asbestos" in two samples.[55] McCrone noted that the chrysotile asbestos was present but it could not calculate the weight percent of chrysotile asbestos.[56] In response, Windsor Mineral's president flew to Chicago to speak to McCrone personally.[57] He followed up in a letter:

> The August 22, report is couched in substantially different language than earlier reports. As I explained to you on my visit to Chicago it is very important that specific language be used.

On October 8, 1985, McCrone resubmitted the August 22 report, stating it "did not find any quantifiable amount of asbestos minerals."[58] Second, in 1990 McCrone reported to J&J that "no asbestos minerals were identified in the samples."[59] Because the bench sheets or underlying data were maintained in this instance, closer inspection reveals McCrone identified an anthophyllite fiber.[60] Other instances where the bench sheets were maintained likewise show "no quantifiable amounts of asbestos"[61] reported while the underlying data show asbestos fibers.[62]

[55] **Ex. 47**, McCrone to J&J (Windsor Mineral) 8/22/1985.
[56] *Id*.
[57] **Ex. 48**, J&J (Windsor Mineral ) to McCrone 9/10/1985 (" … as I explained to you on my visit to Chicago …").
[58] **Ex. 49**, McCrone to J&J (Windsor Mineral) 10/8/1985 re (project # ME-1862).
[59] **Ex. 50**, McCrone to J&J 12/17/1990 at pg. 5 (JOJO-MA90013-0009) (concerning sample "33-HV66" under TM7024).
[60] *Id*. at pg. 1 (JOJO-MA90013-0005).
[61] *See*, *e.g*., **Ex. 51**, McCrone to Cyprus Windsor Minerals 11/26/1990 at pg. 1 (JNJMX68_000012851). To be sure, while this example still illustrates the difference between reported results and actual findings, this particular example is McCrone reporting to Cyprus Windsor Minerals, the successor to J&J's subsidiary Windsor Mineral and the exclusive supplier of talc for use in JBP beginning in 1989.



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Consequently, J&J documents containing only results (per its reporting protocol) without attached "bench sheets" leaves Plaintiffs unable to determine if asbestos fibers were found and unreported in the results preserved.

**4. Even in tests where asbestos was found, the absence of underlying data hurts Plaintiffs.**

J&J attempts to discredit most of J&J and its consultants' findings of asbestos by (a) taking advantage of the fact that the underlying data on chemistry, size and shape were discarded and (b) applying the above-described inappropriate definition for asbestos. Rather than accept its own admissions as stated in the internal documents produced by J&J, J&J asserts the documents do not mean what they say. J&J argues that when its own document or report states "asbestos," "fibrous" or "fiber,"[63] J&J really "only" meant the then-existing regulatory definition for those terms (particles of one of the six asbestos minerals with a 3:1 aspect ratio 5um or longer), not "real asbestos." Because J&J saved only the final report but failed to maintain the underlying data, there is no objective evidence by which to challenge J&J's contention about what the results **really** mean. Without bench sheets, there is no way to know the aspect ratios for the asbestos fibers that were counted. Similarly, when J&J or its consultants use potentially ambiguous terms like "needles"[64] or "rods"[65] that, read in context, refer to fibers, J&J argues that it really meant something different. For the same reasons (J&J's failure to maintain the

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[62] *Id*. at pg. 4 (JNJMX68_000012854) (finding an anthophyllite fiber 1.5um wide and 20um long); *id*. at pg. 9 (JNJMX68_000012859) (finding a chrysotile fiber).

[63] *See, e.g*., **Ex. 25** (J&J report on meeting with Dr. Langer 7/9/1971) (referring to chrysotile asbestos); **Ex. 34** (McCrone to J&J 7/1/1975) (reporting "fibers" and "confirmed asbestos," including in Hammondsville cosmetic talc); **Ex. 35** (McCrone to J&J 11/5/1975) (same).

[64] **Ex. 63**, CSMRI to J&J 5/18/1971 at pg. 3 (distinguishing "needles" and "shards," with "shards"); **Ex. 64**, J&J "Assay of Talc in Baby Powder, 5/14/1971 ("We consider the free non-talc needles but a trace … Those particles are tremolite."); **Ex. 88**, CSMRI to J&J 8/13/1971 ("Any particle having a length/width ratio of 5:1 or greater was considered a needle."); **Ex. 109**, J&J memorandum regarding Dutch Organization 9/20/1973 at pg. 2 (JNJTALC 000291476) ("The definition of asbestos offered by the Dutch Consumer Organization is as follows: 'all *needle* and/or fibrous parts or composed units …'") (emphasis added).

[65] **Ex. 65**, J&J report 10/1980 (equating rod-shaped tremolite with asbestos noting "high concentration of rod shaped amphibole (tremolite) particles" before recommending "this talc source be dropped from further consideration.").

underlying data), Plaintiffs are limited in challenging J&J's contention.

**5. With no explanation, J&J failed to maintain the underlying data for most of the reports from its consultants.**

The majority of reports by J&J or its consultants that J&J produced in litigation consist of result summaries.[66] J&J offers no explanation for (a) the loss of underlying microscopy, bench sheets, photomicrographs, appendices and other data from so many reports and (b) why a limited number of reports still attach that information. From the list of test results that J&J affirms it relies on,[67] the following chart provides non-exhaustive examples of reports that, on the face of the document itself, reveal discarded information:

| J&J No. | Report | Findings | Missing References |
|---|---|---|---|
| 7019 | McCrone, 8/19/71[68] | Analysis of JBP by optical microscopy and TEM<br>No fibers seen by optical microscopy; 12 fibers seen by TEM, 1 of which could not be identified | No photomicrographs<br>No electron micrographs<br>"Copies of all photomicrographs and electron micrographs taken on this project are already in the possession of J&J." |
| 7028 | McCrone, 1/7/72[69] | Analysis of talc ore samples by TEM, optical microscopy, electron microprobe, and XRD<br>Rules out tremolite by a chemical analysis of 3 fibers examined ("Figure 13 shows the spectrum of the fibers"); tremolite ruled out because no calcium found. | None of 13 figures<br>No appendix<br>No photos<br>No Energy dispersive spectroscopy (EDS) analysis<br>No underlying data |
| 7116 | Dr. Pooley, 2/3/72[70] | Analysis of talc powder samples by TEM and powder x-ray<br>Finds that two Italian talc | No electron micrographs or pictures although report states "Electron micrographs representative of the particles from the various samples are included with this report, |

[66] *See*, *e.g.*, **Exs. 20, 23, 30-33, 38-39**.
[67] **Ex. 42**.
[68] **Ex. 67**, McCrone on JBP 8/19/1971.
[69] **Ex. 68**, McCrone 1/7/1972.
[70] **Ex. 69**, Dr. Pooley 2/3/1972.



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| | | | |
|---|---|---|---|
| | | samples are "fibrous" but claims no asbestos | together with pictures of the asbestos particles observed and selected area diffraction patterns." |
| 7685 | J&J, 12/20/72[71] | X-ray diffractometer scans of samples of Vermont 66 talc<br>No amphibole or chrysotile fibers detected in any sample | No scans even though the report states "The scans will be retained as references." |
| 8030 | EMV Associates, 6/3/83[72] | Analysis of 5 talc samples by SEM[73] and chemical analysis/EDS<br>In JBP Lot 31314, stated "Prismatic tremolite is non-fibrous and does not indicate presence of fibrous asbestos." | No SEM micrographs or other data<br>No figures, including Figure 7 of tremolite fiber |
| 7228 | RJ Lee, 5/23/89[74] | "Detailed analytical electron microscopical analyses" of Windsor talc ore sample<br>Talc sample found to be "free of asbestos fibers" | No analytical findings even though states that "the letter report of the analytical findings is attached" |
| 7363 | McCrone, 1/24/94[75] | TEM analysis of 3 talc samples<br>"We detected no asbestiform minerals in any of the samples." | No tables or underlying data attached even though states "a summary of the results is provided in Table I" |
| 7397 | McCrone, 6/25/95[76] | TEM analysis of 3 talc samples. "We detected no *regulated* asbestiform minerals in any of the samples." (Emphasis added)<br>Sample 19 was "unique due to the alternation of the talc plates to a fibrous morphology . . . . Selected area diffraction (SAED) of the fibers show a variety of patterns [including] | No figures<br>No tables<br>Even though:<br>"Figures 1 through 4 show talc plates in various stages of alteration from sample 19."<br>"A summary of the results is provided in Table I." |

[71] **Ex. 70**, J&J internal document 12/20/1972.
[72] **Ex. 71**, EMV Associates for J&J 6/3/1983.
[73] SEM, or scanning electron microscopy, is another way to visualize fibers. It is less powerful than TEM.
[74] **Ex. 72**, RJ Lee 5/23/1989.
[75] **Ex. 73**, McCrone to Luzenac 1/24/1994.
[76] **Ex. 74**, McCrone to Luzenac 6/25/1995.



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| | | | |
|---|---|---|---|
| | | chrysotile-like streaked rows." | |

The above examples are representative of the problem with hundreds of test result summaries that J&J relies on in this case. J&J's discarding the underlying data has left Plaintiffs with little opportunity to challenge the purported results and counter J&J's position before the jury.

### C. J&J failed to maintain any information on blanks, limiting Plaintiffs' ability to refute J&J's specious claims of "laboratory contamination."

J&J also attempts to explain away tests finding asbestos in its products or source talc by arguing the asbestos resulted from "lab contamination." Under this theory, J&J claims asbestos—including rare, non-commercial asbestos fibers (tremolite, actinolite, anthophyllite)—floating in the laboratory environment found their way into the vanishingly small amount of talc examined under the microscope. J&J makes this argument about numerous tests, including historical tests for which J&J has no documentation about whether the laboratory found asbestos in the "blanks."

A standard practice amongst laboratories consists of using "blanks" to control for possible contamination.[77] A blank is a filter placed near talc samples being tested to capture any contaminants in the air. The practice allows labs to rule out the possibility that asbestos fibers found in the sample came from an outside source. If the asbestos found in a talc sample was the result of contamination within the lab, the blanks would also show asbestos fibers. For most labs,

[77] **Ex. 52,** ASTM D6620-19, Standard Practice for Asbestos Detection Limit Based on Counts (2019) at 3.2.3.1 ("Blanks are used in this practice to determine background levels (also referred to as contamination) for asbestos measurement methods."); **Ex. 53,** EPA, Region III Fact Sheet, Quality Control Tools: Blanks (2009) ("The primary purpose of blanks is to trace sources of artificially introduced contamination.").



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asbestos fibers appearing in the "blanks" is an exceedingly rare event that almost never occurs.[78] J&J required the use of blanks in its asbestos testing procedures.[79]

Two recent examples illustrate the lengths to which J&J—and its experts—will go to claim lab contamination and the importance of information on blanks to refute such contentions. First, in October 2019, the FDA found asbestos in JBP.[80] J&J immediately sent the samples to Dr. Van Orden of RJ Lee, a lab J&J often uses, including in litigation.[81] RJ Lee found the same asbestos type as the FDA in **three** samples, while **no** asbestos appeared in the six blanks (two per sample) placed alongside the samples.[82] Nevertheless, RJ Lee, with no objective support, attributed the asbestos in the samples to lab contamination.[83] Second, as another example, RJ Lee found chrysotile in two samples of Brazilian talc (used in JBP sold outside of the U.S.) but not in the blanks.[84] RJ Lee initially concluded, based on the blanks, that lab contamination was unlikely.[85] RJ Lee tested water used in the talc beneficiation process and roofing shingles near the site, but asbestos was not found in either.[86] Despite negative tests of the water and shingles and the empty blanks, RJ Lee reversed itself and ultimately concluded laboratory contamination was the probable source of the asbestos fibers.[87] For both the FDA and Brazilian samples, J&J and RJ Lee claimed asbestos fibers floated into the talc samples in analyses (a) conducted by

[78] **Ex. 32** (McCrone to J&J 3/11/1974) ("… in view of our record of zero blanks …"); **Ex. 46**, (TM7024 8/21/1995) at 8.0 ("As of the time of this writing, background correction has not been necessary."); **Ex. 54**, McCrone Standard Operating Procedure 3/24/1987 ("Blank contamination is rare.").
[79] **Ex. 46** at pg. 5 (7.0).
[80] **Ex. 55**, Email from Ruark Lanham, FDA Divisional Recall Coordinator, 10/17/2019.
[81] **Ex. 56**, Decl. of Dr. Sanchez 3/29/2021 (noting J&J paid RJ Lee 4.3M in 3.5 years for litigation efforts).
[82] **Ex. 57**, Letter from RJ Lee 10/28/2019 at pg. 2.
[83] *Id.* Dr. Van Orden testified that this was the only time he remembers claiming laboratory contamination in 30 years. **Ex. 58**, Excerpt of Dr. Van Orden 3/12/2020 at 35:4-36:4.
[84] **Ex. 59**, Excerpt of the (combined) deposition of Donald Hicks, 7/29/2020 and 8/3/2020, at 146, 172-174, 340-353, 373-374, 475, 480.
[85] *Id.* at 374-375.
[86] *Id.* at 381-382, 463-464.
[87] *Id.* at 488, 504-505.



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professional researchers who (b) wiped the entire laboratory clean before (c) processing the samples under a hood with negative pressure air.

Despite J&J requiring blanks,[88] the documents J&J produced in litigation almost always fail to contain any documentation about the blanks. To date, J&J offers no reason for maintaining some testing reports yet consistently failing to maintain documentation on blanks. The absence of such information disadvantages Plaintiff, left without solid evidence from which to refute J&J's contentions.

**D. <u>J&J's failure to maintain samples benefits J&J by (1) allowing J&J to argue the talc samples Plaintiffs' experts rely on are not representative and (2) forcing Plaintiffs to obtain samples from other sources only to have J&J challenge the reliability of those samples.</u>**

Despite hundreds of findings of asbestos in JBP talc,[89] J&J generally attacks the number, diversity and source of the talc samples that Plaintiffs' experts rely on in two ways. First, J&J may argue the talc samples Plaintiffs' experts reviewed are not representative of the talc used by Michael Perry. J&J may argue that (a) composition of talc varies within the mine or the composition varies from year-to-year, as the mining operation shifts location over time and (b) Plaintiffs' experts rely on test results from an insufficient number or variety of samples of talc to be representative of the varied composition in the source ore over time.[90] Second, J&J may attempt to challenge any reliance on JBP samples not obtained from J&J by claiming insufficient chain-of-custody and/or asbestos contamination during maintenance.[91]

J&J had an endless number of talc bottles to draw from to preserve samples of its talc for future analysis. In January 1987, McCrone specifically told J&J that its policy required them to

[88] **Ex. 46** at pg. 5 (7.0).
[89] *See*, *e.g.*, **Ex. 4** (Dr. Webber report) at pgs. 21-26, 32-33 (summarizing results stated in J&J internal documents and contemporary tests); **Ex. 5** (Chart on 1957 to 2004); **Ex. 6** (Chart on 696 samples); **Ex. 14** (Dr. Rigler report) (discussing his analyses of at least 72 JBP or ore talc samples); **Ex. 18** (Dr. Madigan report) (statistical analysis).
[90] *See*, *e.g.*, **Ex. 43** (Dr. Sanchez report) at pgs. 2-3; *see also* **Ex. 15** (Mark Bailey report) at pgs. 17-20 (discussing talc zoning); **Ex. 18** (Dr. Madigan report) at pg. 15 (#56) (assuming representativeness for statistical analysis).
[91] *Id*. at pg. 14 (#55) (assuming the samples analyzed are not biased).



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hold samples tested for 30 days after a report for no charge and then, upon written request, fifty cents each month thereafter.[92] J&J could have saved the same samples McCrone tested. McCrone reminded J&J repeatedly of this option. J&J benefits from its own failure to maintain talc samples as it simultaneously (a) argues Plaintiffs rely on a sample set not sufficiently representative and (b) challenges each sample not obtained from J&J.

## E. J&J recklessly and knowingly failed to preserve this important evidence, and J&J now seeks to use the absence of such evidence to its advantage.

### 1. J&J (a) knew by 1969 of the risk of civil litigation for injuries caused by inhaling needle-like tremolite particles and (b) was engaged in active litigation from 1971.

J&J knew (a) by the 1930s that asbestos was associated with cancer,[93] (b) by 1956 that its talc contained "trace" tremolite with some occurring in "fibrous aggregates,"[94] (c) by 1967 that tremolite in talc was a health hazard[95] and (d) by 1971 that there was no safe level of asbestos in cosmetic talc.[96]

By 1969, J&J knew it was at risk of litigation related to injuries caused by inhaling the tremolite in JBP. J&J's Medical Director Dr. T.M. Thompson (a) advised J&J of the danger of inhaling "needle-like" tremolite, (b) recognized that "trace" amounts of tremolite in JBP were "unavoidable" and (c) noted that "furor" might arise if the public learned JBP "contained any significant amount of tremolite."[97] He predicted J&J "could become involved in litigation" for

[92] **Ex. 60**, McCrone to J&J 1/28/1987 at pg. 2 (JNJTALC000387137) ("It is our present policy to hold samples for 30 days after issuance of the analysis report at no additional charge to the client."); **Ex. 61**, McCrone 6/25/1995 ("If you would like the samples returned to you, please notify me within 30 days").
[93] **Ex. 41** (J&J's designee 7/22/2019) at 32:12-17.
[94] **Ex. 3**, Battelle Report 2/29/1956 at 17-19.
[95] **Ex. 75**, Mr. Ashton to Dr. Hildick-Smith 4/9/1969.
[96] **Ex. 76**, Dr. Hildick-Smith regarding Dr. Cooper, 7/30/1971 ("There is no place for asbestos in talcs.").
[97] **Ex. 77**.



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pulmonary fibrosis and recommended J&J's "Law Department" evaluate the "defensibility of our position."[98]

Dr. Thompson's prediction came true in 1971 when, according to admissions in J&J's privilege log, J&J was already named in "pending" litigation."[99] J&J asserted privilege for "pending" or "ongoing" "talc litigation" throughout the 1970s.[100] J&J distinguished "talc litigation" from litigation on (a) "regulatory matters" in 1973,[101] (b) a "talc complaint"[102] and (c) a "talc study" in 1979.[103] J&J knew that information from one case would be relevant to others.[104]

J&J was continuously named in suits in the 1980s and 1990s. By 1981, J&J knew of a pending suit alleging mesothelioma from inhaling talc, including talc from the Johnson Vermont mine—a suit in which its subsidiary Windsor Minerals was named.[105] J&J asserted privilege for "pending" litigation regarding this case.[106] A 1982 case alleged lung injury from using JBP.[107] By 1988, over 900 plaintiffs had alleged asbestos injury from J&J's subsidiary's Vermont talc.[108] Mesothelioma victims filed suit against J&J in 1997 (*Coker*), 2000 (*Bloch*) and 2003 (*Hozeny*).[109]

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[98] *Id.*
[99] **Ex. 78**, J&J's privilege log (excerpt) from the deposition of Nancy Musco 2/15/2019 at pg. 1 (referring to "pending and anticipated litigation regarding Johnson's Baby Powder litigation.").
[100] *Id*. at pgs. 1-6; **Ex. 79**, Deposition of Nancy Musco (excerpt) 2/15/2019 at 12:21-25, 13:5-21, 14:8-18, 14:21-23, 75;2-4, 75;7-21, 75:24-76:4, 77:13-20, 80:6-9, 80;13-8, 81:25-82:14, 82:17-18, 82:23-25.
[101] **Ex. 78** at pg. 1.
[102] *Id*. at pg. 2.
[103] *Id*. at pgs. 3-4.
[104] **Ex. 79** at 25:4-7, 25:10-17, 25:20.
[105] **Ex. 79**, Musco Deposition, 2/15/2019, at 202:25-203:3, 203:10-14; **Ex. 133**, Deposition of J&J designee James Mittenthal (Vol. 1 of 3) dated 9/24/2018 at 7:19-8:9, 8:12, 8:18-24, 9:2, 34:23-36:1, 36:3-10; **Ex. 94**, Deposition of J&J designee James Mittenthal (Vol. 3 of 3) dated 10/19/2018 at 471:19-22, 472:11-473:4. **Ex. 80**, J&J memorandum on the *Westfall* case 7/15/1981.
[106] **Ex. 78** at pgs. 8-9.
[107] **Ex. 81**, J&J on *Joly* case 12-3-1982; **Ex. 82**, J&J list of inhalation complaints 6/17/1985 at pg. 1.
[108] **Ex. 83**, Schedule I to J&J-Cyprus contract 12/30/1988; **Ex. 84**, Luzenac to J&J 10/17/1994 (stating throughout 1973-1984 industrial talc came from Vermont mines). Suits alleging respiratory injury from J&J's Vermont talc include 1986 (*Cooper*), 1986 (*Yohas*), 1988 (*Kreppel*), 1992 (*Faye Miller*), 1993 (*Selby*) and 1994 (*Ritter*).
[109] **Ex. 85**, Ex. 21 to the deposition of James Mittenthal 10/18/2018.



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**2. J&J knew the importance of preserving (and the consequences of discarding) (a) data on chemistry, size and shape and (b) vintage talc samples.**

From the 1970s onward, J&J knew the significance of data on chemistry, size and shape of the particles. In October 1972, J&J was copied on a letter from its consultant Ian Stewart, who wrote that missing photographs of reported asbestos in J&J talc were "vital information" to confirm if asbestos was truly present.[110]

> In particular, it would have been useful to know from which samples micrographs had been taken and what their magnifications were. There are in fact only a few of the photographs which contain this vital information. I would be pleased if you could furnish me with this missing information and

Bill Ashton, J&J's in-house talc expert,[111] recognized in 1977 that test results to identify asbestos in talc cannot be relied on without question because "[t]he conclusions reached will often vary widely depending on the expertise and specific interest of the investigator."[112]

> There are many ways to analyze and study any naturally occurring material. The conclusions reached will often vary widely depending on the expertise and specific interest of the investigator. That situation sums up the present status of "asbestos"; it is also the status of minerals which are associated with "asbestos"; and it is becoming the status of other minerals which can be naturally associated with talc.

J&J used underlying data to challenge others' findings of asbestos in cosmetic talc by reference to the underlying data. For example, J&J hired Colorado School of Mines Research Institute (CSMRI) to review the underlying data for the Bowling Green study that found asbestos

[110] **Ex. 86**, McCrone to Dr. Hutchinson, 10/5/1972.

[111] According to J&J, "Mr. Ashton was the former Director, Advanced Powder Technology and worked for Johnson & Johnson from October 1948 to August 1983. He had over fifty years of experience as a geologist and mineralogist and received training in talc minerals at the Battelle Memorial Institute…. [A]t Johnson & Johnson, his responsibilities included investigating and studying the domestic and international talc industry and methods for testing talc and communicating with outside scientists and laboratories that were testing talc and talcum powder products. Additionally, Mr. Ashton oversaw and was actively involved with the company's testing of talc and the efforts to identify, evaluate and approve new sources of talc." **Ex. 131**, J&J's Second Supplemental Responses to Certain of Plaintiff's First Set of Interrogatories, *Eggers v. Colgate Palmolive Co.*, at pp. 4-5.

[112] **Ex. 45**, Jerome B. Krause and William H. Ashton, *Misidentification of Asbestos in Talc*, National Bureau of Standards Special Publication 506, Proceedings of the Workshop—Asbestos: Definitions and Measurement Methods held at NBS, Gaithersburg, MD, July 1977 (Issued Nov. 1978)(emphasis added).

in JBP. Based on its review, analysts from CSMRI challenged the authors with specific findings they believed to be in error.[113]

J&J repeatedly attempted to control the data others received, demonstrating its awareness of its significance. As an example, when McCrone concluded two J&J samples contained 0.2-0.3% and 0.5% tremolite,[114] J&J wrote in capital letters "DO NOT USE THIS REPORT."[115] Another report was submitted without the percentages expressed.[116] And as noted above, J&J instructed its consultants that it was "very important specific language be used" in their reports—language provided by J&J.[117]

J&J knew the importance of preserving vintage samples of talc. Through its corporate designee Dr. Hopkins, J&J admitted that it knew by 1971 asbestos-related diseases were latent, forming decades after exposure.[118] Because of the latency, J&J knew the samples in its possession might remain one of the only sources for vintage samples thirty years or more after a consumer used its product, when disease was diagnosed. J&J knew the significance of such samples in litigation specifically. J&J's privilege log reveals that, as early as February 1971, J&J was communicating with its attorneys about "talc samples in connection with ongoing and anticipated litigation."[119] Facing litigation in 1994, J&J wrote its talc supplier Luzenac about whether Luzenac had vintage talc samples and Luzenac responded that "samples are not available for this time frame since retention is only two years.[120]

[113] **Ex. 90**, CSMRI to J&J 6/8/1973.
[114] **Ex. 30** at pg. 3 (JNJMX68_000006932).
[115] *Id*. at pg. 1 (JNJMX68_000006930).
[116] **Ex. 91**, McCrone report to J&J without percentages 10/27/1972.
[117] **Ex. 48**, J&J (Windsor Mineral ) to McCrone 9/10/1985 (" … as I explained to you on my visit to Chicago …").
[118] **Ex. 92**, Dr. Hopkins deposition (excerpt) 8/16/2017 at 537:16-20.
[119] **Ex. 78** at pg. 1; **Ex. 79** at 93:3-9, 93:12, 93:15-25, 94:4-6.
[120] **Ex. 84** (Luzenac to J&J 10/17/1994) at pg. 2 (JNJ 000063582).



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### 3. Despite ongoing litigation and the depth of its knowledge, J&J failed to institute preservation policies until far too late.

J&J failed to make any systematic effort to collect potentially responsive documents until the mid-1990s and failed to institute a records retention policy until 1997.[121] After years of active litigation, J&J did not institute a "legal hold"[122] for litigation surrounding consumer talc until 1997 or 1999.[123] Even then, J&J failed to direct its legal holds to all of its operating companies.[124] J&J recognizes that litigation holds can be entered for *anticipated* litigation,[125] but it had been involved in litigation for more than 25 years before it instituted any sort of legal hold.

J&J knew the effect of not instituting a litigation hold. Under J&J's policies, J&J employees discard documents (a) no longer governed by retention schedules and (b) not subject to a legal hold.[126] J&J had annual "clean-out" policies for disposing of documents.[127] Despite J&J's awareness of the importance of vintage samples since 1994[128] (if not 1971), J&J failed to institute a legal hold for talc samples until 2017, twenty years after the *Coker* case.[129]

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[121] **Ex 93**, Deposition of James Mittenthal 10/18/2018 at 389:7-16, 389:18-390:8; **Ex. 94**, Deposition of James Mittenthal 10/19/2018 at 539:23-540:5, 540:10-13, 541:1-7, 548:14-21.

[122] A litigation hold, legal hold or "preservation notice" is an instruction to possessors of certain specified documents to preserve (and not destroy) them while the hold remains in effect. **Ex. 93** at 408:14-20, 420:13-16. Legal holds remain in effect until a release notice is issued. *Id*. at 408:21-409:3.

[123] **Ex. 93** at 227:4-7, 389:2-6, 403:10-13; **Ex. 94** at 477:14-19, 480:16-21, 481:7-9, 488:23-25, 507:13-14; **Ex. 96**, *Krushinski* legal hold 11/11/1999. Records reveal J&J instituted a legal hold for the *Coker* case on October 6, 1997. **Ex. 95**, *Coker* legal hold 10/6/1997.

[124] **Ex. 93** at 417:3-10. J&J is not aware of any legal holds being destroyed or hold releases being entered. **Ex. 94** at 500:12-22, 506:7-13, 507:15-18. J&J entered hold notices in 1999, 2000, 2003, 2009, 2014 and 2017. **Ex. 85** (J&J list of legal holds 10-18-2018).

[125] **Ex. 94** at 468:9-13, 468:18-23.

[126] *Id.* at 535:20-536:1, 536:3-4.

[127] *Id*. at 536:6-9, 536:11-12. J&J may have discarded testing when it sold Windsor Mineral to Cyprus in 1989. The memorandum refers to Windsor Mineral conducting monthly tests from 1970 to 1989. Ex. 84. J&J reported "records were destroyed by the mine management staff prior to J&J divestiture and the Cyprus purchase." **Ex. 97**, J&J trip report 11/23/1993. Other discarded, or potentially discarded, documents include: (a) J&J employee George Lee's files pertaining to bi-monthly reports, the *Westfall* case (1981) and the *Joly* case (1982), **Ex. 98**, George Lee files 7/1988, (c) historical talc samples and talc photomicrographs, **Ex. 99**, Talc Closet Cleanout 1/20/2000 and (d) J&J's file on all phone calls and correspondence it had with the FDA that no longer exists.

[128] **Ex. 84**.

[129] **Ex. 85**. Before 2017, J&J's talc samples were subject to its ordinary records retention schedule four years after manufacture or one year after expiration. **Ex. 93** at 404:18-21.

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Nancy Musco testified as J&J's corporate designee on J&J's discovery responses.[130] She verified interrogatory responses in many instances.[131] Ms. Musco admitted J&J was asked repeatedly in discovery for "any evidence" that the talc in JBP (*i.e.*, JBP or its talc sources) contained asbestos.[132] J&J knew any testing on whether its talc contained asbestos would be responsive and information in its possession relevant to, or produced in, any particular talc-based lawsuit would be relevant to discovery in future talc-based cases.[133]

When deposed in 2019, Ms. Musco admitted that J&J could not identify a single case prior to 2017 in which it had turned over evidence related to the testing of J&J's talc:

> Q. Okay. So as you sit here today, Johnson & Johnson, to be clear, cannot point to a single case prior to 2017 where it turned over evidence related to the testing of Johnson & Johnson's talc, baby powder or sources of that baby powder related to asbestos, correct?
>
> …
>
> A. No, I cannot.[134]

Mr. O'Shaughnessy, J&J's assistant general counsel, admitted that, even after it knew of evidence of asbestos, J&J continued stating in discovery there was "no evidence" of asbestos.[135] J&J answered discovery to promote "the company position":

> A. **Everybody I worked with, we knew the company's position. I verified that everything that was written there [in interrogatory responses] was consistent with that position.**
>
> Q. When you say "company's position," what do you mean by that?

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[130] **Ex. 79** at 13:5-21.
[131] *Id*. at 14:2-6.
[132] *Id*. at 35:4-24, 36:3-4, 36:8-9, 36:13, 36:23-25, 37:1-11, 37:16-20.
[133] *Id*. at 25:13-17, 25:20, 30:20-31:8, 31:14-15. J&J admits that it owed a duty to provide complete and accurate discovery. *Id*. at 32:3-7, 32:10.
[134] **Exhibit 120**, Deposition of Nancy Musco (Vol. 2) (excerpt) at 420:19-421:2. J&J's attorney objected that the question was beyond the scope of the notice and could only be answered in her individual capacity. Ms. Musco testified as J&J's corporate representative "with the most knowledge concerning discovery responses historically provided by" J&J and its subsidiaries. *Id.* at 13:5-21. This question related precisely to the discovery responses historically provided by J&J concerning the asbestos content of its talc, JBP or Shower to Shower sold by J&J. Even in her individual capacity, Ms. Musco would be in a position to know if such information had been produced by J&J because she was personally involved in the discovery process.
[135] *See* **Ex. 100**, John O'Shaughnessy deposition (excerpt) 6/22/2021 at 12:21-13:9, 92:20-96:2, 111:16-23.

A. That there is no asbestos in the cosmetic talc used for Johnson's Baby Powder.

Q. There's no evidence of asbestos, there never was and there never will be; isn't that the company position?

A. Yes, in the cosmetic talc used for Johnson's Baby Powder.[136]

Between J&J's secrets and what litigants needed to know was a wall of obfuscation. But J&J did not develop its practice of avoidance and concealment just for litigation. J&J has long fought to protect the reputation of its flagship product—from regulators, medical professionals, and consumers.

## F. J&J engaged in a decades-long pattern of concealing evidence and making false statements to prevent public knowledge of asbestos in JBP.

JBP was J&J's "flagship product" that – out of thousands of J&J products – most people associated with J&J.[137] J&J called JBP "the franchise,"[138] a "sacred cow"[139] and a "golden egg."[140] J&J recognized that its business depended on the "emotional trust" and perception of "safety" developed from an "infant bond."[141] As a diverse company with numerous revenue streams, J&J knew that disclosure of the asbestos content of JBP and associated cancer risk would damage that perception and affect J&J's other revenue streams besides JBP.[142] J&J went to great lengths to prevent such disclosure.[143] J&J engaged in a pattern of concealing information and making false statements to regulatory bodies, courts and the public.

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[136] **Ex. 79** at 136:5-18 (emphasis added).
[137] **Ex. 101**, J&J designee Dr. Hopkins deposition (excerpt) 8/15/2017 at 10:5-19, 121:25-122:25.
[138] *Id*. at 121:21-24.
[139] *Id*. at 123:18-124:11.
[140] **Ex. 102**, J&J marketing Power Point 4/28/1997; **Ex. 103**, J&J marketing Power Point 8/18/1997.
[141] **Exs. 102-103**.
[142] *See*, *e.g*., **Ex. 41** (Dr. Hopkins on 7/22/2019) at 38:19-39:1 ("It would very, very bad for business.").
[143] **Ex. 105**, J&J's Vernon Zeitz 5/5/1975 at pgs. 10-11 (WTALC00007375 to 76) ("Most wars are not won at peace talks around the conference table, but are won on the battlefield by legions who are the most ruthless … It is imperative we overcome the inertia of our past to modernize and mobilize our defenses and offenses so we enter into battle with the outcome assured.").



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J&J repeatedly gave false statements to the FDA. In 1971, the FDA indicated that it was considering regulating asbestos in talc in the cosmetic industry.[144] J&J began a campaign to prevent regulation.[145] J&J (a) advocated with the FDA for an allowance of up to 1% asbestos in cosmetic talc,[146] (b) promoted standardizing less powerful testing methods[147] and, (c) most importantly, gave false statements about its own internal testing record. By 1976, J&J recognized itself[148] and been told by its consultants dozens of times that the talc in JBP contained asbestos,[149] including chrysotile asbestos.[150] J&J admits that, by the early 1970s, it had received "numerous reports of tremolite in its Vermont and Italian ore."[151] However, J&J told the FDA that "no amphiboles or serpentine minerals were detected in any samples" analyzed by its consultants.[152] J&J provided the FDA with selective test results but withheld numerous studies that showed the presence of asbestos in the talc.[153]

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[144] **Ex. 113**, Dr. Hopkins deposition (excerpt) 4/11/2018 at 131:5-11.
[145] *See*, *e.g.*, **Ex. 110**, J&J's summary of submissions to the FDA 1971-1979; **Ex. 113** at 132:11-16, 132:18.
[146] **Ex. 106**, J&J to FDA 9/6/1974 ("The calculation shows that substantial safety factor can be expected with talc containing 1% w/w asbestos fibers. Therefore, methods capable of determining less than 1% asbestos in talc are not necessary to assure the safety of cosmetic talc.").
[147] **Ex. 107**, J&J to Dr. Estrin 12/17/1974 ("We believe it is critical for the CTFA to now recommend these methods to the FDA before the art advances to more sophisticated techniques with higher levels of sensitization.").
[148] *See*, *e.g.*, **Ex. 7** (J&J 7/29/1971) ("The talc used in Johnson's Baby Powder … consists … [of] only trace amounts of fibrous minerals (tremolite/actinolite)"); **Ex. 8**, (J&J 4/26/1973) ("… we are also confident that fiber forming or fiber type minerals could be found. The usefulness of the 'Clean Mine' approach for asbestos only is over …").
[149] *See*, *e.g.*, **Ex. 4** (Dr. Webber report) at pgs. 21-26 (summarizing J&J internal documents); **Ex. 5** (Demonstrative on J&J internal documents 1957-2004); **Ex. 6** (Demonstrative on 696 positives); **Exs. 22-37**.
[150] *See*, *e.g.*, **Ex. 25** (J&J memo 7/9/1971) at pg. 4 ("Dr. Langer … demonstrated … some very fine fibers … [of] chrysotile asbestos"); **Ex. 26**, (Dr. Langer to J&J 11/10/1971) ("We observed trace amounts of chrysotile asbestos"); **Ex. 29** (Dr. Hutchins report to J&J 1972) at pg. 4 ("It is felt therefore that chrysotile asbestos does exist in the specimens of Shower to Shower and Lewin supplied to this laboratory."); **Ex. 31** (McCrone to J&J 2/11/1974); **Ex. 33** (McCrone to J&J 7/8/1974).
[151] **Ex. 113** at 172:23-173:2.
[152] **Ex. 111**, J&J letter to the CTFA (to be sent to the FDA) 3/15/1976 ("No amphiboles or serpentine minerals were detected in any samples … Again, no amphiboles or serpentine minerals were detected have been detected … these have always verified the absence of asbestiform minerals … It is our understanding that you would wish to submit this information to the FDA."); **Ex. 112**, Dr. Hopkins deposition (excerpt) 8/17/2017 at 861:5-867:18 (listing positive findings for asbestos that J&J never disclosed to the FDA).
[153] **Ex. 110**, J&J record of communications made to FDA, 1971-1979; **Ex. 112**, Hopkins Deposition, Aug. 17, 2017, at 861:5-867:18 and **Ex. 113**, Dr. Hopkins deposition (excerpt) 4/11/2018 at 131:5-136:14 at 171:11-172:11 [Hopkins unable to identify any positive testing for asbestos that J&J shared with FDA]; **Ex. 132**, Webber Deposition, 5/31/2017, at 182:21-188:18; 242:13-243:25. For example, in 1972, J&J was in possession of

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As noted above with respect to the Bowling Green researchers, J&J also sought to control others' disclosure of information. J&J developed a list of "antagonistic personalities" that published information adverse to its interests.[154] J&J's enemy list included Dr. Selikoff and Dr. Langer of Mt. Sinai. When Dr. Langer planned to present his findings of chrysotile and anthophyllite in JBP at a scientific conference,[155] J&J secured the "immediate removal of the hostile preprint" of the conference program and pressured Mt. Sinai to withdraw the paper.[156] Dr. Langer attributed its removal to "professional pressures and industry harassment."[157] Pfizer noticed J&J applying "heavy pressure."[158] As another example, in 1974 J&J learned that its former talc supplier (of Italian talc) published a booklet in Europe stating it contains chrysotile asbestos and intended to distribute in the U.S.[159] J&J met with other talc suppliers in the U.S., flew to Italy and pressured them to stopping publication in the U.S.[160]

J&J repeatedly made false statements to courts. In July 1987, Roger Miller (president of J&J's talc mining subsidiary) gave a sworn affidavit (to induce a dismissal) stating "no evidence of the presence of asbestos in Windsor Minerals' product has ever been revealed by this testing."[161] J&J employee Bill Ashton likewise submitted a false affidavit claiming that talc from the Johnson, Vermont mine was "free from contamination by asbestos."[162] He attached an affidavit of Dr. Chidester, but failed to disclose that Dr. Chidester had found chrysotile and two

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Hutchinson's report that verified Lewin's results finding chrysotile asbestos in Shower to Shower but J&J hid this from FDA. *See* **Ex. 129**, Hopkins Testimony, *Herford*, 11/3/17, at 2631:4-2634:8.

[154] **Ex. 104**, J&J on antagonistic personalities 11/29/1972.

[155] **Ex. 27** (J&J memorandum 9/9/1975).

[156] **Ex. 28** (J&J memorandum 10/3/1975).

[157] **Ex. 114**, Dr. Langer to Mt. Sinai 3/17/1976 at pg. 3.

[158] **Ex. 115**, Pfizer memorandum on media coverage 3/25/1976.

[159] **Ex. 116,** J&J regarding meeting with Don Ferry 10/2/1974; **Ex. 117**, J&J on booklet 10/8/1974.

[160] **Ex. 116** (referring to meeting with other supplier); **Ex. 118**, J&J on trip to Italy 10/31/1974; **Ex. 119**, J&J to UK confirming decision not to publish 11/26/1974.

[161] **Ex. 79** (Nancy Musco 2/15/2019) at 227:18-21, 227:23-24; **Ex. 121**, Roger Miller Affidavit (*Edley*) 7/3/1987.

[162] **Ex. 120** (Nancy Musco 3/8/2019) at 351:9-19; **Ex. 124**, J&J employee William Ashton's Affidavit 5/8/1989.

other witnesses had found asbestos.[163] J&J stated in discovery that JBP never contained "tremolite" (even in a blocky or non-asbestiform habit).[164] J&J has admitted this is false, acknowledging "several hundred tests" of J&J's Italian-source talc reporting "trace tremolite."[165]

## ARGUMENT

"The courts of South Carolina have long recognized that a party is entitled to favorable presumptions [in civil cases] about the contents of missing evidence when an opponent is responsible for the destruction of evidence that might otherwise be expected to have been relevant." *State v. Reaves*, 414 S.C. 118, 128, 777 S.E.2d 213, 218 (2015) (quoting Kevin R. Eberle, *Spoliation in South Carolina*, 19 S.C. LAWYER 26, 28 (2007)); *see also Gathers ex rel. Hutchinson v. S.C. Elec. & Gas Co.,* 311 S.C. 81, 83, 427 S.E.2d 687, 689 (Ct. App. 1993) ("when a party loses or destroys evidence, an inference may be drawn that the destroyed or lost evidence would have been adverse to that party."). Just as a defendant should be allowed "to exculpate itself from liability because the plaintiff has barred it from obtaining evidence," *Cole Vision Corp. v. Hobbs*, 394 S.C. 144, 153, 714 S.E.2d 537, 542 (2011) (quoting Robert L. Tucker, *The Flexible Doctrine of Spoliation of Evidence: Cause of Action, Defense, Evidentiary Presumption, and Discovery Sanction,* 27 U. TOL. L. REV. 67, 75 (1995)), a defendant should not be allowed to *escape* liability by denying the plaintiff access to evidence.

### A. J&J is guilty of spoliation.

#### 1. J&J had a duty to preserve this evidence before litigation was pending, or even clearly anticipated.

J&J's spoliation goes back several decades. It began before J&J was sued for respiratory illnesses caused by its talc products, and it continued while J&J was in active litigation. The

[163] **Ex. 79** at 271:3-5, 271:18-272;1; **Ex. 120** at 354:21-355:14, 355:20-21, 368:12-15, 368:18-24.
[164] **Ex. 120** at 414:3-19, 414:22-23; **Ex. 122**, J&J interrogatory responses 5/23/2000 at #17.
[165] **Ex. 79** at 189:14-190:3.



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evidence makes clear that J&J anticipated litigation since at least 1969, and it was involved in pending litigation since at least 1971. However, J&J had a duty to preserve documents that would be important to the litigation, even when a lawsuit had not been filed and *even* litigation was not yet clearly anticipated.

In *Stokes v. Spartanburg Reg. Med. Ctr.*, 368 S.C. 515, 521, 629 S.E.2d 675, 678–79 (Ct. App. 2006), two pieces of important evidence were missing from the hospital's medical records: results from a blood test and the floor nurse's chart recording the decedent's vital signs the night of his death. The defendant hospital speculated that the blood might never have been sent to the laboratory for testing—so that the test results never existed—and that the chart notes might have been lost during the "code" on the night of decedant's death. There was no indication that these documents were destroyed or discarded during litigation or in violation of a court order. Nevertheless, the court held that failing to include an adverse inference instruction in the charge was reversible error because, "[w]hile the jury may well have accepted the Hospital's explanations, it was also in its province to draw a negative inference from the Hospital's failure to produce those pieces of evidence." *Id.* at 521, 629 S.E.2d at 679.

Similarly, in *Gathers By & Through Hutchinson v. S.C. Elec. & Gas Co*., 311 S.C. 81, 83, 427 S.E.2d 687, 689 (Ct. App. 1993), on the day the decedent died, the defendant inspected the premises, found electrical current running through the water pipes, and, as a safety precaution, "disconnected the service line and the meter from Gathers's house and discarded them." When the new service line and meter were installed, the electrical current had disappeared from the water pipes. *Id.* The defendant challenged the plaintiff's expert, arguing that his assumption about the cause of the electrical current was unsupported by the evidence. *Id.* In upholding the trial court's denial of the motion, the court noted that "when a party loses or

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destroys evidence, an inference may be drawn that the destroyed or lost evidence would have been adverse to that party." *Id.* (citing *Kershaw Cnty. Bd. of Educ. v. U.S. Gypsum Co*., 302 S.C. 390, 396 S.E.2d 369 (1990)).

In these cases, the loss of the evidence occurred long before litigation was filed and with no reason to believe that evidence was deliberately or maliciously discarded—indeed, the defendant in *Stokes* argued that some of the allegedly missing evidence might never have existed.

The loss of the evidence at issue in this case began decades ago, including before litigation began against J&J, and it continued through decades of litigation. J&J, from the time it knew it had asbestos in its cosmetic talc products and knew that it was unacceptable to have asbestos in its talc product, also had reason to know (like the defendants in *Stokes* and *Gathers*) that the evidence needed to be retained. But J&J failed to do so.

**2. The evidence is relevant and there is reason to believe it would have been favorable to Plaintiffs.**

Under Rule 401, SCRE, "relevant evidence" means "evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable that it would be without the evidence." "Evidence is relevant if it tends to establish or to make more or less probable some matter in issue upon which it directly or indirectly bears." *State v. Schmidt*, 288 S.C. 301, 303, 342 S.E.2d 401, 403 (1986). Thus, any evidence which assists a jury at arriving at the truth on a matter at issue is relevant. The determination of the relevancy of evidence is largely within the trial judge's discretion. *Strickland v. Coastal Design Associates, Inc.,* 284 S.C. 421, 365 S.E.2d 226 (Ct. App. 1987).

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Evidence that goes to whether JBP contains asbestos is extremely relevant to Plaintiffs' case. Indeed, it goes to the heart of the dispute between Plaintiffs and J&J. Moreover, the facts outlined above provide reason to believe the evidence that has been lost or discarded would have been favorable to Plaintiffs. Plaintiffs have provided examples of (1) a bench sheet that found an asbestos fiber while the final report claimed "no quantifiable asbestos," (2) two cases where laboratory contamination was blamed for asbestos fibers found in samples of JBP and J&J talc when control blanks did not support the claims, and (3) an expert report that demonstrates areas of disagreement about the identification of fibers based on chemistry or morphology. In addition, J&J's history of presenting tests to the FDA that reported JBP was asbestos-free while withholding other tests that would be "very, very bad for business" is further evidence that J&J avoids producing evidence that it considers harmful to "the company position."[166]

**B. <u>The requested sanctions are appropriate.</u>**

Over the years, courts have found numerous sanctions to be appropriate for the spoliation of evidence. Courts have allowed adverse inferences to be drawn from the loss or destruction of relevant evidence, issued fines plus attorney's fees, as well as other sanctions. The adverse inference instruction is favored because the spoliating party has prevented the evidence from being reviewed by the jury or court: "Giving the finder of fact the ability to decide what weight to place on the spoliation is the preferred practice in South Carolina." *Spoliation in South Carolina* at 31.

"The rights of discovery provided by the Rules [of Civil Procedure] give the trial lawyer the means to be prepared for trial." *Downey v. Dixon*, 294 S.C. 42, 46, 362 S.E.2d 317, 319 (Ct. App. 1987). "Where these rights are not accorded, prejudice must be presumed and, unless the

[166] J&J's corporate representative Nancy Musco testified that J&J's company position was "[t]hat there is no asbestos in the cosmetic talc used for Johnson's Baby Powder." **Ex. 79**, Musco Deposition, 2/15/2019, at 136:5-18. *See also* **Ex. 100**, O'Shaughnessy Deposition, 6/22/2021, at 195:-197:10.

party who has failed to submit to discovery can show a lack of prejudice," sanctions must be imposed, or a resulting verdict must be reversed. *Id.* While "[t]he imposition of sanctions is generally entrusted to the sound discretion of the Circuit Court, ... whatever sanction is imposed should serve to protect the rights of discovery provided by the Rules." *Id.* Without adequate sanctions, discovery procedures would be ineffectual. *Id.* As a result, overleniency must be avoided. *Id.*

"In determining the appropriateness of a sanction, the court should consider such factors as the precise nature of the discovery and the discovery posture of the case, willfulness, and degree of prejudice." *Griffin*, 334 S.C. at 199, 511 S.E.2d at 719; *see also Kershaw*, 302 S.C. at 395, 396 S.E.2d at 372 (upholding trial court's spoliation instruction as appropriate sanction because there was no evidence of undue prejudice or intentional misconduct). In *Samples v. Mitchell*, 329 S.C. 105, 495 S.E.2d 213 (Ct. App. 1997), a party failed to disclose the existence of a videotape of the plaintiff in a personal injury case which was relevant to the issue of damages. The South Carolina Court of Appeals stated "[t]he entire thrust of the discovery rules involves full and fair disclosure, to prevent a trial from becoming a guessing game or one of surprise for either party." *Id.* "Discovery sanctions are imposed to penalize those whose conduct may be deemed to warrant such a sanction, and to deter those who might be tempted to such conduct in the absence of such a deterrent." *Creighton v. Coligny Plaza Ltd. P'ship*, 334 S.C. 96, 123, 512 S.E.2d 510, 524 (Ct. App. 1998).

The missing evidence at issue here—underlying test data, laboratory blanks, and talc samples—are critical to countering J&J's primary defense: that testing shows there is no asbestos in its products. Even in press releases, J&J claims decades of tests show no asbestos in JBP.[167]

[167] **Ex. 127**, J&J Press Release, Oct. 29, 2019 at 2; *see also* **Ex. 128**, Deposition of Walgreen's designee Rudy Kucera (excerpt) 2/26/21, at 64:7-15.



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**Decades of Product Testing Has Found No Asbestos in Johnson's Baby Powder**

The Company has a rigorous testing standard in place to ensure its cosmetic talc is safe. Thousands of tests over the past 40 years, including FDA's own testing as recently as last month, repeatedly confirm that Johnson's Baby Powder does not contain asbestos. Our talc comes from ore sources confirmed to meet our stringent specifications that exceed industry standards. The Company and its suppliers routinely test to ensure our talc does not contain asbestos. Our talc has also been tested and confirmed to be asbestos-free by a range of independent laboratories, universities and global health authorities.

J&J touts its own "rigorous testing" as its primary defense. J&J knew this evidence was important for a host of reasons (regulatory pressure, consumer concerns, hundreds of existing and anticipated lawsuits) but selectively and overwhelmingly failed to keep the proof and ask that opposing parties be forced to accept it as true and be denied the ability to verify.

If J&J's 40 years of testing is the evidence that its talc does not contain asbestos, Plaintiffs are severely hampered by (1) a lack of historical talc samples for testing (to counter the hundreds of historical tests done by J&J), (2) a lack of underlying test data to evaluate test results on which J&J relies, (3) a lack of blanks from which to evaluate claims of laboratory contamination and (4) lack of underlying data to support historical testing done by J&J finding asbestos.

There is also evidence that J&J acted in bad faith when it lost or destroyed this evidence. J&J's history of protecting the reputation of its cornerstone product, JBP, with regulators, medical professionals, consumers, and litigants by hiding, misrepresenting, and attacking is strong evidence of bad faith. It would have been "very, very bad for business" if anyone had discovered there was asbestos in JBP.[168] J&J has promoted the company position, that there is no

[168] **Ex. 101**, Hopkins Deposition, Aug. 15, 2017, at 134:11-17.



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asbestos in JBP, with regulators,[169] litigants,[170] and the press[171] decade after decade. Any evidence that conflicts with that story is unacceptable.

J&J knew by the 1970s testing data regarding asbestos in baby powder was of great interest to regulators, consumers, litigants, and medical professionals and the failure to maintain it cannot be brushed away given its undisputed importance to J&J's business and undisputed significance of this information both in and outside of the litigation starting over 40 years ago. J&J knew and published on the importance of having this data; knew that the FDA and others were promised and expected analytical data and knew that there was much scientific concern about its talc in the 1970s. The number of reasons to keep this type of information, the nature of the evidence (verification of a carcinogen in a baby powder) and the length and persistence of the failure all show J&J did not act in good faith.

The way to keep interested parties from gaining access to this vital information was to discard it, destroy it, or recklessly fail to preserve it. J&J knew what it was doing when it destroyed underlying test data, talc samples, and blanks data. J&J made a decision to retain results that were stated in a particular manner favorable to its defense and to largely discard anything that might undermine its interests. Some of these categories of evidence are historical, but some, like the blanks related to its claims of laboratory contamination, include data that is quite recent. J&J's pattern of concealment spans decades. The Court should not let J&J evade the consequences of its concealment and destruction.

The sanctions requested in this case are directly connected to the missing evidence and what Plaintiffs and Plaintiffs' experts have reason to believe that evidence would have shown.

[169] *See*, *e.g.*, **Ex. 110**, J&J's summary of submissions to the FDA 1971-1979; **Ex. 113** at 132:11-16, 132:18.
[170] *See* **Ex. 100**, John O'Shaughnessy deposition (excerpt) 6/22/2021 at 12:21-13:9, 92:20-96:2, 111:16-23.
[171] **Ex. 127**, J&J Press Release, Oct. 29, 2019 at 2; *see also* **Ex. 128**, Deposition of Walgreen's designee Rudy Kucera (excerpt) 2/26/21, at 64:7-15.



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Plaintiffs merely ask that J&J not be allowed to profit from discarding or knowingly failing to preserve these specific categories of evidence. Where J&J has failed to preserve evidence that it *knows* is essential to test or challenge its claims, Plaintiffs should benefit from an adverse inference instruction regarding what the discarded evidence likely would have revealed. And when J&J discarded a voluminous stock of historical talc samples during the course of active litigation, it should not be entitled to claim that Plaintiffs did not test sufficient historical samples or that testing additional historical samples would have shown no asbestos.

To be sure, this is a significant sanction in J&J's eyes. J&J has called the motion a "game changer."[172] But these tests are not the only relevant evidence of asbestos—or the lack of it—in J&J's product. This motion applies to very specific subsets of documents. For example, the motion addresses historical testing by J&J and its consultants, but it does not, but the testing record produced by J&J also contains hundreds of historical documents from its suppliers that would not be impacted by this motion.[173] J&J will not be prevented from putting on its defense. It will only be prevented from using in that defense the evidence it has unfairly prevented Plaintiffs from challenging its test results.

## CONCLUSION

For the foregoing reasons, Plaintiffs ask this Court to instruct that the jury may presume:

1) that when J&J introduces a test result that is negative for asbestos, reports "no quantifiable asbestos," or contains similar language, if the evidence shows J&J destroyed or unreasonably failed to preserve underlying data related to the test, the jury may presume that the missing data showed asbestos fibers were present;[174] and

[172] **Ex. 130**, Hearing, *Hirshberg v. Johnson & Johnson* (Wash. Super. Ct., King County, April 29, 2021) at 29:21.
[173] *See* **Ex. 125 and 89**, J&J's Interrogatory Responses, *Eggers v. Colgate-Palmolive Co.*, Response to Interrogatory No. 5.1 and attached Exhibit 1.
[174] J&J revealed approximately 500 additional TEM evaluations were performed of its product but have never been produced to plaintiffs. See, **Ex. 126** at #16. Because this revelation is so recent, it is unclear what evidence exists concerning those tests. Should those tests have been performed and J&J is unable, in response to a motion to compel for example, to produce the tests or underlying data supporting the tests, those tests should likewise be subject to an inference that they found asbestos in J&J's product.

2) when J&J argues any positive tests for asbestos were the result of lab contamination, but J&J failed to retain evidence related to the "blanks" used as a control for such contamination, they may presume the blanks were free from asbestos contamination.

In addition, because it destroyed, discarded, or recklessly failed to preserve historical talc samples it knew would be needed in anticipated or pending litigation, J&J should be precluded from presenting any argument, evidence, or testimony that suggests Plaintiffs have tested in insufficient number of bottles to support her experts' causation opinions. Similarly, where J&J's testing, or testing done at its request, reported asbestos or asbestos minerals in its talc J&J in litigation attempts to discredit its own findings or undermine the weight of the testing by noting the absence of the underlying data. Because J&J saved the report without the underlying data, Plaintiff cannot challenge J&J's contention. As such, the requested evidentiary sanctions are a reasonable and warranted response to J&J's actions.

At a minimum, should the Court conclude that granting the requested instructions is inappropriate at this stage, Plaintiffs ask the Court to defer ruling on any adverse inference instruction until the evidence relevant to the motion is offered at trial. The absence of underlying data and documentation is central to issues in this case. It is undisputed that certain documentation regarding J&J's historic testing of its cosmetic talc no longer exists, and whether or not the jury is instructed to presume the significance of that fact, jurors must be allowed to consider how this missing evidence impacts the experts' ability to evaluate the test results and why the evidence is missing as part of Plaintiffs' burden on causation and punitive damages.

Plaintiffs also request any other relief this Court deems just and warranted.



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# EXHIBIT 1

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| | | |
|---|---|---|
| STATE OF SOUTH CAROLINA | : | IN THE COURT OF COMMON PLEAS |
| | : | |
| COUNTY OF RICHLAND | : | FOR THE FIFTH JUDICIAL CIRCUIT |
| MICHAEL L. PERRY and | : | |
| LONNIE L. LONG, | : | |
| Plaintiffs, | : | C/A No. |
| v. | : | 2023-CP-40-04072 |
| AMERICAN INTERNATIONAL | : | |
| INDUSTRIES, et al., | : | |
| Defendants. | : | CERTIFIED ORIGINAL |

Video-Recorded Deposition of

MICHAEL L. PERRY

VOLUME I

Hampton Inn by Hilton Charleston Historic District

345 Meeting Street, Charleston, South Carolina

and

Via Zoom Videoconferencing

Tuesday, October 10, 2023

10:06 a.m.

Reported by:

Adam D. Miller, Registered Professional Reporter

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ALSO PRESENT: TYLER TAM, THE VIDEOGRAPHER
JACKIE MAZADE

- - - - -

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DEPONENT: MICHAEL L. PERRY


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THE VIDEOGRAPHER: We are on the record at 10:06. Today's date is October 10th, 2023. This is the beginning of media one in the deposition of Michael Perry, in the matter of Michael L. Perry, et al., versus American International Industries, et al., in the Court of Common Pleas for the Fifth Judicial Circuit, State of South Carolina, County of Richland, Case Number 2023-CP-40-04072.

This deposition's taking place at 345 Meeting Street, Charleston, South Carolina.

My name is Tyler Tam, and I am the videographer. The court reporter is Adam Miller. Counsel will be stated on the stenographic record.

Will the court reporter please swear in the witness.

- - - - -

MICHAEL L. PERRY, having first been duly sworn according to law, was examined and testified as follows:

- - - - -

ATTORNEY GROSS: All right. Just

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before we get started, just a couple quick things on the record. We'll do what we always do for South Carolina depositions, meaning in terms of stipulations, the first one being obviously that this deposition is being conducted pursuant to the South Carolina Rules of Civil Procedure.

Second is that all objections except those as to the form of the question or responsiveness of the answer are reserved until the time of trial.

Third is one objection by a defendant is good for all. That means you can mark just "defense counsel" in the transcript unless somebody specifically wants to opt out. I've never heard of that happening before, but just in case.

Fourth is that an appearance by a defendant here today does not waive any of their possible defenses. And that includes any and all defenses. I'm not going to list them out, but it doesn't waive any of them.

Does any defendant have any

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stipulations they'd like to bring up to add?

Okay. Well, then we can go ahead and get started. Are we on? Okay.

BY ATTORNEY GROSS:

Q Good morning, Mr. Perry.

A Good morning.

Q Go ahead and introduce yourself to everybody. Breathe. Breathe first and then go ahead and --

A My name is Michael Perry.

Q Okay. How are you feeling today? Are you nervous?

A I'm a little nervous. A lot, a lot of processing right now. But I'm as good as I can be on this day.

Q We're going to take it step by step, question by question. We're going to get through this, okay?

A Uh-huh.

Q Everybody will tell you if you need to take a break at any time, you just let us know. I'm going to keep my eye on you, though; okay?

A Okay.

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Q All right.

A Thank you.

Q We are here today to take your deposition. Do you understand that?

A I do.

Q Have you ever done anything like this before in your entire life?

A I have been deposed before, but nothing to this gravity.

Q How many times have you been deposed before?

A Twice.

Q Was it for work?

A Work and a real estate venture that I was involved in.

Q Got it. So never in any sort of the personal injury capacity?

A No, sir -- or no, ma'am. Sorry.

Q That's okay. It happens all the time. Don't worry.

Your deposition, Michael, is being videotaped. And do you understand that this video could be played to a jury later at trial?

A I do.

Q What is your understanding of why

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we're all here today?

A My understanding is to tell my story, my journey that I'm going to take with, with mesothelioma, and to find closure and hold the individuals that caused this to me accountable.

Q Okay.

A And however that ends is the most important thing to me, to make sure that my family and loved ones are taken care of after I'm gone.

Q Okay. I know this is going to be hard. But, again, we're going to take this step by step, question by question; okay?

A Yeah.

Q Okay. You've already mentioned it, but have you been diagnosed with a disease?

A I was diagnosed with mesothelioma back in July of 2023.

Q Okay. Do you have an understanding of what causes mesothelioma?

A I do.

Q What's that?

A My exposure to asbestos.

Q Okay. How does sitting down for long periods of time affect you physically right now?

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A Sitting in -- it is a -- sitting in one, one spot or confined, it builds a tremendous amount of discomfort in my chest and back area. And so I live with everyday pain and discomfort.

Q Let's talk. Let's let everybody get to know you a little bit; okay?

A Okay.

Q Where were you born?

A I was born in Springfield, Illinois, 1969.

Q So we got the year. What's your full birthday?

A December 20th, 1969.

Q I am very bad at math. Tell me how old you are.

A It puts me at 53 years old.

Q When I have to carry the one, it's all gone. All right. So you're 53.

Where did you grow up? Did you grow up in Springfield?

A I grew up in Springfield.

Q Where do you live now?

A I live on Johns Island, South Carolina.

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Q When did you move to South Carolina?

A We -- I moved in the 1990s.

Q So you've been making South Carolina your home for the last several decades; right?

A Yes.

Q Where did you go to school?

A I graduated -- I went to three schools in Springfield, Illinois. It was Riverton Elementary School, Riverton Middle School, and Riverton High School, where I graduated before attending college.

Q Walk us through your education a little bit.

A Um...

Q Did you get any degrees in college?

A Oh, yeah. So higher education, I graduated from University of Illinois, where I obtained a degree in communications. And then after that I attended the College of Charleston, where I was seeking a degree in finance, hotel management.

Q And did you get that degree?

A I am one class shy. So if I get my butt back into place, I may get it one day.

Q Okay. I'm going to put up and we'll

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mark it as Exhibit 1. So bear with me. This is the technological impediment that I always face.

(Exhibit PX 1 was marked for identification.)

BY ATTORNEY GROSS:

Q All right. Does everybody see this photo and only this photo on their computer?

Okay. I'm seeing shaking heads, so that's great.

All right. So we're going to attach this photograph, Michael, for the record as Exhibit 1. This looks like a graduation outfit; is that right?

A That is my high school graduation with my grandmother on my mother's side.

Q Okay. Do you remember this day at all?

A I do. I remember it quite vividly.

Q Tell us just a little bit about it.

A Since the family is so important to our family and so when I graduated high school, my grandmother came up from New Mexico. You know, I was the second grandchild that had graduated from high school, my sister being the first one. And so it was a very joyous day for

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us to go to the school, graduate from high school. It was a big sense of accomplishment for my family.

Q Have you ever been married?

A I have. I met the love of my life, Lonnie Long, in the early 2000s.

Q We're going to talk more about Lonnie later. But just for right now, you said you met in the early 2000s?

A Yes.

Q Have you-all been together ever since?

A About 2003.

Q Have you-all been together ever since?

A We have.

Q Let's talk a little bit more about you growing up, when you were a kiddo; okay?

A Uh-huh.

Q Did your parents give you any siblings?

A I have a sister.

Q What's your sister's name?

A Michelle.

Q So we're going to attach probably my

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favorite photo, because your sister looks like Harry Potter, as Exhibit 2.

(Exhibit PX 2 was marked for identification.)

BY ATTORNEY GROSS:

Q You-all see the photo?

A Yes.

Q Okay. Who's who in this picture?

A I'm the little boy in the yellow. The girl next, with the Groucho Marx glasses and nose, is my sister. We were at my grandparents' house on my father's side back in the 1970s. It was at Christmastime, and it was quite joyous. And we shared mugshots with the Groucho Marx nose and glasses.

Q I showed my age that I referred to them as Harry Potter glasses, but we'll leave that aside.

All right. Growing up, Michael, what did your mother and father do for work?

A My mother was a computer programmer for an insurance company that insured schoolteachers across the United States.

My father worked at the airport, started off as a mechanic and ended his career



as an inspector. His strength and his specialty was avionics.

Q Were you close to your family growing up?

A Yes; very close. We were a tight, cohesive bond.

Q You told us earlier you currently live close to Charleston; right?

A I do.

Q How far about are you from downtown where we are right now?

A 15 minutes, given traffic.

Q How many homes have you lived in between your Springfield home where you were born and your current home in -- did you say Johns Island?

A Johns Island.

Q Okay. So how many homes did you live in between your childhood home in Springfield and your current home in Johns Island?

A Five homes total. Two of them in Springfield and then three homes in Charleston counting the current home that we're in now.

Q Okay. And what I want to ask you, I'm going to try to do it as a big-picture



question, and we'll see if we can; okay? Through these five homes, can you tell us how many bathrooms were in each home?

A Sure.

Q Go ahead.

A The first home that I was born into was a small, post-World War II home that had one bathroom. Then in 1976, my family -- my mom and dad were able to buy a larger home where we had two bathrooms. Then when I left the family home, I lived in a beach cottage down by Folly Beach here in South Carolina. And it was a small 1940s-style -- or, excuse me, 1920s-style home that had just one bathroom. And then the bathroom on the farm was two bathrooms. And then the final home that we're in is three bathrooms.

Q Okay. What do you do for a living right now?

A I am the general manager of the Market Pavilion Hotel and Grill 225 restaurant.

Q How long have you been in what I'll call the hospitality industry for work?

A That's all I know. Hospitality is, is my blood. I live and breathe hospitality.



(Discussion held off the stenographic record.)

ATTORNEY GROSS: Off the record for two seconds.

THE VIDEOGRAPHER: Off the record at 10:19.

(Discussion held off the record.)

THE VIDEOGRAPHER: Back on the record at 10:21.

BY ATTORNEY GROSS:

Q All right. Quick, little break, quick technological --

A Yeah.

Q -- issues. That happens on Zoom sometimes. When we quickly jumped off, you had told us that hospitality is all you know. It's in your blood, right?

A It is. That's all I know.

Q All right. Now, I know, because I know you, that at some point in time, you worked on a sailboat; is that right?

A I did, yeah.

Q Okay. Walk us through your job history from your first job through your current general manager position, if you would.

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A So I was, back at the age of 15, I was a lifeguard. And I got a job at a Holiday Inn in Springfield, Illinois, as the lifeguard at their pool. And they loved me so much, I grew up through the ranks, made it from lifeguard to front desk and from front desk into a supervisory role and eventually made it as the resident manager of that hotel. It was a 406-room Holidome in Springfield, Illinois.

After that I really had this desire that I wanted to live a pirate's life. And living and doing the boat tours or the charter boats was something that I just couldn't get -- it was the Robinson Crusoe in me, living on a boat and living behind an island and chasing sunsets. And I got a chance to do that and follow that dream, and I did that for money.

Q Let me stop you right there before you keep going. I want to attach as Exhibit 3, I think we've got some photographs of the boat, I think.

A Yeah.

Q Let's see.

(Exhibit PX 3 was marked for identification.)

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BY ATTORNEY GROSS:

Q Is this it?

A That's the Midnight Dragon.

Q This is your sailboat?

A Yes.

Q Okay. Keep going.

A So I had five other friends that I met, and we were able to join together. And we traveled together with passengers either from the Middle Keys up to -- or down to Key West, Dry Tortugas, Fort Jefferson, or we would go over to the Bahamas. We traveled in a group. It was safe back then.

And I did that until I came to this epiphany that that's all I was ever going to be is someone else's vacation unless I got focused on my career, get my own money, and stop living someone else's vacation and start living my own. So that's when I got focused back into hospitality to really do what was important, which was set up my end -- my end of future -- my retirement, so when I was married, we could go and chase sunsets through the Bahamas and in the Florida Keys.

Q Okay. When you first moved in with

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Lonnie, you-all lived on a farm; is that correct?

A Yes. We had 15 acres on Johns Island, South Carolina.

ATTORNEY GROSS: All right. So we'll mark as Exhibit 4, kind of small, just on the export. Give me one quick second.

(Exhibit PX 4 was marked for identification.)

BY ATTORNEY GROSS:

Q We'll mark as Exhibit 4 -- are these some cows?

A Those are cows at the big farm up in Laurens, South Carolina. So every fall the family would go up, and all the cows that were going to be sent to market were brought together. And then we'd load them up in trucks and take them out to send them to market.

Q The farm that you and Lonnie lived on, was it a lot of land?

A There on Johns Island, it was, yes, 10 acres of land. So what we did is we kept our horses on it. And then in the summer months when we got into hurricane season, we moved the horses up to Laurens so they would be safe so we

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didn't have to deal with the stress and have them be under stress with hurricanes and so forth. And we'd bring them back down in the fall.

But the horses were our children. Lonnie and I were never allowed or able to have children because of the big elephant in the room, which we were a same-sex marriage. So the horses were everything to us. And they had personalities.

And I'll never forget one of the times that we had a huge storm come up and spooked one of our horses. And she actually climbed up the steps of the front porch. And I woke up in the middle of the night hearing this horrible noise up on the porch. And I looked -- went to the front door and looked out there, and here's Storm Cat standing on the porch just looking in the front door. And it took forever to get her back off the steps, back down. But they all had personalities, and they were all our children.

Q When my horse growing up, if I had tried to bring her inside the house, my parents would be thrilled.

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Have you always been an animal person?

A I have. I have owned animals from my earliest recollection. I just can't imagine life without love.

Q How many pets do you have now?

A I've got two.

Q What are their names?

A I have Keziah. Keziah is my three-year-old Havanese. And I also have Abraham, which is Lonnie's five-year-old Havanese.

Q So, of course, I've been lucky enough for you to show me a bunch of photographs throughout your life. The ones that we're going to show today are only a small handful, but one particular that connected with me being that I'm a horse girl myself. So let me ask you this question, Michael: Did you used to horseback-ride?

A I did.

Q All right. Let put up as Exhibit -- which I think I'm already screwed up -- 5.

(Exhibit PX 5 was marked for identification.)

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BY ATTORNEY GROSS:

Q Is that you?

A That was me at the Midwest Charity Horse Show.

Q Was this a Saddlebred that you show?

A Uh-huh.

(Reporter clarification.)

Q Did you do Saddlebred competitions?

A I did.

Q How long did you do that for?

A I believe it was five or six years.

Q Before everything that we're here to talk about today, when you were a kid, were you ever a Boy Scout?

A I was.

Q All right. We'll mark this as Exhibit 6.

(Exhibit PX 6 was marked for identification.)

BY ATTORNEY GROSS:

Q This is you with this big smile in the front holding the sign?

A That is me. And that flag. We won an award. That's the award on the drape of the flag itself. That was the wolf patrol. And

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that was when I was the first, that was my first patrol when I was a patrol leader.

Q How long did you do Boy Scouts for?

A I was in Boy Scouts until -- clear into my 20s. After I left Boy Scouts, I went into Exploring, which is another branch of the Boy Scouts of America, but that was clear into my 20s.

Q Now, I know what your current job is. You told us already. But are you still working today?

A I am on family medical leave absence right now. And then after that, I don't know that I will be able to return to my employment. My illness has taken me to the point of being a hundred percent able to take care of myself and function to I need a lot of assistance to just get through some of the daily tasks that I have ahead of me. So it was a big question mark if I ever will be able to go back to work.

Q What happened last night?

Let me help.

A I got out of bed last night. And yesterday I had my scheduled fluids because I get so dehydrated and weak. And so last night I

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wanted to go into the kitchen to get something to eat, and I ended up collapsing in the hallway.

Q Just take a minute.

A And Lonnie heard me fall. It was the first time that I'd fallen but --

ATTORNEY GROSS: Okay. Let's go off the record for two seconds.

THE VIDEOGRAPHER: Off the record at 10:30.

(Discussion off the record.)

THE VIDEOGRAPHER: Back on the record at 10:30.

BY ATTORNEY GROSS:

Q Michael, were you -- are you the kind of person who was counting down the days until they turned 65, or is working important to you?

A Working's important to me.

Q Tell us about that.

A Everyplace I've ever worked, I always put my mark on what I've done. So all of the hotels that I've touched in Charleston have either been award-winning hotels or Circle of Excellence. And when I graduated -- I call it graduating -- up to a platinum hotel like the

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Market Pavilion Hotel, I took great pride -- I took great pride of being part of the top-five Leading Hotels of America, having that designation, or being number one in the Relais & Ch teaux brand. And I lived and breathed it.

You know, the H in hotel always meant to me hospitality. And I just had a tough time ever walking away from that and not being able to put my touch on what hospitality means and what it really -- to live and breathe and glow of the hospitality, and that's just who I am.

Q Let's shift gears, talk about the reasons why we're here, talk about the different ways you were exposed to asbestos; okay?

A Okay.

Q Just the roadmap for you and everybody's else's benefit, we're going to start with talc. Then we're going to go into brakes. Then we're going to go into some work that was done while you were working at various hotels; okay?

A Okay.

Q So starting with talc, Michael, did you ever use talc powder in your life?

A I did.

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Q All right. Can you tell us the different ways that you remember using talc powder in your life?

A Different ways?

Q Yeah.

A I used talc on my body, my neck, my armpits, my torso, my genitalia, feet, and legs. So it was a full-body use of talc on my body.

Q Why did you use talcum powder in your armpits?

A I'm allergic to deodorant. So I, you know, being self-aware, would make sure that I always had that product to make sure that I was always fresh.

Q Some of those questions about your age and the years are going to be difficult, but let's try and get through them; okay?

A Uh-huh.

Q That being said, how old about were you when you have your first memory of using talc powder on yourself?

A Around five years old.

Q You were born in 1969, so that puts us in about '74?

A '74, uh-huh.

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Q Were you ever around other family members when you were growing up that also used talc on their bodies?

A Absolutely.

Q Who?

A My mother and my father.

Q Would you ever be in physical close proximity to either your mother or your father growing up when they would apply talc powder to their body?

A Always with my mother, absolutely.

Q Were you also about five when you first remember being around your mom when she would apply talc powder?

A Absolutely.

Q When is the last time -- big-picture question. When is the last time in terms of a year you remember putting any kind of talc powder anywhere on your body?

A It would have been 2019.

Q Why do you remember it in 2019?

A 2019, Lonnie and I sold the farm, and we had our forever retirement home built. So our needing to go outside in the elements, take care of the horses, the cows, all that stuff was

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no longer part of our daily ritual. So I really stopped needing to use those products because I was inside so much at that time.

Q Okay. Beginning -- strike that.

Beginning from the time that you first remember using talc powder on yourself in 1974 through 2019, has there ever been any stretch of time where you did not use powder on yourself?

A No.

Q As part of this whole process, have you spent a lot of time really thinking long and hard about the different brands of powder that you used or that your family members used throughout your life?

A Yes.

Q Have I also asked you to spend a lot of time thinking about any work you did on cars with your father?

A Yes.

Q Okay. And in that same vein, have you also spent some time thinking about work that was done around you while you were employed at various hotels?

A Yes.

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Q Okay. That being said, let's stick with talc for a little bit; okay?
A Uh-huh.
Q I want to start with talc that you used on yourself, so we're going to put your mom to the side for now; okay?
A Okay.
Q Big-picture question: Can you tell us the brands of talc powder that you remember using on your body throughout your life?
A Yes.
Q Go ahead.
A Johnson & Johnson Baby Powder. Johnson & Johnson Baby So Soft [sic]. Polo Ralph Lauren talc. Drakkar fragrance talc. Obsession Calvin Klein talc. Ammens talc. Gold Bond talc powder. Equate powder.
I'm sure I've missed a couple, but that's the ones that are right on the forefront of my mind.
Q Did you use any of the powders that you've named throughout your entire life as a constant?
A Yes.
Q Which one?

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A Would have been the Johnson & Johnson products.
Q Was there ever any other powder that you used throughout your entire life in addition to Johnson's baby powder?
A Clubman would have been one from my childhood clear up to my adult.
Q Did you ever use a powder called Stetson?
A Stetson. Yes, I did. It was not one of my favorites. It was a gift, but it was one of them that I used.
Q Were there any talc powders that you remember your father using that you then used yourself?
A One that I used was my father's Old Spice talc powder.
Q So what I want to do is spend the next few minutes, I want to just work our way through these and see if we can't get a framework for years. We've already touched on a couple, but years in which you remember using these powders, okay?
A Uh-huh.
Q So let's start with Johnson's baby

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powder. You said just a second ago you used that clear throughout your entire life; is that correct?
A That's correct.
Q And same for Clubman?
A Clubman as well, yes.
DEFENSE COUNSEL: Objection to form.
BY ATTORNEY GROSS:
Q So for those, tell us the years -- just so we're clear, tell us the years that you remember using Johnson's baby powder and Clubman.
DEFENSE COUNSEL: Form.
BY ATTORNEY GROSS:
Q You can ignore the objections.
Go ahead.
A It would have been 1974, '75, clear up until the 1990s.
Q Okay.
A Excuse me. 2019. I apologize. 2019.
Q Okay. That's okay. Let me just ask a cleaner -- let me just make sure it's clean, okay?
You said just now you remember

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starting to use Clubman and Johnson's baby powder in about 1974, 1975; correct?
A Yes.
DEFENSE COUNSEL: Objection; form.
BY ATTORNEY GROSS:
Q And you used both up through 2019. You just said that.
A That's correct.
DEFENSE COUNSEL: Objection; form.
BY ATTORNEY GROSS:
Q All right. Let's go through the rest of the powders you said you remember. Well, strike that.
Before we do that, how many bottles -- this is going to be hard. But how many bottles of Johnson's baby powder would you say you purchased in a year on average throughout your life?
A Oh, several. More than I could count.
Q How about Clubman?
DEFENSE COUNSEL: Objection; form.
THE WITNESS: Several.
DEFENSE COUNSEL: Objection; nonresponsive.

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ATTORNEY GROSS: That's not nonresponsive, but that's fine.
BY ATTORNEY GROSS:
Q So you said you bought several bottles --
DEFENSE COUNSEL: Does he recall how many he bought?
ATTORNEY GROSS: You can -- counsel, you can ask whatever you like on cross, so let's get back.
DEFENSE COUNSEL: I'm sorry. I thought you were engaging in colloquy.
BY ATTORNEY GROSS:
Q When you said you bought several bottles of Johnson's baby powder per year --
A Uh-huh.
Q -- give us a flavor for how much "several" is.
A How many bottles I bought a year?
Q If you can. But just give us a flavor for how much "several" really means. I mean, that could mean just about anything.
A Ten or more.
Q Okay. How about Clubman?
A Clubman --

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DEFENSE COUNSEL: Objection; form.
THE WITNESS: -- would be very similar.
BY ATTORNEY GROSS:
Q Okay. Let's keep going. Gold Bond, you mentioned Gold Bond. When is the first time that you remember beginning to use Gold Bond on yourself?
A Gold Bond would have been used mostly when I was doing my sailing. That would have been a product that I put in my shoes to help with the smell and the growth that was -- because my shoes stunk so bad. So we put that in my shoes to help keep that under control.
Q When did you start sailing, about?
A It was in the '90s.
Q Okay. When is approximately the last time you remember using Gold Bond powder on yourself?
A 2019.
Q Okay. And same question that I'm going to ask you for all of those. How many bottles of Gold Bond would you say you purchased in a year on average?
A Several. That was another one that

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would have been, you know, a common purchase at the store.
Q Got it. You also mentioned Calvin Klein Obsession; correct?
A That's correct.
Q Okay. I'm just going down my list here. When do you first remember using Calvin Klein Obsession powder on yourself?
A Calvin Klein Obsession, I, when I, when I was able and I was gainfully employed and I had a little extra disposable income, I would buy those types of products. They were always fun to put something like that on when you're going out to a bar or going to be around other people. But I remember vividly that that was a part of my culture, part of my routine back in the '90s.
Q Okay. So starting in about the '90s for Obsession?
A Yes.
Q Okay. When is the last time, approximately, you remember using the Obsession on yourself?
A It would have been pre-2019.
Q Pre-2019.

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A Yeah.
Q Why do you say "pre-2019"?
A Well, at that point in time, it was not one of my favorites. And there is no need to buy it anymore. Lonnie certainly didn't like it.
Q Oh, Lonnie didn't like it?
A He didn't like it.
Q Okay. Which of your powders did Lonnie like?
A It would have been Ralph Lauren.
Q Okay. Let's stick with Ralph Lauren, then. When is the first time you remember using Ralph Lauren on yourself?
A Ralph Lauren would have been used in '90s as well, and I used that one pretty often, even into my professional career.
Q When's the last time you remember using Ralph Lauren about?
A That would have been pre-2019.
Q For the Ralph Lauren, how many bottles, approximately, do you remember purchasing in a year?
A It would have been several as well. And this is when I was working, and I would have

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to go out to the mall. If I could find that on sale or find an end cap, I would always buy a bottle of that. So I always had a bottle of Ralph Lauren somewhere, either in the car or in my travel bag or at the house.

Q What about the Calvin Klein Obsession; how often would you say you bought bottles of that in about a year?

A Not as often. It wasn't one of my favorites. But it would have probably been less than six a year.

Q Okay. How about Drakkar Noir? When do you first remember using Drakkar Noir powder on yourself?

A That would have been also the 1990s.

Q Go ahead.

A And that would have been one of my favorites as well, so that would have been a heavy buy.

Q When you say "heavy buy," approximately how many bottles of Drakkar Noir powder do you remember purchasing in a year?

A Six or more.

Q Would that have been something you purchased as much as the Johnson's baby powder

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or the Clubman?

A Not as much. Johnson's baby powder and Clubman were always my go-to for so many other reasons. So I was always buying more of that than I was scented powders.

DEFENSE COUNSEL: Objection; form.

BY ATTORNEY GROSS:

Q Got it. Okay. When was about the last time you remember using the Drakkar Noir powder on yourself?

A It would have been pre-2019.

Q Okay. So same, the years that we're looking at are the same so far for Ralph Lauren, Drakkar Noir, and Calvin Klein Obsession; is that correct?

A Correct.

Q Okay. What about Stetson? What do you remember -- when's the first time you remember using Stetson powder on yourself? I know you didn't like it that much.

A Stetson was a gift from a family member. And, of course, with family members, you better use it. But it was one of those that I used. And I think that I got a couple different Christmas gifts of it as well.

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Eventually, I was able to say, "I don't want any more of it." But that was one that I did use; it just wasn't one of my favorites.

Q Do you remember about when you would you have gotten that powder as a gift-ish?

A That was really one of my very first ones.

Q Okay.

A So that would have been like 19 -- late 1980s, because it was a gift. It wasn't coming out of my pocket. So, yeah, that would have been 1980-something.

Q Okay. You also mentioned, when you were listing off at the powders, you listed Ammens, A-M-M-E-N-S; is that correct?

A That's correct.

Q When is the first time you remember using this Ammens powder on yourself?

A It was would be in the 1990s.

Q And similar exercise, when's the last time you remember using the Ammens powder on yourself?

A That would have been, that product was going to be used clear until, into the mid, till later, 2000s. And that was because of the

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rash and the jock itch that I would get from working out on the farm or being on the boat.

Q Was Ammens a medicated powder?

A It is.

Q Again, same exercise: How many bottles of Ammens powder would you say you purchased in a year on average?

A It was several. But it really depended on, I would buy more of it when I was on the boat than I would when I was at the farm.

Q How long were you on that sailboat for?

A Each tour was a week long. So we were talking, you know, years that I was, I was doing that program.

Q Okay. When is the, just so we get a framework, you know, for these powders that you say you used primarily or a lot on the sailboat, just so we have a framework here, when did you start doing that, those tour work on the sailboat?

A Oh, I started doing tours in the early 1990s.

Q Okay.

A Yeah.

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Q And how many years did you stay working on the boat? Are we talking five or six years?
A Yes, we are.
Q Okay. The last powder -- you also listed Equate that you used; is that correct?
A That's correct.
Q Okay. When do you first remember using Equate powder on yourself?
A Using Equate there at the farm, that was the type that Lonnie had in the bathroom drawer. So we used that one. I bought Johnson & Johnson baby powder. He would buy Equate.
Q Remind us when you and Lonnie first moved to the farm.
A My, my entry into the, excuse me, my entry into the farm was the early 2000s.
Q When's about the last time you remember using Equate on yourself?
A It really started fading itself out, but it was the late 2018, 2019.
Q Okay. And the last powder you mentioned that we haven't talked about yet is Old Spice; is that correct?

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A That's correct.
Q Okay. When is the first time about you remember using Old Spice on yourself?
A So my father and I, on Friday afternoons he would leave work early. We'd grab the boat. We'd head over to the Illinois River or the Mississippi River and go fishing for either the night or for a weekend. After the fishing on the river all night long, because it was night fishing, both of us stunk so bad of bait, bug spray, and everything else that was on our body, we would pull that Old Spice bottle out and put the talc all over us. It would help cool us off but also helped get rid of the smell of the dead fish that we had all over us.
Q Lovely.
A That would have been in the 1980s.
Q Okay. When is about the last time you remember using Old Spice on yourself?
A In the 1990s.
Q Did you ever purchase Old Spice yourself, or did you just use your dad's?
A Just always used his; yeah.
Q I think I got everything you remembered.

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Did you ever go to Columbia, South Carolina, for any reason?
A I did.
Q Tell us why.
A I was working for Hilton Hotel Corporation out of their corporate office, and I had a number of hotels that were in my supervision. And South Carolina had every Hilton property that had the flag of Hilton on it in the state of South Carolina.
Q Did you ever use any of these talc powders in Columbia?
A I did.
Q Did you bring them with you?
A Absolutely.
Q Okay. Let's shift gears here. I want to talk to you about the powder you said your mom used around you; okay?
A Yes.
Q And we're going to do, if my papers don't explode, we're going to do the same exercise with your mom's powders --
A Okay.
Q -- that we just did with yours; okay?
A Okay.

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Q What powders do you remember your mother using while you were around?
A It would have been Cotillion, Skin So Soft, Birds of Paradise, Soft Musk, Topaz, White Linen, Johnson & Johnson baby powder, Johnson & Johnson Body to Body, Chanel No. 5. I may have forgotten one, but that's the ones that, on the forefront.
Q Let me see if I can help you. When you say "Johnson's Body to Body," have you ever heard of Johnson's Shower to Shower?
A Yes. I'm sorry. Yes.
Q That's okay. So she used, your mom used Johnson's Shower to Shower?
A Yes, uh-huh.
Q Do you ever remember your mom using any talc powder that smelled florally?
A Yes. That would have been her Birds of Paradise, and that also would have been Cashmere Bouquet.
Q Okay. So let's stick with the Avon powders for now that you remember your mom used. When is the first time you remember being around your mother while she used any of those Avon powders?

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A So when I was in the original home, the one that I was born into, it was a very, very small home. It was so easy for Mom just to grab me. We'd take showers together. After I got out of the shower or out of the bathtub, she would wrap me in a towel. She would towel off, towel me off, and then she started applying the different powders that she was going to use that day on her body. And then she would powder me as well.

Q When is about the first year you remember seeing her start to use those Avon powders around you?

A It would have been 1974, 1975.

Q When was the last time you remember seeing your mom use those Avon powders?

A Clear until the 2000s, until she died in 2010.

Q Okay. How about -- go through the list here.

How about Chanel?

A Chanel was my mother's power, her power fragrance. She was in a male-dominated industry and didn't get a lot of respect from male counterparts. And so as she entered into

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her 40s, she would put on that -- her power scent is what she referred to it as. And she would go and she'd find great joy in tormenting some of her male counterparts that she could outmaneuver. So that was her power scent.

Q When was the first time you remember being around her when she would apply the Chanel No. 5 powder?

A It would have been in the early '80s.

Q When is the last time you remember being around your mother while she applied the Chanel No. 5 powder?

A It would have been 2007, 2008, something like that.

Q You also mentioned Cashmere Bouquet; is that correct?

A That's correct.

Q When is the first year you remember being around your mother when she would apply Cashmere Bouquet to herself?

A When was the first year?

Q Yes, sir.

A 2 -- excuse me. 1974, 1975.

Q Okay. And when do you remember being the last year that you would have been around

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your mom when she would apply Cashmere Bouquet about?

A That would have also have been in the 2000s.

Q Okay. Was there any activity or anything that happened to your mom in the 2000s that you associate with her no longer using body powder on herself? Because it looks like they're all probably around the same point in time.

A Yes. In 2007, it was Memorial Day 2007, my mom suffered a massive heart attack on the boat there where they live at. And that left her unable to take care of herself. And so her being able to enjoy the finer things that she was accustomed to were no longer an option.

Q You also mentioned Johnson's baby powder and Shower to Shower; is that correct?

A Correct.

Q When would have been the first time you remember being around your mother when she used Shower to Shower or baby powder?

A That would have been in the early 1970s when we showered together.

Q Okay. When would have been the last

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time you remember seeing her apply those powders around you?

A Clear until the 2007, 2008.

Q Okay. And then the last one you mentioned was White Linen; is that correct?

A That's correct.

Q When is the first time you remember being around your mom when she applied White Linen?

A White Linen. White Linen was inspired by my mother's mother. When she would watch either Knots Landing or Falcon Crest or something like that. And it just was something my grandmother saw a commercial, ended up buying it for my mother. It was not one of her favorites. But she put it on more, I think, more to appease my grandmother. But she would wear that until it was gone.

Q Okay. Do you remember when -- I understand it was a gift. But do you remember when about the last time she -- you would have been around her when she applied it?

A It would have been in the '90s.

Q Okay. You've told us now a couple of times that you took showers with your mother or

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you were around her a lot in the bathroom; is that correct?
A That's correct.
Q Why were you around your mother so much in the bathroom?
A Well, originally, it was to get ready with Mom, because, you know, like I said, we were a small family, one bathroom. To try to get as many bodies showered and ready for school or daycare or ready for work. So Mom would just -- it was just easier just to throw me in the tub with her, and we would take a shower.
And -- but then it turned into Mom would hold court in the bathroom. So she was in the bathroom. Everybody has to go in there because Mom was going to solve all the world problems.
And so, you know, Mom had no -- no safe place from us. We were always -- the bathroom was always her vulnerability. When she was in the bathroom, we could all get in there and solve the world's problems.
ATTORNEY GROSS: We've being going almost an hour. Do you want to keep going for a little bit, or do you need a break?

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THE WITNESS: We can go for a little bit longer.
BY ATTORNEY GROSS:
Q Okay. Let's get through the next short section. I want to shift gears back to talking to you about powder that you applied to yourself; okay?
A Okay.
Q I want to talk to you a little bit about your routine in general, so big-picture questions; okay?
A Okay.
Q When during the day or for what reasons did you apply body powder to yourself?
A When during the day?
Q Yeah. Not like a time. I mean, was there something that you did during the day that caused you to apply body powder to yourself?
A I would start with the body powder in the morning after my morning shower. But as I was working on the farm, it would usually take a couple different treatments or uses of body powder during the afternoon. And then certainly when I would go out for the evening feedings with the horses, there would be another

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treatment. And then the final one would be before I'd go to bed at night. I'd take my shower to get cleaned off and then put the baby powder back on me.
Q Okay. Did you play any sports growing up?
A I did.
Q Which ones?
A I was a hockey player, and I was also a swimmer.
Q Did you ever have to use my powders when you were playing those sports?
A Yeah. So I'd keep -- my mom would make sure I had a bottle of Johnson baby powder in my hockey bag. So when I, before I put my equipment on, my shoulder pads, my leg pads, I would always squirt the body powder in there as I'm putting it on before the game. And so I would do that.
During swimming, it was always after I am done swimming for the day, I'd put that powder on.
Q How often do you shower in one day? It's a weird question, but how often do you shower in a day?

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A A minimum of two times, morning and evening. If it's really hot outside, it could be three times.
Q Has it always been that same amount?
A It is.
Q Do you have a post-shower routine?
A I have the almost exact same post-shower routine as my mother did, which is take the shower. After I get out and dry off, I would apply the product into my hand. It would be three or four shakes into my hand. And then apply it from my neck down to my groin and then feet.
Q Would you dry off in between getting out of the shower and applying the powder?
A Absolutely, yes.
Q So was your skin dry when you would apply the powder?
A It was, yes.
DEFENSE COUNSEL: Objection; form.
BY ATTORNEY GROSS:
Q Has your post-shower routine ever been drastically different at any point in your life?
A No.

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DEFENSE COUNSEL: Objection; form.
BY ATTORNEY GROSS:
Q You said you would -- well, strike that. I'm trying to cut some of this out. This is a good thing. Give me one second.
You said you did approximately three to four shakes into your hand of whatever powder you were using --
A Uh-huh.
Q -- is that correct?
A Yes.
Q Was the shaking of that powder into your hand and then applying it to your body a clean process?
A Absolutely not.
DEFENSE COUNSEL: Objection; form.
BY ATTORNEY GROSS:
Q Is it hard to apply body powder neatly?
A It's impossible.
DEFENSE COUNSEL: Objection; form.
BY ATTORNEY GROSS:
Q Why do you say it's impossible?
A Because it's an airborne powder. And once it comes out of the bottle, it creates this

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big haze all over. And so if there is a clean way of doing it, I certainly didn't learn that.
Q Did it make a mess in your bathroom?
A It did.
Q Did you have to clean up your bathroom?
A I did. And I'd have to chase my white footprints all the way out the bathroom, down the hall, into the kitchen. It would be all over the place.
Q What did the air look like around you when you were applying the powder?
A It was like a big --
DEFENSE COUNSEL: Objection; form.
THE WITNESS: -- a big white cloud.
BY ATTORNEY GROSS:
Q Were any of your bathrooms at any point in time in your life carpeted?
A Yes. The two bathrooms in the original homes that I lived in with my parents. So the very first home in 1970s and then the home that I had most of my childhood in.
Q Did you ever have to clean up those bathrooms?
A I did. That was part of our daily

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chores that had to be done is cleaning the house, cleaning the bathroom, vacuuming.
Q We're going to talk a tiny bit more about your cleanup later.
Your process of applying the powder that you just told us about --
A Uh-huh.
Q -- was that always the same, regardless of the brand of powder you were using?
DEFENSE COUNSEL: Objection; form.
THE WITNESS: Yes. But with the vanity fragrances, I was a little bit more careful on waste because it did cost a lot of money, of making sure that that was more targeted on my body.
BY ATTORNEY GROSS:
Q Okay. And vanity from fragrances, which are the fragrances that you consider to be vanity fragrances?
A That would have been the Ralph Lauren, Calvin Klein, Drakkar, and then the Obsession -- or the Stetson. Excuse me.
Q Stetson. Okay.
Regardless of whatever house you were

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living in or even on the boat, did you apply body powder to yourself in the bathroom?
A Yes.
Q That white cloud you describe seeing when you would apply powder, did you ever breathe that body powder?
A Absolutely.
DEFENSE COUNSEL: Objection; form.
BY ATTORNEY GROSS:
Q You never held your breath for any reason while applying body powder, did you?
DEFENSE COUNSEL: Objection; form.
THE WITNESS: No.
BY ATTORNEY GROSS:
Q Could you smell the powder when you would apply it?
A Absolutely.
ATTORNEY GROSS: Let's go off the record.
THE VIDEOGRAPHER: We're off the record at 11:05.
(Recess.)
THE VIDEOGRAPHER: We are back on the record at 11:18.
BY ATTORNEY GROSS:

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Q All right. We are back from a quick, stretch-our-legs break.
A Thank you.
Q You're welcome. You ready to keep going?
A I am.
Q All right. So when we took a break, we finished up talking to you about your routine when you would apply powders. And now I want to shift gears over to your mother; okay?
A Okay.
Q How frequently would you be in the bathroom with your mother while she was getting ready?
A As a child, every day.
Q Every day. Okay. As you aged, tell us about that.
A Going into the 1970s, got into the bigger house, two bathrooms, it was more, I could take care of myself but still would go into Mom's bathroom when she was in there because it was part of our ritual, part of our daily having court in Mom's bathroom.
Q So every day when you're younger, then you move into the next home and you've got

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a couple bathrooms, you're getting a little older. Give us a feel for how on a week, how many times on a weekly basis you'd be in that bathroom with your mom when she got ready versus the daily when you were a kid?
A Certainly Monday through Friday.
Q So five days a week?
A Five days a week.
Q Okay. Give us a feel -- strike that.
The first bathroom, the house that you lived in when you were a kid that only had one bathroom for everybody --
A Okay.
Q You with me?
A I am.
Q Okay. Give us a feel or a flavor for how big that bathroom was.
A It was an extremely small bathroom. So it consisted of a commode, a sink, a tub, and there was a small, little, like, wall tower that Mom would keep her different products on.
Q Where would your mom be in that bathroom when she would apply body powder to herself?
A She could either be standing in front

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of the sink; or if I was sitting on the tub, she could be right there in front of the toilet.
Q And you anticipated my next question. Where would you be while your mom would apply body powder to herself in that bathroom?
A I would be either be sitting on the commode or sitting on the edge of the bathroom tub.
Q I don't expect you to know exact measurements. But that being said, let me ask you this: How close would you be to your mother when she would apply those body powders to herself in that bathroom.
A It was extremely close. It was a very, very small bathroom. So contact was very, very easy. Just right here would be enough space to reach out from the tub to the toilet where Mom would be at.
Q Could you reach out like you just demonstrated on the record, just because they can't see on the --
A Sure.
Q When you reached out like that, could you touch your mom?
A Absolutely.

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Q Okay. Let me shift gears to the next bathroom that you lived in when you were a kid or the -- strike that.
The next house you lived in when you were a kid, the one that had two bathrooms; okay?
A Uh-huh.
Q Same sort of questions: Where would your mom be in that bathroom when she would get ready and you would be in there?
A My mother would stand in front of the vanity, the bathroom vanity. And then we would either stand in the doorway or we would go sit on the commode or the tub edge as well.
Q And give us a feel for how big that bathroom in your second childhood home was.
A My mother's bathroom was larger. It still consisted of a bathroom vanity, a commode, and a bathtub. But it was more of a long, "rectile" configuration.
Q Like a rectangle?
A Yes.
Q Okay. Similar to how I asked you before, how close would you be to your mother in your second childhood home when she would apply

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that powder to herself?
A Just a few feet.
Q Could you reach out and touch her in that bathroom?
A Absolutely. Absolutely.
Q Okay. When you were growing up, so before you left home and you became an adult, did you ever see your mother get ready anyplace else other than the bathroom?
A No.
Q Did your mother have a post-shower routine that you observed with your own two eyes just like you did?
A Yes.
Q What was it?
A She would take her shower. She would dry off. As soon as she was dried off, she'd immediately start putting whatever powder she was going to be using that day onto her body.
Q When in your mom's post-shower process did she put on the her makeup?
A It was always after the powder.
Q How did your mom apply the body powder to her body?
A Same thing. It would be three or

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four shakes and working from her neck all the way down.
Q Would she be dressed when she did this? Would she be in a towel?
A In the early years, Mom would be still nude.
Q Okay.
A In the older years, mom would be in her bra and underwear.
Q Was her post-shower routine the same every single time you saw her getting ready after her showers with your own two eyes throughout the years?
A Yes.
Q And that routine would have been the same -- strike that.
Would that routine have been the same, regardless of whatever powder she was using?
A Yes.
Q Could you describe the air to us when she would apply that powder to herself?
A It was a big, cloudy haze in the bathroom when she would put that on.
Q And when your mom would apply the

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powder, would she shake it into her hand directly, or would she ever shake it onto her body or anything else? What was that process like for her, given that she was a woman?
A It was, more times than not, into her hand, putting three or four shakes into it. And then she would work the powder all the way down.
Q Did any of the powders that you saw your mom use with your own two eyes come with poofs?
A Yes.
Q Did you ever see your mother applying body powder to herself? I take it by your smile, that's a yes.
A Yes.
Q Okay.
A Yes. She -- almost all of the powders had poofs to them. And then depending on how silly I was, I would be the recipient of a, getting hit in the face or on the top of the head with a poof as well.
Q Okay. Could you smell the powder that your mom was applying to herself when she would use it?
A Absolutely.

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Q Now, you mentioned your dad earlier. Did you ever with your own two eyes see your dad apply powder to yourself -- to himself, aside from the Old Spice situations you talked to us about, post fishing?
A Not really, because my father would be the first out the door. And so that would -- his, his morning routine was already over before my mom and I would start our day.
Q Did you ever see any of your dad's products in the bathroom?
A Absolutely.
Q Which ones -- well, strike that.
Which powders did you see in your childhood bathrooms that you associate with your father using?
A It would have been the Old Spice. It would have been Avon Deep Woods, Avon Musk were the ones that he used and that I would play with.
Q Got it. I told you earlier we would talk a little bit more about cleanup, and now's that time, just to orient you. Your first childhood home, the one with one bathroom that had carpet in it -- you with me?

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A Yes.
Q Okay. Did you ever have to clean that bathroom?
A Yes. That was part of our weekly duties that we'd have to do. Mom would pay us money to make sure that we'd do our chores.
Q How would you clean that bathroom?
A Would we have to go in there, wipe everything down, vacuum it. And that was, that was really on a daily basis that we would have this old torpedo, long Electrolux vacuum cleaner. And we'd go in there and vacuum that all up. And then at the end, you would have to take the top of the canister off and pull out this cloth bag. And then it had a little rope on the bottom of it you punched through, and all the product would fall down into the trash can. And then you'd pull the cloth bag back up and put it back in the vacuum cleaner. But when you would do that, there would be this big haze of dust and debris that was coming out of that bag.
Q And just to be fair, was this something that you and your sister both did?
A I usually got stuck with the dirtier jobs. My sister somehow always got the better

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end of that deal. But I would do that, yeah.
Q She's a girl.
A Yeah.
Q Okay. How about your next childhood home, the one that had -- take your time. I'll get out my whole, my entire question, but take your time drinking, okay?
Your next childhood home, the one that had the two bathrooms; okay?
A Uh-huh.
Q Did you have to clean those bathrooms?
A Yes.
Q Were either of those bathrooms carpeted?
A Yes. Both of them were.
Q Okay. Was the process that you used to clean those bathrooms the same as the one we just talked about?
A Absolutely.
Q Okay. The next place you lived, would that have been the sailboat or was there another home?
A No. That would have been after I moved out of the family house, then I was

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sailing, and so that would have been the boat.
Q Okay. I hate -- I'm sure the sailboat bathroom was a wonderful place, but --
A It was very small.
Q Okay. Very small bathroom on the sailboat. Let me ask you this: Did you clean up the bathroom on the sailboat?
A Absolutely.
Q Was it your own private bathroom, or did you share it with a bunch of other dudes.
A No. It -- my bathroom on my boat was mine.
Q Okay. Was it carpeted?
A No.
Q Okay. How would you clean that sailboat bathroom?
A It was a rag, water, and if I had it, some type of like Clorox products that kind of helped with mildew.
Q Next place you lived after the sailboat, that was the beach cottage on Folly Beach?
A Yes.
Q How many bathrooms again?
A Just one.

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Q Was it carpeted?
A No.
Q Did you clean that bathroom?
A Yes.
Q And was the process with which you cleaned that bathroom the same as the one you did on the sailboat?
A Yes.
Q Okay. And the next house we're up to after that is the farm with Lonnie; right?
A That is correct.
Q How many bathrooms again?
A Two bathrooms.
Q Were either of them carpeted?
A No.
Q Did you clean both?
A I did.
Q Same process with which you cleaned the bathroom on the sailboat and the Folly Beach house?
A Yes.
Q Okay. In those bathrooms, did you see any powder residue laying around?
A Absolutely.
Q Why do you say "absolutely"?

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A Because it wasn't a clean process. When I would use those products, it would settle down all over everything. So in order to clean it all up, I mean, it really was an entire effort to clean everything because it just didn't fall in one spot. It just drifted all over. It would drift out into the house. And you would see, as I said, footprints, as we'd walked through the house, in white.

Q Was that the case for the powders that your mother used as well?

A Yes.

Q All right. Let's shift gears here a little bit. Now that we have the years in which you used the powders nailed down and yours and your mother's routines and cleanup all nailed down, the next thing I want to talk with you about is the frequency with which you used these powders.

Are you with me?

A Yes.

Q Would you give us an estimate about how frequently on a daily, weekly, monthly basis you used a body powder in general?

DEFENSE COUNSEL: Objection; form.

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THE WITNESS: Repeat that question, please.

BY ATTORNEY GROSS:

Q Sure thing. Could you give us an estimate about how frequently on a daily, weekly, or monthly basis you used a body powder in general? So I'm not tying you to a specific type of powder for this question.

A I used --

DEFENSE COUNSEL: Objection; form.

BY ATTORNEY GROSS:

Q Go ahead.

A I used that product daily. I would use it multiple times a day, every single day.

Q Perfect. Were there some weeks, Michael, where you would use a certain brand more than others or vice versa?

A It really depended on what my day was going to be like. If I was just going to be out on the farm, it was something that was more like the Johnson & Johnson baby powder. If it was something that I was going to be going out in the professional arena, I would start off with Johnson & Johnson baby powder; but then there would also be one of my fragrance powders being used as well.

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Q If someone were to ask you exactly how many bottles of a certain brand of powder you bought in a year, would you ever be able to do that?

A No.

DEFENSE COUNSEL: Objection; form.

BY ATTORNEY GROSS:

Q Why not?

A Because there were so many.

Q And this seems like a silly question, but I have to ask it: When you used these respective body powders, how close was the powder to your face when you applied it to your body?

DEFENSE COUNSEL: Objection; form.

THE WITNESS: I don't know that you could distinguish it. It really was from my head down, so, I mean, it just -- all over (indicating) --

BY ATTORNEY GROSS:

Q Okay.

A -- I used it.

Q Couple of very quick questions -- I just want to blow through these -- about where you purchased these respective body powders.

A Okay.

Q So the states that I have you living in are Illinois, Florida, and South Carolina; is that correct?

A Correct.

Q All right. So let's start with Illinois. We're going to go in chronological order here. Where would you buy these respective body powders in the state of Illinois?

A It would have been either at the grocery store, Walmart, or Walgreens.

(Discussion held off the stenographic record.)

BY ATTORNEY GROSS:

Q Same question for Florida: Where would you purchase your respective body powders in Florida?

A It would have been --

DEFENSE COUNSEL: Objection; form.

BY ATTORNEY GROSS:

Q Go ahead.

A -- Walmart, Eckerd's Pharmacy, or the grocery stores.

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Q And, finally, South Carolina, where would you have purchased your respective body powders in the state of South Carolina?
A It would have been --
DEFENSE COUNSEL: Objection; form.
THE WITNESS: -- Walmart, Piggly Wiggly, Food Lion, CVS Pharmacy.
BY ATTORNEY GROSS:
Q You mentioned Walgreens in Illinois. Did you shop at Walgreens in either Florida or South Carolina?
A Both.
Q Okay.
DEFENSE COUNSEL: Objection; form, leading.
BY ATTORNEY GROSS:
Q Let's talk -- well, strike that. Let me double-check one thing. I don't want to beat you up on that. Hold on.
Does the name Rite Aid ring a bell?
A It does.
Q Did you ever shop at a Rite Aid store in Illinois, Florida, or South Carolina?
A South Carolina and Florida.
DEFENSE COUNSEL: Objection; form,

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leading.
BY ATTORNEY GROSS:
Q South Carolina and Florida?
A Yes.
Q Now, let's quickly do the same exercise with your mother's use of powder. So, again, based on what you saw your mother do with your own two eyes, okay, could you give us an estimate about how frequently on a daily, weekly, or monthly basis your mother applied body powder while you were with her in the bathroom?
A How frequent she would apply powder?
Q Yes. While you were in the bathroom with her.
A It was every time.
Q Okay. And just so we're clear, when you say "every time," you told us earlier that in your first childhood home, when you had one bathroom, you would be with your mother in the bathroom when she got ready every day; correct?
A Every day.
Q And then when you got older in your second childhood home, you would be with her when she got ready in the bathroom about five

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days a week, Monday through Friday, correct?
A That is correct.
Q Okay. Do you ever remember if your mother used certain body powders more than others or vice versa?
A Yes.
Q Tell us a little bit about that.
A Mom's always go-to powder was the Johnson & Johnson baby powder and the Shower to Shower. Depending on what her day was going to comprise, very similar to how mine was, she would choose what fragrant powder she was going to put on as well.
So her favorite was the Cotillion, Birds of Paradise, Chanel, I would say would probably be her top three, because I remember smelling them so much. But the Johnson & Johnson products were always her go-to, no matter what was going to be on her body.
Q Do you associate again with what you saw with your own two eyes any of the powders that your mother used as ones she would use when she went to work?
A Chanel would be the one that -- that was her power fragrance. So she would use that

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when she was going to be going to work.
Q Where does the -- one of the powders you mentioned earlier was Cashmere Bouquet. Where does that fall in terms of how frequently your mother used it?
A Mom would use that --
DEFENSE COUNSEL: Objection; form.
BY ATTORNEY GROSS:
Q Go ahead.
A Mom would use that one after she would come home from work and shower. But that would be on her body, you know, just in the house or if she was going to be out and about. It would be a less-formal occasion that she would have the, that product on.
Q Got it. If someone were to ask you to put some kind of exact number of bottles per year your mother bought of any of her powders, would you ever be able to do that?
A I could not.
Q Why not?
A Because there were so many of them. There was too many to count.
Q Do you know where your mom bought any of her powders?

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A From Avon.
Q Okay. What about the powders that were not Avon; do you know where she bought any of those?
A Either they came to her as gifts or she'd buy them at the Walmart or the grocery store or the pharmacy.
Q Did you ever go with your mother when she would purchase any of these powders she used?
A Yes. So part of our weekly responsibilities was to help Mom at the grocery store. And so I would watch Mom either pull those products off the shelf itself, or I would go and get them and put them in the cart.
Q If someone were to ask you which products that your mom used you have a specific recollection of picking up a bottle and putting that in the cart, would you ever be able to do that?
A I could.
Q Okay. Tell us which ones.
A The Johnson & Johnson baby powder, Johnson & Johnson Shower to Shower --
Q Uh-huh.

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A -- would be the two that I would specifically pull off the cart. If -- in my later years, Gold Bond. Mom did not like the idea sometimes that I spent my own money, so she would spring for something like that. So the Gold Bond or making sure that I had Johnson & Johnson products.
Q All right. Shifting gears again.
A Okay.
Q All right. This is probably the last -- no. I lied. Ignore that last part. Anytime a lawyer says it's their last question or the last section, they're lying. So I just did it myself.
Let me talk to you a little bit more in detail about the products you used; okay? Let's start with Johnson's baby powder. You've already told us that that was one of the powders you remember using basically your entire life; is that correct?
A That's correct.
Q What do you remember about Johnson's baby powder and why you used it?
A Johnson & Johnson was -- we were -- first off, we were a very, very brand-loyal

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family. And Johnson & Johnson, we were -- that was a family brand. We always used it. We all touched it. We all trusted it. And that's what -- you know, that was part of our culture. That was my culture clear up until 2019, was using these products.
DEFENSE COUNSEL: Objection; nonresponsive.
BY ATTORNEY GROSS:
Q Okay. So this is -- you and your family were very brand-loyal to Johnson's baby powder. You've already told us some ways you would have use it. For example, you used it when you would play sports; right?
A That's correct.
Q Okay. What are some other ways that you remember using Johnson's baby powder? And why did you use them for that reason?
A Other reasons of using Johnson & Johnson.
Q Uh-huh.
A It really was --
Q It's a hard question.
A If I was on the sailboat and I had to jump into the engine room, I would put the talc

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onto my hands because I needed to have dry hands as I was working on the different parts of the motor. I would have it on my face. I was trying to keep the moisture from coming down into my eyes. And so I would smear this all over my face, all over my hands so I would have dry hands while I was working on the engine or anything that had electronics that I needed to stay dry for.
Q You told us when we first started talking that you were allergic to deodorant; right?
A I am.
Q Was Johnson's baby powder one of the powders you used to stay fresh --
A It was.
Q -- because you were allergic to deodorant?
A It was.
Q Okay. Would you also use Johnson's baby powder when you were out on the farm with Lonnie?
A I would.
Q Tell us a little bit about that.
A So when we would go out and work with

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cows, the horses, the chickens, the goats, the whole herd of our menagerie, they -- you know, that was just part of trying to -- South Carolina in June, July is incredibly, incredibly hot. So trying to stay fresh was very difficult. And the Johnson & Johnson products, the Equate products was part of our culture on a multiple-day -- a multi-day routine.

Q Let me ask you about Equate, because you just brought it up. What do you remember -- well, strike that.

You told us earlier that Lonnie was using Equate, and that's how you first became accustomed to using it; correct?

A That's correct.

Q Okay. So given that -- tell us what you remember about Equate and why you continued to use it.

A Equate was just one of those products that Lonnie -- I love Lonnie to death. I absolutely love him to death, but sometimes he could be the cheapest guy in the world. So he would not splurge on the Johnson & Johnson product. He would just splurge on Equate because it just came down to simple economics.

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He just would not spend that money.

Q And did you use -- strike that.

I should have asked you this earlier, and I forgot. Were you ever around Lonnie when he would apply powder?

A Absolutely.

Q Okay. Tell us a little bit about that.

A Lonnie and I, as a married couple or as a living couple, cohabitating couple, we would shower together. And we would dry off, dry off each other, and then we would apply the powders to each other or separately. But that was part of our intimate process. We would just take showers together. It was so much easier.

Q What powders do you remember Lonnie applying to himself while you were around him?

A Certainly Equate, Johnson & Johnson, and any of the fragrant powders that I used.

Q So you guys would intermingle your products?

A Yes. Absolutely.

Q Which of your -- what did you call it earlier? You used a specific -- your vanity products?

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A My vanity products.

Q Your vanity products. Okay. Which of your vanity products did Lonnie apply to himself while you were around?

A Occasionally -- it was very, very occasional. It would be the Ralph Lauren.

Q Did he not like any of the other smells?

A Lonnie, Lonnie, as long as I've known Lonnie, he has never put on cologne. Lonnie, you get what you get with him, and he is what he is. I love him to death. But if you, if you didn't like how he smelled, he really didn't care.

Q Did Lonnie feel one way or the other about your Clubman powder?

A Yes. So --

DEFENSE COUNSEL: Objection; form.

THE WITNESS: -- Lonnie and I, because of my use with Clubman clear back to when I was a small child and going to the barbershop with my father, the -- if I may just veer off for a second, the barber would utilize --

BY ATTORNEY GROSS:

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Q I'm going to ask you about that. So just for now, let me re-ask the question just so it's clean.

A Okay.

Q How did Lonnie feel about your Clubman powder?

A He loved it.

DEFENSE COUNSEL: Objection; form.

THE WITNESS: And we would have plenty of Clubman in the house that we would use.

DEFENSE COUNSEL: Objection; nonresponsive.

BY ATTORNEY GROSS:

Q So let me stick with Clubman for a minute. What do you remember about Clubman and why you used it?

DEFENSE COUNSEL: Objection; form.

THE WITNESS: Clubman I remember clear as a small child when my father was taking me to the barbershop. And it was always a joy. We'd go there every couple weeks. And at the very, very end of my haircuts, the barber, because I was on the big-boy seat in the chair, the barber

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would reach around me and I'd be in the middle. And he would have this horsehair brush and the wooden handle. And he would shake the Clubman down into the horsehair brush and then wiggle it a little bit. And then he would start wiping Clubman all over me, down my neck and so forth.

And that's how I've always remembered that fond memory of the showmanship of the barber, that he -- how he took time to wipe me off. I dealt with that product -- not dealt with it, but I used that product clear up until 2019. And then I stopped using that product abruptly.

DEFENSE COUNSEL: Objection; nonresponsive.

BY ATTORNEY GROSS:

Q What other ways, aside from the barber, would you use Clubman?

A What other ways?

Q Yeah.

A I'd use it all over my body. Shake it three or four shakes. Always up here in this area, down my torso, underneath my armpits. I loved the smell, the fragrance of Clubman.

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Q Was Clubman a powder that you had during the years when you were on the sailboat?

A Yes. Clubman has also been a Christmas gift that I was -- it was always -- I always had Clubman. I think it's a very, very masculine, macho-smelling powder.

Q Is that why Lonnie likes it?

A Yes.

Q How about Gold Bond; what do you remember -- we've touched on the Gold Bond, that you used it in your shoes. But what do you remember about Gold Bond and why you used it?

A Well, I remember Gold Bond being -- you know, it's just a product that we could, we could use readily. I used it in my shoes. It was a source of a lot of fights with shooting Gold Bond at each other, over the top of your head because I'm sailing with all these guys and so when we would all be together; it was like sometimes like a big fraternity. And it wasn't uncommon for someone to get a big glob of Gold Bond right in the middle of their head just being a brunch of frat boys.

Q Did you ever use Gold Bond for any reason other than in your shoes?

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A I've used it on my hands. It really depended on -- if I had to get into the engine room, what product did I have that I could get my hands dry and my face dry? And so sometimes it was that Gold Bond.

Q And for the years in which you were using Gold Bond in your shoes -- are you with me so far?

A Years?

Q No. No, no, no, no. I'm just orienting you where I'm going; okay?

A Okay.

Q So in the years in which you used Gold Bond in your shoes, how close would your face be when you would put that powder into your shoes?

A I would just say, you know, a couple feet.

Q Okay. Could you still see --

A Absolutely.

Q -- the powder in the air?

A Absolutely.

Q Did you breathe it when you'd use the Gold Bond in your shoes?

A Absolutely.

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Q Okay. So you could smell the Gold Bond when you put it in your shoes, right?

A Absolutely.

Q How about Old Spice? I know this one is a little bit different, and you've talked to us a little bit about it. But what do you remember about Old Spice and why you used it?

A Old Spice really came back to trying to emulate my father and his masculinity. It was something that we shared together. It's certainly not a fragrance that was one of my top favorites. But it was always a fond memory of the times my dad and I spent together.

Q How about Ammens? You told us earlier that is a medicated powder; correct?

A Correct.

Q What do you remember about Ammens and why you used it?

A Well, Ammens took care of some nuisances when I was on the sailboat, being the jock itch or the chafing that I would get from being in wet suits all the time.

Q Was Ammens a powder that you and Lonnie would have used on the farm as well?

A Absolutely.

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Q Tell us a little bit about that.
A Because of the environment that we were in, it wasn't uncommon for one of us or both of us to always have some type of chafing or bacteria growth in our groin area, so the jock itch, so we would use that product just to try to medicate that. But I would use it -- I used it more down in Florida and South Carolina than I did anywhere else.
Q Let's shift gears a little bit, talk about your vanity powders --
A Okay.
Q -- vanity scents; okay? Let's start with Ralph Lauren. What do you remember about Ralph Lauren and why you used it?
A Ralph Lauren was to me another one of my, my go-tos. It was my favorite. I am a lifelong fan of Ralph Lauren. Everything I wear is Ralph Lauren. But it would be my, almost my number 1 go-to. If I was going to be going out and about, I wanted to have that fragrance on me.
Q And I should have asked you this earlier, so it's a little bit unorganized. But your vanity powder, so Ralph Lauren, Drakkar

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Noir, Obsession -- and we'll lump Stetson in for the purposes of the question; okay?
A Okay.
Q If somebody were to ask you how many bottles of one you would purchase and use versus the other -- or would you ever be able to do that?
A I could not.
Q Tell us a little bit about why not.
A Because I used them so liberally on my body so often that I couldn't -- I couldn't begin to tell how many I bought. It was several several.
Q Would you use all those scents at the same time?
A No.
Q Okay.
A So I was on a rotation. This was something I learned from my mother. That was part of our process, our culture, where today being Tuesday, it may be Drakkar. Tomorrow could be Ralph Lauren or Obsession. It's, it's just really -- and they were constantly on a rotating. So I enjoy variety in my life, so I would never wear the same scent day after day.

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Q So for these vanity fragrances, would you own bottles of powder of all of them at the same time?
A Yes.
Q Let me talk to you a little bit about Drakkar Noir. What do you remember about Drakkar Noir and why you used it?
A I thought that the fragrance of it was absolutely captivating, and I loved it very much. I did enjoy wearing it. But that would probably be my number 2 go-to.
Q After the Ralph Lauren?
A Yes.
Q What about the Calvin Klein Obsession? What do you remember about Obsession and why you used it. Take your time. There's no rush.
A The Obsession was one of those products I absolutely loved what it smelled like. But that would probably end up in my shoes with the Gold Bond as well. It wasn't a product that was -- it certainly wasn't one of my favorites, but it would be number 3 on my list.
Q Okay. And I know the Stetson is a

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little bit different. Is the only time you used Stetson when you got it as a gift?
A Yes.
Q Would that have been one of your vanity powders that was part of your rotation when you owned it?
A It would. It still would, yeah.
Q I want to shift gears, talk to you a little bit about your mother in a similar exercise. I think we all know the answer to this question at this point. But were you and your mother close when you were young?
A I can't imagine a closer relationship than I had with my mother with anybody. My mother was pretty much everything to me. Loved her to death. I didn't, I didn't hide anything from her. She could read me like a book, and I could tell and see when my mom --
Q Okay.
A -- was in pain. She would share. And so, yeah, I can't -- just can't imagine a closer relationship.
Q Let me mark as Exhibit 7 this photograph. I love it. You know which one I'm going to show.

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A Yeah.
Q Obviously, it has a pony in it.
(Exhibit PX 7 was marked for identification.)
ATTORNEY GROSS: Everybody see this photo?
BY ATTORNEY GROSS:
Q Can you see it?
A Yes.
Q Okay. Tell us who this is in this picture.
A That is me on Kiss Me I'm Irish, and that was my mom standing right next to her.
Q Did you and your mom stay close as you got older?
A Oh, absolutely. Mom and I talked every single day. And, you know, Mom would always -- like I said, we'd hold court in the bathroom; but when there was miles between us, no matter where I was at, Mom and I talked every single day. And there was never a subject that we wouldn't touch.
Q Once you grew up and left home, would you ever go back to visit her?
A Absolutely.

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Q How often?
A Every month.
Q In those times when you would go back to visit her, was she still using her body powders?
A She was.
Q How do you know?
A I could smell them.
Q Did you ever see her apply them with your own two eyes when you would go back home to visit her?
A Absolutely.
Q And the process that she did that was exactly the same?
A Exactly the same.
Q Once you moved to South Carolina, did she ever travel to visit you?
A She did.
Q When she came to visit you in South Carolina, would she bring her toiletries with her?
A Yes, she did.
Q Were any of those toiletries her body powders?
A Yes, they were.

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Q Did you ever see her apply any of her body powders around you when she came to visit you in South Carolina?
A Yes.
Q Okay. Let's talk about those for a couple minutes here; okay? Which of your mother's powders do you remember her applying to herself around you in South Carolina?
A Would have been Birds of Paradise, her Chanel, Cotillion, Cashmere Bouquet.
Q Did you ever remember seeing her use Shower to Shower or Johnson's baby powder when she would come to visit you?
A Absolutely. Both of them.
Q Would she bring her -- if it was a product that you-all both used, would she bring her own powder or would she use yours?
A She would still bring her own.
Q Where would you be -- well, strike that.
Where would your mother apply body powders to herself when she would come visit you in South Carolina?
A She would do it in the bathroom.
Q Would you sit with her in the

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bathroom still?
A Still, yeah. I'd still stand in the doorway, and we'd talk.
Q Did she have her own bathroom when she would come visit you?
A Yes. She had her, she had an en suite bathroom.
Q Oh, that's very nice. Okay. Once she left, would you clean up her bathroom.
A I would.
Q When she applied the body powder to herself in South Carolina, would you see that same cloudy haze you told us about earlier?
A Absolutely.
Q Could you smell your mother's powders?
A Absolutely.
Q Were there any powders that your mom used when she came to visit you that you didn't necessarily see her apply to herself but you could smell them?
A Yes.
Q Which ones?
A It would have been the Birds of Paradise and the Chanel No. 5 and the Cotillion.

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Q Okay. So let me, let me try this in a different way that might make it easier. You said just now you could smell the Chanel No. 5 when your mom used it; right?
A Right.
Q Pretty strong smell; right? Did it have a pretty strong smell?
A Yes.
Q Did you like it?
A It was Mom's power; scent, so whatever mom wanted, mom got.
Q You had to respect it.
Did you ever see her apply Chanel No. 5 powder to herself when she would visit you in South Carolina?
A Yes.
Q Okay. You mentioned Birds of Paradise and Cotillion you could smell. Could you ever, did you ever see her apply either of those powders to herself in South Carolina?
A Yes.
Q Okay. Cashmere Bouquet you mentioned earlier as well. Could you smell the Cashmere Bouquet when your mom used it in South Carolina?
DEFENSE COUNSEL: Form.

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THE WITNESS: Yes.
BY ATTORNEY GROSS:
Q Did you ever see her apply Cashmere Bouquet powder to herself around you in the state of South Carolina?
A Yes.
Q Okay. Same question for Shower to Shower and Johnson's Baby Powder.
A Yes.
Q Okay. Could you smell when your mother used those when she visited you?
A Absolutely.
Q Did you see her apply both of those in South Carolina?
A Yes, I did.
Q Okay. So the one that we did not mention -- and I just, to be fair -- was White Linen. That was the one that you said your mom only got as a gift; right?
A Correct.
Q So would that have been a powder that you saw her use in South Carolina?
A No.
Q Okay. And then the one thing I wanted to ask you about, the other Avon powders you told us about earlier, did you ever see your mother use Skin So Soft when she would visit you in South Carolina?

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A Absolutely.
Q Okay.
DEFENSE COUNSEL: Object to form.
BY ATTORNEY GROSS:
Q Some question for Topaz.
A Not in South Carolina.
Q Okay. How old were you when you learned how to read?
A Five years old.
Q These powders that your mother used --
A Uh-huh.
Q -- how do you know they were what you're testifying to today?
A Because I sat next to my mother on the couch when Avon would come over, introduce these different products. So when -- and I remember this so vividly -- when the Birds of Paradise arrived and I would ask mom -- because it's such a colorful carton and box -- and I asked her what that was. She goes "That's my Birds of Paradise."

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And she did that with all of her other ones. And I would always smell them. And so I always associated smell and picture with the name.
Q Could you read the names of the products on the bottles?
A In time, I could.
Q Okay. When you would stand in the doorway or sit on the toilet when your mom would apply those powders in the state of South Carolina when she would visit you, how close would you be to her?
A Just a couple of feet away.
Q Could you still reach out and touch her?
A I could.
Q We talked a little bit about why your mother used Chanel No. 5. She called it her power scent; right?
A Uh-huh.
Q Tell us a little bit more about why your mother used Chanel No. 5.
A Going back to when she was still working, she was in a male-dominated industry. And many of her male counterparts that she

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trained would get promoted faster up the corporate ladder than her. And she always felt like she was being -- I don't want to use the word "discriminated," but I'll use it -- discriminated against because of gender.

So in the 1980s, when she started using the Chanel product, she called that her power scent because she'd get so many comments from her male counterparts on how good she smelled.

Q Hmm.

A And so therefore, she dubbed that her power scent because she was able to torment the boys a little bit. And she enjoyed that.

Q Do you know why your mother used Avon?

A Avon was a product that was relatively inexpensive. She used it from the 1970s clear up until, you know, when she stopped using it altogether. But that was always a go-to because of the price.

Q Do you know why your mother used Cashmere Bouquet?

A Cashmere Bouquet was because it's such a pretty boutique -- or not boutique --

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botanical smell to it.

Q Do you know why she used Johnson's Baby Powder?

A Johnson's Baby Shower -- or Baby Powder was a family staple. It was. We were, we were --

(Interruption.)

Q It's okay. Go ahead.

A We were such a brand-loyal family that we used that. We trusted it. We trusted it. And that just -- yeah.

Q What about Shower to Shower?

A Mom used Shower to Shower on me as a young person. If I didn't have any Johnson's Baby Powder, I'd use Shower to Shower, whatever was in the bathroom.

Q I may come back and ask you some talc-oriented question that I've forgotten, which is likely. But for now I want to totally shift gears here; okay?

A Okay.

Q I want to talk to you a little bit about brake work that you did.

A Okay.

Q So I know we haven't been back that

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long, but given that we're going to shift topic, do you need to take another five-minute break or are you good?

A I'm good.

Q Okay. Let's keep going. So let's talk about brakes.

We have this -- you signed an affidavit.

A I did.

Q You did; okay. Did you -- I have a copy I can give to you.

ATTORNEY GROSS: We'll mark it, just for the record, since he's going to have it in front of him, as Exhibit 8.

(Exhibit PX 8 was marked for identification.)

DEFENSE COUNSEL: Rachel, this is Kevin Greene. Can I just register a continuing objection to the affidavit exhibit?

ATTORNEY GROSS: Sure.

On what basis, just out of curiosity? It's a sworn affidavit.

DEFENSE COUNSEL: I appreciate that. Depending on how you may want to use this

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in the future, it could be hearsay.

ATTORNEY GROSS: Okay. That's fine.

BY ATTORNEY GROSS:

Q Just leave it there for new. We're going to mark it Exhibit 8. But let me ask you this question: Is brake work one of the ways in which you believe you were exposed to asbestos?

A Yes.

DEFENSE COUNSEL: Object to form.

BY ATTORNEY GROSS:

Q Okay. Why did you work on cars for these few years going up?

A So as a driver, I had access to two absolutely horrible piece-of-junk cars. One was a 1979 Honda Accord. It had front disc brakes and rear drum brakes. I also had access to a 1976 Chevy pickup truck that had front disc brakes and rear drum brakes.

I could run through that set of shoes or disc brakes faster than anybody. They would shear off, break.

It was always something that my father would make me learn how to do. I think his hopes was that I would be a better driver. But it didn't work. But I was constantly

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changing brakes on those two vehicles.
Q Did you like working on those cars?
A I hated working on those two cars. It was one of my missions in life that if I had anything, I want to have a good job so I can have a nice car so I'd never have to changes brakes on my car.
Q Got you. Okay. Did you do any brake changes other than the two cars that you owned growing up?
A No.
Q And tell me just one more time -- I forgot to write it down. Tell us one more time what were the two family cars you did the brake work on.
A It was a 1979 Honda Accord and a 1976 Chevy pickup truck.
Q And did both the pickup and the Accord have disc brakes in the front and drum in the back?
A Yes.
Q Big-picture question: When you and your dad -- well, strike that.
Did you and your dad do these brake changes together?

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A Yes, we did.
Q When you-all did these brake changes, did you do them outside, indoors, or both?
A Both.
Q Tell us a little bit about that.
A We would pull the car or the truck up to the front of the garage if the weather was nice. We would jack it up, pull the tire off and then take the -- you know, if the front of the car or the back of the car, start taking them apart.
If it was a wintertime, we'd pull the car into the garage, shut the garage door. And my dad had this kerosene torpedo that would heat up the garage so we could do it in the garage.
Q In your affidavit you noted that the years in which you remember doing brake-change work with your father was 1984 to 1987; is that correct?
A That's correct.
Q Is that the only period of time in your life that you did work on cars?
A That's correct.
Q Did you change both the disc and drum brakes?

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A I did.
Q Can you explain to us the difference between a brake change on disc brake and a brake change on a drum brake.
A Well, the disc brake had two pads that went on each side of the rotor. The caliper would push in and make the -- start braking the car.
The drum brake had a big spring in the back. When you'd hit that, it would push the, push the drum itself up -- or the brake up against the drum itself and slow the car down.
Q What part of the drum brake is the part that wears out and needs to be changed when you're doing brake changes?
A The shoe.
Q How many shoes were there in each drum brake?
A Two -- or one. But I'd buy them in a set of two.
Q Okay.
A Excuse me.
Q Were there two drum brakes -- so each time you're removing a brake on one -- strike that.

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So if you're changing -- would you change both back brakes on each car at the same time?
A Yes, absolutely.
Q Okay. So were you doing four brake shoes in total on each brake change?
A No. If the front was fine, I didn't mess with the front. If it was just the rear, just to take care of the rear.
Q Okay. So if you were doing a rear brake change, you were removing two brake shoes each time; right?
A Yes. Uh-huh.
Q Did you ever change two shoes in one drum brake?
A Repeat.
Q Yeah. Did you ever change two shoes in one drum brake?
A Yes.
Q You did; okay. So in that instance you would be removing the four brake shoes rather than the two?
A Yes.
Q Got it. That math I can do. But that's it.

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What brands of brakes do you remember your dad using?
A Bendix and NAPA, Rayloc.
Q If somebody were to ask you could you estimate -- well, strike that.
If somebody were to ask you did you use Bendix more than Rayloc or vice versa, would you ever be able to do that?
A I couldn't. And the reason why is because it -- it would -- always came down to simple economics. Whatever's cheaper is what I bought.
Q Do you think it was 50/50?
A I do.
Q When you-all took the brake shoes off the drum brake -- you with me?
A Yes.
Q -- what was left behind in the drum?
A It was always this black residue. Then I would take -- we had an air compressor in the garage that had air tools. And so either I would blow it out with my mouth or use the compressor and blow it out that way.
Q And when you say "residue," I want to be real clear about what you mean by that

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because you're talking about using compressed air or blowing it off with your mouth. What do you mean by "residue"?
A It was byproducts of the shoe itself as it disintegrated from use.
Q When you would either blow that out with your mouth or the compressed air, what did the air look like around you when you did that?
A It would be a haze.
Q A haze of what?
A Of that residue. So it would be the dark-color cloud.
Q Was it dust?
A Yes.
Q Okay. Did you ever have to do any sanding on the brake shoes?
A Yes --
DEFENSE COUNSEL: Object to form.
BY ATTORNEY GROSS:
Q It's okay. Go ahead.
A On the shoe itself we would have to use this small little grinder from the compressor. And so I would just go ahead and shave off a little bit so it would fit into there properly.

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Q So we all know a brake change works. But for somebody who may be watching this who doesn't, when in the brake change process would you use the little grinder to sand the brake shoes?
A It's as I'm trying to put the shoe into place into the drum.
Q So it's during the installation of a new shoe?
A Yes, absolutely.
Q Got it. Did you see anything in the air around you when you would sand the new brake shoe to install it?
DEFENSE COUNSEL: Object to form.
THE WITNESS: Yeah. It would still be, it would still be a haze.
BY ATTORNEY GROSS:
Q When you're either removing the old brakes or installing the new brakes, did you breathe that dust?
A Absolutely.
Q You'd breathe that haze?
DEFENSE COUNSEL: Objection to form.
THE WITNESS: I did.
BY ATTORNEY GROSS:

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Q Never held your breath when you were doing any brake work?
A It was impossible.
THE VIDEOGRAPHER: Five minutes left on this media.
ATTORNEY GROSS: Okay. Let's just take a quick break so we can change -- off the record.
THE VIDEOGRAPHER: This is the end of media one in the deposition of Michael Perry. We are off the record at 12:13.
(Recess.)
THE VIDEOGRAPHER: This is the beginning of media two in the deposition of Michael Perry. We are back on the record at 12:29.
BY ATTORNEY GROSS:
Q Okay. Back from a quick break.
A Yes. Thank you.
Q Yeah, of course. Before we took our break, the last thing we were talking about was your brake work and if you held your breath doing any brake work. Do you remember that?
A Correct. Yes.
Q Okay. Now I want to ask you a little

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bit of a different question. From start to finish, on average, how long did a brake job take when you would do a drum brake with your dad?

A It -- I'm smiling because it really depends on how much fighting was done. I absolutely hated changing brakes on those vehicles. And my father would walk away from arguments and just let me stew and flounder there before I would have the courage to tell him that I'm ready to shut up and just do it his way.

Q Okay. So taking into account the family theatrics -- which I understand; I have a brother and a father as well -- how long would you say, on average, it took you-all to do your typical brake change on a drum brake?

A Certainly over a couple hours.

Q And would that have been for both brakes together?

A Yeah.

Q Okay. Given what you told us about those two cars and the condition in which they were running in, how many brake jobs would you say you and your father did in this time period

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of 1984 to 1987?

A Many dozen.

Q Many dozens?

A Yes. I could shear off a brake or brake shoe very easy in that Honda, just by hitting the brakes. And as my dad would yell at me because I would wait too late to start braking and just slam on the brakes, and it would shear them off.

Q Are you able to estimate how many discs versus drum brake changes you did during those four years?

A It was 50/50.

Q Did you have to changes the drum brakes more than the disc brakes or vice versa?

A It was really 50/50.

Q Perfect. Did you ever have to do any other work on those two cars in addition to the brake work?

A Yeah. Both cars needed engine work. And so when I was in high school and learning about the mechanical arts, that was my dad's opportunity to have me break down the engine and change the head gasket on both those vehicles as well. So removing the head gasket was part of

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that process.

Q How many times did you remove the head gasket on each car?

A Once.

Q So you only removed two head gaskets in your entire life; true?

A True. Correct. True.

Q Got it. Do you remember where your dad -- you and your father would purchase you-all's brakes?

A It would either come from AutoZone or NAPA.

Q How did you decide between one or the other?

A It really came down to cost.

Q If somebody were to ask you if you could estimate if you purchased brakes more at AutoZone or NAPA or vice versa, would you ever be able to do that?

A No.

Q Couple very quick questions, and then we'll go done with brakes; okay?

A Okay.

Q Did you ever look at the brake boxes when you would be installing the new ones?

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A I would.

Q Do you ever recall seeing any kind of warning or caution about asbestos being in the brakes?

A I do not.

Q Do you ever recall seeing any kind of warning or caution about asbestos being hazardous to your health?

A No, I do not.

Q Do you ever recall seeing the word "cancer" on any boxes of brakes you ever installed?

A I do not.

Q And, of course, if you were installing the brakes and removing brakes before, were those the brakes that you-all had installed the week prior or whatever, whenever they sheared off, you said?

A Yes.

DEFENSE COUNSEL: Object to form.

BY ATTORNEY GROSS:

Q That was a bad question actually, like real bad. So let me re-ask it. I lost myself in it.

When you and your dad would be

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installing new brakes, were you-all removing the brakes that you had installed prior?
A Yes.
Q Okay.
DEFENSE COUNSEL: Objection; form.
BY ATTORNEY GROSS:
Q Did you know that brakes had asbestos in them in the '80s?
A I did not.
DEFENSE COUNSEL: Objection to form; assumes facts.
BY ATTORNEY GROSS:
Q Were you aware when asbestos was first taken out of brakes?
A I do not.
Q Okay. Let's way shift gears here; okay?
A Okay.
Q We're done with brakes; okay?
A Okay.
Q Because I know you hate talking about brakes.
You told us when we first started talking today you worked in the hospitality industry as long as you can remember; correct?

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A That's correct.
Q All right. Hold on one second. I lied when I said I shifted gears. See, I told you any time a lawyer says they're done, they're probably wrong.
Let's just keep going.
At any of the hotels you ever worked at, do you remember there been renovation or repair work done?
A Yes.
Q Okay. Let's spend a few minutes walking through them and remember and talk about the work that went down; okay?
What was the first hotel you worked at? Was that --
(Crosstalk.)
Hold on. Let me get my whole question out, only because he gets very mad at me because I already talk too fast to begin with. Okay?
A Okay.
Q You're doing a great job, by the way.
What was the first hotel you worked at what had renovation work done to it while you were working there?

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A It was a Holiday Inn Holidome in Springfield, Illinois.
Q Okay. Do you remember approximately when that work was done while you were working there?
A It was during the 1980s.
Q What work do you remember being done?
A They were constantly -- because it was an indoor Holidome, which was a huge swimming pool, they were constantly changing out sheetrock that may have been damaged, water damaged, mildew, mold that was being ripped out of the rooms. They would do whole sections of rooms at the time.
Q What was your job at this Holidome hotel in Springfield?
A Originally it started off as a lifeguard. So I was in the lifeblood of that whole area. And then I moved into management, where I had more of a front-of-the-house appearance.
But part of my learning was to work with the general manager. And he would take me into these areas because we would have to proof these areas before checks would be cut for the

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contractors.
Q Okay. And that was going to be my next question, is: Explain to us how your job at this hotel would have put you around this work that had been done?
A So we -- myself and the general manager would go to the areas. We would do a punch list of is the work that they've done what it should be? Is it like new or new? And is it guest ready?
If it was that, we would go ahead and sign off it and make sure at the check was cut for them -- that different trade would be paid for.
Q Were you ever around when that work was actually being done?
A Absolutely.
Q Okay. Did you ever see any dust from that work?
A Absolutely.
Q Okay. So similar exercise to what we did before: What was the next property you remember working at that had renovation or repair work being done to it while you were there?

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A It would have been the Embassy Suites Charleston, South Carolina.
Q Is it the one that's right next door?
A It's right next door.
Q What do you remember -- well, strike that.
What years, approximately, do you remember that work being done?
A 2000, 2001.
Q And what work do you remember being done?
A Similar where the sheetrock was being ripped out. That hotel had a lot of water-intrusion issues. So we would always be ripping out the sheetrock and replacing, trying to find the leak so we could get it repaired and put new sheetrock in.
Q Did you ever have to do anything with the library next door?
A Yes. So the library right next door to the Embassy Suites, adjacent from the hotel that we're sitting in right now, was condemned -- I found out later -- condemned by the County because it was full of asbestos.
I would be sent in there because

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furniture was stacked from the floor up to the ceiling, trying to either remove furniture to put into the hotel or put -- either put furniture in there from the hotel or retrieve furniture and put it back in the hotel.
Q Were you ever in that library when work was actually being done?
A Yeah; because the -- there would be workers over there constantly shoving and moving things around.
Q Okay. Was it the same work at the library that you remember, generally sheetrock work?
A Well, no, they weren't doing sheetrock work in the library; no.
Q Okay. What do you remember them doing in the library?
A They would be moving -- because it was kind of being used as a -- store everything in there. So guys would go in there and push stuff around. They may hit the ceiling. They may hit the -- because the ceilings were starting to cave in at that point in time. So it was really just, you know, a free-for-all as people would just bounce things around in.

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Q Okay. So like a lot of storage of --
A Yeah.
Q -- stuff? Okay, got it.
How did your job at that Embassy Suites in the old Citadel put you around this renovation or repair work being done on the sheetrock?
A Well, with the sheetrock replacement, I took the knowledge that I had from the previous job and I applied it. So when we'd have to go in there, once again, proof did the work get done, is it like now, is it new, does it meet guest expectations; then I would go ahead and sign off on it.
If it wasn't, then we would go ahead and say: No, you need to go back and do this, this, and this.
Q Got it.
A And then there would be the final cleanup.
Q Got it. What was the next hotel you were at?
A From there I was at the Homewood Suites in Mount Pleasant, South Carolina.
Q What, what years do you remember

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being there while renovation/repair work was being done?
A That would have been 2015 to -- 2014 to 2017.
Q Okay. What do you remember being done there?
A That one was a property that had a construction defect in the ceiling of the lobby. And the lobby collapsed one afternoon down into the lobby. So they had to rip out the entire ceiling of the lobby.
Q Okay. Were you there when that work was being done?
A I was.
Q Did you have to inspect it like you did the other --
A I did.
Q What was the next hotel you were at where you remember renovation/repair work being done?
A This property right here was another one that was --
Q This Hampton Inn that we're in right now?
A It had a flood from a water main had

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broke. And so the ceilings on the first floor collapsed down into the lobby. And so -- I was more in a corporate role of it. But I oversaw -- when I say oversaw, being I was here when they were ripping out sheetrock and putting up new sheetrock. And you'd walk in the door of this hotel, the front doors, and you could just see the white haze of sheetrock dust as you'd walk through it.

Q What years about do you remember that being done?

A That was in the early 2000s.

Q Okay. Were there any other hotels that you worked at where you remember renovation or repair work being done while you were there?

A This is it.

Q That's it. Okay. So I hate to bother you with questions that could be nothing, but -- meaning if the joint compound on those walls didn't have asbestos in it, we don't really care about it. Right?

A Correct.

Q Okay. But if it did, that's a little bit of a different story. So that being said, what did the dust look like when you saw this

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kind of work being done at these properties?

A It's a big, it's a big white haze. It's a big cloud that you walk into. It leaves a chalk residue all over your body.

Q So I just want to be really clear. You saw visible dust in the air and on the ground; correct?

A Absolutely.

Q Okay. At any of the hotels where you saw work being done, did you ever see any pipe insulation?

A No.

Q All right. Way shifting gears, totally shifting gears -- I can take this from you.

Since you and I met, Michael, have I asked you to think about a ton of ways that you may have been exposed to asbestos?

A Yes.

Q Has it been annoying?

A It's been enlightening.

Q Okay. That's a nice word. That being said, do you believe you were exposed to asbestos through any work your father did --

A Yes.

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Q -- outside the home?

A No.

Q Why not?

And when I say "outside the home," let me make sure the record's really clear. I mean -- when I asked you earlier, you told me about his job outside the house; right?

A Yeah.

Q Okay. Do you believe you were exposed to asbestos through any work that you dad did as part of his employment outside of the home?

A No.

Q Why not?

A My father had a very strict regiment. He'd leave every morning wearing his uniform. He would have in his hand his rolled-up jeans and a shirt that he'd come home in. So he'd go to work, do everything there, change clothes, leave his soiled uniform at work, and then come home in street clothes.

Q Do you believe you were exposed to asbestos at any of the homes you lived in aside from the exposures we've talked about today?

A No.

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Q Never any home remodels or anything done in any of the homes you lived in while you were there; right?

A No.

Q When you were first diagnosed with mesothelioma, Michael, did you look around your house for any powder products that had talc in them?

A Yes.

Q You actually found two bottles; right?

A Yes.

Q Okay. I'm just helping you out because I know -- okay.

Did you send me those bottles?

A I did.

Q Were they double-bagged?

A Yes.

Q Okay. On any of your powder products that you used throughout your life at any point in time, did you ever see any kind of warning on them about asbestos?

A I did not.

Q Okay. Would that have caught your attention if you had?

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A If I --
Q If you had seen warnings about asbestos, would that warning had caught your attention?
A It would have.
Q Why?
A Because later in my life, I knew that asbestos caused lung cancer.
Q Okay. Breathe.
Did you ever see a warning on any of the powder products you used ever in your life -- or that your parents used -- that included the words "tremolite," "anthophyllite," "chrysotile," "actinolite," or any other crazy-sounding words like that?
A No.
DEFENSE COUNSEL: Objection; form.
BY ATTORNEY GROSS:
Q Do you have any idea what any of those words mean?
A I do not.
Q Okay. If you had seen a warning that the powder products you and your family were using might contain asbestos, would you still have used them?

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A I would not.
DEFENSE COUNSEL: Objection; form.
BY ATTORNEY GROSS:
Q Why not?
A Later in my life I associated these products caused lung cancer.
Q Well, let me ask you this: Before you knew what asbestos was, did you ever see any warnings on any of the powder products you and your family were using that contained the word "cancer"?
A No.
DEFENSE COUNSEL: Objection to form.
BY ATTORNEY GROSS:
Q Did you have an understanding of what cancer was when you were younger?
A I did not.
Q Okay. When did you learn that somebody having cancer is bad?
A It was as I -- as education and I started getting older and I, you know, started realizing, you know, why people die and hearing the word "cancer" and horrible death and pain and suffering.
Q Okay.

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A So, yeah, it was as I grew older.
Q Did you ever see on any powder products that you and your family used, even when you were a kid, anything like "be careful" or a skull-and-crossbones, anything like that?
A No.
DEFENSE COUNSEL: Objection; form.
BY ATTORNEY GROSS:
Q Okay. If you had ever seen a warning, whether it was when you were a kid or an adult, that these products would be harmful to your health or your family's health, would you have continued to use them?
A I would not.
DEFENSE COUNSEL: Objection; form.
BY ATTORNEY GROSS:
Q Would you have let your husband, Lonnie, continue to use this powder on himself?
A I would not.
DEFENSE COUNSEL: Same objection.
BY ATTORNEY GROSS:
Q This is the last topic. It's the hardest one, and it's the one that I hate I have to talk to you about. So if you want to take a minute, we can take another five-minute break.

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We are in no rush.
A No, I'm good.
Q You sure?
A Yeah. We can go through this.
Q All right. I want to take you back in time to before you even knew what mesothelioma was, before you were diagnosed with it, when your life was still simple and uncomplicated. Okay.
A Okay.
Q You with me?
A Uh-huh.
Q What was your life like?
A It was beautiful.
Q Tell us about it.
A I -- before I met Lonnie, I lived, I lived my dreams.
Q What do you mean by that?
A I would say the time when I was exploring the Caribbean on the sailboat, living the life of Robinson Crusoe on an Out Island, finding -- you know, going out and catching my own food -- lobster, crabs, fish -- and living that life was just what every boy dreams of. And I lived it.

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Q Can you take us through sort of an average day in your life before you got sick. So you're off the boat. You're living with Lonnie. What was an average day like before you got sick?

A Lonnie and I would get up. We'd go out and take care of the horses. Everybody had their own personality. We would take care of them, do our morning chores with the horses. Come back inside, have breakfast.

Then I would start my day. At that time I had -- I was working from home. So me jumping into the car and racing away to the office wasn't part of the equation at that point in time. But our -- taking care of all of our horses and animals was the most important thing.

Q What are some examples of things that you do in your life before you got sick that brought you joy, that you loved?

A I think just being a part of my animals. The animals brought me so much joy. I have so much love to give. Some of the -- some of my most favorite moments was when we had babies and be able to be there and be part of their life and watch their personalities grow.

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Lonnie and I would sit there in the living room and try to come up with names. We always wanted unique names that no one else would think of. And, you know "what are we going to do next? What are we going to do next?" because it was such a passion to be able to have the farm. And we'd sit there in the house and look out over the marsh and say "God, we're lucky. We're blessed."

And we made a lot of sacrifices to be able to do all that. But at the end of the day, where our passion was was all of our animals.

Q You told us earlier -- do you like to fish?

A I do.

Q All right. Let me put up --

A Fishing is something that I did -- if we weren't on the farm, Lonnie and I were fishing. And we did that all the way up until I got sick.

ATTORNEY GROSS: Let me mark as Exhibit 9 this photo.

(Exhibit PX 9 was marked for identification.)

BY ATTORNEY GROSS:

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Q Can you-all see this?

A Ah. That's my sheephead.

Q What's that?

A It's a sheephead. It's a very, very good fish to eat. It's -- what's so funny about it and why we took the time to take the picture, if you google "sheephead" and you look at its teeth, it has human teeth. And it's quite intimidating if you look at it. But that was my first sheephead that I ever caught.

Q Oh, so you caught this one yourself?

A I caught that myself.

Q Are they hard to catch?

A They're very hard to catch.

Q Why?

A Because they live in an area -- they only eat off of oyster shells and mollusks. And I caught that on a shrimp on the bait -- on the beach; excuse me.

Q Now, I have to ask this question with a caveat of "besides my own." Do you have the cutest puppies in the world?

A I have the cutest puppies in the world.

Q Okay. We're going to put up as

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Exhibit 10.

(Exhibit PX 10 was marked for identification.)

BY ATTORNEY GROSS:

Q I think this is Keziah. Is that her?

A That is my baby Keziah; yes.

Q How old is she?

A She's three years old.

Q Tell us about your puppies.

A You know, my Keziah is -- she is my go-to. She is there every single night. She sleeps with me. She mimics me. She likes to sleep -- if I sleep of top of the pillow, she likes to sleep on top of the pillow. When I wake up in morning, she is just inches away from my face. And her eyes open, my eyes open. And we are really like peas and carrots together. I can't imagine, I can't imagine a life without her. And I can't imagine her life without me.

Q What about Abraham?

A Well, Abraham is Lonnie's, is Lonnie's dog.

Q Uh-huh.

A But -- Abraham loves Keziah. But Abraham will sleep right next to Lonnie. But

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Keziah is my baby.
Q Okay. She does this really cute thing.
A She dances.
Q She dances; right?
A If you say, you know, "Keziah, you want a treat?" she'll run over to the pantry door and she'll stand up on her back legs and do a little dance waiting for her treat.
Q All right. Do you want to take a minute?
A No, I'm good.
Q Okay. I want to talk to you now about your health and what's been going on with you leading up to and since your diagnosis. Okay?
A Okay.
Q This is the not-fun part. Not that any of this has been a super-fun time, but this is the non-fun part.
A Okay.
Q Okay. Can you walk us through your initial symptoms that led you to visit a doctor.
A Sure.
Q Go ahead.

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A In January of 2023 I was diagnosed with COVID.
Q Uh-huh.
A And I started developing a little bit of a cough. And I couldn't shake the cough.
And after 14 days, I finally tested negative. And I talked to my doctor on the phone and he's like going: You know, you may just be one of these people that's just going to have this persistent cough. And you just let me know if it gets any worse.
So I continue on. And the cough got a little bit worse. And I started taking cough have drops, Luden's cough drops. And that would help suppress the cough for me. And I just continued on.
And the cough started getting a little bit more bad and a little bit worse and little bit worse. And then finally Lonnie goes: "You need to go see the doctor."
And so I made the appointment -- I had a standing appointment -- excuse me -- for my, for my annual checkup. And I walk in the door, and my doctor's demeanor was much different than it was whenever I saw him in the

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past. And he goes: "Hey, what's going on"?
I said: "I got this cough."
And he said: "Tell me about it."
And I told him about the cough.
He goes: "What else? What's your other symptoms?"
And I: "Well, I have the night sweats."
He goes: "Tell me about it."
And I told him how bad my night sweats were; it would be sheet-drenching wet.
And the expression on his face kept on getting more and more gloom. And he goes -- he asked me a few more questions. And I told him and he goes: "Your labs are awful."
Q Oh.
A And I always have fantastic labs. And he goes your labs are awful. He goes: "I think first things let's get you on" -- and he gave me two different medications, a steroid and an antibiotic because he, you know, wanted to make sure I didn't have a pneumonia or something like that.
And he goes: "I want you to" -- this is Father's Day weekend. I remember that so

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vividly. He goes: "I want to go in and get a chest x-ray today, and I will call you tonight." This is a Friday.
Q Did you go get that chest x-ray?
A I did. And I didn't hear from him on Friday. Saturday came around, nothing. Sunday came around, nothing.
Monday, I get a phone call from him. And he goes: "Hey, I got your chest x-ray and it was a little hazy. And I just want to make sure, so I'm going to send you in, you know, for a CAT scan with contrast, on your lung."
Q Did you go get that CAT scan?
A I did. And he goes: "I'm going to set it up for stat, being I want it done right away."
Okay. So the hospital calls me, sets it up. And I think that was a Wednesday. So I talked to him on Monday; Wednesday I got the CAT scan.
Q What happened after you got the CAT scan?
A CAT scan came around. And he calls me up and he goes: "I want you in my office." And I go into his office, and he shows me. And

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he goes -- and he reads it. He goes: "I am not a radiologist. I'm just going to read you the report, and I'm going to show you the pictures." He goes: "I can't answer a lot of questions other than here's what the radiologist said."

And he read it to me. And I looked at it. And he goes: "I want you to go see Dr. Kline. I've already set up an appointment" -- which was going to be the very next day.

Q Did you know what kind of doctor Dr. Kline is?

A She was a thoracic surgeon.

Q Okay. And then what happened?

A So I go in to see Dr. Kline on Thursday. She's looking at it. She opens up the picture. She's looking at it and she goes: "You know, doctors always come up with the first five things that we possibly -- we'd be looking at." She goes: "Have you ever heard of mesothelioma before?"

Q Had you?

A I said: "Yes, I have." I said: "But, Dr. Kline," I said, "I'm a white-collar guy; I'm not a blue-collar guy."

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So goes: "Okay." And then she keeps on looking at it and she said it also could be this noncancerous, aggressive skin disease -- or lung disease. She goes: "But, you know, I think we need to go inside." She goes: "We're going to go ahead and do a biopsy." She goes: "I want to do it first thing tomorrow morning."

Q Did you have the biopsy done?

A I did.

Q Okay. Then what happened?

A So the biopsy is -- excuse me. I go in. And after surgery she comes out and says: "Yes, you have cancer." She goes: "But when the pathology comes back, I'll know a name to your cancer."

So I wait a few more days. And I meet with them, and they tell me I have mesothelioma. And that's when I met with Dr. Brian -- or Dr. Lingerfelt with Roper Hospital.

Q So let me take you back to that moment. It sounds like it happened pretty fast; is that right?

A It was lighting speed.

Q When was your doctor -- what was the

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doctor's name who told you you had cancer first?

A Dr. Kline.

Q Dr. Kline, okay. When Dr. Kline first told you that you had cancer -- you didn't know what kind of cancer, but she told you you had cancer -- what was going through your head when she told you that after this all happened so fast?

A At first, I couldn't believe it. I just sat there in disbelief, and I said: "How could it be me?" I just, just sat there. And I -- my mind was racing because I was smart enough to know there is never a good cancer. And I knew nothing about mesothelioma.

And I started asking Lonnie questions, and I wasn't getting any answers.

Q Did you get any answers once your cancer had a name?

A Yes. When I went to Dr. -- the oncologist with Roper Hospital. He came into the room, sat down, and goes: "There's really nothing we can do. We're just going to move you to palliative care. I doubt we can do surgery on you. We're just going to make you comfortable."

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And I said: "How much time do I have left?"

And he just said: "It's really going to be maybe a matter of months, maybe a year. And that's all you have."

And I just sat there and I go: "Fuck. My whole life is over." And that's just -- I couldn't believe it.

And then Lonnie and I went and sat in the truck and we both cried together. I said: "How could this be?"

ATTORNEY GROSS: Let's go off the record for five minutes, please.

THE VIDEOGRAPHER: We are off the record at 1:01.

(Recess.)

THE VIDEOGRAPHER: We are back on the record at 1:06.

BY ATTORNEY GROSS:

Q Back from a quick break.

A Thank you.

Q No problem. Talking about the puppies makes everything better; right?

A It does.

Q Okay, good. This seems like the

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silliest question in the world. But since you've been diagnosed, has work been difficult for you?

A Define "work."

Q Well, that's a good question. Let's start with your job. Has that been difficult for you?

A I have been on medical leave, FMLA, since the day before my surgery. I know what my daily ritual would be. I can't imagine at this point me being able to go anywhere near that rigorous schedule when every chemo takes six days for me to even come back to even be as close to as strong as what I can be. So I just, I just don't see that ever being a part of the equation anymore.

Q Conversely, let me ask you this: Has work around your home -- meaning your daily chores just to keep your home kept up -- has that been difficult for you since your diagnosis?

A Yes. So we've now employed a domestic service that comes in and cleans the house because I can't -- that was always my deal. I was always responsible for the domestic

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chores inside the house. And so since I can't fulfill those anymore, we've hired a domestic care -- or domestic person to come in and do it.

But a good example is for me to get the sheets on the bed. I can get the sheets off. I can get a sheet back on. But to put the pillows and then tuck the sheets into the bed, I can't do that anymore. And that takes myself and Lonnie will help me do that.

Q You had a surgery after your mesothelioma diagnosis; correct?

A I did.

Q Remember, if we need to take a break, we're going to take a break; okay?

A Uh-huh.

Q Did you make a record of how you were feeling the day before that procedure?

A I did.

Q What did you do?

A I made a video.

Q What I want to do is I'll mark -- the video's been produced to everybody. What I want to do is I want to mark the video as Exhibit 11.

(Exhibit PX 11 was marked for identification.)

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BY ATTORNEY GROSS:

Q I only want to play like ten seconds of it. Okay?

A Okay.

Q You ready?

A I'm ready.

ATTORNEY GROSS: Okay. Can you-all see the video? I've never done picture-in-picture on video before. So if it doesn't work, let me know; okay?

Can you see it?

Will this pick up the sound when I play it on the computer?

THE VIDEOGRAPHER: Yes.

BY ATTORNEY GROSS:

Q All right. You ready?

A I am.

Q Okay. Is this -- I mean, I know it's a screen shot right now. But is this the video you made the day before your surgery?

A It is.

No sound.

ATTORNEY GROSS: Let's go off the record real quick.

THE VIDEOGRAPHER: Off the record at

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1:10.

(Discussion held off the record.)

THE VIDEOGRAPHER: We are back on the record at 1:13.

BY ATTORNEY GROSS:

Q All right. We are back from a very quick technologically induced break. I think we figured it out. So let's try this again.

Can you see this?

A I can.

Q Okay. And is this the video that you made the day before you had your surgery?

A It is.

Q And before we keep going, did you actually wind up having your surgery the next day?

A I did.

Q Okay.

A Well, pardon me. The doctor that was doing the surgery called and said that he was COVID-positive. So they pushed it off for one week.

Q Okay. So this video was filmed the day before you were supposed to have your surgery; the doctor gets COVID; then you have

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the surgery the week following.
A Yes.
Q Got it?
A Correct.
Q All right. I think I marked this as Exhibit 11. We're just going to play a few seconds; okay?
(Video plays as follows:
"Mother of all surgeries. It's going to be tough. Chemo afterwards. It's a big chemo. And my ability to have more time is my ability to tolerate surgery and all the chemo. If I don't make the chemo, I'm too sick, it changes my 'projectory' and my time.")
BY ATTORNEY GROSS:
Q All right. That video hard for you to watch?
A It is. And that's about as real as -- those are words that I think that most people think inside and struggle to find the words to say it out loud.
And for me it was, saying it out loud is my way of coping with it. It was no longer an internal conversation. But I wanted

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everybody to know what was on my mind as I was going to face, as I said, as my doctor called it, the mother of all surgeries.
Q This is obvious, but were you nervous before your surgery? I don't know if nervous is even the right word?
A I don't know if you can say nervous. I didn't -- I specifically and on purpose did not ask a lot of questions. Because, you know, this wasn't buying a car; this wasn't buying a couch. This was these guys had to go in and do this. If I want to live, you're going to do the surgery. If you don't want to live, you can do what the other hospital said: Go home and they'll give you some painkillers and we'll just ride it out.
I, I wanted to live. And so I didn't ask a lot of questions. I didn't know a lot going into it. I knew it was going to be tough. I knew it was going to be painful. And I just -- I went with the flow.
Q Do you now have an understanding -- and understanding that none of us are doctors. But do you have any sort of layman's understanding of what the surgery you had

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entailed?
A Yes.
Q What is it?
A They went in and opened up my side chest wall, removed a rib, removed every piece of cancer that they could find. They removed the pleural lining, the lining that the organs sit in in the chest wall, clear down to my stomach. Removed some cancer that was down in the diaphragm. And then they sewed me back up.
Q Is that a big surgery?
A It was an enormous surgery. It was, I believe we were told, ten hours.
Q I'm going to mark as Exhibit 12 a photo you sent me.
A Okay.
Q Okay. I think you know where I'm going right?
A Uh-huh.
(Exhibit PX 12 was marked for identification.)
BY ATTORNEY GROSS:
Q Can you-all see this? Everybody? Okay.
Is this -- when did you take this

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photograph?
A That was the day I got home from the hospital.
Q Who took it? Lonnie?
A Lonnie took it.
Q So this is the day you got home after the surgery; right?
A Yes.
Q What is this big incision we're looking at?
A That is how they entered my, my chest. They entered -- originally they were talk about cutting me down the breastbone and opening up this way. Then this become more of an option. And I think it -- I don't know why. I don't want to say I'm thinking. He didn't explain why; I did not ask questions.
Q We can't see the vantage point of it. How far around the front of your torso does that incision go?
A It comes up about here.
Q So, just for the record, it's right under --
A My nipple.
Q -- you left breast, like left

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breastbone, basically?
A Yes.
Q Okay. Was your recovery in the hospital after that surgery smooth?
A If I may, define "smooth."
Q Okay. Good question. What was the first -- do you remember -- strike that. I'll get it.
How was your recovery in the hospital after the surgery?
A Okay. When I -- the doctor before the surgery prepped Lonnie and I that I would be on a respirator coming out of surgery. He also prepped us that there is a good chance -- not a good chance -- there is a stronger chance that I may not make it off the table, I would die in the surgery.
So that was right before they took me away. So Lonnie and I said our normal goodbyes, kiss.
After surgery and I started becoming self-aware, I was in this dark room. No lights whatsoever. It was just as hot and uncomfortable as I could possibly be. Sweating. I didn't know where I was at. I could feel the

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respirator, the tube down my throat.
And they came in. It was 3:00 in the morning. And I know it was 3:00 in the morning because I could see the clock. And they started trying to turn the machine off to see if I could -- my lung would start working.
And I just remember when they did that for the very first time -- and I couldn't breathe. My hands were tied down. My feet were tied down. My chest was tied down. And my head was tied down.
And I can't even gasp for air because there was nothing for me to breathe. So they turned the machine back on. And Dr. Gaffney learns over me. It's still in the dark, still very, very dark. And he leans over to me and he touches me on my right shoulder. And he goes: "Pal, just give me 24 hours more."
And I laid there because I didn't know if I was going to live. I felt like I was going to die.
Q All right.
A By 6:00 a.m. -- go ahead?
Q Yeah, please.
A My 6:00 a.m. my lungs started

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working. He walks in. They pulled the respirator out, put me on oxygen, and he leaves.
And he comes back a couple hours later and he goes: "I want this man in a chair right now. Get him out of bed. I want him in a chair."
And then the team comes in to move from the bed to a chair. And that was a gradual, very aggressive approach of getting me back on my feet as soon as possible. And it progressed over the next couple of days.
Q Got it. Okay. Take a breath?
A Nodded.
Q I love that you're drinking Hawaiian Punch. Take a sip of that.
A (Complies.)
Q Okay. Have you had any sort of treatment since your surgery?
A I am now in my -- I'm one-third of the way through my chemo treatments, my chemotherapy.
Q How many chemo treatments have you had so far?
A I had two.
Q When did you have your most recent

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one?
A Thursday of last week.
Q How does your body react to those chemo treatments?
A The day of treatment I usually get done between 12:00 and 1:00. By 4:00 I am really sick and I'm in bed or on the couch. And I will stay in that position until -- usually Saturday is my, my bottom, where I've reached just absolute -- I can't, I can't eat, I can't drink.
And then Monday morning I'll go into the hospital for infusion of fluids. And then it picks me back up. And then I bounce pretty quick up to a level that I can be almost self-sufficient.
Q Did you have those fluids yesterday?
A I did.
Q Have any of your doctors told you about any future treatment you may need in addition to the chemotherapy?
A Yes. They are pairing me up with a radiologist that's going to do radiation treatment on my lung. And that's going to be 25 treatments after my last chemo.

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Q Okay. So you haven't had any radiation yet?
A I have not.
Q Has any doctor brought up immunotherapy to you?
A That is a possibility for me. But it's only going to be if my cancer comes back.
Q Got it. Okay. We're in the homestretch.
A Okay.
Q Do you have any new health issues or problems or complications -- strike that. Let me ask you this first: How was your health before you got sick with mesothelioma?
A Fantastic. I was, I was a very, very healthy person. And if I may...
Q You may.
A Part of why this journey of being in the hospital for three weeks went down to nine days was because of how good my health was, how good my lungs were. Dr. Gaffney commented many, many times he didn't expect me to bounce the way I did.
He goes: "I don't see patients that are healthy as you." He goes: "You're a young,

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very healthy individual." He goes structure -- or muscle -- I had the muscle mass. He goes -- it just -- couldn't believe it.
And all of the residents that came in to him, all of them were shocked because they never see patients that do as well through this surgery as what I did.
Q Do you have any new health issues or complications now, since your diagnosis and your surgery, that you did not have before your mesothelioma?
A Absolutely.
Q Obviously, we've talked about the chemotherapy. But tell us a little bit about that, what new issues you have had come up with your health since your mesothelioma diagnosis.
And I know that's a hard question to answer, but...
A I, I think, I think the biggest health thing is I get shortness of breath. I can't -- if I want to go up and down the steps, that may be all I can do is up and down the steps. I have to sit down upstairs to rest a little bit.
Going to the grocery store -- and I

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do go to the grocery store because I need to do the walking. It takes me twice as long to do the grocery shopping. And Lonnie is with me the whole entire time.
So I wear out, very easy. I get weak very, very easy. My ability to -- I am nowhere near able to do anything like I used to do. I mean, it's just the reality of my illness.
Q I want to talk about a couple things that make you happy.
A Okay.
Q Okay.
A Love that.
Q Love that too.
How did you meet Lonnie?
A I met Lonnie on a dating website. And Lonnie and I talked a little bit, and then he asked me out on a date the very next night. And we met downtown Charleston at Wild Wings, and we had a bucket of beer and some hot wings. And I die laughing because I ordered the virgin hot wings. And Lonnie, being the masculine macho man, ordered the Chernobyl, the hottest wings he could possible buy.
And I remember when the cooks were

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bringing it through the door, I was choking because of the smell of those hot wings. And I watched him as he had this bead of red or sweat across his lip as he tried to choke those down.
And that was our very first date.
Q Why did you fall in love with him?
A I think that, as my mom always said, if you're going to marry, marry your best friend. And Lonnie and I had more in common than we didn't have in common. And he was everything I ever wanted in a soulmate. And I look at him still to today, and the only thing I regret about Lonnie is I'll never be able to ask him again to marry me because he already granted me the greatest -- the greatest thing I ever wanted was my soulmate to love me.
Q There's another story you told me.
A Uh-huh.
Q Take a minute. But what is one thing that you have talked to me about that you are particularly proud that you've done in this life?
A So it started off in the early, early '90s. And I was able to apply for the United States Olympic Committee spot on the '92

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Olympics team as a youth ambassador. And it was a very, very long --
Q (Shows picture.)
A Yep.
Q Is that you?
A That is correct. That's me that's in Madrid, Spain, from 1992. I applied for that. I had to write an essay to them. Then after the essay was several phone interviews. And then the final one was a face-to-face interview.
But I was sponsored by Adidas, just like the teams were, to be there and be part of the Olympic movement in 1992 in Barcelona, Spain.
Q Why is that such a fond memory of yours that makes you so proud?
A I think that, for me, it's -- everybody lives life to have a consequential -- something happens consequentially. And that was, that was a turning point. I was in a position -- I could make change. And that was our mission, is to meet with the other 165 countries that were there and talk about real substance that other youth in other countries were deal with and try to come to, Hey, we're

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all different, but what can we -- can we all come together and understand.
And that was what I enjoyed the most. I also enjoyed getting a chance, you know, to meet the athletes and walk through the village. And it just -- it's hard to even put words to it. It just a dream that absolutely came true.
ATTORNEY GROSS: Just for the record, we'll mark that photograph as Exhibit 13.
(Exhibit PX 13 was marked for identification.)
BY ATTORNEY GROSS:
Q Has your mesothelioma diagnosis affected your relationship with Lonnie, for both the good and the bad?
A It certainty has brought Lonnie and I much closer.
Q Tell us a little bit about that.
A I was always one that would not discuss things that were bothering me. I would hold it up inside, what I -- what was scary for me, because Lonnie, Lonnie has debilitating depression and bipolar. And I didn't want to burden him with any of my baggage.
But since surgery, we've had to talk

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about a lot of things. You know, what it takes to make our household work. And he now has become, instead of the recipient of the care and love. He has turned that on me. It has been probably some of the most liberating experiences to watch him care for me -- because I always knew he could, but I can no longer. And he's there for me.
Q This is going to be the last one, I promise.
A Okay.
Q This one I'm not lying. We'll mark as Exhibit 14...
A Oh.
(Exhibit PX 14 was marked for identification.)
BY ATTORNEY GROSS:
Q Is this you after getting -- or during chemotherapy?
A It's actually during chemotherapy.
Q Do you ever think about your future?
A I do.
Q Tell us a little bit about that. Take a minute.
A I, I look at a couple things.

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What's, what is going to happen in the next two, three months. Can I continue to just be stronger and try to be more of what my life used to be like?
I try not to let my mind go down the pathway of my final days. You know, Lonnie has plenty of those visions of my final days and life without me. And I try not to imagine Lonnie's life without me or my dogs without me.
But that's, that's really what's on my mind, is trying to get healthier and not think about my end.
Q Does Lonnie -- well, strike that. Who took this photo?
A That was Lonnie.
Q Does he go with you to your chemo treatments?
A He is with me at -- Lonnie takes me everywhere. So he's with me there.
Q Does he go to your doctor's appointments with you?
A He does.
Q Could you imagine going through this journey that you're on now without Lonnie with you side by side?

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A I can't. I can't imagine it. I -- this is different than, you know, I'm going to go in and have, you know, a knee replacement and you could go in and, you know, they take care of it and maybe you get a friend to take you home and you convalesce at home.

This is something that there's no way without a support structure I could ever, ever manage by myself. And like I said, Lonnie has done absolutely the best that he can do to keep me where I need to be at.

Q I keep thinking -- I keep seeing this big smile on your face, even though you're in chemotherapy. So let me ask you this: In spite of everything that you're dealing with and going through, with having Lonnie by your side, do you still have hope for your future?

A Hope is a really interesting word. Hope that I make six months. A dream I make a year. Or, as Dr. Gaffney, my thoracic surgeon said: "I hope to see you standing on stage with me at MUSC in five years so we can get a picture taken."

But the reality of it is that I have mesothelioma. There's no cure. It's going to

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rear its ugly head. And at the end of the day, that's what's going to be my death.

So I think hope is -- hope is maybe a made-up word because I don't know what hope means when I think of mesothelioma. Because there is no -- that you can do everything you can do. But at the end of the day, mesothelioma's going to do what mesothelioma does. And it kills.

Q Is it your goal to be on that stage with your doctor in five years?

A That is my hope.

Q Is your goal to still be side by side with Lonnie in the next five years?

A I want to be holding his hand; yes.

ATTORNEY GROSS: Let's go off the record real quick.

THE VIDEOGRAPHER: We are off the record at 1:37.

(Recess.)

THE VIDEOGRAPHER: Back on the record at 1:44. The deposition of Michael Perry is adjourned. We are back off the record at 1:44.

(Deposition adjourned at 1:44 p.m.)

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ERRATA

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C E R T I F I C A T I O N

I hereby certify that I have read the foregoing transcript of my deposition testimony, and that my answers to the questions propounded, with the attached corrections or changes, if any, are true and correct.

---

MICHAEL L. PERRY

C E R T I F I C A T I O N

I, ADAM D. MILLER, Registered Professional Reporter, certify that the foregoing is a true and accurate transcript of the foregoing deposition, that the witness was first sworn by me at the time, place and on the date herein before set forth.

I further certify that I am neither attorney nor counsel for, not related to nor employed by any of the parties to the action in which this deposition was taken; further, that I am not a relative or employee of any attorney or counsel employed in this case, nor am I financially interested in this action.

/s/ Adam D. Miller
Registered Professional Reporter
and Notary Public

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# EXHIBIT 2

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| | |
|---|---|
| STATE OF SOUTH CAROLINA ) | IN THE COURT OF COMMON PLEAS |
| ) | |
| COUNTY OF CHARLESTON ) | NINTH JUDICIAL DISTRICT |
| **ANGELA M. HOOD**, Individually and as ) Personal Representative of the Estate of ) **MARY B. MCBRAYER**, ) | C/A No. 2020-CP-10-03946 |
| ) | In Re: Asbestos Products Liability Litigation |
| Plaintiff, ) | |
| ) | |
| vs. ) | **ORDER** |
| ) | |
| **ACME MARKETS, INC**., et al. ) | |
| ) | |
| Defendants. ) | |

Before the Court is Plaintiff's Consolidated Motion for Evidentiary Sanctions Against Johnson & Johnson Based on Spoliation of Evidence.[1] The Court received briefs from Plaintiff and from Johnson & Johnson and heard extensive argument from the parties on October 28, 2021. The motion is granted in part and denied in part.

## BACKGROUND

Since at least the 1950s, Johnson & Johnson has itself tested or directed others to test several hundred samples of its talcum powder products and the talc sources from which those products are made. For most of those tests, only summary reports of the results are available. In most cases, no underlying data remain that describes or depicts what the analyst saw during the test. These materials have been destroyed or discarded or were never collected. In addition, the talc samples that were tested have been destroyed and discarded.

[1] Plaintiff originally made this motion against Johnson & Johnson Consumer, Inc. ("JJCI"), but proceedings against that entity have been stayed by the bankruptcy court. This order is not directed at JJCI.

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Plaintiff argues that Johnson & Johnson is guilty of spoliation through its failure to preserve (1) underlying data that support (or fail to support) test reports, (2) control blanks or documentation about control blanks that would show whether laboratory air was contaminated with asbestos fibers, and (3) historical talc samples in its possession. Based on this alleged spoliation, Plaintiff has requested certain evidentiary sanctions in the form of jury instructions that the jury may presume that, when Johnson & Johnson is responsible for missing evidence, the missing evidence would not have supported Johnson & Johnson's position. Plaintiff also asks that Johnson and Johnson be precluded from arguing that the causation opinions of Plaintiff's experts are supported by tests of insufficient or unrepresentative talc samples.

## THE MISSING DATA

### *Documentation of Testing and Analysis*

Testing for asbestos often requires a complex and multilayered analysis. The analyst will collect several types of data during the process, including: (a) "bench sheets" or "count sheets," (b) photographs and/or (c) chemical analysis such as EDS data. Bench sheets report each particle examined: its chemistry (whether it is one of the asbestos types and which one), length, width, aspect ratio, and other features. Photographs show the particle's length and width, but also its shape, such as potential curvature, bundling, etc. And tests such as EDS data provides information on the chemical elements of the particle. The elemental makeup can then be compared to the reference standard for identification.

The parties and their experts have fundamental disagreements about the proper (1) definition for asbestos in the context of evaluating health effects, (2) methodology to detect the presence of trace levels of asbestos in talc and (3) interpretation of the data generated, including the chemistry, crystal structure, size and shape of the particles or structures examined. These disagreements can lead experts to reach different conclusions based on review of the same

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evidence. In fact, Plaintiff presented evidence that Johnson & Johnson and its consultants recognized in the 1970s that this underlying data was "vital information" and interpretation of the data would vary based on the expertise and interest of the analyst.

Plaintiff argues that, without the underlying data for Johnson & Johnson's tests, it is impossible to determine what the results would have been if a different definition were applied, different methodology used, and/or different interpretation made. For example, as to methodology, evidence was presented that Johnson & Johnson instructed its testing consultants to use a counting protocol that permitted the presence of asbestos to be reported in a sample only if five fibers of the same type were counted, and Johnson & Johnson directed its testing consultants on the language to be used in testing reports.

Johnson & Johnson has not argued that this underlying data are unimportant. In fact, the evidence presented demonstrate that Johnson & Johnson testing consultant RJ Lee Group has taken the position that, to evaluate the accuracy of another analyst's report, it would need information on the number, chemistry, crystal structure, size, and shape of the particles. Rather, Johnson & Johnson argues that, because Plaintiff has the examples she used in making this motion, any other evidence she could obtain through the missing data would be cumulative.

*Laboratory Control Blanks*

Another type of data that is collected for such testing is data on control blanks. It is standard practice for laboratories to use "blanks" to control for possible contamination. A blank is a filter placed near talc samples being tested to capture any contaminants in the air. The practice allows labs to rule out the possibility that asbestos fibers found in the sample came from an outside source since any contamination from an outside source would appear in both the sample and in the blanks.

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Johnson & Johnson required the use of blanks, but the testing data provided by Johnson & Johnson in discovery virtually never includes documentation concerning blanks.

Plaintiff argues that Johnson & Johnson and its experts sometimes take the position that asbestos found in samples are the result of laboratory contamination. Plaintiff has identified specific instances in which documentation of blanks was available and did not support a finding of laboratory contamination. Johnson & Johnson argues that it should be allowed to use language in test reports that attribute asbestos to laboratory contamination without documentation of empty control blanks because (1) Plaintiff assumes that blanks were used, and (2) there is no evidence the blanks were in Johnson & Johnson's possession, custody, or control. However, Plaintiff provided evidence that Johnson & Johnson required the use of blanks, and Plaintiff does not appear to seek the physical blanks themselves, but rather documentation of their contents—as with the count sheets.

*Talc Samples*

Johnson & Johnson did not maintain the talc samples after they were tested. Its testing consultant McCrone offered to return the samples to Johnson & Johnson, but Johnson & Johnson did not take possession of the samples or ask that they be preserved. It is clear this offer had been made repeatedly and was made again in 1987. Plaintiff makes the point that Johnson & Johnson had access to the bulk of its product samples, and samples of its talc sources, but it chose to discard those products.

Plaintiff claims that Johnson & Johnson generally attacks the number, diversity, and source of the talc samples that Plaintiff's experts rely on as insufficient in number or not representative. Plaintiff points out that Johnson & Johnson has also attempted to challenge reliance on samples of

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Johnson's Baby Powder not obtained from it by claiming insufficient chain-of-custody and/or asbestos contamination during maintenance.

Johnson & Johnson argues that there is no evidence that these samples were ever its custody after they went out for testing, and it had no responsibility to reclaim them. Johnson & Johnson also argues that Plaintiff is not prejudiced by not having access to the lost samples, which will be discussed below.

JOHNSON & JOHNSON'S KNOWLEDGE OF AND RESPONSE TO PENDING OR ANTICIPATED LITIGATION

In 1969, Johnson & Johnson's Medical Director Dr. T.M. Thompson (a) advised Johnson & Johnson of the danger of inhaling "needle-like" tremolite, (b) recognized that "trace" amounts of tremolite in Johnson's Baby Powder were "unavoidable" and (c) noted that "furor" might arise if the public learned Johnson's Baby Powder "contained any significant amount of tremolite." He predicted Johnson & Johnson "could become involved in litigation" for pulmonary fibrosis and recommended Johnson & Johnson's "Law Department" evaluate the "defensibility of our position." Johnson & Johnson's privilege log asserts privilege based on pending or ongoing talc litigation as early as 1971 and throughout the 1970s. Johnson & Johnson argues that these early cases involved industrial talc rather than cosmetic talc and did not include allegations of mesothelioma. Johnson & Johnson asserts that the first mesothelioma case against it alleging exposure to Johnson's Baby Powder was in 1996.

Johnson & Johnson's corporate representative John Hopkins testified that the company knew since 1971 that asbestos-related diseases were latent and might not be diagnosed until decades after exposure. Plaintiff argues that, because Johnson & Johnson knew consumers would not develop disease until decades after using its product, it also knew that the talc samples in its possession might remain one of the only sources for vintage samples by the time an individual was

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diagnosed with cancer. Johnson & Johnson's privilege log reveals that, as early as February 1971, Johnson & Johnson was communicating with its attorneys about talc samples in connection with both ongoing and anticipated litigation. Despite ongoing litigation and the depth of its knowledge, Johnson & Johnson failed to institute preservation policies until far too late.

The evidence shows that Johnson & Johnson did not institute a records retention policy until 1997. Johnson & Johnson also has no evidence that a legal hold was put in place for any talc litigation before the late 1990s, and Johnson and Johnson's position is that any legal hold would apply only to a single talc case. Although Johnson & Johnson sought and was unable to obtain talc samples for use in litigation from its talc supplier Luzenac in 1994 because of Luzenac's retention policy, Johnson & Johnson did not institute a legal hold on talc samples in its possession until 2017.

Johnson & Johnson's corporate designee on its discovery responses Nancy Musco testified that Johnson & Johnson was asked repeatedly in discovery for "any evidence" that the talc in Johnson's Baby Powder (*i.e.*, Johnson's Baby Powder or its talc sources) contained asbestos. Musco testified that Johnson & Johnson would respond with the company position, "That there is no asbestos in the cosmetic talc used for Johnson's Baby Powder." Musco testified that Johnson & Johnson could not identify a case prior to 2017 in which it had produced evidence related to the testing of its talc.

## ANALYSIS

"The courts of South Carolina have long recognized that a party is entitled to favorable presumptions [in civil cases] about the contents of missing evidence when an opponent is responsible for the destruction of evidence that might otherwise be expected to have been relevant." *State v. Reaves*, 414 S.C. 118, 128, 777 S.E.2d 213, 218 (2015) (quoting Kevin R. Eberle, *Spoliation in South Carolina*, 19 S.C. LAWYER 26, 28 (2007)); *see also Gathers ex rel.*

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*Hutchinson v. S.C. Elec. & Gas Co.*, 311 S.C. 81, 83, 427 S.E.2d 687, 689 (Ct. App. 1993) ("when a party loses or destroys evidence, an inference may be drawn that the destroyed or lost evidence would have been adverse to that party."). Just as a defendant should be allowed "to exculpate itself from liability because the plaintiff has barred it from obtaining evidence," *Cole Vision Corp. v. Hobbs*, 394 S.C. 144, 153, 714 S.E.2d 537, 542 (2011) (quoting Robert L. Tucker, *The Flexible Doctrine of Spoliation of Evidence: Cause of Action, Defense, Evidentiary Presumption, and Discovery Sanction*, 27 U. TOL. L. REV. 67, 75 (1995)), a defendant should not be allowed to escape liability by denying the plaintiff access to evidence.

*The Duty to Preserve*

The evidence supports the conclusion that a duty to preserve evidence was triggered by 1971 at the latest, when Johnson & Johnson had already been sued for personal injury caused by its talc. Two years before, Johnson & Johnson had been warned by its medical director that it faced the risk of litigation from tremolite fibers in Johnson's Baby Powder and that the Law Department should be informed. Also in 1971, Johnson & Johnson knew that the FDA was concerned about the presence of asbestos in talc and considering regulation of the talc industry, and Johnson & Johnson was also aware by this time that asbestos disease was latent, so that consumers using its product in 1971 would not develop asbestos-related cancers for decades.

Johnson & Johnson argues spoliation sanctions are normally applied in the context of discrete events, such a car accident where the plaintiff allows the car to be destroyed or where a furnace is destroyed after an accident. Johnson & Johnson argues that applying the doctrine in to conduct over decades and in the absence of a discrete event would be unfair. However, the analogy falls flat where Johnson & Johnson, with knowledge of the danger and the latency of asbestos-

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related disease, sold its product to hundreds of thousands of consumers over the lengthy period of time at issue here.

Johnson & Johnson also argues that it cannot be guilty of spoliation going back to 1969 or 1971 because it was not sued in a mesothelioma case for exposure to Johnson's Baby Powder until 1996. But Johnson & Johnson's argument that the litigation must be identical to give rise to a duty to preserve evidence is not persuasive. Whether the talc at issue was industrial grade or cosmetic grade, Johnson & Johnson's corporate representative testified that it came from the same talc ore body. And any distinction between cancer in one part of the body versus another part of the body is inconsequential when both are triggered by asbestos. Any lawsuit alleging asbestos-related disease from exposure to its talc should have alerted Johnson & Johnson of the duty to preserve evidence related to asbestos in its talc sources and its talc products, particularly when Johnson & Johnson knew that asbestos had been found in its products and that low dose exposure to asbestos could cause latent disease.

*Relevance and Prejudice*

Plaintiff has demonstrated that the missing testing data is relevant and that she is prejudiced by its absence. Even Johnson & Johnson and its experts have expressed in the past that this evidence is essential to evaluating test results. Plaintiff has presented examples based on the few sample documents in Plaintiff's possession that show (1) some tests that report no quantifiable asbestos actually show that the analyst found an asbestos fiber in the sample, and (2) some tests where the analyst blamed asbestos in a sample on laboratory contamination had no asbestos in any laboratory blank and so no evidence to support the conclusion of laboratory contamination. The underlying test data, including documentation of blanks, is relevant and its absence is prejudicial

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to Plaintiff. Johnson & Johnson's argument that any additional data would simply be cumulative is not credible. Underlying data for each test is necessary to evaluate the results of that test.

Johnson & Johnson has argued, however, that Plaintiff is not prejudiced by the absence of additional talc samples because she and plaintiffs generally have a sufficient representative number of samples available to test. Johnson & Johnson cites the testimony of Plaintiff's expert Dr. William Longo that sufficient talc samples were available to him for testing. Based on Johnson & Johnson's representations, I find that the absence of additional talc samples from Johnson & Johnson's historical testing does not prejudice Plaintiff.

*Appropriate Sanctions*

An appropriate sanction must "serve to protect the rights to discovery provided by the Rules." *Downey v. Dixon*, 294 S.C. 42, 46, 362 S.E.2d 317, 319 (Ct. App. 1987). "In determining the appropriateness of a sanction, the court should consider such factors as the precise nature of the discovery and the discovery posture of the case, willfulness, and degree of prejudice." *Griffin*, 334 S.C. at 199, 511 S.E.2d at 719.

Plaintiffs have demonstrated substantial prejudice and that the conduct at issue has been going on for decades. Even after Johnson & Johnson admits it was involved in litigation with a plaintiff who alleged mesothelioma caused by exposure to Johnson's Baby Powder in 1996, Johnson & Johnson continued to deny that its product had ever contained asbestos and did not disclose its historical testing in discovery until 2017.

Johnson & Johnson argues that the loss of this evidence was not intentional, and so it should not be subject to what it claims is the equivalent of granting judgment by default or dismissal. First, Johnson & Johnson overstates the scope of Plaintiff's motion. Plaintiff seeks an instruction only as to the testing done by or at the direction of Johnson & Johnson since 1971. It does not

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apply to any testing done by Johnson & Johnson's suppliers, for example, and the evidence shows that hundreds of such tests exist. Nor does it apply to any test performed or commissioned by Johnson & Johnson before 1971. The proposed instructions are not the equivalent of death penalty sanctions.

While there is some evidence that Johnson & Johnson acted in bad faith in relation to certain matters connected to the reporting and preservation of its testing, Plaintiff need not prove that the spoliation was intentional to justify an adverse inference instruction. *See Kershaw Cnty. Bd. of Educ. v. U.S. Gypsum Co.*, 302 S.C. 390, 395, 396 S.E.2d 369, 372 (1990) (upholding trial court's spoliation instruction as appropriate sanction because there was no evidence of undue prejudice or intentional misconduct); *Stokes v. Spartanburg Reg. Med. Ctr.*, 368 S.C. 515, 521, 629 S.E.2d 675, 678–79 (Ct. App. 2006) (finding it reversible error to not include adverse inference instruction when two pieces of evidence were missing from hospital records, even though there was no evidence hospital acted intentionally and one of the records may never have been generated).

For these reasons, the Court **GRANTS** Plaintiff's motion for an adverse inference instruction concerning underlying testing data and blanks, and **IT IS HEREBY ORDERED** that the jury will be instructed that it may presume:

1) That when Johnson & Johnson introduces a test result, for tests performed by Johnson & Johnson or commissioned by Johnson & Johnson, that is negative for asbestos, reports "no quantifiable asbestos," or contains similar language, if the evidence shows Johnson & Johnson destroyed or unreasonably failed to preserve underlying data related to the test, the jury may presume that the missing data showed asbestos fibers were present.

2) When Johnson & Johnson argues any positive tests for asbestos, for tests performed by Johnson & Johnson or commissioned by Johnson & Johnson, were the result of lab contamination but Johnson & Johnson failed to retain evidence related to the "blanks" used as a control for such contamination, the jury may presume the blanks were free from asbestos.

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These instructions are directly connected to the missing evidence and what it appears likely the evidence would have shown.

In addition, **IT IS HEREBY ORDERED** that Johnson & Johnson, its lawyers, or its experts are precluded from suggesting limitations to positive testing due to lack of underlying data when the underlying data does not exist because of Johnson & Johnson's conduct.

Finally, Plaintiff is instructed to inform defense counsel of what tests Plaintiff contends are included in the scope of this order in sufficient time for Johnson & Johnson to review before trial. Should the parties require any further clarity on import of this order, it can be discussed in context of specific testing.

Finally, the Court **DENIES** Plaintiff's with regard to talc samples. It is not clear whether these samples were within Johnson & Johnson's possession, custody, or control. Moreover, the Court notes Johnson & Johnson's argument that Plaintiff has access to sufficient and representative talc samples for testing.

**AND IT IS SO ORDERED.**

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Charleston Common Pleas

**Case Caption:** Angela M Hood , plaintiff, et al VS Acme Markets Inc , defendant, et al

**Case Number:** 2020CP1003946

**Type:** Order/Other

So Ordered

Jean H. Toal

# EXHIBIT 3

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SUMMARY REPORT

on

# AN INVESTIGATION OF SELECTED TALC DEPOSITS OF THE UNITED STATES

to

JOHNSON AND JOHNSON

February 29, 1956

by

C. B. Sclar, R. H. Snider, R. D. Macdonald,
and O. F. Tangel

BATTELLE MEMORIAL INSTITUTE
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# AN INVESTIGATION OF SELECTED TALC DEPOSITS OF THE UNITED STATES

by

C. B. Sclar, R. H. Snider, R. D. Macdonald,
and O. F. Tangel

## SUMMARY AND RECOMMENDATIONS

This report covers the results of field and laboratory investigations of a number of domestic talc deposits to determine whether any of these deposits might be promising as a source of ground talc for use in the Sponsor's baby-talc preparations. Talc deposits in Vermont, California, and Nevada were examined in the field and samples were obtained for petrographic examination at Battelle. The criteria employed in the evaluation of the talcs considered in this study include mineralogical purity, crystallographic habit of the mineral talc, state of aggregation of the mineral talc, color, lubricity, and tonnage factor.

A procedure was developed for sizing the Italian talc, which is currently used by the Sponsor, and six different samples of talc were prepared in accord with the particle size distribution of the Italian talc. Each of these samples is composed of particles of the mineral talc which are typical of a certain crystallographic habit and/or state of aggregation. The samples will be sent to the Sponsor for lubricity and toxicity tests. A collection of mill products, hand specimens, drill-core specimens, and ground talcs will also be sent to the Sponsor for reference.

The results of this work indicate that of the talcs included in the investigation, there are several promising sources of domestic talc for the Sponsor's purposes. They are as follows:

I. Possible domestic sources of acceptable raw talc

(1) Waterbury Deposit, Vermont
(2) Oasis Deposit, Nevada

II. Possible domestic sources of acceptable talc concentrates

(1) Rousseau Prospect, Vermont
(2) Johnson Deposit, Vermont
(3) Warm Spring Deposit, California
(4) Monarch Deposit, California



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The talc from the second group of deposits will require beneficiation. The Rousseau Prospect is completely undeveloped, and both the Oasis and Monarch Deposits are not now being worked. The other talc deposits are currently being mined.

It is concluded that of the deposits which were considered during the course of this investigation, the Rousseau Prospect is the most promising source of talc for use in the Sponsor's baby-talc preparations. It also appears that the next most promising source of platy ground talc for the Sponsor's purposes is the drier discharge from the Johnson Mill, the feed to which is talc from the Johnson deposit.

It is recommended that the talc samples which will be submitted as a result of this investigation undergo further evaluation in the laboratories of the Sponsor. If, as a result of these studies, certain of the talcs are still of interest, additional information and/or samples can either be obtained directly from the owners of the deposits or Battelle would be pleased to act in a liaison capacity for Johnson and Johnson. In the event that one or more of the talcs of interest require beneficiation, a talc concentrate should be prepared from each and the concentrate evaluated in the Sponsor's laboratories. Should a large amount of the Rousseau talc be required for beneficiation studies, the best sample obtainable at present would be a composite of the drill cores held by the Eastern Magnesia Talc Company. We would be pleased to be of assistance in regard to any aspect of the beneficiation of talc.

Two samples of white platy pyrophyllite were obtained from the American Encaustic Tiling Company. A one hundred gram sample of each pyrophyllite sample was prepared in accord with the particle-size distribution of the Italian talc. These fabricated samples will be submitted to the Sponsor for laboratory evaluation to determine whether pyrophyllite might be an acceptable substitute for talc in baby-talc preparations. If the pyrophyllite shows promise, it will be necessary to beneficiate the material and evaluate the resultant concentrate. We would be pleased to be of assistance in regard to the beneficiation of pyrophyllite.

## INTRODUCTION AND OBJECTIVES

Johnson and Johnson currently obtain their raw ground talc for use in baby-talc preparations from the Societa Talco e Grafite Val Chisone which own and operate a group of producing mines in the Cottian Alps west of Pinerolo, Piedmont, Italy. The talc from this source is satisfactory but, because of the possibility of economic and/or political instability in Italy, Johnson and Johnson are interested in locating a domestic source of talc of equivalent quality for use in their baby powder. To further this objective, Johnson and Johnson sponsored a project at Battelle during the first part of



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1955, the purpose of which was to review and appraise the literature on talc deposits of the United States to determine whether any domestic talc deposit or group of deposits appears to show promise as a potential source of talc for this specific use. The results of this literature survey were reported formally to the Sponsor in a Battelle Summary Report* dated May 11, 1955.

Although the results of the literature survey were not particularly favorable, it was concluded that one deposit in Vermont and a group of deposits in California were of some interest. The Vermont deposit under consideration was the Rousseau Talc Prospect in Lamoille County which is owned by the Eastern Magnesia Talc Company, and the California deposits were as follows:

(1) The Silver Lake Talc Deposit and the Markley Deposit of the Sierra Talc and Clay Company.

(2) The Superior, Excelsior, and Calmasil Deposits of the Sourthern California Minerals Company.

(3) The Warm Spring Deposit of Miss Louise Grantham and associates under lease to Kennedy Minerals Company.

Most of these deposits were of interest only insofar as it might be possible to selectively mine certain parts of a given ore body and/or employ hand picking as a means of upgrading the run-of-mine talc. However, the available literature indicated that neither selective mining nor hand picking is conventional practice at the operating mines in California, and, as a result, samples of mill heads or mill products obtained from producing companies might not be reliable indicators of the possible occurrence of suitable high-grade talc. Another complication revealed by the literature in regard to talc samples was that many commercial talcs which are sold under a code number or specific name are actually blends of talcs from several deposits worked by the same company, and, that, in some instances, talcs from different deposits are used interchangeably under the same trade designation. In view of these factors, it was recommended that Johnson and Johnson sponsor a research project at Battelle, the objective of which would be (1) to obtain samples from those talc deposits which appear to contain important amounts of promising talc, (2) to evaluate the samples by means of the petrographic microscope and whatever additional analytical tools might be required, and (3) to submit samples to the Sponsor for laboratory tests. To implement this undertaking, it was suggested that a two-man team composed of a geologist and an ore dressing engineer visit the properties of interest to select samples which are of significance from the standpoint of the Sponsor, and, if apparently suitable talc occurs in one or more deposits, to consult with the technical staffs of the operating companies in regard to the technical and

*Battelle Summary Report on "A Review and Appraisal of the Literature on Talc Deposits of the United States", by C. B. Sclar, R. W. Schatz, R. D. Macdonald, and O. F. Tangel, dated May 11, 1955.



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economic feasibility of selective mining, hand picking, and physical beneficiation. Subsequent work in the laboratory would consist principally of petrographic evaluation of the samples collected in the field and the preparation of several ground talc samples with approximately the same particle-size distribution as the ground Italian talc currently used by the Sponsor in the preparation of baby powder. These fabricated talc samples would then be submitted to the Sponsor for lubricity and toxicity tests.

Dr. W. H. Lycan, Director of Research for Johnson and Johnson, visited Battelle on May 17, 1955, to review the results of the literature survey and to discuss Battelle's recommendations for future work on domestic talc. At that time he requested a proposal to cover these recommendations. The proposal was sent to Dr. Lycan on May 27, 1955, and it was subsequently accepted without alteration. This report covers the results of field and laboratory studies undertaken in the Sponsor's behalf in an attempt to locate a suitable source of domestic talc for use in baby-talc preparations. C. B. Sclar and R. D. Macdonald carried out the work in the field. C. B. Sclar, R. H. Snider, and R. D. Macdonald did the laboratory work at Battelle under the supervision of O. F. Tangel.

During the course of the literature survey, some consideration was given to brucite and pyrophyllite as possible substitutes for talc. Of the two, platy pyrophyllite appeared to be more promising with respect to physical and chemical properties and with respect to availability. Acting on Battelle's suggestion, the Sponsor authorized Battelle to obtain a small sample of high-grade pyrophyllite from a producing company, evaluate the sample petrographically, and submit sized material for toxicity and lubricity tests to be made in the Sponsor's laboratories. The results of this work are discussed in Appendix B.

## CRITERIA USED IN EVALUATING TALCS

A detailed discussion of all the factors which affect the suitability of talcs from the standpoint of the Sponsor will be found in the Battelle Summary Report of May 11, 1955, pages 6-7. To avoid undue repetition, it is expedient to list here those criteria for evaluating talcs which were utilized during the course of this study. The criteria for a satisfactory talc for use in baby talc are as follows:

(1) Mineralogical Purity. The material should consist essentially of the mineral talc; amphiboles such as tremolite and anthophyllite and carbonates such as calcite, dolomite, and magnesite are undesirable.

(2) Crystallographic Habit of the Mineral Talc. Talc which yields platy or micaceous particles when ground is essential; such talcs generally have a foliated or schistose megascopic structure.



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(3) Color. The material should be intrinsically white to the eye and preferably reasonably white when compared with Italian talc.

(4) Lubricity. The material should feel slippery when spread over the skin; this property is due to the integrated effect of mineralogical purity, platiness of the particles, and the particle-size distribution of the material.

(5) Tonnage. Although it is difficult to obtain accurate data on tonnage, it is understood that at least 100,000 tons of talc must be indicated before a deposit would be of interest to the Sponsor.

## RESULTS OF FIELD INVESTIGATIONS

### Introductory Statement

When Battelle received authorization to proceed with the project, correspondence was initiated with the Eastern Magnesia Talc Company of Burlington, Vermont; the Sierra Talc and Clay Company of South Pasadena, California; the Southern California Minerals Company of Los Angeles, California; the Kennedy Minerals Company of Los Angeles, California; and the Grantham Mines of Upland, California. The objective of the correspondence was to arrange for conferences to be held in the offices of these companies and to obtain their permission to visit the talc deposits under consideration. In keeping with the wishes of the Sponsor, the relationship of Johnson and Johnson to this project was held in strict confidence, although several of the officials of the companies asked both by letter and orally at meetings whether we could disclose our Sponsor's identity. In fact, Mr. Gaskins, Vice President of the Sierra Talc and Clay Company, correctly guessed the Sponsor's identity when we were in his company's offices, although, of course, this was neither confirmed nor denied by us. However, we were very cordially received in all the offices that were visited, and all the companies were exceedingly generous in arranging for their technical men to accompany us in the field and conduct us underground at various properties. Also, as will be evident in succeeding sections of this report, we were given every cooperation in the matter of obtaining samples of talc and in discussions concerning new sources of potentially suitable talc for the Sponsor's purposes which have either not yet been described in the technical literature or have been described in such a cursory manner that they were not singled out in the literature survey.



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Although the general location of each talc deposit is given in this report, the exact geographic locations of all the California talc properties, to which reference is made in the succeeding sections, will be found in the following publications:

Norman, L. A., and Stewart, R. M., "Mines and Mineral Resources of Inyo County, California", Calif. Jour. Mines and Geol., Vol. 47, pp 17-223 (1951).

Wright, L. A., Stewart, R. M., Gay, T. E., and Hazenbush, G. C., "Mines and Mineral Resources of San Bernardino County, California", Calif. Jour. Mines and Geol., Vol 49, pp 49-257 (1953).

## Talc Deposits and Talc Mills of The Eastern Magnesia Talc Company of Burlington, Vermont

We met with Mr. E. W. Magnus, General Manager; W. W. Magnus, Manager; V. A. Backels, General Superintendent; K. Stewart, Head of the flotation plant at the Johnson Mill; and L. H. Durkee, Engineer, at the offices and the properties of the Eastern Magnesia Talc Company on October 11 and 12, 1955. Our purpose in going to Vermont was to assess the potentialities of the Rousseau Talc Prospect in northern Cambridge Township, Lamoille County, Vermont, and to obtain samples of the feed to the Johnson Mill as well as samples from various points in the Johnson Mill. Mr. Masci had pointed out in his letter to C. B. Sclar of January 24, 1955, that talc which yields platy particles when ground is present in ore from the Johnson Mine but that the final mill products are badly overground, and, as a result, have very poor lubricity.

As was discussed in the Battelle Summary Report of May 11, 1955, a recently published description* of the Rousseau Talc Prospect indicated that this talc deposit may contain talc which is suitable for the Sponsor's purposes. The mineral rights to this property are owned by the Eastern Magnesia Talc Company. The deposit is essentially undeveloped, but, based on six diamond-drill holes that were put down in 1915 and 1916 and eight diamond-drill holes that were put down by the U. S. Geological Survey in 1950, it appears to be composed of a core of "grit" (a mixture of talc and carbonate) surrounded by an envelope of variable thickness made up of schistose relatively pure talc. It was hoped that the envelope of white schistose talc might prove to be a source of suitable talc. The talc crops out on a hill only 2 miles east-northeast of Cambridge Junction and the St. Johnsbury and Lamoille County Railroad skirts the northern side of the hill. An old adit dating from the first world war was examined first

*Chidester, A. H., Stewart, G. W., and Morris, D., "Geologic Map of the Rousseau Talc Prospect, Cambridge, Vermont", U. S. Geol. Survey, Mineral Investigations Field Studies Maps MF8 (1952).



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and samples of both the grit and the schistose talc were obtained. The talc exposed on the walls of the adit is commonly stained with iron oxide as a result of the oxidation and migration of iron contained in the iron-bearing carbonate which is an abundant constituent of the grit. However, the talc in the drill cores is essentially free of iron-oxide stain. Three of the recent drill cores were examined in detail. These drill cores indicate that in some places the schistose talc may be absent but that in others the schistose talc may attain a thickness of 50 feet. Where present, the schistose talc generally exceeds 5 feet in thickness. Based on the meager subsurface data available, it appears that although the schistose talc might be selectively mined, the tonnage of this type of talc is limited. It is doubtful whether it would be economically feasible to mine this talc body solely for schistose talc. Nevertheless, the published information on the Rousseau deposit indicates that the talc body as a whole contains at least 700,000 tons of raw ore and at least 450,000 tons of the mineral talc, the difference being principally carbonate. In addition, although the Rousseau deposit appears to have the shape of a double-convex lens which pinches out at depth, there is a possibility, if we reason by analogy with other Vermont talc deposits of similar structure, that subsurface exploration may reveal one or more lens-shaped talc bodies at depth strung sausage-like down dip from the Rousseau deposit. Drill-core samples of both the schistose talc and the grit in the Rousseau deposit were selected for petrographic evaluation.

At the Johnson mill, the carbonate-bearing talc ore from the Johnson mine is crushed in a jaw crusher and a cone crusher to minus 1/2 inch. The ore is then ground dry in a Hardinge pebble mill and the fines are removed as a salable product by a Raymond Whizzer cyclone separator. The coarse product goes to a second separator and the coarse material from this separator is screened at 45 and 65 mesh to make a low-grade talc product. The fines from the second separator are pulped with water and fed to three full-size shaking tables. The tables give a sulfide product which contains nickel, a middling product of carbonate which is discarded, and a talc concentrate to which is added a small amount of Ultrawet before the pulp is split and fed to three banks of flotation cells which are in parallel. No collecting or frothing reagents are used. The float is a simple rougher float for talc with no cleaning steps. The tailings are discarded and the froth product is thickened, filtered, dried, and then reground in a Raymond roller mill. The reground froth flotation product is bagged and sold under the designation RC-500 as a cosmetic-grade talc. It contains about 5 per cent carbonate, and is the coarsest white high-grade commercial talc currently produced at the Johnson Mill. Although the grade of the RC-500 talc is apparently acceptable to the customers of the Eastern Magnesia Talc Company, it appeared to us that it might be possible to improve the flotation procedure and, thereby, effectively lower the carbonate content of the final product. A special effort was made to obtain a sample of the flotation concentrate as it was discharged from the drier prior to being reground for final packaging. In addition, samples were taken at various points in the mill.



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We also visited the Waterbury Mill in which raw talc from the Waterbury Mine is ground to finenesses suitable for various commercial talc products. No beneficiation is done in this mill, although some of the blocks of crude talc from the mine are segregated and sent to a special cutting room where they are hand sawn into marking pencils. The type of talc that is used for marking pencils is a greenish black foliated talc of relatively high mineralogical purity which gives a dirty greenish gray powder when ground. The whitest commercial talc product currently produced at the Waterbury mill is known as EM-21 which is slightly off color relative to the Italian talc. However, the worst characteristics of EM-21 from the standpoint of the Sponsor are the carbonate content, which is in the order of 15 to 20 per cent, and the fact that it is overground as compared with the Italian talc, viz., at least 95 per cent minus 325 mesh and an average particle size of about 10 microns according to the technical men at the Waterbury Mill. It was observed that some of the broken talc from the Waterbury Mine was a greenish gray foliated talc, which gave a white powder when ground by hand and which appeared to be relatively free of carbonate. The technical men at the mine stated that about 3000 tons per year of this type of talc is produced from the Waterbury Mine and that this production could be increased. Although the gray foliated talc occurs as large pieces of crude ore which can easily be segregated by hand picking, it is currently included in the feed to the Waterbury Mill along with the more abundant lower grade ore which is rich in carbonate and/or greenish black in color. A sample of the gray foliated talc was taken for petrographic evaluation.

## Talc Deposits of the Sierra Talc and Clay Company of South Pasadena, California

On November 9, 1955, we visited the South Pasadena office and laboratory of the Sierra Talc and Clay Company and met with W. W. Gaskins, Vice President; R. Booth, Treasurer; and R. S. Lamar, Research Engineer. The purpose of this visit was to discuss two specific talc deposits — the Silver Lake Talc Deposit in San Bernadino County, California, and the Markley Talc Deposit in Inyo County, California. In regard to the Silver Lake Deposit, the literature had indicated that talc which might be suitable for the Sponsor's purposes occurs as a distinctive schistose layer several feet thick along the foot wall of a dipping tabular layer of tremolitic rock. Current practice is to mine a mixture of high-tremolite rock and white talc schist which is then ground and sold for use in ceramic wall-tile manufacture. Evidently, samples of production talc from the Silver Lake Deposit would not be typical of the talc schist body which appeared to have some possibilities as a source of satisfactory talc. The officials of the Sierra Talc and Clay Company, however, made very positive statements to the effect that the known amount of foliated talc in the Silver Lake Deposit is not commensurate with the tonnage requirements of our Sponsor and that in any event it is not feasible to selectively mine



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the foliated talc. It seemed to us that, even if the required tonnage of foliated talc was available and mining was not a problem, the Sierra Talc and Clay Company was not interested in selling the high-grade talc from this particular source possibly because the removal of this talc from the raw material would pose new blending and marketing problems. In regard to the Markley Deposit, the literature indicated that the talc body was white and foliated. However, Mr. Lamar assured us that the Markley talc, although foliated, yields fibrous particles when ground. In addition, we were told that the Markley Deposit is currently being developed, and that, on the basis of the available subsurface data, it does not appear to have a significant tonnage for our purposes. As a result of these discussions we decided to cancel our proposed trips to these properties.

In the course of correspondence with the Sierra Talc and Clay Company, Mr. Henry Mulryan, the President, informed Battelle that his company has a number of high-grade white platy talc deposits in the Eureka Valley area of California and the Oasis district in the Fish Lake Valley of Nevada. He also stated that two of these deposits, known as the Eureka and Oasis, were being actively worked at present and suggested that we visit these properties. We had reservations at first about the potentialities of these deposits because the literature indicates that talcs from this area tend to be massive granular aggregates rather than the foliated micaceous aggregates which are considered to be desirable by analogy with the Italian talc. However, after discussing this matter with the officials of the company, who reassured us that the ground Eureka and Oasis talcs are platy, we decided to visit these deposits. Accordingly, we met Mr. D. Kempfer, Mining Engineer for Sierra Talc and Clay Company, in Lone Pine, California on November 15, 1955. He drove us to the properties and we went underground with him in the Eureka and Oasis Mines.

The Eureka Mine, formerly known as the Nickolaus Mine, is located in a canyon on the west wall of Eureka Valley some 3500 feet above the valley floor. About 450 tons of talc per month are currently being produced from the Eureka Mine which may have a 20-year life. The ore body actually belongs to James Nickolaus of Big Pine, California, who has leased it to the Sierra Talc and Clay Company for 20 years. The ore body is a steeply dipping lens or pod enclosed in cherty bedded carbonate rocks which it has replaced. The talc is a pale green massive granular aggregate which is relatively hard in lump form and grinds to a white powder. Although the talc appears to be quite uniform, there are sporadic unreplaced masses composed of quartz and calcite, which are rejected in mining, as well as sporadic fissure veins of calcite in the talc. Because of the topographic position of the deposit, there is very little room for development, and it is doubtful whether additional tonnage could be produced very easily. It now costs $5.25 a ton to truck the ore from the mine to the railhead at Big Pine, California.



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The Oasis Mine is located in the Fish Lake Valley on the Nevada side of the California-Nevada line near the hamlet of Oasis. The Oasis deposit is not being worked at present although some development work is in progress. In the past, only about 250 tons of talc per month were produced from the Oasis Mine and costs were somewhat higher than at the Eureka Mine because the Oasis Mine is farther from the railhead. By comparison with the Eureka talc, the development talc at the Oasis Mine was soft, very white in lump form, somewhat foliated, and fairly slippery to the touch. The talc occurs as a tabular body 15 to 20 feet in width and at least a thousand feet along the strike which has been mined in places to a depth of 100 feet. There is no indication of termination with depth, and it appears likely that the production from this deposit could be increased markedly if there was a demand for this specific talc.

The Sierra Talc and Clay Company has recently acquired a very uniform large deposit of white massive talc which is mineralogically pure. This talc deposit is located in Montana and is known as the Beaverhead. Ground Eureka, Oasis, and Beaverhead talc are sold interchangeably under the trade name of Sierra Supreme 200 which, as Mr. Masci pointed out in his letter of January 24, 1955, is too fine for use in baby talc. The company officials stated that the Beaverhead deposit has the greatest known tonnage of the three deposits, and urged us to visit the property. However, we could not see any justification for going to Montana at that time. Instead, it was requested that a 20- to 30-pound sample of minus 1/2- or 1/4-inch talc from the Eureka deposit, the Oasis deposit, and the Beaverhead deposit be sent to Battelle for laboratory evaluation. Hand specimens were taken at both the Oasis and the Eureka deposits.

Mr. Kempfer stated that, in his opinion, the most interesting talc occurrence from our standpoint is the Doris D. Prospect in the Saline Valley of California. However, this property, the mineral rights to which are owned by the Sierra Talc and Clay Company, is completely undeveloped so that there is no way of obtaining reliable samples or an estimate of the tonnage that might be present.

## Talc Deposits of the Southern California Minerals Company of Los Angeles, California

On November 10, 1955, we met with Mr. A. D. Pyner, Sales Manager of the Southern California Minerals Company, in the Los Angeles office of the company, and made specific inquiries about three talc deposits operated by this company - The Superior, Excelsior, and Calmasil Deposits. Mr. Pyner was somewhat doubtful whether the required tonnage of high-grade talc could be obtained from the Superior Mine. He stated that the Calmasil Deposit is not developed and could not possibly supply the tonnage required until considerably more development work is done. In regard to the Excelsior Deposit, he stated that it was not possible to visit the



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property because it is located at a high elevation on the eastern slope of the Kingston Range and snow had just blocked the access road. In addition, Mr. Pyner said that the talc from the Excelsior Deposit is neither as mineralogically pure nor as white as other California talcs produced by his company, although the talc is foliated. Mr. Pyner then urged us strongly to visit his Company's Stone Creek Mine near Dillon, Montana. The Stone Creek Deposit is the source of the ground talc which is marketed under the designation "Treasure State". Mr. Pyner expressed the opinion that this talc might be suitable for our purposes and that it is available in the required tonnage. However, before our trip to California, the Southern California Minerals Company had sent us a sample of finely ground Stone Creek talc. The petrographic microscope had revealed that this talc is mineralogically very pure, but that it is overground for our purposes and that the particles are exceedingly fine-grained granular aggregates rather than the desired single crystalline platelets. In view of these considerations, it did not seem that a visit to the Stone Creek Mine was justifiable at that time. However, it was requested that a 20 to 30-pound sample of Stone Creek talc with a top size of 1/2 inch be sent to Battelle for petrographic evaluation.

As a result of discussions with Mr. Pyner, it was arranged that C. Joy, Mining Engineer for the Southern California Minerals Company, would conduct us underground at the Superior Mine and several other mines in the vicinity and permit us to take hand samples. We met Mr. Joy in Shoshone, California, on November 17, 1955, and he drove us to the properties in the southern Death Valley region.

The Superior Mine near the Saratoga Spring in the southeastern corner of Death Valley National Monument has been one of the largest and most continuous producers of talc in this area. The talc occurs in the form of two tabular parallel layers which are steeply inclined. The lower layer, known at the property as the "soft talc", is a white schistose talc with fairly good slip. Three levels are currently being worked, and the reserves appear to be very large. Hand samples of the "soft talc" were taken, and arrangements were made to have a 20 to 30-pound sample of 1/2 to 1/4-inch talc from the "soft" layer sent to Battelle.

About 3000 to 4000 tons of talc per year are currently produced at the Acme Mine in the Alexander Hills, southeast of Death Valley National Monument. The talc occurs as a tabular body which is composed of an upper layer of relatively soft white talc that appears to have good slip and a lower layer of relatively hard tremolitic talc. The upper layer of soft talc is about 3 feet thick. The current mining method is to remove the lower portion of the hard talc and leave the upper 2 feet of the hard talc and the upper layer of soft talc in the ground. If a market develops for the soft talc at a higher price than is currently obtained for the hard talc, we were assured that the soft talc layer and the 2 feet of hard talc could be mined as a unit. The hard talc might then be removed by hand picking prior to crushing and



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grinding. Hand specimens of the soft talc were selected for microscopic examination.

The Monarch Deposit in the southeastern part of Death Valley was recently acquired by the Southern California Minerals Company. It was formerly worked for cosmetic-grade talc by the Sierra Talc and Clay Company. The mine is now under development. The talc on the dump was white, soft, foliated, and apparently quite pure mineralogically. In addition, it seemed to have very good slip. The ore exposed in the stopes which are now being opened, however, seemed to be harder and less slippery to the touch although it too was white, foliated, and apparently quite pure mineralogically. The talc occurs as a tabular dipping layer with a thickness of about 6 feet. Hand specimens were selected for laboratory study.

We also stopped at the Saratoga Mine which is located near Saratoga Spring in the southeastern part of Death Valley National Monument. The deposit is not being worked at present, although there has been some production in the past. The Southern California Minerals Company is planning to develop the property. Some of the development talc appeared to be of high quality, and samples were taken for laboratory examination.

## Talc Deposits of the Kennedy Minerals Company of Los Angeles, California

The literature survey had indicated that the Warm Spring Talc Deposit might be a potential source of talc for use in baby-talc preparations, and the most recent published information stated that the owners of the deposit, Miss Louise Grantham and associates, had leased that part of the property which was actively being worked to the Kennedy Minerals Company. Correspondence and a subsequent meeting with Mr. John J. Kennedy, President of the Kennedy Minerals Company, in Los Angeles on November 10, 1955, established that the Kennedy Minerals Company no longer operates the Warm Spring Deposit, although it is still being worked by the Grantham Mines which has the mineral rights. However, Mr. Kennedy urged us to visit his company's Death Valley Mine during the course of our correspondence and subsequently showed us hand samples and a carload of apparently promising talc from this mine when we visited his office and mill in Los Angeles. Accordingly, arrangements were made for us to visit the Death Valley Mine and Mr. Kennedy kindly offered to accompany us not only to the Death Valley Mine, but to the nearby Warm Spring Mine which his company formerly worked. We met Mr. Kennedy at the Furnace Creek Ranch in the Death Valley National Monument and proceeded by truck to the Death Valley Mine.



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The Death Valley Mine is located in Galena Canyon on the eastern slope of the Panamint Range which forms the west wall of Death Valley. There is practically no published information on the talc deposit itself. The deposit was worked for cosmetic-grade talc during the period 1939 to 1943 by the Pomona Tile Company. It lay dormant until about 3 years ago when the Kennedy Minerals Company acquired and reopened the mine because their lease on the Warm Spring Deposit was not renewed. The talc occurs as two parallel dipping layers separated by about 15 to 20 feet of dolomite. The upper layer is composed of a white, foliated, soft, translucent talc with good slip and of apparently high mineralogical purity. This is the layer that was formerly mined for cosmetic-grade talc. It is about 15 feet thick and is very persistent and uniform for at least 1000 feet along the strike and 400 feet down the dip. Mr. Kennedy estimated that there are about 3,000,000 tons of this type of talc indicated by the current workings, and we are inclined to believe that this is a valid estimate. The only impurities in the talc are unreplaced residual masses of dolomite and tabular veinlets of carbonate which cut across the talc. The masses of dolomite can generally be rejected in mining, and Mr. Kennedy stated that a large proportion of the veinlet carbonate can be removed by passing the ore over a 3-inch grizzly and thereby segregating the carbonate in the fines. The lower layer, which was first developed by the Kennedy Minerals Company, is composed of a blocky, relatively hard, tremolitic talc of wall-tile grade. This layer is about 20 feet thick. Current practice is to ship a blend of about two-thirds hard talc from the lower layer and one-third soft talc from the upper layer. This blend is then ground in Los Angeles for use in wall-tile manufacture. It costs about $6.25 per ton to truck talc to the railhead for shipment to the Los Angeles mill. The Death Valley Mine is more highly mechanized than most of the other mines in the region. Mucking machines, slushers, and power tramming are employed. Only four miners working one shift per day are currently removing 1500 tons of talc per month.

Mr. Kennedy assured us that the upper layer of talc at the Death Valley Mine could be mined selectively and production from this layer expanded to meet a requirement of 10,000 tons per year. We found him to be very progressive in his outlook, and he appears to be willing and able to carry out such beneficiation or make such changes in his current grinding procedure as might be needed to produce a ground talc suitable for the Sponsor's purposes. Hand specimens of the upper layer of talc at the Death Valley Mine were taken, and Mr. Kennedy agreed to send us 20 to 30 pounds of both the course and fine products of this talc prepared on a 3-inch grizzly.

During our discussions in his Los Angeles office, Mr. Kennedy told us that about 13 years ago he ran a small flotation pilot plant on talc from the Eclipse Mine which is located in the Ibex Hills at the southern end of Death Valley. The talc from this mine is white and foliated, but it contains 15 to 20 per cent carbonate. The objective of the flotation tests was to produce a froth flotation product of high-grade talc, and Mr. Kennedy stated that he was successful in lowering the carbonate content of the talc



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concentrate to about 2 per cent. He also said that he had submitted a sample of the talc concentrate to Johnson and Johnson and that it had been approved by their laboratory as "acceptable". We obtained a sample of the flotation concentrate from the best pilot-plant run, and arranged to have 20 to 30 pounds of 1/2 to 1/4-inch run-of-mine talc from the Eclipse Deposit shipped to Battelle.

## Talc Deposits of the Grantham Mines of Upland, California

When we arrived in Los Angeles, we contacted Miss Louise Grantham of Grantham Mines and obtained permission to visit the Warm Spring Deposit in Death Valley which is owned by this company. This property is no longer leased to the Kennedy Minerals Company, but is now being operated by the Grantham Mines. The literature survey had indicated that the upper portion of one of the two talc layers which constitute this deposit might be composed of promising material from the standpoint of the Sponsor. Mr. Kennedy, President of the Kennedy Minerals Company, drove us to the Warm Spring Mine on the afternoon of November 16. Mr. James Franklin, Engineer for Grantham Mines, took us underground.

The Warm Spring Deposit is located in Warm Spring Canyon on the eastern slope of the Panamint Range which forms the west wall of Death Valley. In the present workings, the talc occurs as two parallel dipping layers. The lower layer is about 10 feet thick and is made up of white blocky tremolitic talc which has a poor foliation. The upper layer is about 10 feet thick and is composed of two zones - an upper zone of soft, white, foliated talc which is called "gouge" and has a thickness of about 3 feet, and a lower zone of laminated, poorly foliated tremolitic talc which is about 7 feet thick. The "gouge" zone appeared to be of high mineralogical purity and to have good slip. The lower zone of the upper layer was decidedly inferior to the "gouge" but superior for our purposes to the lower layer. At present, the two zones of the upper layer are mined as a unit. However, if necessary, it might be possible to mine the "gouge" zone selectively, although mining costs would then be considerably higher. The Warm Spring Deposit is generally believed to contain the largest reserves of talc in the entire region. How much "gouge"-zone talc is present is not known, but it is probably a significant amount.

The Warm Spring Mine is fairly well mechanized. Six miners are employed, and about 1200 tons of talc per month are hauled by truck from the mine to the railhead. We selected hand specimens from three of the numerous workings in this deposit - Big Talc, Little Riley, and Warm Spring No. 5. Mr. Franklin agreed to send us a 20 to 30-pound sample of the "gouge"-zone talc from the upper layer at a size of 1/2 inch or coarser.



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## Discussions With Dr. Wright of the California Division of Mines

Dr. Lauren Wright, geologist of the California Division of Mines, has published a number of excellent detailed geologic reports on the talc deposits of California during the last 7 years, and his reports were used extensively during our literature survey. When we were in Los Angeles, we paid a brief visit to Dr. Wright's office to obtain his opinions on where we might find the type of talc which would meet our Sponsor's requirements. We were encouraged by the fact that his spontaneous suggestions in large part coincided with our conclusions which were, or course, based on an examination of the literature. He stressed particularly the potentialities of the Warm Spring Deposit.

# RESULTS OF LABORATORY STUDIES

## Methods for Evaluation of Samples of Talc

The hand specimens collected in the field and the 20 to 30-pound samples sent to Battelle by the talc companies were evaluated principally by means of the petrographic microscope. Either part or all of each hand specimen and bulk sample was crushed, ground to pass 65 mesh, and screen sized on standard testing sieves. The resultant sized powders were then examined in polarized transmitted light by standard immersion methods to determine the mineralogical purity of the material and the crystallographic habit of the mineral talc. By crystallographic habit is meant the shape of the individual crystalline units of the mineral talc in the sample, viz., platy or micaceous, granular, and fibrous. In any given sample, the talc may occur in one or more of these three extreme forms or in one or more intermediate varieties of these forms, inasmuch as there is a complete gradation between the extreme shapes. During the course of the microscopic work, it became increasingly apparent that there is another important physical property of the talc particles which is closely related to their crystallographic habit. This property is the state of aggregation of the talc which can be determined microscopically but only by use of polarized-light techniques. By state of aggregation is meant the degree of crystallinity and the arrangement of the crystalline units of the mineral talc which constitutes the particles of a ground talc. For example, talc particles in a given size fraction of a ground talc may be composed of (1) exceedingly minute granular to scaly aggregates of the mineral talc, (2) single crystalline units of the mineral talc, (3) fibrous aggregates of the mineral talc in which the fibers have a preferred orientation, (4) relatively course granular aggregates of the mineral talc, etc. Although there are no direct and constant relationships between the shape of a talc particle, the crystallographic



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habit of the talc, and the state of aggregation of the talc, certain generalizations may be made on the basis of observational data as follows: (1) The platy particles tend to be single crystalline units of talc, (2) the granular particles are commonly composed of exceedingly minute granular aggregates or exceedingly minute scaly aggregates of the mineral talc, and (3) the fibrous particles are usually made up of single crystalline fibers or fibrous aggregates in which the unit fibers have a high degree of orientation. These generalizations provided the basis for the following classification of particles in ground talc which was used throughout this study for the evaluation of talc samples:

I. Particles composed of single crystalline sheets.

II. Particles composed of scaly and/or granular aggregates.

III. Particles composed of single-crystal fibers and/or fibrous aggregates.

This classification, therefore, relates the shape of the talc particles to their internal microstructure inasmuch as Class I particles are dominantly platelets, Class II particles are dominantly granules, and Class III particles are dominantly fibers. Of course, the classification has certain shortcomings. For example, a particle which is composed of fibrous aggregates of talc may be a granule or a fiber depending on the degree of orientation of the unit fibers which constitute the aggregate. Similarly, a particle which is composed of scaly aggregates of talc may be a granule or a platelet depending on the size and number of the unit scales which constitute the aggregate. Nevertheless, this classification has proven to be convenient in actual practice and it is believed to be of significance for the purposes of this study.

Table 1 is a compilation of the basic data on the mineralogical purity and microstructure of all the samples of talc considered in this report. These data were obtained by means of the petrographic microscope. Figure 1 is a graphic representation of the microstructural data shown in Table 1 for those samples of talc which were sized in accord with the particle-size distribution of a sample of Italian talc supplied by Mr. J. N. Masci, Director of the Pharmaceutical Research Section for Johnson and Johnson. The triangular diagram has been divided into several fields whose boundaries are defined as in Table 1. (dominant = >40 per cent; subordinate = 15 to 40 per cent; minor = 5 to 15 per cent.) These fields have been purposely defined in a very general way in keeping with the limited precision of visual estimation under the microscope. The specific location of each of the points on the diagram was arbitrarily chosen to be the geometric center of the field in which the point falls. Note that the particles of Italian talc from Pinerolo consist dominantly of single crystalline sheets and to a minor degree of single-crystal fibers.



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TABLE 1. CRYSTALLOGRAPHIC HABIT AND MINERALOGICAL PURITY OF SELECTED DOMESTIC RAW TALCS AND MILL PRODUCTS

| Ownership and Location | Type of Sample: Bulk | Type of Sample: Hand Specimen | Type of Sample: Mill Product | Crystallographic Habit: Single Crystalline Sheets (Dominantly Platelets) | Crystallographic Habit: Scaly and/or Granular Aggregates (Dominantly Granules) | Crystallographic Habit: Fibrous Aggregates and Single-Crystal Fibers (Dominantly Fibers) | Impurities, Estimated Volume, per cent: Carbonate | Impurities, Estimated Volume, per cent: Tremolite | Impurities, Estimated Volume, per cent: Others |
|---|---|---|---|---|---|---|---|---|---|
| *Societa Talco e Grafite Val Chisone, Pinerolo, Italy Eastern Magnesia Talc Company | Ground talc supplied by Sponsor | | | D | | M | <2 | Trace | Trace of rutile |
| Rousseau Talc Prospect, Vermont — Schistose high-grade talc | | Drill-core specimens | | D | | M | <5 | | |
| Rousseau Talc Prospect, Vermont — Grit material (talc-carbonate mixture) | | Drill-core specimens | | D | | M | Up to 40 | | Iron sulfides |
| Rousseau Talc Prospect, Vermont — Schistose talc from adit | | X | | D | | M | <1 | | |
| Rousseau Talc Prospect, Vermont — Grit from adit | | X | | D | | M | 30 | | Iron sulfides |
| Johnson Mill, Vermont — 4" lumps from feed to Johnson Mill | | X | | D | | M to S | Up to 70 | | |
| Johnson Mill, Vermont — Discharge from Hardinge pebble mill | | | X | D | | S | 20 | | |
| Johnson Mill, Vermont — Fines from first Raymond cyclone separator | | | X | D | | M | ? | | |
| Johnson Mill, Vermont — Coarse product from second Raymond separator | | | X | D | | | 35 | | |
| Johnson Mill, Vermont — Froth flotation product from first cell | | | X | D | M | S | 10 | | |
| Johnson Mill, Vermont — Drier discharge prior to final grinding | | | X | D | M | M | 5 | | |
| Johnson Mill, Vermont — Final product RC-500 | | | X | D | M | M | 5 | | |
| Waterbury Mill, Vermont — Talc of marking-pencil grade | | X | | D | | S | | | |
| Waterbury Mill, Vermont — Greenish-gray foliated talc | | X | | D | | S | | | |
| Waterbury Mill, Vermont — Product FM-21 | | | X | D | | S | 15-20 | | |
| Sierra Talc and Clay Company | | | | | | | | | |
| Sierra Talc and Clay Company — Eureka Mine, California | X | X | | S | D | S | | | |
| Sierra Talc and Clay Company — Oasis Mine, Nevada | X | X | | D | D | | 3 | 5 | Trace of sphene |
| Sierra Talc and Clay Company — Beaverhead Mine, Montana | X | | | M | D | M | | | |
| Southern California Minerals Company | | | | | | | | | |
| Southern California Minerals Company — Superior Mine, California; lower layer | X | X | | M | S | D | 10-15 | | Trace of sphene |
| Southern California Minerals Company — Acme Mine, California; upper layer | | X | | | | D | 10 | 30 | |
| Southern California Minerals Company — Monarch Mine, California | | X | | D | | M | 10 | Trace | |
| Southern California Minerals Company — Saratoga Mine, California | | X | | S | D | M | 20 | | |
| Southern California Minerals Company — Excelsior Mine, California | X | X | | | D | D | 5 | 5 | |
| Southern California Minerals Company — Panamint Mine, California | | X | | | S | D | 1 | 10-15 | |
| Southern California Minerals Company — Stone Creek Mine, Montana | X | | | S | D | | | | About 1% iron oxide |
| Southern California Minerals Company — Death Valley No. 1080 (Panamint Mine talc) | | | X | | S | D | 20 | 15 | About 5% quartz |
| Dillon, Montana No. 1088 (Stone Creek Mine talc) | | | X | S | D | | | | |
| Kennedy Minerals Company | | | | | | | | | |
| Kennedy Minerals Company — Death Valley Mine, California; upper layer, oversize on 3-inch grizzly | X | | | | S | D | 15 | | |
| Kennedy Minerals Company — Death Valley Mine, California; upper layer, undersize on 3-inch grizzly | X | | | | S | D | 20 | | |
| Kennedy Minerals Company — Death Valley Mine, California; lower layer | | X | | | D | | 10 | 40 | |
| Kennedy Minerals Company — Eclipse Mine, California; raw talc | X | | | S | D | S | 30 | | |
| Kennedy Minerals Company — Eclipse Mine, California; talc flotation concentrate | | | Test product | S | D | S | 15 | | |
| Grantham Mines | | | | | | | | | |
| Grantham Mines — Warm Spring Mine, California; upper layer, upper zone of "gouge" | X | X | | D | S | | 7 | | |
| Grantham Mines — Warm Spring Mine, California; upper layer, lower zone | X | X | | S | D | S | 10 | 2 | |
| Grantham Mines — Warm Spring Mine, California; lower layer, Big Talc and Little Riley Workings | | X | | M | D | D | 5-10 | 5 | |
| Grantham Mines — Warm Spring Mine, California; lower layer, No. 5 working | | X | | | S | D | 10-15 | 5 | |
| Stearate Cosmetic Talc, source unknown | X | | | M | D | | 3 | | Trace of rutile |

Note: D = dominant or >40 per cent
S = subordinate or between 15 and 40 per cent
M = minor or between 5 and 15 per cent.
*Included in this table for comparative purposes.



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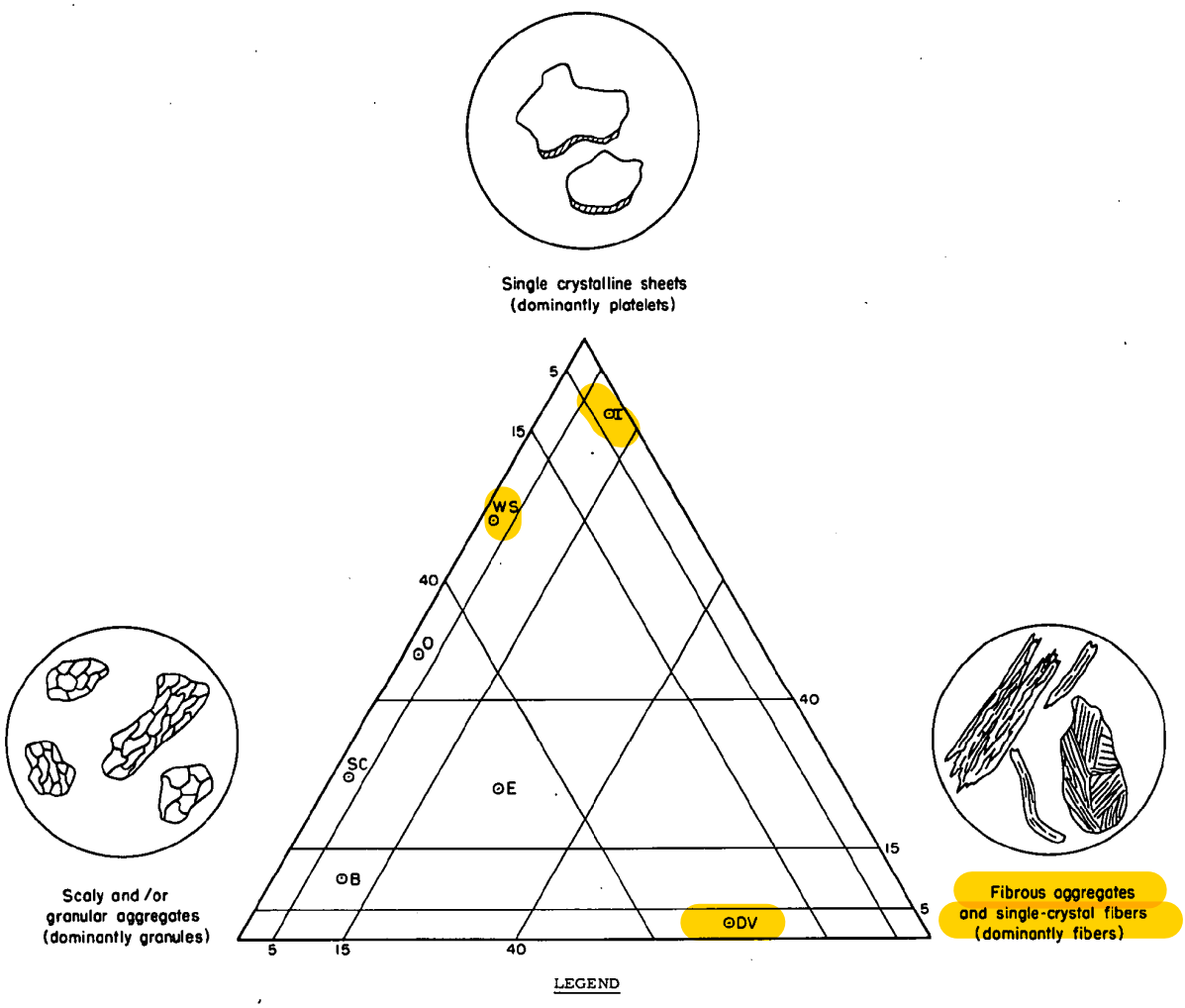


LEGEND

B = Beaverhead Mine, Montana (Sierra Talc and Clay Company); very pure mineralogically

DV = Upper layer, Death Valley Mine, California (Kennedy Minerals Company); oversize on 3-inch grizzly; contains about 15 per cent carbonate

E = Eureka Mine, California (Sierra Talc and Clay Company); mineralogically pure

I = Pinerolo, Italy (Societa Talco e Grafite Val Chisone)

O = Oasis Mine, Nevada (Sierra Talc and Clay Company); contains about 5 per cent tremolite, and about 3 per cent carbonate

SC = Stone Creek Mine, Montana (Southern California Minerals Company); some iron oxide, otherwise mineralogically pure

WS = Gouge Zone of Upper Layer, Warm Spring Mine, California (Grantham Mines); contains about 7 per cent carbonate

FIGURE 1. CRYSTALLOGRAPHIC HABIT AND STATE OF AGGREGATION OF THE MINERAL TALC IN PARTICLES OF THE GROUND RAW TALCS WHICH WERE SIZED
Based on data in Table I.

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The talc samples considered in this report were evaluated with respect to color by visual inspection and comparison with Italian talc. It was found by actual tests that, although a white lump talc will yield a powder which is at least as white, and possible whiter, a dark, off-color, or light green lump talc will give a lighter colored powder or even an acceptable white ground talc. The unacceptable color or a lump talc is, therefore, not necessarily indicative of the color acceptability of its ground equivalent. We have also found by experience that the whiteness of a ground talc is in part a function of the particle size of the material. In general, for a given talc, the whiteness improves with decreasing particle size. Consequently, any evaluation of the relative whiteness of talc should be made on materials of comparable particle-size distribution or on equivalent size fractions of ground talcs.

The lubricity of a ground talc is a function of mineralogical purity, the percentage of the particles that are platelets, and the particle-size distribution. For the proper comparative evaluation of the lubricity of ground talcs, it is essential that they have the same particle-size distribution. Inasmuch as the Italian talc currently used by the Sponsor in baby-talc preparations is satisfactory, the particle-size distribution of the Italian talc has been selected as the standard, and all samples submitted for lubricity tests have been prepared in accordance with this standard. The method by which the particle-size distribution of the Italian talc was determined and the procedure by which other ground talcs were fabricated to simulate the Italian talc with respect to particle-size distribution are discussed in the succeeding sections.

## Procedure for Sizing Italian Talc

For comparative purposes, we requested a sample of Italian talc which is representative of the material currently used in the preparation of Johnson and Johnson's baby talc. On November 3, 1955, we received a 10-pound sample. We first attempted to size the material by air elutriation in a Haultain Infrasizer but were unsuccessful in obtaining either a satisfactory distribution of the weight of the sample through the resultant cone products or closely sized products. However, by washing the talc in ethyl alcohol prior to sizing it in the Infrasizer, the results appeared initially to be much improved, particularly in regard to the weight distribution through the various size fractions. The Infrasizer products showed that about 32 per cent of the Italian talc was finer than 44 microns, but a wet screen analysis of the same material revealed that at least 75 per cent of the talc was finer than 325 mesh (44 microns). This is too great a discrepancy to dismiss by the rationalization that a difference between sizing data based on classification and similar data based on screening is to be anticipated. It was concluded, therefore, that air elutriation is not a reliable method for sizing the Italian talc. This is possibly due (1) to the platy habit of the particles which deviate markedly from the granular or



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roughly equidimensional particles for which elutriation methods are most effective and (2) lack of dispersion of the dry material.

Subsequent experimentation showed that it is more effective to use ethyl alcohol rather than water as a medium when wet screening the Italian talc on a 325-mesh testing sieve. The results of such a wet-screen analysis showed that 76.3 per cent of our sample of Italian talc by weight is finer than 44 microns. When the plus 325-mesh fraction from this wet screen analysis was dried, dry screened at 325 mesh, and the resultant dry minus 325-mesh fraction added to the minus 325-mesh fraction from the initial wet screening, the total minus 325-mesh fraction from the wet and dry screen analysis was 81.7 per cent by weight. Dry screening the Italian talc on a 325-mesh testing sieve revealed that 82.5 per cent of the talc was finer than 44 microns. Therefore, dry screening was considered to be satisfactory for this type of material. A complete dry screen analysis of the Italian talc is as follows:

| Tyler Mesh Size | Weight Per Cent |
|---|---|
| +150 | 0.1 |
| -150+200 | 1.8 |
| -200+270 | 2.1 |
| -270+325 | 13.5 |
| -325 | 82.5 |
| | 100.0 |

Inasmuch as approximately four-fifths of the Italian talc is in the subsieve sizes, it was necessary to devise a procedure for fractionating this portion of the talc. Sedimentation of the minus 325-mesh fraction of the talc in distilled water was found to be successful. No dispersant was required. It was then necessary to make a decision as to the number of sedimentation size fractions to consider in establishing the standard particle-size distribution which would be used in the preparation of other samples of talc. It was reasoned that the subsieve particles with the most influence on the lubricity of a ground talc are those in the extremely fine sizes, and, therefore, that only the minus 15-micron material would be controlled quantitatively. By checking the maximum size of the particles in various sedimentation size fractions, it was found that if the subsieve portion of the Italian talc were settled through a 10-centimeter column of distilled water for 1 hour, the minus 10-micron particles could be removed in the supernatant liquid. Correspondingly, if the same material was settled through a 10-centimeter column of distilled water for 30 minutes, the minus 15-micron particles could be removed in the supernatant liquid. Three sedimentation cycles were generally required for reasonable clarification of the distilled water. Based on these experimental procedures (dry screening and sedimentation in water), the Italian talc was shown to have the following approximate particle-size distribution:



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| Size | Approximate Weight Per Cent |
|---|---|
| -100+200 mesh (Tyler) | 2 |
| -200+325 mesh (Tyler) | 16 |
| -325 mesh (Tyler) + 15 microns | 62 |
| - 15 microns + 10 microns | 9 |
| - 10 microns | 11 |
| | 100 |

This is the standard particle-size distribution which was used in the preparation of the fabricated samples of ground talc to which reference is made in succeeding sections of this report.

## Standardization of Particle-Size Distribution for Samples of Ground Talc

The Sponsor's experience has been that the lubricity of a ground talc is strongly affected by the particle-size distribution. In order to permit the Sponsor to assess at least semiquantitatively the influence of crystallographic habit and state of aggregation of the mineral talc on the lubricity of ground raw talcs, a suite of six samples has been prepared in accordance with the particle-size distribution of the Italian talc which was given in the preceding section. These samples represent talcs which yield white powders when ground, are fairly pure mineralogically, and tonnage-wise are more than mineralogical curiosities. They include the following talcs:

(1) Beaverhead Mine, Montana (Sierra Talc and Clay Company)

(2) Upper Layer, Death Valley Mine, California (Kennedy Minerals Company; oversize on 3-inch grizzly)

(3) Eureka Mine, California (Sierra Talc and Clay Company)

(4) Oasis Mine, Nevada (Sierra Talc and Clay Company)

(5) Stone Creek Mine, Montana (Southern California Minerals Company)

(6) Gouge Zone of Upper Layer, Warm Spring Mine, California (Grantham Mines).



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Basic data on the crystallographic habit and mineralogical purity of these talcs are summarized in Table 1. The relative position of these talcs with respect to the Italian talc insofar as crystallographic habit and state of aggregation of the mineral talc is concerned is shown in Figure 1. We would like to have included a sized sample of the Rousseau talc, which is as platy as the Italian talc, but the drill-core samples on hand do not constitute enough material for this purpose. In addition, because of the high carbonate content, the Rousseau talc should be beneficiated before a fabricated sample of ground talc is prepared.

The flowsheet which was used in the preparation of each of the sized samples is shown in Figure 2.

## Evaluation of Talc Samples

### Raw Talcs and Mill Products of the Eastern Magnesia Talc Company

Rousseau Talc Prospect. The Rousseau Talc deposit is composed of two characteristic types of talc - a greenish white to white schistose talc of relatively high mineralogical purity and a gray material known as "grit" which is a mixture of talc and carbonate. As discussed in a preceding section of this report, the schistose talc forms an envelope of very variable thickness around a central core of grit, and it is very unlikely that the deposit could be mined solely for schistose talc.

All the drill-core specimens and the adit specimen of schistose talc which we selected yield a powder composed of exceptionally platy particles, and, in this respect, the ground schistose talc is comparable with the Italian talc. The schistose talc is uniformly of high mineralogical purity and contains less than 5 per cent carbonate. In fact, some specimens contain less than 1 per cent carbonate. The schistose talc in the adit is somewhat stained with iron oxide, but the schistose talc in the drill-core specimens is free of any discoloration. The ground schistose talc is white by inspection, but it is not quite as white as the Italian talc.

The grit, which constitutes the bulk of the deposit, is composed of a mixture of talc and carbonate. The carbonate content is very variable and ranges from about 10 per cent to about 35 per cent. Optical properties indicate that this carbonate is magnesite ($MgCO_3$) which in places contains iron in solid solution. The grit exposed in the old adit is commonly stained with iron oxide which was probably derived in part from the iron in the magnesite and in part from the oxidation of small grains of iron sulfide that occur in the grit. However, the drill-core specimens of grit are not discolored by iron oxide. The talc in the grit forms exceptionally platy



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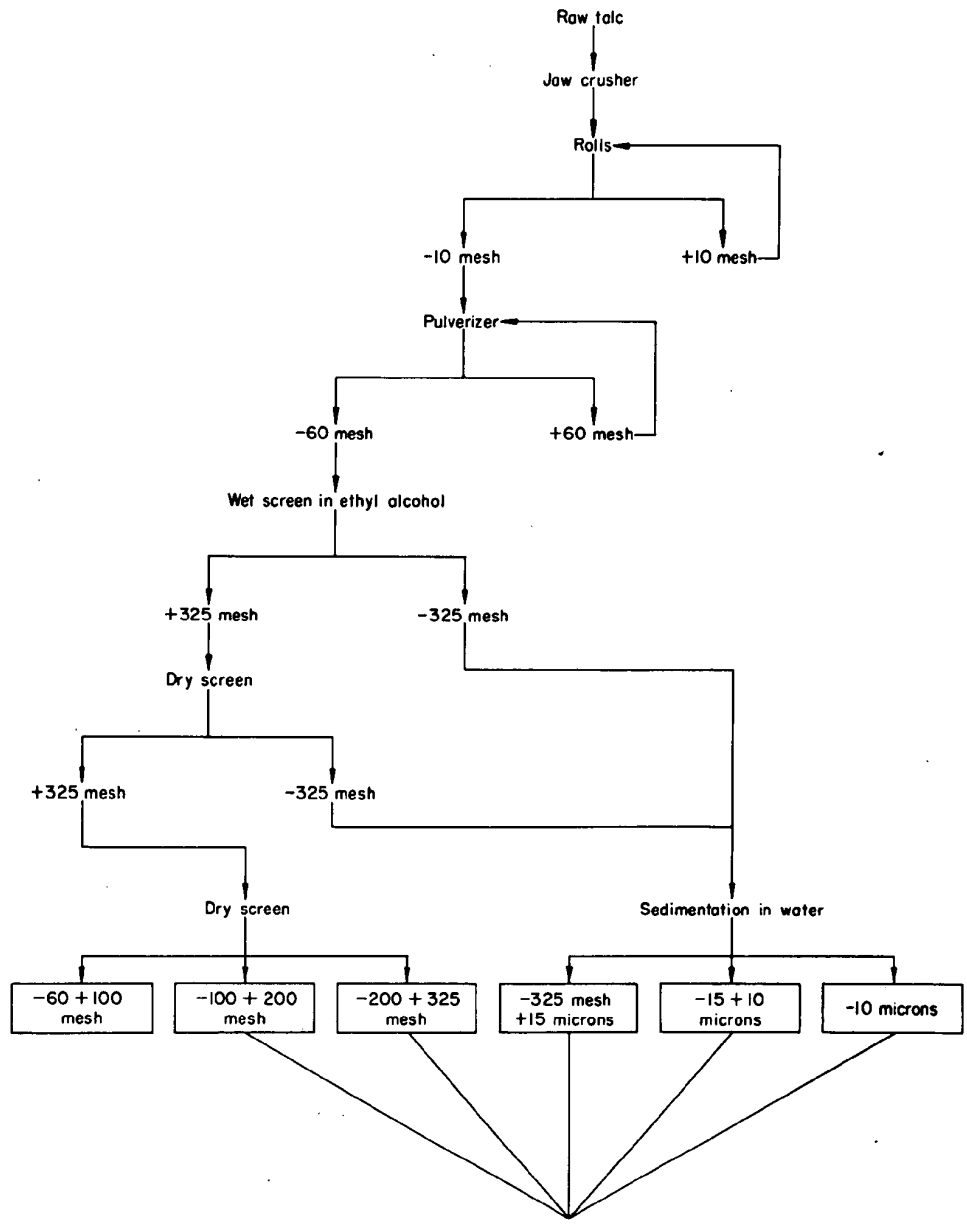


These size fractions combined in accord with particle-size distribution of Italian talc:

| | Size | Weight, per cent |
|---|---|---|
| 100-gram fabricated sample of talc | -100 +200 mesh | 2 |
| | -200 + 325 mesh | 16 |
| | -325 mesh + 15 microns | 62 |
| | -15 + 10 microns | 9 |
| | -10 microns | 11 |
| | | 100 |

FIGURE 2. FLOWSHEET FOR PREPARATION OF FABRICATED TALC SAMPLES

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particles when ground and the crystallographic habit of these talc particles is very comparable with that of the Italian talc. The whiteness of the ground grit is about equivalent to the whiteness of the ground schistose talc.

The Rousseau deposit appears to contain very promising material at least insofar as the crystallographic habit of the talc is concerned. Evidently, only the ground schistose talc, of which there is a limited tonnage, could be used directly for the Sponsor's purposes inasmuch as the bulk of the deposit contains too high a content of carbonate to be acceptable. However, the subsurface data that are available indicate that at least 450,000 tons of the mineral talc are present in the Rousseau Talc Prospect which is, as a result, a potential 45-year supply of talc for Johnson and Johnson based on the current rate of consumption. Consideration should be given, therefore, to the possibility of beneficiating the grit by froth flotation. If the grit is mined, the schistose talc could probably be segregated, ground directly, and combined with the talc flotation concentrate derived from the grit.

The following samples of the Rousseau talc will be sent to the Sponsor:

(1)

| Diamond-Drill Core No. | Footage Along Core | Type of Talc |
|---|---|---|
| 2 | 275 | Schistose |
| 2 | 319 | Schistose |
| 3 | 238 | Grit |
| 3 | 249 | Schistose |
| 8 | 147 | Grit |
| 8 | 198 | Grit |

(2) Diamond-drill core specimen of schistose talc ground to pass 200 mesh (Diamond-Drill Hole No. 2, 256 feet along the core).

Johnson Talc Deposit. As is shown in Table 1, the lump ore from the Johnson Mine and all the products from the Johnson Mill contain very platy talc. The platelets of talc in the Johnson mill products are dominantly single crystalline sheets and are, therefore, very comparable to the Italian talc in regard to crystalline habit and state of aggregation. The RC-500 talc from the Johnson Mill appears to be as white as the Italian talc by inspection with the unaided eye. However, this talc is much too fine (ca. 100 per cent minus 325 mesh) for the purposes of the Sponsor and, in addition, it has a marginal carbonate content of about 5 per cent. On the other hand, the drier discharge from the Johnson Mill has a particle-size consist which is closer to that of the Italian talc (about 3 per cent on 200 mesh) although this product also contains about 5 per cent carbonate and it is not quite as white as the Italian talc. Nevertheless, the talc in the



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drier discharge is particularly platy and may, therefore, be acceptable regardless of whiteness particularly if the carbonate content of the material can be lowered. This might be achieved by improving the flotation procedure currently used in the Johnson Mill or by recleaning the drier discharge in a separate flotation circuit.

Samples of the following products from the Johnson Mill will be sent to the Sponsor:

(1) Discharge from the Hardinge pebble mill.

(2) Drier discharge prior to final grinding.

(3) Final Product RC-500.

Waterbury Talc Deposit. All the samples of talc which were obtained from the feed hopper of the Waterbury Mill yield powders which are composed dominantly of platy particles and subordinately of fibrous particles. The talc particles in the mill products from the Waterbury Mill also have a dominantly platy habit.

The Waterbury talc which is of marking-pencil grade is mineralogically pure but gives a powder with a dirty greenish-gray color and is, therefore, unacceptable.

The greenish-gray foliated talc is also very pure mineralogically and is very white when ground. This material is considered to be a possible source of talc of suitable grade for the Sponsor's purposes. However, as indicated in a preceding section of this report, the tonnage of this material may be limited, and, in addition, its removal from the feed to the Waterbury Mill by hand sorting may have an adverse effect on the marketability of some of the mill products.

Waterbury talc EM-21 is a platy talc but it is offcolor, contains 15 to 20 per cent carbonate, and is overground.

The following samples of Waterbury talc will be sent to the Sponsor:

(1) Hand specimen of the greenish-gray foliated talc.

(2) Sample of greenish-gray foliated talc ground to pass 200 mesh.

(3) Sample of commercial product EM-21.



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## Samples From the Talc Deposits of the Sierra Talc and Clay Company

Eureka Mine, California. Hand specimens from the Eureka Mine and a bulk sample of the Eureka talc were examined petrographically. The particles of the ground Eureka talc are dominantly scaly and/or granular aggregates. This talc is sufficiently pure mineralogically for our purposes and grinds fairly white, but it does not have the large proportion of platy particles which is characteristic of the Italian talc.

A 100-gram sample of the Eureka talc was fabricated in accord with the particle-size distribution of the Italian talc and will be submitted to the Sponsor for test purposes. A hand specimen of the Eureka talc will also be submitted.

Oasis Mine, Nevada. Hand specimens which were selected at the Oasis Mine and a bulk sample of the Oasis talc were evaluated microscopically. The ground Oasis talc is composed of about equal proportions of platy particles which are principally single crystalline sheets and granular particles which are scaly and/or granular aggregates. The ground talc is reasonably white, but it contains about 5 per cent tremolite and about 3 per cent carbonate. Therefore, it is not as mineralogically pure as the Eureka talc, but it contains a much higher proportion of platy particles. Inasmuch as both the Eureka and the Oasis talc are sold under the label "Sierra Supreme 200", it would appear that individual shipments of Sierra Supreme 200 would have variable properties from the standpoint of the Sponsor. However, in view of the relatively high content of platy particles in the ground Oasis talc, this particular deposit may be of potential interest to the Sponsor.

A 100-gram sample of the Oasis talc, fabricated in accord with the particle-size distribution of the Italian talc, and a hand specimen of the Oasis talc will be sent to the Sponsor.

Beaverhead Mine, Montana. The ground bulk sample of Beaverhead talc is composed dominantly of granular particles which are made up of scaly and/or granular aggregates. Although this ground talc is mineralogically pure and quite white, it does not compare favorably with the crystallographic habit of the Italian talc.

A 100-gram fabricated sample of ground Beaverhead talc with the same particle-size distribution as the Italian talc will be sent to the Sponsor.



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## Samples From the Talc Deposits of the Southern California Minerals Company

Superior Mine, California. The lower layer of talc at the Superior Mine is a chalky white slightly foliated talc. When ground, this talc yields a powder composed principally of fibrous particles and subordinately of granular particles made up of scaly and/or granular aggregates. The carbonate content of this talc is approximately 10 to 15 per cent. Because of the lack of platy talc particles and the high content of carbonate, the Superior talc is not of interest for the purposes of this study.

Acme Mine, California. The upper layer of talc in the Acme Mine is very white, soft, and somewhat foliated. Powders prepared from hand specimens of this talc are composed principally of fibrous particles. The ground talc is gritty and this is probably due to the tremolite content of 30 per cent and the carbonate content of 10 per cent. This is evidently not a promising talc for the Sponsor's purposes.

Monarch Mine, California. The talc in the Monarch Mine and on the dump is very white, well foliated, and apparently quite pure mineralogically. Microscopic examination of the ground hand specimens reveals that the particles are dominantly platy, and, in this regard, the ground Monarch talc resembles the Italian talc. However, the carbonate content of this talc is in the order of 10 per cent which makes this talc unsuitable for the Sponsor's purposes unless beneficiation is employed. Nevertheless, the Monarch deposit may be considered as a potential source of acceptable talc concentrates.

Saratoga Mine, California. Hand specimens of the Saratoga talc give a white powder when ground. This ground talc is composed of particles which are dominantly scaly and/or granular aggregates and subordinately platelets. The relatively low proportion of platy particles and the carbonate content of 20 per cent indicate that this talc is of doubtful potentiality.

Excelsior Mine, California. Both hand specimens and a bulk sample of the Excelsior talc indicate that when ground this talc is composed of roughly equal proportions of fibrous and granular particles. The latter particles are composed of scaly and/or granular aggregates of talc. The absence of platy particles and the occurrence of about 5 per cent carbonate and 5 per cent tremolite suggest that this is not a promising source of talc from the standpoint of the Sponsor.



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Panamint Mine, California. The talc in the Panamint deposit is a blocky massive talc which grinds to a white powder composed dominantly of fibrous particles. It contains in the order of 10 to 15 per cent tremolite. This is evidently not an interesting talc for baby-talc preparations.

Prior to our trip to California, the Southern California Minerals Company submitted a sample of ground talc labeled "Death Valley No. 1080" which we subsequently learned was ground talc from the Panamint Mine. This sample was composed principally of fibrous particles and contained about 20 per cent carbonate and 15 per cent tremolite. This material is obviously completely unsuitable for our purposes.

Stone Creek Mine, Montana. A bulk sample of massive, grayish-green granular talc labeled "Treasure State Talc", Stone Creek Mine, Montana, was prepared for microscopic examination. The microscope showed that the particles of talc are composed dominantly of scaly and/or granular aggregates and subordinately of platelets. There are no impurities of significance with the exception of about 1 per cent of particles of limonitic iron oxide. In view of the relatively low content of platy talc particles, this talc deposit does not appear to be of particular interest. However, a sample which has about the same particle-size consist as the Italian talc will be submitted to the Sponsor. A hand specimen of the Stone Creek talc will also be included.

Before we left for California we received from the Southern California Minerals Company a sample of talc labeled, "Dillon, Montana, No. 1088" which, as we subsequently learned, is ground Stone Creek talc. The microscope reveals that this ground sample is equivalent in crystallographic habit and purity to the bulk sample of Stone Creek talc described above.

## Samples From the Talc Deposits of the Kennedy Minerals Company

Death Valley Mine, California. The talc in the Death Valley deposit occurs in the form of two separate mineable layers. The upper layer is composed of a white, translucent, foliated talc which in the field appeared to be particularly promising. However, the microscope reveals that when this talc is ground the resultant powder consists principally of fibrous particles and subordinately of particles made up of scaly and/or granular aggregates. We were told by Mr. Kennedy that if the talc from the upper layer were crushed to about 6 inches and passed over a 3-inch grizzly, the carbonate impurities would segregate in the fines. But we found that the oversize from this separation supplied by the Kennedy Minerals Company still contained 15 per cent carbonate. In view of the crystallographic habit of the particles of Death Valley talc from the upper layer and the high



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carbonate content, it is not likely that this talc could be used in baby-talc preparations.

The lower layer of talc in the Death Valley Mine is not of any interest in this study because of its very high content of tremolite and the absence of platy particles in the ground material.

A hand specimen and a ground 100-gram sample of the upper layer of talc in the Death Valley Mine will be submitted to the Sponsor. The ground sample was prepared in accord with the particle-size distribution of the Italian talc.

Eclipse Mine, California. A bulk sample of raw talc from the Eclipse deposit was sent to Battelle by the Kennedy Minerals Company for microscopic study. The talc is quite white when ground, but it is not of interest from the standpoint of the Sponsor because the talc particles are dominantly composed of scaly and/or granular aggregates, and the ground talc contains about 30 per cent carbonate. Some platy talc particles are present, but they are not sufficiently abundant for this talc to be considered seriously.

Mr. Kennedy gave us a sample of a talc flotation concentrate obtained from a flotation pilot-plant run on ore from the Eclipse Mine. The particles in the flotation concentrate have the same unfavorable crystallographic habit as the particles in the ground raw ore, and the carbonate content of the concentrate is about 15 per cent.

## Samples From the Talc Deposits of the Grantham Mines

Warm Spring Mine, California. The talc in the Warm Spring deposit occurs in the form of two separate, parallel, dipping strata. The upper layer is composed of two zones - an upper foliated portion called "gouge" and a lower poorly foliated laminated portion. Both the ground bulk sample and ground hand specimens from the "gouge" zone contain particles which are made up principally of single crystalline sheets and subordinately of scaly and/or granular aggregates. The carbonate content of the bulk sample is about 7 per cent, but the whiteness of the talc and its abundant platy particles are favorable characteristics. In spite of the expensive mining methods which might be required for selective removal of the "gouge" zone and some uncertainty about the tonnage that might be available, this portion of the Warm Spring talc deposit is worthy of further investigation.

The lower portion of the upper talc layer is not of particular interest because the particles of ground talc are dominantly made up of scaly and/or granular aggregates although some platy particles are present. Insofar as



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the lower layer of talc is concerned, the particles of ground talc are dominantly either fibrous aggregates, single-crystal fibers, or scaly and/or granular aggregates; very little platy talc is present. In addition, the talc of the lower layer contains about 10 per cent carbonate and 5 per cent tremolite.

A 100-gram sample of the "gouge"-zone talc from the upper layer of the Warm Spring deposit was fabricated so that it has the same particle-size distribution as the Italian talc. This sample will be sent to the Sponsor for test work and, in addition, a hand specimen of the "gouge"-zone talc will also be submitted.

Special Sample, Unknown Source. In a letter from Mr. E. J. Ellsworth of Grantham Mines dated December 5, 1955, he informed us that we would receive a small lump sample of talc which should be designated "Grantham Steatite Cosmetic Type" for the present. This talc was apparently not available for inspection or discussion when we were in California. The talc is pale bluish gray but grinds to a white powder. Microscopic examination shows that it is essentially free of tremolite and contains only about 3 per cent carbonate, but the particles which constitute the ground talc are composed principally of scaly and/or granular aggregates and very few platy particles are present. This talc does not appear to be promising with respect to the objectives of this study.

## CONCLUSIONS

The results of the field investigations and the laboratory studies indicate that there are several domestic talc deposits from which ground talc suitable for use in the Sponsor's baby-talc preparations might be obtained. These deposits can be divided into two groups - those which might be sources of acceptable untreated ground talc and those which might be sources of acceptable beneficiated ground talc.

### Possible Domestic Sources of Acceptable Raw Talc

#### Waterbury Deposit, Vermont

A greenish-gray foliated talc from the Waterbury Mine which constitutes part of the feed to the Waterbury Mill has considerable potentiality as a source of acceptable raw ground talc. This talc grinds white, is of acceptable mineralogical purity, and the crystallographic habit of the particles in the ground material is comparable with that of the Italian talc. However, there is some doubt as to whether sufficient tonnage of this type of talc could be produced to meet the Sponsor's needs. In addition, it is



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not known whether the removal of the greenish-gray foliated talc would adversely affect the commercial products currently produced at the Waterbury Mill, and, therefore, whether the Eastern Magnesia Talc Company would be interested in supplying the Sponsor with this particular talc. Nevertheless, at this juncture, it seems most important that the Sponsor evaluate this talc with regard to lubricity and toxicity to determine whether the talc is of further interest.

### Oasis Deposit, Nevada

The Oasis talc is a white talc of high mineralogical purity which, when ground, is composed of about equal proportions of platy and more or less granular particles. However, the ground Oasis talc is not as platy as the Italian talc. The deposit is not being worked at present, although the Sierra Talc and Clay Company is carrying out some development work. There is, therefore, some question as to whether enough talc is present to insure a 10-year supply for the Sponsor, and whether a production schedule to meet the Sponsor's needs could be maintained.

## Possible Domestic Sources of Acceptable Talc Concentrates

### Rousseau Prospect, Vermont

Two types of talc constitute the Rousseau deposit - a schistose talc of acceptable mineralogical purity and a mixture of talc and magnesite known as "grit". Both materials grind to a powder which is intrinsically white, although not as white as the Italian talc, and is composed of platy talc particles. In fact, the crystallographic habit of the talc particles in these ground materials is comparable with that of the Italian talc. Although the ground schistose talc might be acceptable for the Sponsor's use, it is doubtful whether it is economically feasible to mine the deposit solely for this type of talc, and, from the limited subsurface data available, it is questionable whether there is enough of the schistose talc to meet the Sponsor's needs over a 10-year period. On the other hand, the grit, which constitutes the bulk of the deposit, would have to be beneficiated because of the high carbonate content. However, if it were possible to beneficiate the grit and the resultant concentrates were combined with the ground schistose talc which had been mined selectively, the available subsurface and mineralogical data indicate that at least 450,000 tons of platy ground talc could be obtained from the Rousseau deposit. This is enough material to insure a 45-year supply for the Sponsor at the current rate of consumption of about 10,000 tons per year.



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## Johnson Deposit, Vermont

The particles of talc in the ground Johnson ore are dominantly platelets which are single crystalline sheets and, in this regard, the ground Johnson talc is comparable with the Italian talc. The commercial products from the Johnson mill are not suitable for the Sponsor's use because of grade and/or the products are overground. The drier discharge in the Johnson Mill is composed dominantly of platy talc particles and it has a particle-size consist which is closer to that of the Italian talc than the commercial products. However, although this material is intrinsically white, it is not quite as white as the Italian talc. In addition, it contains about 5 per cent carbonate. Nevertheless, the carbonate content might be lowered by improving the flotation procedure currently used in the Johnson Mill or by reflotation of the drier discharge. If the carbonate content of the drier discharge could be lowered to less than 3 per cent, the material might be acceptable because of the high content of platy talc particles.

## Warm Spring Deposit, California

The upper zone of the upper layer of talc in the Warm Spring deposit is known as the "gouge" zone. The talc which constitutes the "gouge"-zone is very white and yields a powder whose particles are dominantly platy. However, the proportion of platy particles in the ground "gouge"-zone talc is not as high as the proportion of platy particles in the Italian talc, and, in addition, the talc has a carbonate content of about 7 per cent which is unacceptable. Physical beneficiation of this talc might be considered, but it would probably not be possible to treat the talc at the property because of the lack of water. In regard to mining, it would, of course, be necessary to mine the "gouge"-zone talc selectively, and, in view of the structure of the deposit, mining costs will be relatively high. Finally, the total amount of "gouge"-zone talc in the Warm Spring deposit appears to be significant by visual inspection, but even a semi-quantitative estimate of the total tonnage of this type of talc in the deposit is not available.

## Monarch Deposit, California

The Monarch deposit contains a white talc which, when ground, yields a powder composed dominantly of platy particles. However, the talc contains approximately 10 per cent carbonate and it would, therefore, have to be beneficiated before it could be considered by the Sponsor. The mine is now being developed by the Southern California Minerals Company but information on tonnage is not available. Beneficiation of the talc at the property is probably not possible because of the lack of water.



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## Final Conclusion for This Investigation

Of all the talc deposits which have been considered in this report, the Rousseau deposit appears to have the greatest potential from the standpoint of the Sponsor. The favorable characteristics of the Rousseau deposit upon which this conclusion is based are as follows:

(1) The Rousseau talc yields platy talc particles when ground.

(2) The ground talc is intrinsically white although it is not quite as white as the Italian talc.

(3) It is anticipated that beneficiated Rousseau talc will have good lubricity because of the platy character of the talc particles.

(4) All the available subsurface data indicate that at least 450,000 tons of the mineral talc are present in the Rousseau deposit - a 45-year supply at the Sponsor's current rate of consumption.

(5) The deposit might be developed exclusively for the Sponsor by the Eastern Magnesia Talc Company inasmuch as the property is currently inactive.

(6) Beneficiation is required, but the deposit is owned by the only talc company in the United States which is actively engaged in beneficiating talc by froth flotation on a commercial scale.

(7) Inasmuch as talc from this deposit is not being mined and milled, the problem of adversely affecting the marketability of some commercial talc products by removing the higher grade material for the Sponsor would not arise.

(8) If the talc from the Rousseau deposit were beneficiated it seems probable that there would not be the problem of disposing of large amounts of talc of inferior grade.

(9) The Rousseau deposit has an excellent location with respect to power, water, and transportation.

(10) Compared with the other talc deposits considered in this report, the Rousseau deposit is in relatively close proximity to the New Brunswick, New Jersey, plant of the Sponsor.

It also appears that the next most promising source of platy ground talc for the Sponsor's purposes is the drier discharge from the Johnson Mill. This conclusion is based on the following factors:



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(1) The material is composed of exceptionally platy talc particles.

(2) The ground material is intrinsically white, although it is not quite as white as the Italian talc.

(3) The material will probably prove to have good lubricity, particularly if the content of carbonate is lowered.

(4) The material will have to be beneficiated but this should not present any particular problem to the Eastern Magnesia Talc Company which currently uses froth flotation in the Johnson Mill.

(5) The material is a product from an operating mill which utilizes ore from a specific deposit whose ore reserves are very large according to the Eastern Magnesia Talc Company.

(6) Inasmuch as the drier discharge is not subjected to further beneficiation but merely reground to yield the commercial product RC-500, there would not be any possibility of adversely affecting the current mill products if some of the drier discharge was removed for the Sponsor.

(7) The Johnson Mill has the advantage of proximity to the New Brunswick, New Jersey, plant of the Sponsor.

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# APPENDIX A

## LIST OF TALC SAMPLES SENT TO SPONSOR UPON COMPLETION OF PROJECT



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# APPENDIX A

## LIST OF TALC SAMPLES SENT TO SPONSOR UPON COMPLETION OF PROJECT

I. Mill Products

A. Johnson Mill of Eastern Magnesia Talc Company

(1) Discharge from Hardinge pebble mill

(2) Drier discharge prior to final grinding

(3) Final product RC-500

B. Waterbury Mill of Eastern Magnesia Talc Company

(1) Final Product EM-21

II. Hand Specimens

(1) Greenish-gray foliated talc from Waterbury Mine, Vermont (Eastern Magnesia Talc Company)

(2) Talc from Eureka Mine, California (Sierra Talc and Clay Company)

(3) Talc from Oasis Mine, Nevada (Sierra Talc and Clay Company)

(4) Talc from Stone Creek Mine, Montana (Southern California Minerals Company)

(5) Talc from Upper Layer, Death Valley Mine, California (Kennedy Minerals Company)

(6) Talc from Gouge Zone of Upper Layer, Warm Spring Mine, California (Grantham Mines)

III. Ground Talc Samples Fabricated in Accordance With the Standard Particle-Size Distribution of the Italian Talc as Utilized by the the Sponsor in Baby-Talc Preparations

(1) Beaverhead Mine, Montana (Sierra Talc and Clay Company)

(2) Upper Layer, Oversize on 3-inch Grizzly, Death Valley Mine, California (Kennedy Minerals Company)

(3) Eureka Mine, California (Sierra Talc and Clay Company)



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(4) Oasis Mine, Nevada (Sierra Talc and Clay Company)

(5) Stone Creek Mine, California (Southern California Minerals Company)

(6) Gouge Zone of Upper Layer, Warm Spring Mine, California (Grantham Mines).

IV. Drill-Core Specimens From Rousseau Talc Prospect of Eastern Magnesia Talc Company

| Diamond-Drill Hole No. | Footage Along Core | Type |
|---|---|---|
| 2 | 275 | Schistose |
| 2 | 319 | Schistose |
| 3 | 238 | Grit |
| 3 | 249 | Schistose |
| 8 | 147 | Grit |
| 8 | 198 | Grit |

V. Ground Talcs

(1) Greenish-gray foliated talc from Waterbury Mine of Eastern Magnesia Talc Company (ground to pass 200 mesh)

(2) Diamond-drill core specimen of schistose talc from Rousseau Talc Prospect of Eastern Magnesia Talc Company. (Diamond-drill core specimen from Hole No. 2 about 275 feet along the core, ground to pass 200 mesh.)


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# APPENDIX B

## ACQUISITION AND PREPARATION OF SAMPLES OF PYROPHYLLITE FOR EVALUATION BY THE SPONSOR



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# APPENDIX B

## ACQUISITION AND PREPARATION OF SAMPLES OF PYROPHYLLITE FOR EVALUATION BY THE SPONSOR

In the Battelle Summary Report of May 11, 1955, it was suggested that consideration be given to the possible utilization of the mineral pyrophyllite as a substitute for talc in baby-talc preparations. Pyrophyllite has certain apparently favorable physical and chemical characteristics for this purpose such as softness, whiteness, platy habit, chemical stability, and chemical inertness. In addition, the availability of commercial quantities of platy pyrophyllite of fairly high mineralogical purity in this country and the relatively low unit cost of domestic platy pyrophyllite compared with the unit cost of the Italian talc currently used by the Sponsor are also attractive features.

It is of interest to review briefly the current status of platy pyrophyllite with respect to availability. Pyrophyllite has always been a desirable but relatively scarce raw material for ceramic use. The major production in the United States is from North Carolina where two companies, R. T. Vanderbilt Company and American Encaustic Tiling Company, own and operate all the producing mines through subsidiaries. A small amount of pyrophyllite is produced in California. The white low-iron pyrophyllite which is a premium material with respect to ceramic use must yield a powder with granular or roughly equidimensional particles when ground. The foliated white low-iron low-alkali pyrophyllite which yields micaceous or platy particles when ground is not particularly desirable for ceramic purposes, although it is used in the manufacture of refractories. In fact, at least one of the companies which has deposits of white foliated pyrophyllite is interested at present in developing new uses for this material. The current price per ton of foliated white pyrophyllite is far below the price per ton which the Sponsor pays for Italian talc. It appears, therefore, that if platy pyrophyllite proves to be satisfactory for the Sponsor's purposes, an agreement of mutual advantage in regard to the supply of this material might be made between the Sponsor and the producers.

Four 20-pound samples of white platy pyrophyllite from North Carolina were obtained through the courtesy of Mr. J. A. Slyh, Technical Director of the American Encaustic Tiling Company. Two of the samples were designated "G-473-P-16" and "G-474-P-140" and represented "Glendon" pyrophyllite ground to pass 16 mesh and 140 mesh, respectively. The other two samples were labeled "GW-475-P-16" and "GW-476-P-200" and represented "Hi - Al" pyrophyllite ground to pass 16 mesh and 200 mesh, respectively. Chemical analyses of these pyrophyllites furnished by Mr. S. G. Wiseman, Chief Chemist for the Glendon Pyrophyllite Company of Greensboro, North Carolina, are as follows:



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| | Glendon Pyrophyllite Assay, per cent | Hi - Al Pyrophyllite Assay, per cent |
|---|---|---|
| $SiO_2$ | 75.0 | 67.5 |
| $Al_2O_3$ | 20.0 | 25.0 |
| $Fe_2O_3$ | 1.1 | 0.6 |
| CaO | 0.1 | 0.1 |
| $K_2O$ | — | 0.7 |
| $Na_2O$ | 0.1 | 1.2 |
| L.O.I. | 3.7 | 4.8 |
| | 100.0 | 99.9 |

According to Mr. Wiseman, these samples represent, with the exception of GW-475-P-16, commercial grades and grinds of pyrophyllite which are produced regularly. As far as we know, no beneficiation is employed.

A petrographic examination was made of both the Glendon and the Hi - Al samples to determine the crystallographic habit of the pyrophyllite and the kind and amount of mineralogical impurities. The Glendon pyrophyllite is composed of exceptionally platy particles. In fact, it appears to contain a higher proportion of platy particles than the Italian talc. However, the Glendon pyrophyllite contains about 25 per cent quartz as well as minor amounts of chloritoid, rutile, and opaque matter which is probably iron oxide. The rutile occurs as discrete prisms and minute inclusions in some of the pyrophyllite platelets; the opaque matter occurs mainly as fine dust in some of the pyrophyllite platelets. In view of the high quartz content, it is evident that the untreated Glendon pyrophyllite is unacceptable for the Sponsor's purposes. However, the apparent absence of physical locking between the pyrophyllite and the quartz indicates that it might be possible to produce a relatively pure platy pyrophyllite concentrate by a physical-beneficiation process such as flotation or air classification.

The particles of the ground Hi - Al pyrophyllite are dominantly platy and subordinately fibrous. This pyrophyllite appears to be almost as platy as the Italian talc, but it is not as platy as the Glendon pyrophyllite. The principal impurity in the Hi - Al pyrophyllite is quartz which occurs in the amount of about 8 per cent. Minor impurities include chloritoid, rutile which occurs as minute twinned crystals enclosed in some of the platelets of pyrophyllite, tourmaline, and fine opaque dust enclosed in some of the platelets of pyrophyllite. It is doubtful whether the ground untreated Hi - Al pyrophyllite is suitable for use in baby talc because of the high quartz content. However, it might be possible to beneficiate this material inasmuch as the quartz and pyrophyllite do not appear to be physically locked with each other.

Both the Glendon and the Hi - Al pyrophyllite contain excessive amounts of quartz which is a deleterious constituent from the standpoint of this investigation. If preliminary tests indicate that platy pyrophyllite shows



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some promise as a substitute for talc in baby-talc preparations, it would be desirable to beneficiate samples of both the Glendon and the Hi - Al pyrophyllite and to subject the pyrophyllite concentrates to a much more extensive test program.

One-hundred gram samples of the Glendon pyrophyllite and the Hi - Al pyrophyllite were prepared so that each sample has the same particle-size consist as the Italian talc. These samples will be submitted to the Sponsor for evaluation in his laboratories. The samples were fabricated by the same procedure involving wet and dry screening and sedimentation which was used in the preparation of the special 100-gram talc samples (see Figure 2).



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# EXHIBIT 4

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Webber Environmental Health Consulting, LLC
DOB-11: J&J Cosmetic Talc Report

June 10, 2021

Dean, Omar, & Branham, LLP
302 Market St., Suite 300
Dallas, Texas 75202

Attn: Mark Buha, Esq.

## I. Introduction

Mark Buha, Esq., asked me to write a report concerning the problem of asbestos-containing cosmetic talc from the perspective of an environmental health scientist. This report discusses health issues related to asbestos in cosmetic talc and then presents a history and evaluation of the development and use of analytical methods for asbestos in talc. I have drawn on documents provided by Mr. Buha as well as on publications in the scientific literature and elsewhere.

## II. Background

I obtained a Bachelor of Science degree from Wheaton College in 1971, a Master of Science degree in Zoology from Michigan State University in 1974, and a Ph.D. from the School of Public Health at the State University of New York at Albany in 1999. The Ph.D. was based on my dissertation *A Paleolimnological Reconstruction of Airborne Asbestos Concentrations in the Fibrous-Talc Region of St. Lawrence County, New York, from 1872 to 1998*, upon which was conferred the Distinguished Dissertation Award by the School of Public Health.

In 1979, after four years of working in the private sector as an environmental biologist, I was hired as a Research Scientist by the New York State Department of Health (NYSDOH) to start its Asbestos Laboratory. My primary responsibility during my early years with the NYSDOH was development of analytical procedures for routine and non-routine analyses of environmental samples for asbestos. I instituted quality-assurance procedures to optimize analytical precision and accuracy and to ensure comprehensive documentation. I was the first to synthesize weight-formulated bulk samples for quality-control testing, a procedure that was later utilized at the U.S. federal level. I developed the stratified point-count method that retains accuracy of the EPA point-count method at the critical low concentrations yet can yield more than a ten-fold reduction in analytical effort. I supervised the analyses of thousands of samples received for asbestos analysis by polarized-light microscopy with dispersion staining (PLM-DS), transmission electron microscopy (TEM), and phase-contrast light microscopy (PCM). In the mid-1980s my duties expanded to include development of an asbestos laboratory accreditation program for incorporation into NYSDOH's Environmental Laboratory Approval Program (ELAP). Here I evaluated and defined analytical procedures mandated for use in ELAP and

inaugurated a proficiency-testing (PT) program for determining the analytical quality of more than one hundred asbestos laboratories around the United States. I administered the formulation and distribution of tens of thousands of PT samples for analysis by PLM, PCM, and TEM. For this PT program and for asbestos research, I designed an aerosol generator that simultaneously produces homogeneous fiber loadings on more than 100 filter-loaded cassettes. Overall, the asbestos portion of ELAP became the world's most comprehensive asbestos accreditation program.

I assisted in the development of criteria for federal accreditation of asbestos laboratories during my appointment by the National Institute of Standards and Technology (NIST) to its Asbestos Criteria and Operations Review Committee. As an independent Technical Expert for NIST, I have performed onsite assessments of more than 150 different TEM/PLM laboratories in the United States, Canada, Korea, and Japan.

I was Peer Review Group Leader for the review of both the EPA's Draft Final Report *Comparison of the Alternative Asbestos Control Method and the NESHAP Method for Demolition of Asbestos-Containing Buildings* (2005) and the EPA's *Final Report on the World Trade Center (WTC) Dust Screening Study* (2008). As an appointee to the EPA Science Advisory Board Asbestos Committee, I have critically reviewed the EPA's *Proposed Approach for Estimation of Bin-specific Cancer Potency Factors for Inhalation Exposure to Asbestos* in 2008 and I reviewed and helped revise the EPA's draft *Toxicological Review of Libby Amphibole Asbestos* in 2012.

I was invited in 2009 by the National Institute for Occupational Safety and Health (NIOSH) to Washington, D.C, where I made a presentation on improvements to the NIOSH *Roadmap on Asbestos.*

I chaired ASTM International Committee D22, *Air Quality*, starting in 2008, for the full six years allowed by term limits. This committee is composed of approximately 450 members from 14 countries who write consensus standards for sampling and analysis of air. I have been an active participant of its Subcommittee D22.07, *Sampling and Analysis of Asbestos*, since 1994. I am a Fellow of ASTM International, having received its Award of Merit in 2010. In 2013 I received the Moyer D. Thomas Award, the highest conferred by Committee D22.

I am the Head of Delegation for the United States Technical Advisory Group to the International Standards Organization Technical Committee 146, *Air Quality*, and have been active in both of its subcommittees that deal with asbestos. In 2016 I became Chair of Subcommittee 3, which includes the asbestos working group for ambient air.

In 2011, I was appointed as a member to the newly formed US Pharmacopeia Talc Expert Panel which is evaluating analytical methods best suited for detection of asbestos in talc. I was re-appointed to this panel in 2016.

I co-chaired the 2002, 2005, 2008, 2011, 2014, and 2017 ASTM International Johnson Asbestos Conferences. These week-long conferences are consistently the largest asbestos conferences in the world, drawing approximately 200 attendees from more than a dozen countries. I also co-chaired the first three ASTM International Beard Asbestos Conferences in 2010, 2013, and 2016. I was session chair of the World Asbestos Conference held in 2009 in Italy and was a keynote speaker at the Third Asian Asbestos Initiative in South Korea in 2011.

I have presented papers at more than 50 conferences and have authored more than two dozen peer-reviewed papers.

I provided the first measurements of increases of environmental airborne asbestos concentrations in the 20th century by using a combination of paleolimnology, TEM, and atmospheric modeling. This study detected a significant increase in airborne anthophyllite asbestos concentrations starting in the early 1900s in an upstate New York locale. These concentrations were statistically correlated to increased mining and milling of asbestos-containing talc ore upwind of the study site.

My collaboration with the University of Montana produced the first evidence of asbestos contamination on tree bark (up to 240 million fibers per square centimeter) from trees near the Libby Montana vermiculite mine. We have demonstrated that this tree-bark contamination can create elevated exposure to Libby amphibole asbestos fibers during certain activities. We developed an elutriation method to separate respirable (inhalable) asbestos fibers for realistic evaluation of Libby amphibole asbestos fibers on lung cells. For methods developed to detect asbestos in vermiculite attic insulation, I was an attendee and contributor at the original 2003 EPA meeting in Covington, Kentucky and then served on the follow-up 2004 EPA panel in Alexandria, Virginia. I remain an active contributor in the development of a more reliable TEM method for detection of Libby asbestos. The "New York Minute Method", created when I supervised the NYSDOH laboratory, is the basis for developing ASTM Committee D22.07's WK 28537 Collaboration New Standard "Asbestos Fiber Presence in Vermiculite as Determined by Transmission Electron Microscopy Direct Transfer (TEM)." I have shown through a pilot paleolimnological investigation near Libby that environmental airborne asbestos concentrations were higher during the period of the Libby mine operation than before or after.

In 2001, I was appointed Assistant Professor in the School of Public Health at the State University of New York at Albany and was re-appointed as Adjunct Associate Professor after my retirement from the NYSDOH and subsequent move to downstate New York in 2012. I discontinued my appointment when I moved to Bend, Oregon in 2016. I have served on five Ph.D. committees.

The experience outlined above demonstrates that while my expertise is focused on analytical challenges, my perspective is that of an environmental health scientist. My duties at the NYSDOH required that I be cognizant of the role of public health in determining analytical protocols for the measurement of asbestos in the environment. My doctoral education comprised epidemiology and

toxicology in addition to environmental chemistry and microscopy. As a professor, these viewpoints are pivotal in discussing public health issues with graduate students. Toxicology and statistical modeling were emphasized during my tenure on the EPA Science Advisory Board's evaluation of the impact of Libby amphibole asbestos fibers on public health.

I have appeared once as an expert witness for the Department of Justice in a laboratory fraud case and have appeared before juries in eight civil cases for plaintiffs.

A copy of my curriculum vitae is attached as Appendix A.

My billing fee is $500 per hour. Opinions expressed in this report are based on my education, training, and experience as an environmental health scientist, upon my review of the analytical data and documents related to this subject, and upon my review of the pertinent scientific literature. I reserve the right to revise this report and any opinions as additional documents, publications, and/or testimony become available.

## III. Asbestos and Its Analysis

### III.A. Definitions and Terminology

“Asbestos” is a term that lacks mineralogical precision (NIOSH 2011), with many definitions. In general, asbestos is a commercial term applied to hydroxylated silicate minerals that form in a fibrous morphology in nature. Commercially valuable asbestos is typified by long flexible fibers that have great tensile strength and resistance to chemical and thermal decomposition. The U.S. federal government in the early 1970’s defined asbestos as six minerals: chrysotile (fibrous serpentine), amosite (fibrous cummingtonite-grunerite), crocidolite (fibrous riebeckite), fibrous anthophyllite, fibrous actinolite, and fibrous tremolite. In the decades that have passed since those initial promulgations of asbestos, studies have shown that a revision of the definitions is needed to consider other fibrous minerals that have produced negative health effects (NIOSH 2011).

Case et al. (2011) provide a helpful summary: “The inadequate and incomplete definition of “asbestos” has resulted, as noted by an IARC Consensus panel, in “taxonomic confusion and lack of standardized operating definitions for fibers.” “‘Asbestos’ is often inappropriately used as a generic, homogeneous rubric, and even when an asbestos fiber type is specified, its source is rarely stated” (Kane et al., 1996). Mineral fibers, which are grouped under the rubric, have been divided in many ways, but two are most common: regulatory definitions and mineralogical definitions. Regrettably, neither of these definitions corresponds to the common understanding of what “asbestos” is to most observers, and to some degree, these two approaches sometimes contradict one another.”

### III.B. Analytical Methods

X-ray diffraction (XRD) determines the crystalline structure of minerals by measuring the diffraction angles of an x-ray beam that has passed through the mineral. This method yields weight percentages of different minerals, typically with a detection limit between 0.1% and 1%. While it can identify amphibole

minerals, it cannot determine if the mineral identified is fibrous or not. Hence XRD alone is not reliable for asbestos detection or identification.

Infrared spectroscopy (IR) determines a molecule's identity by the absorption of specific wavelengths of the infrared spectrum as the infrared light passes through a material. IR is not very sensitive and, like XRD, cannot determine if molecules detected are fibrous or not. Hence it is not a reliable method for asbestos identification.

Phase-contrast microscopy (PCM) has been used for more than a half century to count airborne fibers in areas suspected to contain asbestos. PCM is operated at a magnification of 400X, where fibers longer than 5 micrometers and with aspect ratios greater than 3 are counted. PCM provides a quick analysis and has data extending back a half century. However, there are serious shortcomings with PCM. It cannot positively identify asbestos because it cannot determine all critical optical properties, it cannot resolve fibers thinner than approximately 0.2 micrometer, and it ignores fibers shorter than 5 micrometers.

Polarized-light microscopy with dispersion staining (PLM-DS) is typically used to identify asbestos in bulk materials such as fireproofing. When an asbestos type is mounted in a matching refractive-index liquid, the critical optical properties of that type of asbestos can be determined. These include morphology, refractive indices parallel and perpendicular to the fiber length, birefringence, sign of elongation, and extinction angle. PLM analysis typically permits quick turnaround, is inexpensive, and has good sensitivity at the EPA federal action level of 1%. However, it cannot resolve and identify fibers much narrower than 1 micrometer, it is imprecise at concentrations near the federal action limit of 1%, and it tends to be subjective in its quantitation. Point counting has typically been more precise and accurate than equivalent visual-estimation methods (Webber et al., 1990a; Webber et al., 1997).

Characterization of morphology is controversial, however, even in EPA protocols. The only promulgated EPA method (EPA 1982) for bulk sample identification describes asbestos fibers as those that have aspect ratios (length divided by width) greater than 3:1Analysis of asbestos by PLM-DS is limited by its resolution, not allowing positive identification of fibers much narrower than 1 micrometer. This limits the reliability of PLM-DS in detecting asbestos at trace concentrations.

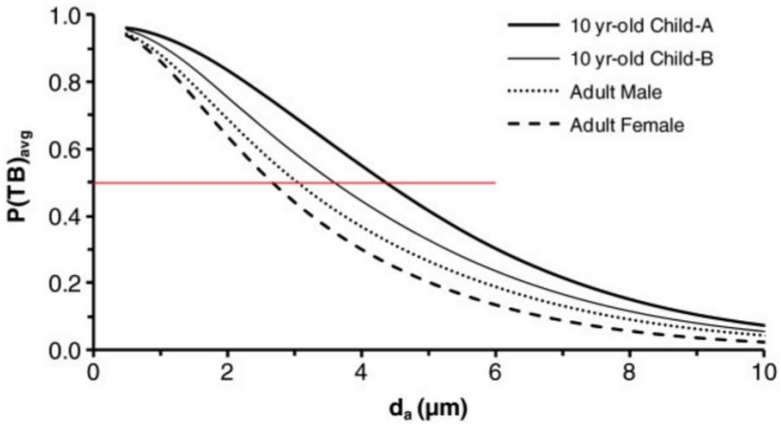
Transmission electron microscopy (TEM) is used to analyze asbestos in air, water, and bulk materials. TEM can resolve even the thinnest asbestos fiber (<0.02 micrometer), can determine chemical composition with energy-dispersive x-ray spectroscopy (EDX), and can determine crystal structure with selected-area electron diffraction (SAED). The disadvantage of TEM is its small subsample size. In the past few decades, as emphasis has shifted from characterizing commercially valuable asbestos ores to evaluating asbestos hazards in the air, analytical focus has shifted toward TEM because of its ability to detect and identify the thinnest fibers.

Because TEM is typically used for identification of single fibers or bundles, analytical protocols rely on aspect ratios of either 3:1 or 5:1 rather than fiber population characteristics used for commercial asbestos. Only TEM can detect and identify the thin asbestos fibers that are the greatest health hazard and as such, it is the necessary final step to confirm the absence of asbestos. Finally, TEM analysis produces fiber counts, the only relevant metric for health consideration. Percent weight can be calculated from TEM data, but weight is never used for calculation of risk and can be deceptive, as described later in this document.

By the 1970's, TEM was already established as a reliable method for asbestos identification. McCrone Associates, the laboratory selected by several cosmetic talc producers to analyze their products (as discussed below), was already using TEM for definitive asbestos analysis. An article by McCrone and Stewart (1974) describes the advantages of TEM for asbestos analysis and states that the TEM "only recently installed in our laboratory will undoubtedly be the ideal instrument for the detection and identification of very fine asbestos fibers

## IV. The Importance of Fiber Dimensions

A human lung has approximately 480 million alveoli, each with a diameter of about 0.1 mm (Ochs et al., 2004). Exchange of gases (oxygen and carbon dioxide) takes place on the 80 square meters of cumulative surface area of these alveoli. To prevent this critical area from becoming clogged, the upper respiratory gauntlet intercepts particles on a mucociliary escalator, which then carries the particles for ejection through the pharynx into the esophagus. Fifty percent of particles with aerodynamic diameters of 2.5 micrometer can evade the upper respiratory gauntlet and reach the deep lungs of adults (Figure 1). Within the lungs, white blood cells, about 10 micrometers in size, can engulf the small particles and remove them from the lung.




**Respirable fraction, i.e., particle penetration through the tracheobronchial region, $P(TB)_{avg}$, in adults and a 10 yr-old child.** Data are daily averaged values for a median activity level, gradual augmenter breathing habit, and uncorrected for particle inhalability. Child-A and child-B are for a scaling factor of 1.0 and 1.26 in Equations 2 and 3, respectively. Horizontal red line highlights 50% penetration which occurs at 2.7 µm (adult female), 3.1 µm (adult male), 3.6 µm (child-B), and 4.4 µm (child-A).

*Figure 1 Respirable size fractions (from Brown et al. 2013).*

Elongated minerals such as asbestos are often able to evade the upper respiratory gauntlet despite lengths far in excess of 2.5 micrometer. That is because the aerodynamic diameter of a fiber is determined largely by its diameter, not by its length. For example, an anthophyllite (density of 3 g/cm$^3$) fiber that is 5 micrometers by 0.55 micrometer has the same 2.5 micrometer aerodynamic diameter as an anthophyllite fiber that is 1,000 micrometers by 0.45 micrometer. In other words, it's equivalent to a fiber that is 200 times longer though only 10% thinner. Thus, extremely long but thin silicate fibers can reach the alveoli. Their lengths make it difficult or impossible for white blood cells to remove them. Silicate fibers are not dissolved by the body fluids and can remain in the lungs for decades. While in the lungs and surrounding tissues, these fibers can cause disease through many modes of action, e.g., by creating free radicals, by acting as mediators for carcinogens, by interfering with cell division, or by irritating the pleural lining.

The specific role of fiber length in causing asbestos-related diseases is still being debated. Stanton et al. (1981) reported that long and thin asbestos fibers were the most "pathogenetically active" in animal studies. However, they also cautioned "…but relatively high correlations were also noted with fibers in other size categories having diameters up to 1.5 micrometer and lengths greater than 4 micrometer." Subsequent studies have shown that most fiber lengths can be factors in promoting disease. Kane (1991) concluded that, "both long and short crocidolite asbestos fibers are toxic." Suzuki et al. (2005) measured thousands of asbestos fibers in fibrotic serosa and mesotheliomatous tissue and reported that 89.4 percent were shorter than 5 micrometers. They concluded that "it is not prudent to take the position that short asbestos fibers convey little risk of disease." Dodson et al. (2003) reviewed animal and human literature related to fiber length and concluded that "asbestos fibers of all lengths induce pathological responses." In a recent re-analysis of the extensive rodent studies performed decades ago, Cook et al. (2016) looked at TEM-measured fiber dimensions to evaluate mesothelioma potency. They report that potency only disappears when fiber aspect ratios fell below 8 and that the best-fit models for potency include the abundant short fibers.

While fiber length remains a debated factor in disease causation, the case for fiber width is clearer. Width is the primary determinant of a fiber's aerodynamic diameter and thus its likelihood to penetrate to the alveoli; fibers with large aerodynamic diameters are usually not involved in development of thoracic diseases because they are trapped and removed by the upper respiratory mucociliary escalator, as discussed earlier. However, while Figure 1 shows that a particle with an aerodynamic diameter of 2.5 micrometer has a 50% chance of reaching the lung, this figure also reveals that 10% of particles with aerodynamic diameters of 7 micrometer will also reach the adult lung. From the equations presented in Webber et al. (2008), we can calculate that this would be a fiber that has a diameter of approximately 2 micrometers.

Cleavage fragments are individual particles that result from crushing a rock, usually along cleavage planes. Cleavage fragments tend to become wider as

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they get longer (Siegrist and Wylie, 1980). When amphibole rocks are crushed, a few cleavage fragments may have dimensions that overlap those of asbestos fibers. Harper et al. (2008) have shown that cleavage fragments are generally wider than 1 micrometer. Nonetheless, amphibole cleavage fragments that have widths thinner than 0.5 micrometer have a 50% chance of reaching the lungs while those with widths thinner than 2 micrometers have a 10% chance of reaching the lungs, as discussed above.

I have detected “cleavage fragments”, often in concentrations exceeding 10%, in all the amphibole asbestos reference materials that I have evaluated. This would include crocidolite (NIST SRM 1866 and UICC), amosite (NIST SRM 1866 and UICC), anthophyllite (NIST SRM 1867 and UICC), tremolite (NIST SRM 1867), and actinolite (NIST SRM 1867). “Cleavage fragments” were also abundant in anthophyllite asbestos and tremolite asbestos that I have collected at former mining sites in Finland, Montana, California, and North Carolina. Often, individual rocks from the mines would contain particulate assemblages ranging from long, thin fibers to shorter and thicker fibers. Hence co-occurrence of commercial asbestos fibers and shorter, thicker asbestos fibers is not uncommon.

When the federal government named the regulated asbestos types in the early 1970s, all fibers (L > 5 µm; aspect ratio >3, and parallel sides) that were one of the six minerals were recognized as asbestos for air monitoring purposes. These were the fibers that formed the basis for risk assessment for diseases from airborne asbestos exposure.

Early on, there was support for the OSHA definition of asbestos from at least one of the talc companies. In a February 9, 1976 letter (Bates Number PFA_FINC_00006664) to OSHA, Pfizer concedes that “There has been considerable confusion as to the nature and form of asbestos fiber, particularly for purposes of compliance with the OSHA Standard.” Pfizer later concludes, “The proposed definition of asbestos “fiber” – to include a maximum diameter of 5 micrometers, a minimum length of 5 micrometers, and a length-to-diameter ratio of at least 3 to 1 – is sufficiently specific and unambiguous to permit general agreement as to the presence or absence of the target substance. It also appropriately reflects, in our opinion, the more important health aspects of the definition, as noted in the preamble at page 47658, rather than a more mineralogical definition. We therefore endorse the definitions of “asbestos” and “asbestos fiber” in their present form.

Nonetheless, the talc industry pushed back against the original definition of asbestos, working to narrow the types and morphologies of fibers of that would be counted and reported from talc samples. The classification of “cleavage fragments” for fibers that would otherwise be identified as “asbestos” using the promulgated 1982 EPA PLM method became a common practice for the industry starting in the 1980s. Under industry pressure, OSHA in 1992 removed “nonasbestiform” anthophyllite, tremolite, and actinolite (ATA) from its classification of “asbestos”. This was despite the NIOSH position stated in the new regulation, “NIOSH concludes for regulatory purposes that cleavage fragments of the appropriate aspect ratio and length from the nonasbestiform

minerals should be considered as hazardous as fibers from the asbestiform minerals." OSHA discussed the term "asbestiform", but in the end provided no regulatory definition, only "The term asbestiform is a mineralogical term used to refer to those minerals which are found in a particular mineral habit." Two decades later, NIOSH (2011) stated ""Asbestos" and "asbestiform" are two commonly used terms that lack mineralogical precision." With no ensuing guidance from OSHA on how to determine if a fiber is "asbestiform", OSHA's 1992 removal of "nonasbestiform" fibers has changed nothing analytically – PCM methods that monitor for risk analysis still include all fibers that have aspect ratios greater than 3:1.

The talc industry has argued that the non-promulgated 1993 EPA "Method for the Determination of Asbestos in Bulk Building Materials" is appropriate for analyzing talc samples. The 1993 method generally looks for asbestos fiber populations with aspect ratios exceeding 20:1 and this, of course, substantially reduces the number of asbestos fibers identified and reported. The shortcoming in this argument is that the 1993 method was developed for "Bulk Building Materials" to which commercial asbestos was added at concentrations greater than 1%. The 1993 method is thus an inappropriate methodology for talc samples which have had no commercial asbestos added and have asbestos concentrations that are typically orders of magnitude below 1%. A person's application of cosmetic talc usually involves liberation of talc dust within a person's breathing zone, which means that asbestos concentrations that are orders of magnitude less than 1% can still liberate millions of asbestos fibers per gram of talc. Thus, applying the more restrictive definitions and criteria favorable to the talc industry are inconsistent with long-accepted methods and departs from risk considerations, the purpose for monitoring asbestos.

Interestingly, "Johnson & Johnson Baby Products Test Method T.M. 7024 B: Analysis of Powdered Talc for Asbestiform Minerals by Transmission Electron Microscopy" counts all asbestos fibers with aspect ratios exceeding 3:1, an implicit acceptance that fibers with aspect ratios larger than 3:1 are "asbestiform."

Once in the lungs, cleavage fragments almost certainly present risks similar to asbestos fibers of the same dimension because of their identical chemical composition and their biodurability. Surface charge of fibers, considered one probable variable in the induction of pathogenetic responses, is the same for cleavage fragments and "asbestiform" fibers of the same dimensions (Schiller, 1980). In fact, "For regulatory and health assessment purposes ... there is no evidence that potentially affected cells can distinguish between 'asbestiform' and 'non-asbestiform' fibers having equivalent dimensions" (Case et al., 2011).

The United States EPA (US EPA 2006) supports this view: "For the purposes of public health assessment and protection, EPA makes no distinction between fibers and cleavage fragments of comparable chemical composition, size, and shape. The EPA Region 9 approach, which is supported by most public health agencies and scientists, as well as the American Thoracic Society, is based on the following: (1) The epidemiologic and health studies underlying EPA and Cal/EPA cancer risk assessment methods were based on exposures to both

cleavage fragments and fibers, and were unable to distinguish between the two, (2) The most recent panel of experts to review asbestos risk assessment methods, the 2003 Peer Consultation Panel convened by EPA, concluded that "it is prudent at this time to conclude equivalent potency [of cleavage fragments and fibers] for cancer,"[2] (3) No well-designed animal or epidemiological studies have adequately tested the hypothesis that cleavage fragments with the same dimensions as a fiber are benign or that the human body makes any distinction, (4) Studies that purport to show that cleavage fragments are benign are questioned by many asbestos health experts, (5) There are no routine asbestos air analytical methods, including those used by EPA, NIOSH, the Mine Safety and Health Administration (MSHA), the American Society for Testing and Materials (ASTM), and ISO which differentiate between cleavage fragments and crystalline fibers on an individual fiber basis."

The French Agency for Food, Environmental and Occupational Health & Safety (ANSES 2015) takes the same position on the hazard of cleavage fragments: "In the light of the epidemiological studies, it is not possible to rule out a risk to health linked to exposure to cleavage fragments from the non-asbestiform species of the five regulated amphiboles;" and "There are currently no validated scientific toxicological data to confirm that cleavage fragments with the dimensional criteria laid down by the WHO for "fibre" (L > 5 µm; D < 3 µm and L:D > 3:1) are less toxic than their asbestiform counterparts."

The Finnish Institute of Occupational Health likewise supports this definition (Kahkonen, 2019): "An **asbestos fibre** is a fibre consisting of asbestos. Its length-to-thickness ratio is at the minimum 3:1. Asbestos fibres with a thickness of 3 micrometres or less and a length of 5 micrometres or more cause a risk of cancer and pulmonary diseases when inhaled, regardless of whether they have been formed as a result of a geological process metamorphism or in an industrial process, such as in mining operations [my underlining]. When assessing an employee's exposure to asbestos, only the asbestos fibres that meet the above-mentioned fibre size criteria are taken into account." This clearly follows the conclusion that it's the fiber's dimensions, not the formation process, that determines if it's asbestos.

Thus, I conclude that there are two general categories of "asbestos". The first is "commercial asbestos", which has industrially important characteristics such as flexibility and high tensile strength. The second is "regulated asbestos" which includes "commercial asbestos" but also comprises mineral fibers that have the characteristics of a WHO fiber, i.e., (L > 5 µm; D < 3 µm and L:D > 3:1). These would include "cleavage fragments" that exhibit these dimensions. This is the historical fiber population that has been used to calculate risks associated with inhalation exposure to asbestos and is consistent with the "mineralogical" and "regulatory" definitions of Case et al. (2011) discussed earlier.

The extremely small dimensions of respirable asbestos fibers are weighed in picograms (one millionth of one gram). A single chrysotile asbestos fiber that is 0.05 micrometer in diameter and 5 micrometer long would weigh 0.03 picograms.

Hence a talc powder that contained 0.00001% chrysotile by weight could contain as many as 3 million respirable chrysotile asbestos fibers.

A 10/29/73 Johns-Manville Report 414-3 starts “The FDA reportedly planned publication of a Good Manufacturing Practices (GMP) regulation which would limit chrysotile and tremolite asbestos fibers to specified numbers in talc for food, pharmaceutical, and food contact uses...Subsequent discussion with FDA officials established that the GMP limits would be 100 fibers of chrysotile and/or 1,000 fibers of tremolite per milligram (mg) of talc.” This would be 100,000 fibers per gram of chrysotile and/or 1,000,000 fibers per gram of tremolite. This fiber metric eventually disappeared as the talc industry lobbied for its own methods and weight-based metrics, as discussed later in this report.

Rohl (1974) warned about the impropriety of a weight-based metric (see discussion later in report) and its relevance became obvious in an expert report published two years ago. MVA Report 11730 (8/1/17) shows results of analysis of samples collected recently from the Fontane talc mines of Italy. Eleven of thirteen samples were positive for tremolite asbestos, with concentrations ranging from 0.0002% to 0.68% asbestos by weight. Most notably, these deceptively low weight percentages were from samples ranging from 1.5 *million* to 660 *million* fibers per gram.

The evidence is clear, as will be presented below, that many cosmetic talc sources and products contained asbestos for a long period of time. When asbestos was detected, reports emphasized the small weight percentages of asbestos. Weight percentage, however, is irrelevant in that the most hazardous fibers are those with the narrowest diameter, making them virtually weightless. This has been clearly demonstrated with vermiculite, which is similar to talc in that both are silicate sheet minerals that are mined and beneficiated for commercial sale and may contain asbestos.

A CDC Workplace and Safety and Health Fact Sheet, NIOSH Publication Number 2003-141 starts with "Vermiculite is a mineral that expands when rapidly heated. Expanded vermiculite is used in construction and consumer materials (e.g., loose-fill insulation, acoustic finishes, spray-on insulation, and concrete mixes for swimming pools), agricultural and horticultural products (e.g., potting mixes and soil conditioners).." The Fact Sheet later warns " Bulk sampling is reliable only when over 1% of the material is asbestos. *Negative results* from bulk samples *can therefore be falsely reassuring* when less than 1% of the sample is asbestos. However, disturbing vermiculite with less than 1% asbestos can still result in hazardous concentrations of airborne asbestos fibers." (emphasis added). Accordingly, this is consistent with the findings below that vermiculite which has very low asbestos concentrations by weight can still liberate millions of fibers into the air.

A September 27, 1982 MRI Final Report to EPA on Task 32 "Collection, Analysis and Characterization of Vermiculite Samples for Fiber Content and Asbestos Contamination" presents analytical data from Dr. Eric Chatfield and Dr. George Yamate. The major fibers identified in the study by optical microscopy were

"amphiboles of the tremolite/actinolite series". Optical microscope and XRD results for fibrous Tremolite-Actinolite in Libby Grace Grade 4 vermiculite (the Grace grade of Libby vermiculite used by Scotts in its Turf Builder products) were 0.3% to 1% by weight. TEM results revealed millions of asbestiform amphibole fibers per gram of exfoliated vermiculite. The average "Fibers/g" for Grade 4 is 2.5 million fibers per gram. If we accept Dr. Julie Yang's determination of 34.71% vermiculite in Turf Builder, the 2.5 million fibers/g extrapolates to twenty billion asbestiform amphibole fibers in a 50-pound bag of Turf Builder - an enormous number of fibers. "The results suggest that there are more asbestiform fibers associated with the smaller size grades of vermiculite than with the larger grades." Accordingly, these lines of evidence point to the insignificance of weight in characterizing asbestos content in a product.

The EPA's Office of Toxic Substances published "Exposure Assessment for Asbestos-Contaminated Vermiculite" (EPA 560/5-85-013) in 1985. Its Executive Summary states that "Over 74 million persons use lawn and garden fertilizers each year. If the fertilizer is vermiculite-based, estimated exposure levels of 4.4 $\mu g/m^3$ and 28 $\mu g/m^3$ could result from lawn treatment and gardening, respectively." Although 4.4 $\mu g/m^3$ seems like an insignificant airborne weight, it has potential for liberating enormous fiber numbers. If we take a typical PCM-resolvable amphibole fiber, say 0.5 micrometer wide by 5 micrometer long with a density of 3 pg/micrometer$^3$, we calculate a weight of 3.75 pg. If we convert units using one million pg per µg and one million $cm^3$ per $m^3$, we find that 4.4 $\mu g/m^3$ is equal to 4.4 $pg/cm^3$. Hence actual fiber concentration would be (4.4 pg/ $cm^3$ divided by 3.75 pg/fiber) 1.2 fibers/ $cm^3$. Working with what we (Webber *et al.,* 2008) found to be an average respirable Libby amphibole fiber width of 0.19 micrometer and a minimum PCM length of 5 micrometer, we calculate an individual fiber weight of 0.54 pg. This would generate more than 8 fibers/$cm^3$ from a concentration of 4.4 $\mu g/m^3$ - a significant fiber release.

A December 20, 2001 EPA Memorandum from Dr. Christopher P. Weiss, EPA Senior Toxicologist to Paul Peronard, EPA Libby On-Scene Coordinator "presents the rationale for determination of imminent and substantial endangerment to public health from asbestos contamination in various types of source materials at residential and commercial areas in and around the community of Libby, Montana." Rototilling a Libby garden produced personal exposures of 0.227 fibers/$cm^3$ (PCM) and 0.066 fibers/$cm^3$ (PCMe) and stationary airborne fiber concentrations of 0.020 fibers/$cm^3$ (PCM) and 0.019 fibers/$cm^3$ (PCMe). Dr. Weiss goes on to say "Some release might occur through processes such as wind erosion, but human disturbances are likely to be of greater concern, especially under conditions when the soil is dry. This might include walking or playing in sparsely vegetated areas, or disturbances of the soil from mechanical devices such as bikes, lawn mowers, etc. This conclusion is strongly supported by the study of Addison (1995) who generated airborne dusts from a series of soils with varying levels of asbestos contaminations. The study concluded that **'even the lowest bulk amphibole concentration tested (0.001%) was still capable of producing measurable airborne asbestos concentrations (greater than 0.01 fibers $ml^{-1}$)'."** This supports the studies and

calculations that I discussed earlier in my report: even miniscule weights of asbestos in vermiculite and its products can produce large concentrations of airborne asbestos fibers that are hazardous to health.

Further on in his report, Dr. Weiss states "It is important to recognize that occupational exposure standards for asbestos are not generally applicable or protective for residents or workers in non-asbestos environments because occupational standards are intended to protect individuals who a) are fully aware of the hazards of the occupational environment, b) have specific training and access to protective equipment such as respirators and/or protective clothing and, c) actively participate in medical monitoring (USEPA 1995). None of these conditions apply to residents or to workers at typical commercial establishments. *Thus, simple compliance with the OSHA standards is not evidence that exposure levels are acceptable in a home or in a non-asbestos workplace.* Indeed, risks to residents or workers occur at exposure levels substantially below the OSHA workplace standards..." (emphasis added). This provides clear evidence that regulatory limits (OSHA standards) in effect for workplaces are not protective against hazardous exposures by non-workers in other environments.

EPA's "Sampling and Analysis of Consumer Garden Products that Contain Vermiculite" (EPA 744-R-00-010) in 2000 reports that analysis of a Zonolite Chemical Packaging Vermiculite produced "Trace" asbestos by PLM and 0.10% to 2.79% by TEM. The investigators took this product, mixed it 50/50 with peat moss, and collected air samples while the mixture was poured out of a flower pot into a large tub and back again. This activity, meant to simulate working with a vermiculite-amended potting soil containing minor asbestos contamination, produced overloaded filters that required indirect preparations for TEM analysis. AHERA (Asbestos Hazard Emergency Response Act of 1987) concentrations were 0.564 structures/$cm^3$and 0.847 structures/$cm^3$while NIOSH 7402 results ranged from 0.080 structures/$cm^3$ to 0.380 structures/$cm^3$. Accordingly, this reaffirms that routine handling of vermiculite with seemingly low levels of asbestos contamination can produce large concentrations of airborne asbestos.

These examples of government concern over low levels of asbestos contamination in vermiculite indicate that the same concern must be extended to talc. In fact, given the application method most commonly used for talc, i.e., daily or routine sprinkling on the body from the container, the concern is likely exacerbated. The user's intentional release of milligrams of fine powder creates a cloud of dust that is typically close to the breathing zone. This releasability and frequency of use probably creates a greater potential hazard to consumers than most typical uses of vermiculite. The release of airborne asbestos into the breathing zone of users of some cosmetic talcs was demonstrated by Gordon et al. (2014).

## V. Detection of Asbestos in Talc Ores and Consumer Talc Products

One of the early indications of asbestos in cosmetic talc can be gleaned from TABLE I in Schulz and Williams (1942) paper on commercial talcs in animal studies. Five "Talcum powder" samples are listed with serpentine concentrations

ranging from 14 to 49%, with one sample containing a trace of tremolite. Cralley (1968) published a paper in the American Industrial Hygiene Association Journal reporting the presence of mineral fibers in 22 over-the-counter talc products, ranging in concentration from 8% to 30%. XRD analysis of the talcs revealed most fibers to be fibrous talc, but tremolite, anthophyllite, and chrysotile were also detected. "The electron microscope…shows a number of submicron diameter particulates not visible by means of phase contrast microscopy." A follow-up study by NIOSH in 1973 revealed that Johnson & Johnson Baby Powder, which had a fiber concentration of 18,000 fibers/mg (18 million fibers/g), yielded airborne fiber concentrations of 2.2 fibers/cm$^3$ to a mother and 1.8 fibers/cm$^3$ to a baby during a 15-second dusting of powder (Bates Number JNJ000231304).

"Geology and Genesis of the Talc Deposits in the Pinerolese" (Peretti, 1966) reports that this Italian talc contained "accessory minerals … at times diffused over considerable volumes" including "amphiboles of the tremolite-actinolite series". Some inclusions in the talc were "tremolite-actinolite", with "tremolite"…"terminating sometimes in clumps of rigid bundles of "asbestoid fibers."

In 1972, ES Laboratories reported that 1615 talc contained 1% chrysotile and that 4615 talc contained 3% chrysotile and 3% anthophyllite. An August 23, 1973 report by Johns-Manville on TEM analysis of commercial talcs reported that four of fourteen talcs "contain chrysotile believed to be part of the mineralogical system and another five had chrysotile content to be 1000 ppm or less. Only five samples did not have detectable chrysotile. Pages from the laboratory notebook of Pasquales from March 7, 1976 show that Old Regal NC talc tested positive for tremolite, New Montana talc tested positive for anthophyllite and tremolite, and Italian talc tested positive for tremolite. A report of the Cosmetic Toiletry and Fragrance Association (CTFA) Talc Subcommittee dated December 10, 1973, disclosed that optical microscope analyses of talcs from Italian, Montana I & II, Alabama, Vermont, and North Carolina had failed the proposed Federal Drug Administration's (FDA) method because of elevated chrysotile concentrations (Bates Number JNJ000334281).

Dr. Lewin of New York University disclosed twice in 1972 that asbestos had been found in talc. In a report to the FDA on August 3, 1972, he reported that of 102 "standard, commercial products containing talc", "20 had small but definite percentages of tremolite, 7 had small percentages of chrysotile, 9 had small percentages of both tremolite and chrysotile, and 7 had substantial percentages of one of both of these asbestiform minerals." XRD had been used as the first step in analysis and the presence of asbestiform mineral(s) "was verified by the use of optical microscopy to disclose the presence of significant numbers of fiber particles." A March 12, 1976 Johnson & Johnson memo (Bates Number JNJ000247039) states, "Our semi-quantitative analyses for amphibole mineral agreed, in general, with those reported by Dr. Lewin, although we emphasized that asbestiform amphibole was detected by J&J in only one sample." In a July

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31, 1973 review of Dr. Lewin's testing of 195 talc samples, the FDA found "good semi-quantitative agreement" for tremolite on selected samples re-analyzed using optical microscope analysis by FDA and XRD by Pfizer. Agreement was not as good for chrysotile, but the review did warn that optical microscopy could "completely miss the presence of chrysotile if the fibers are submicroscopic, which may well be the case in finely-milled talc;"

Rohl (1974) warned that XRD and optical microscopy may not reveal the presence of asbestos in consumer talc. Working with fiber sizes determined by TEM, he calculated that even at the 0.25% DL for XRD, a mg of talc would contain a billion chrysotile fibers. "Thus, very large numbers of asbestos fibers may be present in talc end products, yet they remain undetected if only optical microscopy and x-ray diffraction are used." More explicitly, he warns, "Cosmetic talcum powder, for example, which had been step-scanned and chrysotile not found might contain billions of fibers released during dusting with a half-gram dose." Rohl and Langer (1974) published a paper that recommended an initial analysis of talc by step-scan x-ray diffraction *and* TEM-SAED to avoid the possibility of false negatives.

Rohl et al. (1976) analyzed twenty consumer talc products for asbestos using XRD, TEM-SAED, scanning electron microscopy (SEM)-EDX, and optical microscopy. Ten of the products contained "detectable amounts of tremolite and anthophyllite, primarily asbestiform" ranging from tenths of a percent to over 14 percent by weight. Two products contained detectable amounts of chrysotile asbestos fibers. Their observations of very thin fibers led them to quote from a report by other investigators that "our observations by transmission electron microscopy have shown that *naturally occurring asbestiform minerals often lie below the working resolution capabilities of the light microscope…"* which "…require the high resolution capability of the transmission electron microscope (emphasis added)."

Thus, it was clear that tremolite, anthophyllite, and chrysotile asbestos had been detected by XRD, optical microscopy, and TEM-SAED in several talc ores and talc products. It was also evident that XRD had poor sensitivity and was unable to differentiate massive minerals from their fibrous counterparts. Finally, it was obvious was that even optical microscopy was not able to resolve and detect the thin fibers that were of most concern from a health perspective.

## VI. The Cosmetic-Talc Industry's Role in Efforts by the Federal Drug Administration to Develop a Method for Detecting Asbestos in Talc

In response to these findings of asbestos in talc, the FDA on July 19, 1971 reported its intention to develop a method for detecting asbestos in talc. "FDA's BuFoods will seek aid from experts in the microscope field to determine how talc should be tested for asbestos, and how valid the Mt. Sinai MD's methodology was." A later FDA letter (Bates Number JNJ000258912) to the CTFA on September 3, 1973 states that "conventional methods employing x-ray diffraction

or differential thermal analysis are not sufficiently reliable to produce quantitative results of the desired precision." and then went on to say that the FDA "has been exploring refractory optical microscopy as a means of measuring asbestos in talc."

### VI.A. The Talc Industry Ignored its Own Data

In its response to the "Final Report of the CTFA Talc Subcommittee", American Cyanamid Company on March 6, 1974 (Bates Number JNJ000267856) ended with "It is quite obvious, from the disparity of results obtained in the round-robin trial, that the test, as presently designed, is not practical. Of the seven alternatives suggested, No. 1, (Modified Optical Method) still seems to offer the best chance of successful application by the industry." Notes of the CTFA Talc Subcommittee meeting on August 14, 1974 (Bates Number JNJ000308104) reported that a talc sample containing 0.75% tremolite failed using the XRD method. Furthermore, "Dr. Rolle stated that the FDA resurrected the optical microscopic method in May and requested samples to be run by J & J and McCrone, both of whom came up with results similar to those obtained in our "round robin" evaluation in 1973." There are no further records of such a re-analysis.

Minutes of the CTFA Talc Subcommittee on February 4, 1975 (Bates Number JNJ00030821) stated "It was agreed, however, that chrysotile is never found in cosmetic talcs, based on numerous analyses by several investigators. The only discoverer of chrysotile in cosmetic talcs has been Professor Lewin, and his results have been refuted in a repeat testing by John Stuart at FDA." When referring to the challenge of chrysotile detection, an article "Talc" in the January/March 1976 *CTFA Cosmetic Journal*, states that "The only known backup method for a positive identification in this event, is transmission electron microscopy with selected area diffraction." However, "despite many efforts, the committee had been unable to find a sample of cosmetic talc containing naturally occurring asbestos … it was asked, "Why should we test for chrysotile if there isn't any?" Notes from an interview with the Washington Post on March 25, 1976 reveal a Johnson & Johnson representative stating "Talcs, cosmetic talcs, do not contain chrysotile asbestos. These anti-chrysotile arguments ignored the December 10, 1973 CTFA report (Bates Number JNJ000334281) that showed that several laboratories had reported chrysotile asbestos in many of the talc samples sent out by CTFA for evaluation of analytical methods and ignored the February 11, 1974 McCrone report (Bates Number JNJ000687198) to Johnson & Johnson finding chrysotile (<0.005%).

Minutes of the March 11, 1976 CTFA Talc Task Force meeting (Bates Number JNJ000254100) contained a table which revealed that three of five non-detects (ND) for tremolite by "LEWIN X-RAY" yielded from 2,000 to 9,000 fibers per mg by optical microscopy. This converts to two million to nine million fibers per gram. This provides more evidence that XRD is not sensitive enough for detecting asbestos in talc.

## VI.B. The Talc Industry Disregarded the Best Available Technology

The Chair of the CTFA Talc Subcommittee on December 10, 1973 in a review of seven alternate methods (Bates Number JNJ000334281) stated that TEM-SAED "appears to offer the best, most reliable method and is probably capable of detecting chrysotile and tremolite (fibrous), both at a level of 0.1%." But he then dismissed it as too expensive and impractical for the small manufacturer. The CTFA special committee for detection of asbestos in talc offered as a method in February, 1974 (Bates Number JNJ000231701) "T.E.M. alone at the 0.1% limit." A February 22, 1974 report of the CTFA Talc Sub-Committee (Bates Number JNJ000258014) discussed various analytical methods. "The Pfizer method for chrysotile in talc utilizing TEM and SAED was presented in detail by Mr. Stanley. Chrysotile is estimated easily at 0.1% by weight." Ian Stewart of McCrone also supported TEM-SAED, stating that McCrone's TEM method was "sensitive to well below the 0.1% level for chrysotile." The report summarizes that TEM would be used in round-robin studies, with chrysotile spiked at the 0.1% level. If chrysotile is at the 0.1% level or higher, talc fails." At a meeting on December 4, 1974, the CTFA Talc Subcommittee (Bates Number JNJ000308049) reported on the "theoretically" satisfactory TEM procedure, but contended that "Its ultra sensitivity could be a problem." Minutes of the March 11, 1976 CTFA Talc Task Force meeting suggested that "TEM be used on those samples that have been shown to be positive by CTFA methodology and also be performed on a random basis on other samples."

## VI.C. The Talc Industry Was Obstructive to the Federal Drug Administration and Regulatory Efforts

The FDA was aware of pushback from the talc industry. The FDA stated in a July 31, 1973 memo that it had chosen Dr. Lewin because he was internationally recognized in mineralogical chemistry, because his position as an academic made him "likely to be impartial in a confrontation between industry and government", and because industry's use of him as a consultant "appeared to confer a desirable immunity against possible industry attacks on the validity of the results." A Johnson & Johnson November 29, 1972 (Bates Number JNJ000299086) substantiates that concern. Twice the term "attack on talc" is used in a list of "Antagonistic Personalities" such as Dr. Selikoff (Mt. Sinai Hospital), Dr. Langer (Mt. Sinai Hospital), Dr. Weissler (FDA), and Dr. Lewin (New York University). An FDA memo dated March 18, 1976 provides further evidence of the FDA's unease with the direction of the CTFA. Dr. Eiermann of the FDA is critical of several of the talc company's efforts for monitoring asbestos in talc. For example, Colgate-Palmolive's "analytical effort is very small" in light of its large production. Three samples of its products were analyzed by McCrone with XRD/OM/TEM and "found to contain chrysotile up to 100 ppm which Colgate-Palmolive claims to be "possible background contamination". Concerning Whittaker, Clark & Daniels, "perhaps the most important supplier of talcs", Mr. Eiermann expressed concern "about their limited effort to control the

quality of their cosmetic talcs…" Their "assurance might be misleading and give the talc industry the false impression that WC&D talcs are adequately tested for asbestos." Coty, Faberge, and Sterling Drugs are also criticized. "In summary, though the submission by the CTFA Talc Subcommittee looks impressive at first hand, it does not offer much assurance that cosmetic talcs are adequately tested for asbestos."

The FDA's disquiet with the CTFA was justified. A report by two FDA scientists visiting the Mt. Sinai laboratory on March 22, 1976 stated that "Dr. Langer was somewhat disgusted by the talc industry's attitude. He said the results of his work had been known to the industry for several years but nothing was done until the analytical results became public."

In an internal 3/17/1976 City University of New York letter, Dr. Langer warns his superior, Dean Chalmers, that Dr. Pooley withdrew a scheduled paper on talc characteristics two days before a conference because "He was subjected to personal and professional pressures and industry harassment."

The CTFA responded (Bates Number JNJ000307817) to the FDA's public notice on its proposed optical microscopy method on December 26, 1973. The CTFA contended that the proposed method was not "reliable" for the detection of asbestos in talc, recommended a "collaborative effort between FDA and industry to develop such a method", and urged deferment of the proposed promulgation. Minutes of the CTFA Talc Subcommittee meeting on March March 15, 1976 at FDA (Bates Number JNJ000254111) reports that FDA's "Dr. Shaffner suggested the possibility of having industry report periodically on the results of its analysis to the FDA." Dr. Estrin of the CTFA responded that "the subcommittee would give serious consideration to this suggestion." However, minutes of the March 31, 1976 CTFA Talc Subcommittee (Bates Number JNJ000299024) reports that "Dr. Estrin suggested the Subcommittee should not obligate itself to give periodic reports to the FDA but urged members to build their data base so that at some time in the future the Subcommittee can decide whether the time is right to present FDA with an update on industry analysis." So the "collaborative effort" suggested by CTFA in its formal 1973 response to the FDA's proposed methodology was being set aside by the CTFA, with only the possibility of sharing data limited to favorable results.

Evidence of this failure to collaborate appears in the May 17, 1977 minutes of "The CTFA Task Force on Round Robin Testing of Consumer Talcim [sic] Products for Asbestiform Amphibole Minerals" (Bates Number JNJ000250604). One of two Task Force objectives on round robin testing was to "Test and verify CTFA Method J4-1 for this purpose – assurance that method is accurate, reliable and practical." (minutes' original underlining). In the very next sentence, the Chair of the Task Force states that "these objectives have not yet been achieved." (minutes' original underlining). The first round robin, which analyzed a "CTFA

Tremolite-Spiked Talc", had 6 of 7 participating laboratories failing to detect the tremolite. In other words, *84% of the industry's laboratories failed to detect asbestos in a sample known to contain tremolite asbestos while using the CTFA's own J4-1 method*. Furthermore, conflicting results from laboratories for samples of commercial talc revealed that the method was not reliable. In response to these analytical shortcomings of its J4-1 method, Dr. Schelz recommended to the CTFA on December 6, 1977 that the detection limits be raised. In other words, they wanted to *decrease* the method's ability to detect asbestos in talc (Bates Number JNJ000307294).

The FDA's unawareness of the CTFA J4-1 analytical shortcomings was evident in an FDA letter dated January 11, 1979 (Bates Number JNJ000029701), which states "In cooperation with scientists from industry, our scientists have been making progress in the development of such regulatory methods." The continuing lack of FDA awareness was obvious seven years later. In a response to a citizen petition to require an asbestos warning label on cosmetic talc, a July 11, 1986 FDA letter (Bates Number JNJ000241053) cites its cooperation with the talc industry such that an "analytical methodology was sufficiently developed" to assure that "such talc be free of fibrous amphibole…" For the past four decades, the CTFA J4-1 method has continued to be a major stratagem of the cosmetic-talc industry's claim that their products are asbestos-free.

The talc industry's more recent efforts to influence regulatory action is clear in a December 2, 2001 internal memo from Luzenac North America, where discussion focuses on potential talc regulations (R. Zazenski e-mails, dated 11/27/2000 & 1/2/2001). "Jim congratulated us for a fine victory" at a meeting with federal regulators. "Tozzi recommended that over the coming months, we target specific individuals at each of the agencies of the Executive Committee who might likely be attendees for the talc review….For example, we target individuals within the FDA and the CPSC to focus on the weaknesses of the epidemiological studies. Then perhaps we target individuals at OSHA and NIOSH for pointing out the irrelevance of the NTP study. Etc…. We (the talc industry) dodged a bullet in December based entirely on the confusion over the definition issue…. Time to come up with more confusion!"

### VI.D. Consequences of the Talc Industry's Published Analytical Method

CTFA Method J4-1 published on October 7, 1976 states that TEM-SAED "offers greater sensitivity, but is not presented since it is unsuitable for normal quality control applications." The published method, rather, relies on XRD with "the level of detection of amphibole by this method is 0.5% and above." As discussed above, talc with a 0.5% asbestos concentration could contain billions of fibers per gram. Only if a XRD yields a result of 0.5% or greater would PLM analysis be required to determine if the detected minerals were fibrous. The CTFA J4-1 methodology imposed restrictive characteristics for asbestos. "A maximum diameter of a fiber to be counted in [sic] 3 microns" limits fiber populations to the

narrow range of 1 micrometer (the practical resolution of PLM) to 3 micrometers. This would exclude fiber bundles thicker than 3 micrometers, which could contain hundreds of fibers. “The maximum length of a fiber to be counted is 30 microns.” Again, this dimensional limitation is not consistent with the PLM’s usual role in characterizing fibers whose dimensions are usually in the tens to hundreds of micrometers. Ironically, the first reference in CTFA J4-1 is Rohl and Langer (1974), which recommended that TEM-SAED be used as a follow-up to XRD to avoid missing the small asbestos fibers that could escape XRD detection. An equally inconceivable shortcoming of CTFA J4-1 is that it completely ignores chrysotile, an asbestos type that had been consistently found in talc ores and products.

I have seen no records of the CTFA discussing the failures of its method with the FDA. The use of TEM, recognized by the CTFA as offering “greater sensitivity” for asbestos analysis, continued to increase over the next decades as its advantages were applied to more matrices. In 1990, Kremer and Millette published a TEM method for analysis of asbestos in talc powder with a theoretical detection limit of about 0.00005%. Despite such improvements in analytical techniques, the cosmetic talc industry continues, four decades later, to use its antiquated and wholly inadequate J4-1 method. J4-1 does not analyze for chrysotile, an asbestos that the industry knew was in some of its talcs. J4-1 relies on XRD, a method whose 0.5% detection limit could fail to detect millions of asbestos fibers per gram. In fact, the two-tiered logic of J4-1 was designed to *demonstrate the absence of asbestos* in that an XRD-negative requires no further scrutiny. If the method had been designed to *detect the presence of asbestos,* it would have required that a *negative* XRD result be followed by the demonstrably more sensitive and definitive microscopy methods.

The investigation of Gordon et al. (2014) provides insight into the consequences of the inadequate detection of asbestos in cosmetic talc. A cosmetic talc product from decades earlier was found by TEM to contain from one thousand to more than a million asbestos fibers per gram of talc. Shaking application of 0.37 mg of this talcum powder produced an average of 4.8 fibers per cubic centimeter of air. The authors went on to analyze fibers in the lung tissue of a woman who had died of mesothelioma and whose only potential asbestos exposure was her use of the cosmetic talcum powder being studied. They found that the asbestos fiber population in her lung tissue matched that in the talcum powder. Similarly, Steffen et al. (2020) found that perineal application of an average of 4.05 grams of Johnson’s Baby Powder that was sourced from the Val Chisone mine in the 1950s produced an average of 4.57 tremolite fibers per cubic centimeter of air.

**VII. Johnson & Johnson’s Role in the Asbestos-in-Talc Problem**

Johnson & Johnson played a major role in the cosmetic talc industry’s efforts to prevent knowledge of asbestos in its talc from becoming public. As reported

above, Dr. Schelz of Johnson & Johnson was Chair of the CTFA Talc Subcommittee during the 1970's when the CTFA stymied the FDA's efforts to produce a reliable analytical method. This section details Johnson & Johnson's awareness of its asbestos problem, its attempt to control information relevant to asbestos in talc, its success in producing ineffective analytical methods for detecting asbestos in talc, and recent confirmations of long-term asbestos presence in its products.

### VII.A. Johnson & Johnson Was Aware of Asbestos in Its Talc

For decades, Johnson & Johnson was aware of asbestos in its talc ores and products. Table I provides a chronological but non-exhaustive overview of asbestos reported in its talc ores and its products.

**Table I**

| Bates Number | Date | Summary |
|---|---|---|
| NA | 2/29/56 | Battelle report showing Italian talc had "trace tremolite" with the crystallographic habit containing "minor" amounts of "fibrous aggregates and single crystal fibers". Prospects, mines, and mills in Vermont had 5 to 40% "fibrous aggregates and single crystal fibers" |
| JNJ000087077 | 5/23/1958 | In Battelle flotation tests for J&J, only one of 31 experiments with "ITALIAN NO. 2 TALC" yield "ND" for tremolite. For the other 30 experiments, tremolite was detected at concentrations from "Trace" to 6%. |
| JNJ000088048 | 2/17/1959 | Italian mine has "coarse green tremolite". "…the grade of ore is not a matter of location in the deposit, but the result of selection at the mine face and picking shed." In other words, the assemblage is not homogeneous and selection of ores that contain no asbestos is subjective. |
| JNJ000300863 | 7/31/1959 | Battelle results similar to May 23, 1958. All 59 of the runs had tremolite detected at concentrations from "Trace" to 2%. |

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| JNJ000235800 | 1/30/1967 | J&J requested analysis of a competitor's baby powder. J&J memo stated "base used in this product is better than 97% pure talc. The remainder is associated carbonate and less than 1/2% of the fibrous tremolite. This about compares with Italian #1 talc..." |
| JNJ000087989 | 4/9/1969 | An internal J&J memo starts, "Pete, we have to firm up the position the Company should have on the presence of the mineral Tremolite in talc." The memo continues, "Historically, in our Company, Tremolite has been bad because it has needle type crystals. Our position has been that these can stand on end, penetrate the skin, and cause irritation;" The memo ends with, "The question is...How bad is Tremolite medically, and how much of it can safely be in a talc base we might develop?" |
| NA | 4/14/1971 | Colorado School of Mines reports that 2 Vermont finished products contained tremolite at trace to 1%. “Needle-like particles” had refractive indices consistent with tremolite and were tentatively identified as “tremolite-actinolite”, consistent with the XRD results. |
| JNJAZ55_000006076 | 5/14/1971 | Colorado School of Mines reports “Free nontalc needles” at 0.60%. J&J’s Ashton states “We consider the free non-talc needles but a trace…Those particles are tremolite.” |
| JNJ000247081 | 7/7/1971 | Colorado School of Mines reports that six of seven analyses of "Vermont talc product" contained "trace" to 3% "Trem.-Act." |
| JNJMX68_000004647 | 7/29/1971 | J&J’s Ashton memo stating that Vermont talc used in JBP contains “only trace amounts of fibrous minerals (tremolite/actinolite).” |
| NA | 8/3/1972 | Dr. Lewin (NYU) report to FDA on 102 talc products. J&J Shower to Shower Body Powder contained 5% chrysotile. |

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| NA | 9/30/1972 | Dr. Lewin laboratory notebook reporting 2% tremolite and 0.5% chrysotile in "1615" talc from Italy |
| JNJ000346841 | 10/27/1972 | McCrone examined two J&J Baby Powders (108T and 109T) previously analyzed by Dr. Lewin of NYU. XRD, LM, TEM/ED used to determine "whether they contain any asbestiform minerals. Both samples contained an insignificant amount of tremolite (< 0.5%)." "substantially free of asbestiform minerals. A few tremolite rods were observed in both samples at a level less than 0.5%. No chrysotile has been detected." |
| JNJ000260836 | 10/27/1972 | J&J's Nashed says "I thought tremolite was mistakenly identified in view of similarity to Na sesquicitrate!" Handwritten on the bottom: "There are trace quantities present confirmed by McCrone & Bill Ashton Levels are extremely low but occasionally can be detected optically. This is not new. Al" Second page has hand-written "Revised report. Just received. 108T 109T" |
| JNJ000233693 | 2/8/1973 | Desert Minerals letter to J&J recalled that a J&J beneficiation study to purify talc "concluded that the talc could not be processed to completely remove tremolite even by your most technologically advanced methods of beneficiation." |
| JNJ000849943 | 2/20/1973 | Colorado School of Mines letter to Johns-Manville (JM) responds to the JM question about the physical removal of tremolite from talc, "in my opinion one could not expect to remove all of the tremolite from talc as it occurs in nature…based on my knowledge of the mode of occurrence of tremolite in talc plus the results of related beneficiation studies that have been made at the Research Institute." |

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|---|---|---|
| JNJ000294872 | 4/26/1973 | J&J's Petterson acknowledges that "Our baby powder contains….sub-trace quantities of tremolite or actinolite.…identifiable (optical microscope) and these might be classified as asbestos fiber." |
| JNJ000232680 | 5/16/1973 | J&J memo, "England is considering method of preconcentrating the asbestos so as to be able to analyze by X-ray. They find no "asbestos" by doing this with Italian talc. They (Pooley) 0. 05% of a tremolite-type in Vermont." |
| JNJ000231416 | 6/6/1973 | Johnson & Johnson memo, "Shelley reports that Pooley has found actinolite in our Vermont talc by his concentration technique." |
| JNJ000169495 | 8/27/1973 | Johnson & Johnson (Benelux n.v.) states that "The Dutch Consumer Organization (Consumentenbond) recently analyzed our baby powder"... "detected asbestos-content of 1.59%." using electron microscope and EDAX. |
| MTC000586 | 10/29/1973 | TEM analysis reveals 1.9 million chrysotile fibers/gram in Talco Grafite Val Chison (Italian talc). |
| JNJ000687198 | 2/11/1974 | McCrone report to Johnson & Johnson finding chrysotile (<=0.005%) in two samples and no tremolite. |
| JNJ000335294 | 4/24/1974 | McCrone report to Johnson & Johnson stating that 15 of 41 of core samples from Windsor had traces of "asbestiform minerals". Only two had a concentration above 0.0005%. |

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| JNJ000326070 | 5/14/1974 | "CONFIDENTIAL" report on tests at Windsor Minerals, Inc. pointed out that for cosmetic grade talcs, "Chrysotile fiber suppression was indicated…". Later, "The use of citric acid in the depression of chrysotile asbestos….has been developed at Windsor Minerals in response to the potential need for a means to exclude extremely low levels of these contaminants from the finished product of the beneficiation process." Table 13 of this report showed that the process reduced amphibole content in product to about 5% of original ore concentration. |
| JNJ000287007 | 7/8/1974 | McCrone report stating that In 21 samples, only 15 received "OK" by EM/ED. The others contained from "1 probable chrysotile" (1), "1 chrysotile" (2), "2 chrysotile" (2), or "1 tremolite, 1 probable chrysotile" (1). These "were generally small; say less than 1/2 micrometer long." |
| JNJ000338314 | 10/10/1974 | McCrone report to Windsor Minerals stating that one of eleven samples contained chrysotile at 0.006%. |
| JNJ000065508 & JNJ000346497-499 | 7/1/1975 | McCrone report to Windsor Minerals with a table showing "Confirmed asbestos, visual" concentrations ranging from "low" ("1 to 3 fibers found") to "medium" ("4 to 8 fibers") in 9 of 29 samples. |
| JNJ000326112 | 1974 | Report to Windsor Minerals states "...fibrous form of anthophylite which occurs as a rare mineral in the Hammondsville ore body" |
| JNJ000291323 | 11/5/1975 | McCrone report to Windsor Minerals stating that some of the amphibole fiber counts in talc ore samples "seemed rather high, one had 10 and one had 9 amphiboles." |
| JNJ000062137 | 4/1/1977 | EMV report to Johnson & Johnson on nine talc samples analyzed by SEM. Fibrous tremolite was found in four samples. |

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| JNJ000065574 | 4/29/1986 | McCrone report to Windsor Minerals stating that all three samples had traces of chrysotile, ranging from 0.0003 to 0.0055 weight percent. |
| JNJ000289936 | 1991 | Dr. Blount publication showing how amphiboles can be separated from talc in 2.810 heavy liquid with centrifugation. Johnson & Johnson Baby Powder "has a distribution similar to asbestos" as portrayed in Figure 6 of this report. |
| JNJ000064241 | 4/23/98 | Dr. Blount in letter to J&J lawyer: “As I told you, I believe that Johnson & Johnson’s Vermont talc contains trace amounts of asbestos…” |
| JNJ000062207 | 3/14/1988 | R.J. Lee reports to Johnson & Johnson Baby Products that, "As a result of this examination and these calculations, we have concluded that talc sample 879-57 TALC L contains approximately .0024% of chrysotile and .014% of fibrous tremolite." Further, "It is my understanding from discussions with Mr. William Ashton that levels of serpentine reported in this material are substantially higher than this." |
| IMERYS422289 | 5/23/2002 | Luzenac memo showing waste rock from Argonaut mine with tremolite fibers having “extremely high aspect ratio”. |
| JNJ000375413 | 1/5/2004 | Forensic Analytical report to KCRA TV that Johnson's Baby Powder contains 0.2% by weight anthophyllite as determined by TEM. |

An April 15, 1969 memo (Bates Number JNJNL61_000001535) from J&J physician T.M. Thompson to M. Ashton acknowledges Ashton’s earlier indication that “tremolite does have needle-type crystals …” The physician warned against having tremolite in “more than unavoidable trace amounts” and advised it “prudent to limit any possible content of tremolite in our powder formulations to an absolute minimum.”

According to a Johnson & Johnson report on their meeting with the FDA on 11/6/74 (Bates Number JNJ000231456), “At this point Dr. Nashed raised the interesting point that to date Johnson & Johnson had been unable to find any chrysotile in talc.” and later, “raised the question of whether or not chrysotile in

talc is a real issue or if both the FDA and cosmetic talc manufacturers are chasing a phantom with respect to chrysotile/talc questions as raised by consumerists." These statements are inconsistent with the abundant evidence above that Johnson & Johnson was aware of chrysotile in its ores and products.

Interestingly, these asbestos issues could have been avoided if corn starch had been selected as a body powder. A Johnson & Johnson internal memo on February 21, 1964 (Bates Number JNJ000265536) with the subject "Cornstarch Development" states, "Mr. Schoel requested we immediately undertake the formulation and development of a cornstarch product which is inexpensive and free-flowing." This was discussed by Johnson & Johnson in its "Future plans and product strategy for talc" (Bates Number JNJ000295388) and again in its 4/26/73 report (Bates Number JNJ000273732) on Windsor Minerals and Talc. Johnson & Johnson's own historical survey of baby powders (Bates Number JNJ000488174) reveals that starch was part of their baby powder formula in 1908. A 4/16/2008 Johnson and Johnson memo (Bates Number JNJ000422053), in discussing J&J and JJCI's "Best for Baby" charter states, "the reality is that talc is not actually safe for use around babies" and asks if J&J has "looked at replacing talc with cornstarch".

### VII.B. Johnson & Johnson's Attempts to Control Information

Johnson & Johnson worked diligently to limit publicly available information related to the issue of asbestos in talc. Most obvious was their control of work done and published by Dr. Rubino.

A 5/14/74 Johnson & Johnson internal memo (Bates Number JNJ000270553) from W. H. Ashton to Dr. Hildick-Smith starts, "Dr. Stefano has just advised us through Chas Mathieu & Co. that Professor Rubino is in need of immediate money to continue the studies which you have in progress. Neither Dr. Stefano or Rubino is clear on whether or not a payment has been in transit since your last visit there with them a few weeks ago. If not, then a payment should proceed without delay and I gather another $12,500 is in order." He later adds, "Since Rubino has approached Stefano on this money matter, it becomes essential that Dr. Stefano be awarded a partial honorarium for his current medical surveillance and the background range findings I originally requested for him to explore."

Shortly thereafter, a 6/26/74 letter (Bates Number JNJ000270551) from Dr. Hildick-Smith to Dr. Rubino suggests, "The data that I think we would be most interested in having presented at that meeting would relate to the cause of death of the miners and millers which would show that the incidence of cancer in these subjects is no different from that of the Italian population or the rural control group."

A clarifying note to control related information is written in an 8/28/74 letter (Bates Number JNJTALC000165933) to Johnson & Johnson's W. Ashton from Donald R. Ferry, Representative in U.S.A. of Foreign Mines. "I believe that the

time has now come when we should begin to review in depth what plans Johnson and Johnson has in the release of this information to the scientific world. In connection with this, I think that it is most important to coordinate the release of any information of this study with the people in Italy. We must know firsthand what use, if any, Prof Rubino, the Italian health officials, and our mining interests in Italy plan for this report on their end."

Apparently, Johnson & Johnson was pleased with Dr. Rubino's performance. According to an internal 10/30/74 Johnson & Johnson memo (Bates Number JNJTALC000129216) from W. H. Ashton to Dr. Hildick-Smith, "Rubino gave his talk before the 37th Congress of the Italian Society of Occupational Diseases. There were about 75 medical men present from different parts of Italy. There was no one from press or scientific journals permitted. The talk was received very well and no one had any questions. Rubino was complimented by several members of the society on the excellent way he had set up the study. He carried out your instructions and kept his talk in terms of talc broadly without identifying us or Val Chisone in any way whatever. Rubino read his talk from the Italian draft which I gave you yesterday." Later Ashton adds, "Rubino asked me to transport the Italian version to you so we all can have the opportunity to comment on it or adjust it for publication in Italy under the proceedings of Rubino's Society (he is Chairman)."

Early the next year (3/31/75), Dr. Hildick-Smith wrote an internal Johnson & Johnson memo (Bates Number JNJ000270389) stating his intention to control Dr. Rubino's publication: "The manuscript, in my opinion, is written in a form and style that is unacceptable to the Journal of Occupational Medicine. I have in mind to send the manuscript when edited for factual accuracy to a science writer who will hold it in confidence and rewrite for the Journal of Occupational Medicine."

A section in a document "FUTURE PLANS AND PRODUCT STRATEGY FOR TALC" (Bates Number JNJ000295388) provides tidbits on how carefully Rubino and other sources of information would be controlled:

- "Arrangements are currently being made with Professor Rubino to give his data the following exposure: 1) Manuscript to be published in the Journal of the Italian Society of Occupational Medicine February-March, 1975. 2) Manuscript to be submitted for publication in the United States Journal of Occupational Medicine. 3) Papers to be presented at the following meetings: a) American Occupational Medical Association San Francisco, April 13-17, 1975. b) 18th International Congress on Occupational Health, Brighton, England, September 14-19, 1975. c) 4th International Symposium on Inhaled Particles and Vapors in Edinburgh, September 22-26, 1975. 4) The summary of the data from Professor Rubino's Study will be included in a review paper submitted for publication by Dr. Hildick-Smith in the latter part of 1974 to the

British Journal of Industrial Health. Appropriate press coverage will be arranged through coordination with Mr. Foster's office."

- "Johnson & Johnson is also working to remove any criticism of talc through gathering of the pre-clinical and clinical data, such as the Battelle Inhalation Study and the Miner/Miller study of Professor Rubino."
- "Further summary publications are planned to be prepared by Dr. Hildick-Smith (Clinical) and Dr. Lord (Pre-clinical). As their papers are ready for publication or public presentation, appropriate press coverage will be arranged through Mr. Foster's office."

In a letter to Dr. Rubino on 11/3/77 (Bates Number JNJTALC000169526), Dr. Hildick-Smith is quite specific in what he expects: "Accordingly, I should like to suggest that you only present data on your mortality study, and that any information you may have developed on morbidity should be reviewed and perhaps published in an appropriate scientific journal. As it would be nice to have a presentation at Selikoff's meeting and a paper in his proceedings which refers to good scientific research on talc, I am taking the liberty of enclosing a discussion section which I have written which perhaps you could include in your paper with appropriate editing by you. Essentially, the discussion refers to published papers, copies of which I am inclosing which should not be overlooked at the meeting or in the proceedings. I should be grateful if you would be kind enough to send me a copy of the manuscript that you send to the Selikoff meeting. I should very much like to meet you before the meeting and look forward to seeing you in Washington on Sunday, December 4, at the Mayflower Hotel." On the same day, Dr. Rubino sends a letter to Dr. Stefano (Bates Number JNJ000270325). He asks Dr. Stefano to reinforce to Dr. Umberto the importance of keeping to the Johnson & Johnson talking points. "I am sure that you realize the seriousness of this meeting and the impact that it could have on talc of all types let alone cosmetic talc." Handwritten at the top of this letter is "We all appreciate the delicacy of this approach."

Johnson & Johnson's efforts to remove any criticism of asbestos in talc in analytical circles was overseen by its cadre of experts. An abstract of a presentation by a Princeton University scientist provides insight into the scope of Johnson & Johnson's control (Bates Number JNJ000280550). In criticizing Lewin's findings of asbestos in Johnson & Johnson talc, the author refers to data produced by eight methods "amassed by Johnson and Johnson's team of consultants."

A 6/8/73 memo from Dr. Caneer of the Colorado School of Mines to W. Ashton at Johnson & Johnson (Bates Number JNJ000291242) reports efforts he made to suppress a publication reporting that "18 commercial talcum powders examined contained from 4% to 4-6% asbestiform minerals." The memo goes on to say, "The amount of asbestiform minerals reported is so large that the data could

initiate costly FDA hearings on the matter." He goes on to detail his trip to one author at Bowling Green and phone conversations with other authors where he attempted to convince them of the error of their ways.

Johnson & Johnson also tried to extend its suppression of unfavorable data overseas. In an internal Johnson & Johnson Benelux n.v. memo (Bates Number JNJTALC000376583) on 12/13/73, the finding by the Dutch Consumer Organization of asbestos in Johnsons Baby Powder at concentration of 1.59%, with re-analysis at 0.3%. "We also asked them clearly not to make any publications about asbestos in baby powder, before we agreed with their findings."

B. Biesada of Pfizer addressed the controversy over the media's attention to the 1976 findings of asbestos in talc by Mount Sinai Hospital in a March 25, 1976 memo (Bates Number PFI_KA_00000038). Concerning the "falling short of a direct retraction" by Mount Sinai, Biesada states, "These broadcasts by the major TV networks came after considerable heavy pressure from Johnson & Johnson."

### VII.C. Johnson & Johnson Attempts to Promulgate Analytical Methods That Won't Impact Their Products

In a 10/11/72 letter (Bates Number JNJ000289253) to USD Health Education & Welfare, Johnson & Johnson contended that talc cannot be processed to remove asbestos-form particles and that not all asbestos-form particles may be injurious to health. The Johnson & Johnson process for beneficiating Vermont talc, which we believe to be the most advanced in the field, will not guarantee a zero tolerance for elongated particles."

A 1/29/73 Johnson & Johnson memo from W. Nashed (Bates Number JNJ000274068) states that in light of impending FDA regulations on asbestos in talc, Johnson & Johnson suggests that Lewin's single "trace tremolite" in Johnson & Johnson Medicated Powder is less than 1%, "i.e., not detectable by x-ray. I pointed out that if the Lewin report is released simultaneously with the regulation requiring no detectable asbestos by x-ray, there will be an inconsistency between the findings of the Lewin report and the regulation. Therefore, it would be advisable if all of Lewin's reports will be based on x-ray scan rather than other means. I added that we had examined our Medicated Powder by x-ray and find no detectable asbestos."

An internal 4/26/73 Johnson & Johnson memo from D. R. Petterson (Bates Number JNJ000294872) discusses concerns about their Windsor minerals and talc, "1. ...we believe this mine to be very clean; however, we are also confident that fiber forming or fiber type minerals could be found. The usefulness of the "Clean Mine" approach for asbestos only is over. 2. It is possible that the technique of identification for asbestos or asbestos-form materials will be an optical approach. It probably will be some variation of the McCrone method. This method with appropriate concentrating techniques will permit a good laboratory to identify asbestos or tremolite in a talc sample." Later, the memo goes on to clarify, "The implication is that all other fiber-forms, if present, were talc or other

minerals and these were safe. This posture will no longer be satisfactory. If the FDA Food Division....publishes a standard, it will probably be to ban asbestos-form or fibrous material in talc. That could eliminate the current uses of talc in packaging materials. These talcs contain widely varying amounts of tremolite or fibrous talc. Our Baby Powder contains talc fragments classifiable as fiber. Occasionally sub-trace quantities of tremolite or actinolite are identifiable (optical Microscope) and these might be classified as asbestos fiber."

An internal Johnson & Johnson memo on 6/4/73 (Bates Number JNJ000264495) expressed concern about a British Toilet Preparations Federation method for analysis of asbestos in talc. That method uses "concentration methods, which will therefore be much more sensitive than our proposed specifications." The author is concerned that "Vermont talc may occasionally show traces of tremolite by this procedure."

Handwritten at the bottom of a 10/23/73 memo from W. Nashed of Johnson & Johnson (Bates Number JNJ000445459), "In reply to Mullen's question regarding 9-28-73 regulations proposed by FDA." The text of the memo read, "The proposal will have no impact on our talc since the method of analysis in the proposal will show that our talc is acceptable. However, if they change the method, we may have problems."

A 1/16/74 meeting of Johnson & Johnson with the FDA was summarized by Drs. Hildick-Smith and Nashed on 1/18/74 (Bates Number JNJ000323354). In discussing exposure when dusting a baby, Johnson & Johnson stated, "Our preliminary calculation indicates that substantial asbestos can be allowed safely in a baby powder."

On 12/17/74, W. H. Steinberg states in a Johnson & Johnson memo (Bates Number JNJ000267138), "We believe it is critical for the C.T.F.A. to now recommend these methods to the F.D.A. before the art advances to more sophisticated techniques with higher levels of sensitization."

A Johnson & Johnson memo from F.R. Rolle dated February 28, 1975 (Bates Number JNJ000300438) states that "we feel that a detectability limit with our two present methods of 0.5% to 1% is reasonable …. Our major problem with the Pooley procedure is that…it is possible to arrive at levels of detectability of asbestos in talc in the ppm range." The memo continues to discuss Johnson & Johnson's desire "to exclude concentration techniques in any proposed analytical procedure and are really looking at this method very quietly so that we will be informed and up-to-date with this area of technology. We want to avoid promotion of this approach."

An internal Johnson & Johnson memo dated 8/26/75 (Bates Number JNJ000250275) concludes after a discussion of talc purity and analysis, "J&J has stressed the danger of being tied to more sensitive methodology which may evolve in the future."

Finally, a November 24, 1976 internal J&J memo (Bates Number JNJMX68_000004346) from W.H. Ashton to G. Lee states, "I find this proposal

more disturbing than other proposals up to now because it aims at separation and isolation of asbestos from a wide scope of products and animal tissues. …. As I have pointed out many times, there are many talcs on all markets which will be hard pressed in supporting purity claims, when ultra sophisticated assay separation and isolation techniques are applied. Chances are that this FDA proposal will open up new problem areas with asbestos and talc minerals."

In fact, Johnson & Johnson published its own method (TM 7024) for analyzing "asbestiform" fibers in talc by TEM, but two major factors made it an ineffective method for detecting and reporting asbestos in talc. First, the method allows only two hours for TEM analysis, a duration that is inadequate for talc samples that will have an abundance of talc particles obscuring any asbestos fibers. More telling is the requirement that at least five fibers of a single asbestos variety be counted for results to be above the "limit of quantifiable detection". This means that a sample with four fibers of anthophyllite, four fibers of actinolite, four fibers of actinolite, and four fibers of chrysotile (all have been found in Johnson & Johnson ores and products) would produce a report stating "Below the Limit of Quantifiable Detection". Thus the presence of the sixteen asbestos fibers identified in this sample would be hidden from the reader of the report.

The documents above show that Johnson & Johnson was carefully monitoring the development of analytical techniques and was actively lobbying for methods that would not find asbestos in its products.

### VII.D. Recent Analytical Results of Johnson & Johnson Talcum Powders

The most recent analyses of Johnson & Johnson talcum sources and powders have demonstrated the presence of asbestos in both historic and current materials:

| | |
|---|---|
| 2014 | SAI reports anthophyllite, tremolite, and chrysotile asbestos at concentrations of almost 70 million structures per gram in AGI 1615 talc from Val Chisone Italy. (SAI 2014) |
| 2017 | MVA reports anthophyllite asbestos, tremolite asbestos, actinolite asbestos, chrysotile, and amosite in a variety of Italian talcs at concentrations from 1.7 to 660 million fibers per gram. (MVA 2017) |
| 2019 | Sixty-six historical samples from the 1960's to the 2000's of Johnson & Johnson's Baby Powder and Shower to Shower were analyzed by MAS using heavy-liquid separation and TEM (MAS 2019). More than half were positive for tremolite asbestos and/or anthophyllite asbestos, with concentrations ranging from 4,400 to 268,000 asbestos structures per gram. (MAS 2019a) |
| 2019 | MAS reported up to 2.1 asbestos fibers/cc in air during a diaper changing study using Johnson's Baby Powder. (MAS 2019b) |

| | |
|---|---|
| 2019 | Eighteen samples of Johnson & Johnson's Baby Powder were prepared by heavy-liquid separation and analyzed by TEM by Reservoirs Environmental, Inc. Tremolite and/or anthophyllite asbestos were detected in eight of the samples at concentrations from 5,700 to 280,000 structures per gram. (REI 2019). |
| 2019 | In October 2019, a contract laboratory for the FDA detected chrysotile and tremolite asbestos in Johnson & Johnson talc samples (AMA 2019). One laboratory hired by Johnson & Johnson found asbestos in the talc sample but attributed it to laboratory contamination (RJL 2019). A second laboratory hired by Johnson & Johnson did not report any asbestos. (BVNA 2019). |
| 2020 | MAS reported chrysotile at 0.006 to 0.01% by volume weight and 0.822 to 1.49 million chrysotile bundles per gram in three bottles of Johnson's Baby Powder purchased off the shelf in 2020. (MAS 2020) |
| 2021 | MAS summary tables of J&J testing of dozens of containers of J&J powders and of dozens of samples of raw materials dating from the 1920's to 2019. A majority of these samples contained asbestos. (MAS 2021) |

## VIII. Recent Recommendations of the Federal Interagency Working Group on Asbestos in Consumer Products

The FDA in 2018 formed the Interagency Working Group on Asbestos in Consumer Products (IWGACP), with representatives from eight federal agencies (NIOSH, NIH, NIEHS, OSHA, EPA, CPSC, NIST, and USGS) to provide support for development of a standardized testing methods for asbestos and similar mineral particles of health concern that might be found in talc. The Executive Summary of the IWGACP that was issued on January 6, 2020 (IWGACP 2020) has several discussion items and recommendations that support my report.

IWGACP stated that "The CTFA J4-1 and USP methods remain standard test methods despite long-recognized shortcomings in specificity and sensitivity compared with electron microscopy-based methods." This is consistent with my discussions in Sections III.B, V, and VI.D of this report.

IWGACP continues, "Recent reports from testing of cosmetic products indicate that because of shortcomings in sensitivity, light microscopy (polarized light microscopy; PLM) sometimes fails to detect finely-sized particles of asbestos and similar minerals even when they are present in talc." This reinforces my arguments in Section III.B of this report.

IWGACP pointed out that testing methods developed for bulk materials were developed with the knowledge that these might contain at least 1% asbestos as an intentional ingredient. As such, the IWGACP contends, these published

methods were not intended to determine the presence of asbestos at concentrations below 1%. The IWGACP continued, “In contrast, the likely amount present when asbestos is a contaminant or impurity in talc or talc-containing consumer products might be orders of magnitude below 1%.” This is consistent with Section IV of my report.

IWGACP, recognizing that talc could contain fibers with different growth habits, e.g., “asbestiform” versus “cleavage”, stated, “Because both types of elongate minerals are suspected of having biological activity with similar pathological outcomes, the distinction is irrelevant.” This is consistent with Section IV of my report.

IWGACP continued, “Countable EMPs have an aspect ratio (AR) of >3:1 and a length of > 0.5 µm using the most inclusive criteria for length and AR from among the “asbestos” counting rules in established testing protocols. The specified minimum length of 0.5 µm is consistent with the counting rules for fibers established by the global standard for TEM sampling and analysis, ISO 10312:2019 (Appendix C) and is supported by studies that indicate asbestos particles and EMPs of these dimensions could pose a health concern.” This is consistent with Section IV of my report.

Finally, IWGACP recommended:

*“1. Adoption of the term EMP as “any mineral particle with a minimum aspect ratio of 3:1”, consistent with how this term is defined in the NIOSH Bulletin 62, to resolve ambiguity and disagreement in mineral (asbestos versus non-asbestos) identification.”* Again, this attention to measured fiber morphology of EMPs rather than growth habit of the fiber reinforces my arguments in Section IV of this report.

*“2. Testing laboratories report all EMPs having length ≥ 0.5 µm (500 nm).”* This provides much more detailed and helpful information than a simple mass percentage, consistent with Section IV of my report.

*“3. That test methods specify reportable EMPs identified as amphibole or chrysotile particles as covered minerals.”* All EMPs identified as amphibole or chrysotile must be reported, which is consistent with Section III.B of my report.

*“4. Test methods require the counting and reporting of covered EMPs as a function of sample mass. When counting, IWGACP recommends referring to guidelines such as ISO 10312 to classify primary and secondary structures. Individual fibers in secondary structures can be counted recording the dimensions of each fiber.”* Fiber counts and dimensions are more appropriate than mass for measuring asbestos in talc, as I specified in Section IV of this report.

*“5. Use of TEM at nominally 20,000x magnification, in addition to PLM, to resolve the issues of sensitivity that cause reporting of false negatives for covered EMPs. IWGACP strongly recommends using TEM with energy dispersive X-ray*

*spectroscopy (EDS) and selected area electron diffraction (SAED) analyses to reliably detect and identify chrysotile and asbestiform and non-asbestiform amphibole minerals, including EMPs whose narrowest width is <200 nm (the limit of resolution for light microscopy). SEM might be useful as a complementary method but has significant shortcomings for identification of chrysotile and visualization of the narrowest particles in the population that can only be overcome by using TEM."* TEM applied with appropriate identification and measurement protocols is the best method for detection and measurement of asbestos in talc, as I discussed in Section III.B of this report. Shortcomings of SEM by IWGACP overlooked the inability of SEM to provide standardized electron diffraction patterns for accurate crystalline structure identification.

*"6. That "mass percent," a unit that is frequently used to express content of asbestos in commercial bulk materials, is not appropriate for measurement of EMPs in talc and consumer products containing talc because weight percent does not correlate with the number of fibers, and one large fiber could dominate the mass percent value."* Again, fiber counts are more appropriate than mass for measuring asbestos in talc, as discussed in Section IV of my report.

*"7. Although IWGACP concludes that criteria for differential counting and classification of EMPs meeting criteria in #2 would be beneficial, no specific recommendations were agreed upon during deliberations. Therefore, at this time the IWGACP recommends reporting and counting all EMPs of covered minerals under a single classification with additional information that would allow further classification based on measurements such as mineral type and dimensions in the future."* TEM analysis should report the maximum amount of information derived, which is consistent with Sections III.B and IV of my report.

**IX. Conclusions** Asbestos in cosmetic talc is a serious health concern because of its frequent application around the breathing zone of users. Documents dating back several decades show that some cosmetic talc and talc ores contained asbestos. Efforts by the Federal Drug Administration in the 1970s to develop a sensitive and reliable method for detection of asbestos in talc were confounded by deliberate actions of the cosmetic talc industry. Johnson & Johnson played a large role in thwarting the development of a reliable method through its manipulation of information. The most sensitive method, TEM-SAED, was not used because the CTFA said that its "ultra sensitivity could be a problem" and that it was expensive to use. Instead, its J4-1 method relied on XRD alone for detection of asbestos at greater than 0.5%, a concentration that could allow more than a billion fibers per gram of talc to be passed off as containing no asbestos. Johnson & Johnson's own TEM method was heavily slanted toward not detecting or reporting asbestos. These grossly inadequate analytical methods have provided little assurance that cosmetic talc has been free of asbestos for the past four decades. Recent analyses of historical and current Johnson & Johnson talc have supported the findings discussed above that show a decades-long pattern

of asbestos in talc that was kept from the public's attention because of ineffective analytical methods. Finally, a recent executive summary by scientists from eight federal government agencies have recognized shortcomings of current testing methods and have advocated for a TEM-based method that uses fiber count rather than mass-based metrics, consistent with my report.

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# EXHIBIT 5

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# J&J's Internal Documentation 1957-1967

| Date | Organization | Ore/Product | Type |
|---|---|---|---|
| 10/15/57 | Battelle Memorial | Italian Source Talc | Amphibole |
| 5/23/58 | Battelle Memorial | Italian Source Talc | Tremolite x 30 |
| 7/18/58 | Battelle Memorial | Italian Source Talc | Fibrous Amphibole and Tremolite |
| 7/31/59 | Battelle Memorial | Italian Source Talc | Tremolite x 63 |
| 8/31/59 | Battelle Memorial | Italian Source Talc | Tremolite |
| 9/15/59 | Battelle Memorial | Italian Source Talc | Tremolite |
| 12/31/59 | Battelle Memorial | Italian Source Talc | Tremolite x 25 |
| 3/8/60 | Battelle Memorial | Italian Source Talc | Tremolite x 7 |
| 3/8/60 | Battelle Memorial | Off Shelf J&J Baby Powder | Tremolite |
| 4/12/60 | Battelle Memorial | Italian Source Talc | Tremolite x 20 |
| 6/6/61 | Battelle Memorial | Hammondsville, VT Talc | Altered Amphibole |
| 10/13/61 | Battelle Memorial | J&J Baby Powder Specification | Trace tremolite & amphiboles "usual contaminants" |
| 5/27/63 | Battelle Memorial | Vermont Talc | Amphibole |
| 4/7/66 | Battelle Memorial | Hammondsville, VT Talc | Serpentine, Altered amphibole |
| 7/13/66 | JJ Memorandum | 1910-1920 Era Baby Powder | Tremolite |
| 7/13/66 | JJ Memorandum | 1920-1930 Era Baby Powder | Tremolite |
| 1/30/67 | JJ Memorandum | Competitor Product with Italian Talc | Fibrous tremolite |



PLAINTIFF'S TRIAL EXHIBIT **3695-82**

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# J&J's Internal Documentation 1968-1972

| Date | Organization | Ore/Product | Type |
|---|---|---|---|
| 1/24/68 | Battelle Memorial | Italian Source Talc | Tremolite |
| 5/10/71 | Colorado School of Mines | Johnson's Baby Powder | Tremolite needles |
| 7/7/71 | Colorado School of Mines | Vermont Production Samples | Tremolite/Actinolite x 6 |
| 7/9/71 | Dr. Langer-Mt. Sinai | Johnson's Baby Powder | Chrysotile |
| 7/23/71 | Colorado School of Mines | Vermont Talc | Amphiboles |
| 8/6/71 | Johnson & Johnson | Italian Talc | Tremolite, Actinolite & Chrysotile |
| 8/9/71 | Johnson & Johnson | Johnson's Baby Powder | fines implicated in asbestos toxicology |
| 9/3/71 | McCrone | Johnson's Medicated Powder | Chrysotile |
| 11/10/71 | Dr. Langer-Mt. Sinai | Johnson's Baby Powder | Chrysotile |
| 2/72 | Turin Polytechnic | Italian Source Talc | Tremolite |
| 9/8/72 | Prof. Pooley-Cardiff | Italian Source Talc | Tremolite |
| 10/27/72 | McCrone | Johnson's Baby Powder "108T" | Tremolite |
| 10/27/72 | McCrone | Johnson's Baby Powder "108T" | Tremolite |
| 1972 | Johnson & Johnson | Johnson's Baby Powder | Tremolite |
| 1972 | Minnesota Space Center | Shower to Shower/ Lewin Shower/Shower | Chrysotile x 2 |



PLAINTIFF'S TRIAL EXHIBIT 3695-83

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# J&J's Internal Documentation 1973-1974

| Date | Organization | Ore/Product | Type |
|---|---|---|---|
| 4/19/73 | Johnson & Johnson | Johnson's Baby Powder | Tremolite Fibers x 4 |
| 4/27/73 | Johnson & Johnson | Johnson's Baby Powder (further analysis | Actinolite Rods |
| 5/16/73 | Prof. Pooley - Cardiff | Vermont Source Talc | Tremolite type asbestos |
| 6/4/73 | Prof. Pooley-Cardiff | Vermont Talc | Tremolite |
| 10/29/73 | Johns Manville | Italian Source Talc | Tremolite |
| 10/29/73 | Johns Manville | Johnson's Baby Powder | Chrysotile |
| 9/13/73 | Prof. Pooley-Cardiff | Vermont Talc | Actinolite |
| 9/13/73 | Prof. Pooley-Cardiff | Italian Talc | Tremolite |
| 12/13/73 | Dutch Consumer Organization | Johnson's Baby Powder | Asbestos |
| 1974 | Pooley/Langer | Italian Source Talc | Tremolite & Possible Anthophyllite |
| 3/1974 | Dartmouth-Professor Reynolds | Vermont Source Talc | Fiberform actinolite and anthophyllite |
| 5/14/74 | Windsor Minerals/JJ | Vermont Source Talc | Chrysotile x 4 |
| 5/14/74 | Windsor Minerals/JJ | Vermont Source Talc | Fibrous Anthophyllite |

PLAINTIFF'S TRIAL EXHIBIT 3695-84



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# J&J's Internal Documentation 1974-1975

| Date | Organization | Ore/Product | Type |
|---|---|---|---|
| 4/4/74 | Johnson & Johnson | Vermont Source Talc | Fibrous Tremolite |
| 4/4/74 | Johnson & Johnson | Vermont Source Talc | Fibrous Chrysotile |
| 4/24/74 | McCrone | Vermont-Argonaut | Chrysotile x 15 |
| 4/24/74 | McCrone | Vermont-Argonaut | Asbestiform Amphibole x 15 |
| 5/9/74 | McCrone | Vermont-Argonaut Ore | Chrysotile asbestos contamination |
| 5/9/74 | McCrone | Vermont-Argonaut Product | Chrysotile asbestos contamination |
| 7/8/74 | McCrone | Vermont-Weekly Samples | Chrysotile x 5 |
| 7/8/74 | McCrone | Vermont-Weekly Samples | Tremolite fiber |
| 1974 | Societá Talco e Grafite Val Chisone | Italian Source Talc | Chrysotile |
| 7/1/75 | McCrone | Vermont Source Talc | Asbestos x 9 |
| 11/5/75 | McCrone | Vermont Source Talc | Asbestos x 13 |



PLAINTIFF'S TRIAL EXHIBIT 3695-85

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# J&J's Internal Documentation 1975-2004

| Date | Organization | Ore/Product | Type |
|---|---|---|---|
| 11/19/75 | McCrone | Vermont Source Talc | Asbestiform Amphiboles x 2 |
| 3/1976 | Rubino, et al. | Italian Source Talc | Fibers of Tremolite |
| 9/26/84 | Paoletti, et al. | Italian Talc | Tremolite Asbestos x 7 |
| 9/26/84 | Paoletti, et al. | Italian Talc | Chrysotile Asbestos x 1 |
| 1/30/87 | Johnson & Johnson | Vermont Floated Talc | Amphiboles |
| 1/30/87 | Johnson & Johnson | Johnson's Baby Powder | Amphiboles |
| 3/30/87 | Johnson & Johnson | Vermont Floated Talc | Amphiboles |
| 1990 | McCrone | Vermont Talc | Anthophyllite Asbestos |
| 1991 | Alice Blount, Rutgers | Johnson's Baby Powder & Vermont Talc | Tremolite Asbestos |
| 2/10/92 | Alice Blount, Rutgers | Johnson's Baby Powder & Vermont Talc | Blount reiterates Asbestos findings |
| 10/13/95 | RJ Lee Group | Johnson's Baby Powder | Tremolite |
| 4/23/98 | Alice Blount, Rutgers | Johnson's Baby Powder & Vermont Talc | Blount reiterates Asbestos findings |
| 1/5/04 | Forensic Analytical Services | Johnson's Baby Powder | Anthophyllite Asbestos |



PLAINTIFF'S TRIAL EXHIBIT **3695-86**

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SUPERIOR COURT OF NEW JERSEY
LAW DIVISION: MIDDLESEX COUNTY
DOCKET NO. MID-1809-17AS
APPELLATE DOCKET NO._____

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|---|---|
| DOUGLAS AND ROSLYN BARDEN,<br><br>Plaintiffs,<br><br>v.<br><br>BRENNTAG NORTH AMERICA, et al.,<br><br>Defendants. | TRIAL<br><br>(VOLUME 1 of 2) |
| DAVID CHARLES ETHERIDGE AND<br>DARLENE PASTORE ETHERIDGE,<br><br>Plaintiffs,<br><br>v.<br><br>BRENNTAG NORTH AMERICA, et al.,<br><br>Defendants. | MID-L-0932-17AS |
| D'ANGELA MCNEILL-GEORGE,<br><br>Plaintiff,<br><br>v.<br><br>BRENNTAG NORTH AMERICA, et al.,<br><br>Defendants. | MID-L-7049-16AS |
| WILLIAM AND ELIZABETH RONNING,<br><br>Plaintiffs,<br><br>v.<br><br>BRENNTAG NORTH AMERICA, et al.,<br><br>Defendants. | MID-L-6040-17AS |

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get to the advertising, to the video, your Honor.
Under Rule 1006, which is the summary evidence rule, we would offer in as a Plaintiffs' Exhibit 3695-82 through 86, the --
THE COURT: 36 -- one more time.
MR. MAIMON: 3695-82 through 86, the five boards of the summaries that we put up and that counsel went through with Dr. Hopkins and that on redirect examination by Mr. Panatier, Dr. Hopkins admitted that everything on the charts faithfully and accurately reflected what was in the documents. That's per se the requirement of Rule 1006. So we would offer those summary charts into evidence.
THE COURT: Any objection?
MS. SULLIVAN: Yes, your Honor. We would object. First, we would object it's an incomplete summary because it doesn't contain anywhere near all of the testing.
Second, it's a misleading summary. Dr. Hopkins acknowledged that the words were in the documents, but did not agree with the board as reflected.
And, you know, they've used it as a demonstrative, we haven't objected to that, but we would object that this wasn't going into evidence, your



Honor.
THE COURT: Thank you.
So Dr. Hopkins testified that the words were accurate. I mean, that's a true summary, the words were accurate.
These summary boards, 3695-82 through 86, are now admitted under Rule 1006.
(Plaintiff's Exhibit 3695-82 was moved into evidence.)
(Plaintiff's Exhibit 3695-83 was moved into evidence.)
(Plaintiff's Exhibit 3695-84 was moved into evidence.)
(Plaintiff's Exhibit 3695-85 was moved into evidence.)
(Plaintiff's Exhibit 3695-86 was moved into evidence.)
MS. SULLIVAN: Then, your Honor, in the interest of optional completeness, I would move in the boards that I used with Dr. Hopkins with his cross-outs.
THE COURT: I'll take that up at a later time. I want to get this case --
MS. SULLIVAN: Thank you.
THE COURT: -- the plaintiffs to close their



case.
So what's --
MR. PLACITELLA: Just for the record, Dr. Hopkins crossed out nothing. Miss Sullivan crossed out things as things was going. And the record will reflect that she crossed out things that Dr. Hopkins didn't even testify to.
MS. SULLIVAN: I crossed out things based on his testimony, your Honor, and didn't cross out a couple that he --
THE COURT: We're going to move on. We'll come back to that. Right now I'm just going through the plaintiffs being able to rest.
MR. MAIMON: The Gambino Answers to Interrogatories, I don't know if there's an objection to that.
MS. SULLIVAN: Your Honor --
THE COURT: Wait. Wait. Let me just get it. No, I have it. This is P-626.
MR. MAIMON: Yes, your Honor.
THE COURT: These were the Answers to the Interrogatories in the Anthony Gambino versus J&J. This was a case that was filed here under Docket Number 64208-83 which were certified to by Eric Harris of Johnson & Johnson's Baby Products Company.



Is there an objection?
MS. SULLIVAN: Yes, your Honor. Here's the objection and the prejudice. Your Honor has granted the in limine motion to exclude the GRAS regulatory scheme, the FDA's regulation of dietary -- dietary additives in cosmetics as generally regarded as safe. The FDA's made continuous public statements about this class of product including cosmetics is the safest on the market. That's been excluded from this case.
And so this is a misleading, leaves a misleading impression with the jury, and that -- and also, your Honor, I'd ask the court to instruct the jury that the FDA does not require premarket testing of J&J's -- of cosmetic products being J&J's Baby Powder because that's what the question, speaking first to Number 16, asks about. It says, "Attached tests that were submitted to the FDA for Johnson's Baby Powder."
As your Honor knows, there's no premarket approval requirement in terms of submission of testing. And so if this is going to be admitted, two things: I would ask that we be able to talk about the generally regarded as safe regulation, and how it impacts the cosmetic market and the FDA statement about the safety of cosmetics; and second, an instruction to the jury that the FDA does not require premarket approval for

# EXHIBIT 6

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# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 1 | 10/6/48 | US Public Health Service | Vermont | ASBESTOS | 1 |
| 2 | 10/15/57 | J&J Hired Lab (Battelle) | Italian | Amphiboles | 2 |
| 3 | 5/23/58 | J&J Hired Lab (Battelle) | Italian | Tremolite<br>30 samples | 32 |
| 4 | 7/18/58 | J&J Hired Lab (Battelle) | Italian | Amphibole - Tremolite<br>Fibrous<br>7 samples | 39 |
| 5 | 7/31/59 | J&J Hired Lab (Battelle) | Italian | Tremolite<br>63 samples | 102 |
| 6 | 8/31/59 | J&J Hired Lab (Battelle) | Italian | Tremolite<br>4 samples | 106 |
| 7 | 9/15/59 | J&J Hired Lab (Battelle) | Italian | Tremolite | 107 |
| 8 | 12/31/59 | J&J Hired Lab (Battelle) | Italian | Tremolite<br>25 samples | 132 |
| 9 | 3/8/60 | J&J Hired Lab (Battelle) | Italian | Tremolite<br>7 samples | 139 |
| 10 | 3/8/60 | J&J Hired Lab (Battelle) | J&J Baby Powder | Tremolite | 139 |
| 11 | 4/12/60 | J&J Hired Lab (Battelle) | Italian | Tremolite<br>20 samples | 159 |
| 12 | 6/6/61 | J&J Hired Lab (Battelle) | Vermont | Altered Amphiboles<br>(at least 2 samples) | 161 |
| 13 | 8/25/61 | J&J Hired Lab (Battelle) | Vermont | Amphibole - altered amphiboles<br>3 samples | 164 |

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# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 14 | 10/13/61 | J&J Hired Lab (Battelle) | J&J Baby Powder Standard | Tremolite & Amphiboles "usual contaminants"<br><br>Trace amphiboles are part of J&J standard for Johnson's Baby Powder | 164 |
| 15 | 5/27/63 | J&J Hired Lab (Battelle) | Vermont | Amphibole | 165 |
| 16 | 4/7/66 | J&J Hired Lab (Battelle) | Vermont | Serpentine<br>Altered Amphibole | 166 |
| 17 | 7/13/66 | J&J | Johnson's Baby Powder | Tremolite | 168 |
| 18 | 1/30/67 | J&J | Competitor baby powder Italian Talc Vermont Talc | Tremolite<br>Fibrous | 169 |
| 19 | 11/1/67 | J&J | Vermont Italian | Tremolite - 3 samples<br>Serpentine - 2 samples | 172 |
| 20 | 1/24/68 | J&J Hired Lab (Battelle) | Italian | Tremolite<br>6 samples | 178 |
| 21 | 12/4/70 | J&J Hired Lab (Colorado School of Mines) | Vermont | Tremolite-Actinolite<br>8 samples | 186 |
| 22 | 4/14/71 | J&J Hired Lab (Colorado School of Mines) | Vermont Product Sample | Tremolite-Actinolite<br>Needles<br>2 samples | 188 |
| 23 | 5/14/71 | Internal testing by Dr. Ashton | Johnson's Baby Powder (Lot 344-L) Vermont | ASBESTOS<br>Tremolite-Actinolite Needles | 189 |
| 24 | 6/30/71 | J&J Hired Lab (Colorado School of Mines) | Johnson's Baby Powder (Lot 344-L) Vermont | ASBESTOS<br>Tremolite-Actinolite | 190 |
| 25 | 7/7/71 | J&J Hired Lab (Colorado School of Mines) | Vermont | Tremolite/Actinolite<br>6 samples | 196 |

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# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 26 | 7/9/71 | Mt Sinai (Dr. Langer) | Johnson's Baby Powder | ASBESTOS | 197 |
| 27 | 7/23/71 | J&J Hired Lab (Colorado School of Mines) | Vermont | Amphiboles | 198 |
| 28 | 7/29/71 | J&J letter Subject: Talc/Asbestos Reports testing from Colorado School of Mines (344-L) | Vermont | Tremolite/Actinolite Fibrous Minerals | 198 |
| 29 | 7/29/71 | J&J letter Subject: Talc/Asbestos Reports testing from McCrone | Vermont | Tremolite/Actinolite Fibrous Minerals | 199 |
| 30 | 8/6/71 | J&J letter | Italian | Tremolite Actinolite Chrysotile | 200 |
| 31 | 8/9/71 | J&J letter | Johnson's Baby Powder | Fines in baby powder implicated in asbestos toxicology | 201 |
| 32 | 8/9/71 | J&J Admission | Johnson's Baby Powder | "It would seem more than appropriate that we upgrade the quality control on our talc and baby powder, particularly as to the potential asbestos content." | 201 |
| 33 | 9/3/71 | J&J Hired Lab (McCrone) | Johnson's Medicated Powder & Johnson's Shower to Shower | ASBESTOS Chrysotile | 203 |
| 34 | 10/12/71 | J&J Hired Lab "looking at problems of talc & asbestos minerals" (McCrone) | Johnson's Shower-to-Shower | Chrysotile | 204 |

# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 35 | 10/21/71 | J&J Hired Lab (McCrone) | Vermont | Chrysotile suspected<br>Substantially similarity to the morphology of Chrysotile<br>Several Fibers | 207 |
| 36 | 11/10/71 | Letter from Mt Sinai to J&J | Johnson's Baby Powder | ASBESTOS | 208 |
| 37 | 1972 | J&J admission + external lab confirmation | Johnson's Baby Powder | Tremolite<br>repeatedly seen<br>"This is not new" | 210 |
| 38 | 1/1972 | Article<br>J&J Files | Johnson's Baby Powder | ASBESTOS | 211 |
| 39 | 2/16/72 | Turin Polytechnic | Italian | Asbestos minerals | 212 |
| 40 | 4/27/72 | NIOSH | Johnson's Baby Powder and Johnson's Medicated Powder | Fiber Count performed in standard manner used for asbestos samples<br>10,000s fibers per Mg.<br>2 samples | 214 |
| 41 | 6/12/72 | Outside<br>ES Laboratories | Italian | ASBESTOS | 215 |
| 42 | 8/3/72 | FDA Testing<br>Dr. Lewin - NYU | Johnson's Shower-to-Shower | ASBESTOS | 216 |
| 43 | 8/9/1972 - 8/10/1972 | Johnson & Johnson Internal Testing of FDA samples | Johnson's Shower-to-Shower | Tremolite<br>Rods<br>4 samples | 220 |
| 44 | 8/18/72 | Letter from a Company (EMTAL) J&J bought | Vermont | ASBESTOS | 224 |

# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 45 | 8/24/72 | J&J Letter Talc/Asbestos<br><br>Sperry Rand Lab's Results (not hired or paid by J&J) | Shower-to-Shower (FDA/Lewin sample) | ASBESTOS | 225 |
| 46 | 8/24/72 | J&J Letter Talc/Asbestos<br><br>J&J Scientist | Johnson's talc products | J&J admits tremolite fibers could be present in J&J Shower to Shower | 225 |
| 47 | 8/31/72 | Outside Lab (Sperry Rand) Expertise in examining Chrysotile Asbestos | Shower-to-Shower (FDA/Lewin sample) | Chrysotile fibers<br>multiple fibers of chrysotile - provided J&J photographs of the fibers | 226 |
| 48 | 9/5/72 | Testing from a talc competitor to a Company (EMTAL) J&J bought | Vermont | Tremolite fibers | 228 |
| 49 | 9/25/72 | Johnson & Johnson memo Asbestos in Talc Shower-to-Shower/Asbestos | Italian Mine | Tremolite | 229 |
| 50 | 9/30/72 | New York University | Italian Talc | Tremolite<br>&<br>Chrysotile | 230 |
| 51 | 10/19/72 | NYU (Lewin) | Johnson's Baby Powder Shower to Shower | Chrysotile<br>&<br>Tremolite | 236 |
| 52 | 10/27/72 | J&J Hired Lab (McCrone) | Johnson's Baby Powder (re-testing samples FDA/Lewin tested) | Tremolite<br>Rods<br>2 samples<br>0.2 or .3% tremolite in sample 109T<br>0.5% tremolite in sample 108T | 238 |
| 53 | Nov 1972 | J&J Hired Lab (University of Minnesota) | Johnson's Baby Powder + Shower to Shower (re-testing samples FDA/Lewin tested) | ASBESTOS<br>2 samples | 240 |

# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 54 | 4/6/73 | Member of J&J industry group (Avon) | Italian Talc | 1% Tremolite | 241 |
| 55 | 4/19/73 | J&J testing | Johnson's Baby Powder | Tremolite<br>Fibers<br>4 samples | 245 |
| 56 | 4/26/73 | J&J Admissions | Johnson's Baby Powder | ASBESTOS<br>repeatedly found in baby powder | 247 |
| 57 | 4/27/73 | Analysis of Johnson's Baby Powder | Johnson's Baby Powder (Lot 285-S, Lot 397-R, Lot 068-Z, Lot 086-Z) | Tremolite/Actinolite<br>parallel sided rods<br>.01-.001% by weight | 251 |
| 58 | 4/30/73 | Talco e Grafite (Dr. Stefano) | Italian | ASBESTOS<br>0.02% | 252 |
| 59 | 5/1/1973 | J&J Admission | Vermont | Actinolite | 253 |
| 60 | 5/8/1973 | J&J Admission | Vermont | Actinolite | 255 |
| 61 | 5/16/73 | Proposed Specs for analyzing Talc for Asbestos (Pooley Method) | Vermont | ASBESTOS<br>0.05% | 256 |
| 62 | 5/25/73 | Testing from a talc competitor to a Company (Engelhard) that mined Vermont Talc | Vermont | ASBESTOS | 260 |
| 63 | 6/4/73 | J&J Admissions | Vermont | Tremolite | 260 |
| 64 | 6/12/73 | Testing from a talc competitor to a Company (EMTAL) J&J bought | Vermont | ASBESTOS | 264 |

# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 65 | 7/31/73 | FDA | Johnson & Johnson Consumer Talc products | Tremolite + a question about Chrysotile | 266 |
| 66 | 8/28/73 | Johns-Manville - another companies internal testing | Italian and Vermont | Chrysotile + suspect Tremolite | 268 |
| 67 | 8/28/73 | Johns-Manville - another companies internal testing | Johnson's Baby Powder | Chrysotile | 269 |
| 68 | 9/6/73 | FDA (Stuart) Asbestos and other contaminants in talc | Johnson's Shower-to-Shower | Tremolite/Actinolite | 270 |
| 69 | 9/13/73 | J&J Consultant Dr. Pooley | Vermont | Actinolite | 271 |
| 70 | 9/13/73 | J&J Consultant Dr. Pooley | Italian | Tremolite | 272 |
| 71 | 9/14/73 | Member of J&J industry group (Avon) Testing done by outside lab (McCrone) and Ypma | Italian Talc | Asbestos | 275 |
| 72 | 10/29/73 | Outside lab (not hired by J&J) Hazen Research, Inc. | Johnson's Baby Powder | Chrysotile | 276 |
| 73 | 10/29/73 | Outside lab (not hired by J&J) Hazen Research, Inc. | Italian | "Italian talc has an appreciable chrysotile content" | 277 |
| 74 | 11/20/73 | NY Lab hired by Talc Supplier - WCD | Italian | Chrysotile fibers (hundreds of thousands of fibers per gram) Amphibole fibers (millions of fibers per gram) | 278 |

# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 75 | 11/20/73 | NY Lab hired by Talc Supplier - WCD | Vermont | Chrysotile fibers (hundreds of thousands of fibers per gram) Amphibole fibers (millions of fibers per gram) | 279 |
| 76 | 12/13/73 | J&J Letter Re: asbestos in baby powder Outside Testing | Johnson's Baby Powder | ASBESTOS 2 samples | 281 |
| 77 | 1974 | NIOSH Sponsored Multi-lab research | Italian | "Commercial talc is generally not monomineralic material, but rather a mixture of mineral phases. Some of these minerals may pose occupational or even consumer risk of disease"<br><br>Common mineral impurities:<br>Major: Tremolite + Anthophyllite<br>Minor: Actinolite + Chrysotile<br><br>4 samples<br><br>"These minerals are known to have disease potential" | 285 |
| 78 | 2/11/74 | J&J Hired Lab (McCrone) | J&J samples | Chrysotile | 286 |
| 79 | 3/11/74 | J&J Hired Lab (McCrone) | Talc Sample for Johnson & Johnson Baby Products Co. | Chrysotile | 287 |
| 80 | 4/4/74 | J&J visit to outside lab - admissions (Colorado School of Mines) | Vermont | Fibrous Tremolite<br>Fibrous Chrysotile<br><br>Goal: "establish destruction of tremolite in presence of Vermont talc."<br>+<br>"establish destruction of chrysotile in presence of Vermont talc." | 289 |
| 81 | 4/24/74 | J&J Hired Lab (McCrone) | Vermont | Chrysotile 15 samples | 304 |

# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 82 | 4/24/74 | J&J Hired Lab (McCrone) | Vermont | Amphiboles<br>4 samples | 308 |
| 83 | 5/9/74 | J&J Hired Lab (McCrone) | Vermont | Chrysotile fibers<br>2 samples | 310 |
| 84 | 5/14/74 | J&J Vermont Mine Confidential findings (McCrone) | Vermont | Chrysotile<br>4 samples<br><br>Subject: use of system to attempt to remove chrysotile<br><br>"The use of these systems is strongly urged by this writer, to provide the protection against what are currently considered to be materials presenting a severe health hazard and are potentially present in all talc ore in use at this time" | 314 |
| 85 | 5/14/74 | J&J Vermont Mine Confidential findings (Dartmouth College) | Vermont | Amphibole Minerals<br>8 samples | 320 |
| 86 | 5/16/74 | J&J Hired Lab (McCrone) | Vermont | ASBESTOS - Chrysotile<br>2 samples | 322 |
| 87 | 7/8/74 | J&J Hired Lab (McCrone) | Vermont | Chrysotile<br>6 samples | 328 |
| 88 | 7/8/74 | J&J Hired Lab (McCrone) | Vermont | ASBESTOS - Tremolite | 329 |
| 89 | 9/24/74 | Confidential J&J Letter Re "damaging" talc/asbestos release on Italian talc (Societa Talco e Grafite) | Italian | ASBESTOS - Chrysotile | 330 |
| 90 | 10/10/74 | J&J Hired Lab (McCrone) | Vermont | Chrysotile Fibers<br>~ 0.006% | 331 |
| 91 | 12/9/74 | J&J Hired Lab (McCrone) | Johnson & Johnson Baby Powder | ASBESTOS - Chrysotile | 332 |

# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 92 | 1/31/75 | Member of J&J industry group (Avon) | Italian Talc | Tremolite | 333 |
| 93 | 2/24/75 | J&J Supplier discussing EPA findings | Vermont Talc | "The EPA claims talc from Windsor Minerals, obtained from various manufacturing plants, contain asbestos" | 334 |
| 94 | 2/24/75 | J&J Supplier's Findings | Vermont Talc | ASBESTOS repeatedly found<br><br>Tremolite + possible Chrysotile<br><br>Tremolite was mainly in massive form although "further processing would likely result in additional fibrous tremolite being liberated" | 334 |
| 95 | 3/26/75 | Member of J&J industry group (Avon) | Italian Talc | Chrysotile | 335 |
| 96 | 4/30/75 | Member of J&J industry group (Avon) | italian Talc | Tremolite | 336 |
| 97 | 6/11/75 | J&J Hired Lab (McCrone) | Talc samples sent by J&J to be tested | Amphibole fibers/bundles<br>2 samples | 338 |
| 98 | 7/1/75 | J&J Hired Lab (McCrone) | Vermont | ASBESTOS<br>9 samples<br><br>Low and Medium levels of confirmed asbestos | 347 |
| 99 | 9/9/75 | Johnson & Johnson letter Langer's Findings | Johnson's Baby Powder + off-the-shelf talc products | Chrysotile<br>+<br>Amphiboles - tremolite & anthophyllite | 348 |
| 100 | 9/9/75 | Johnson & Johnson reaction to Langer findings | Johnson's Baby Powder + off-the-shelf talc products | The chrysotile finding contradicts what Dr. Pooley (one scientist) had reported - no claim it contradicts the finding about the tremolite or anthophyllite<br><br>J&J immediate response:<br>"refute the data"<br>"prepare our strategy" | 348 |

# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 101 | 9/11/75 | J&J Hired Lab (McCrone) | Vermont | Chrysotile | 349 |
| 102 | 11/1/75 | Competitor's Analysis of Italian Talc | Italian | Fibrous Tremolite<br>4 samples | 353 |
| 103 | 11/5/75 | J&J Hired Lab (McCrone) | Vermont | ASBESTOS<br>13 samples<br>some are "rather high"<br>most are "bundles" of fibers | 366 |
| 104 | 11/19/75 | J&J Hired Lab (McCrone) | Vermont | ASBESTIFORM - amphiboles<br>2 samples | 368 |
| 105 | 3/1/76 | Italian Researchers (Rubino, et al.) | Italian | Tremolite | 369 |
| 106 | 7/5/76 | J&J Hired Lab (Colorado School of Mines) | Vermont | Amphibole Needles | 371 |
| 107 | 2/23/77 | Testing from Vermont Mining Company | Vermont | ASBESTOS | 373 |
| 108 | 4/1/77 | Geochemist Report to J&J + Certificate of Microanalysis<br><br>for Asbestos<br>(EMV Associates) | Talc Samples with new preparation and examination techniques | ASBESTOS - 4 samples<br><br>"Tremolite is often present" including a bundle<br>Composite sample:<br>"both large and small fibrous tremolite particles found" | 377 |
| 109 | 6/27/77 | Testing from Vermont Mining Company done by J&J oustide lab (McCrone) | Vermont | Asbestos - actinolite | 378 |
| 110 | 8/18/77 | Testing from Vermont Mining Company | Vermont | Actinolite-tremolite fibers | 380 |

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# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 111 | 12/15/77 | Outside Mineralogist for J&J's Vermont Mine Mountain States Research | Vermont | Tremolite-Actinolite<br>long needles<br>2 samples | 382 |
| 112 | 2/20/78 | Report on Ore Reserves for Hammondsville Ore Body | Vermont | Actinolite needles | 383 |
| 113 | 10/5/78 | J&J Hired Lab (McCrone) | Vermont | CHRYSOTILE<br>2 samples | 385 |
| 114 | 10/27/78 | Testing from Vermont Mining Company | Vermont | Asbestos Type Found in Sample included Chrysotile | 386 |
| 115 | 2/1/79 | Testing from Vermont Mining Company | Vermont | chrysotile | 387 |
| 116 | 2/9/79 | DOC Analytical Research<br><br>Quality Control for Vermont Talc | Vermont | "found massive amphiboles" specifically Tremolite + Actinolite<br><br>Samples may be "indicative of a coming problem" | 388 |
| 117 | 3/23/79 | Testing from Vermont Mining Company | Vermont | ASBESTOS | 390 |
| 118 | 4/11/79 | Testing from Vermont Mining Company | Vermont | ASBESTOS | 390 |
| 119 | 4/30/79 | Testing from Vermont Mining Company done by J&J oustide lab (McCrone) | Vermont | Chrysotile<br>0 .1%- 1% range of sample | 391 |
| 120 | 5/17/79 | Vermont Mining Company admission | Vermont | Vermont Talc:<br><br>"Asbestos fiber is present." | 391 |

# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 121 | 5/22/79 | Testing from Vermont Mining Company | Vermont | Chrysotile | 395 |
| 122 | 7/17/79 | Testing from Vermont Mining Company | Vermont | Asbestos | 398 |
| 123 | 9/29/80 | J&J Admission + external lab confirmation (McCrone) | Vermont | Chrysotile | 399 |
| 124 | 11/6/80 | J&J external lab (McCrone) | Vermont | ASBESTOS - Chrysotile | 400 |
| 125 | 3/11/82 | Testing from Vermont Mining Company | Vermont | Asbestos | 402 |
| 126 | 8/24/82 | Mine Safety and Health Administration | Exposures to asbestos at the South Plainfield Mill (Italian) | ASBESTOS 14 samples | 416 |
| 127 | 2/24/84 | J&J Hired Lab (McCrone) | Composite Sample | ASBESTOS - Chrysotile 2 grids | 418 |
| 128 | 5/15/84 | Mine Safety and Health Administration | Air filters samples South Plainfield Mill (Italian) | ASBESTOS - Anthophyllite ~0.6% by weight | 423 |
| 129 | 9/26/84 | J&J letter Subject: Talc Asbestos Findings by Paoletti published by reputable organization in Italy + Paoletti article | Italian | ASBESTOS - Chrysotile 1 sample | 424 |

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# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 130 | 9/26/84 | J&J letter<br>Subject: Talc Asbestos Findings by Paoletti published by reputable organization in Italy + Paoletti article | Italian | ASBESTOS - Tremolite<br>7 samples | 431 |
| 131 | 11/2/84 | J&J Hired Lab (McCrone) | Air filter samples | ASBESTOS - Chrysotile<br>4 sample | 435 |
| 132 | 2/26/85 | J&J R&D | Chinese talc cosmetic grade talc | ASBESTIFORM | 436 |
| 133 | 8/22/85 | J&J Hired Lab (McCrone) | California | ASBESTOS - Chrysotile<br>2 samples<br><br>Multiple asbestos fibers seen and counted.<br><br>J&J to complain about the labs failure to use "substantially different language" and "couch" results as in earlier reports.<br><br>Report changed to claim testing "did not find any quantifiable amount of asbestiform minerals in any samples." | 436 |
| 134 | 11/18/85 | American Chemical Society (from J&J internal files) | Italian | Fibrous Amphiboles/tremolite | 437 |
| 135 | 1/30/87 | Johnson & Johnson | Vermont + Johnson's Baby Powder | Amphiboles | 438 |
| 136 | 3/30/87 | Johnson & Johnson | Vermont | Amphiboles<br>23 samples | 461 |
| 137 | 10/1/87 | Johnson & Johnson | Vermont | Hammondsville and Rainbow mines found Amphiboles<br>4 samples | 465 |

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# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 138 | 3/14/88 | J&J Hired Lab (RJ Lee) | Johnson's Baby Powder using Chinese Talc | Chrysotile: .0024% by weight<br>Fibrous tremolite: .014% tremolite by weight | 466 |
| 139 | 3/14/88 | J&J Hired Lab (RJ Lee) | Johnson's Baby Powder using Chinese Talc | Chrysotile: .0024% by weight<br>Fibrous tremolite: .014% tremolite by weight | 467 |
| 140 | 10/13/88 | Windsor Minerals (J&J's talc mine) | Vermont | Sub-trace Amphiboles found - passes industry standards | 468 |
| 141 | 5/23/89 | J&J Hired Lab (RJ Lee) | Talc Sample for Johnson & Johnson Baby Products Co. | Chrysotile | 469 |
| 142 | 11/26/90 | J&J Hired Lab (McCrone) | Talc Samples sent to Quality Control manager for Vermont Mine | Anthophyllite fiber + Chrysotile fiber<br>2 samples<br><br>Results verified in Bench sheets but claim "no quantifiable amounts of asbestiform minerals" | 471 |
| 143 | 11/30/90 | J&J Hired Lab (McCrone) | Talc Samples sent to J&J Consumer Products | Using Johnson & Johnson's Test Method 7024 No asbestos Minerals were identified in the samples<br><br>Bench sheet shows Anthophyllite Talc Fiber | 472 |
| 144 | 1991 | Peer Reviewed Published Paper (Dr. Alice Blount) | Johnson & Johnson's Vermont talc | (PUBLIC - Published Paper): Amphibole fibers are labeled either "needles" or "fibers" depending on how long they are but all are regulatory fibers (3:1 aspect ratio or larger)<br><br>Sample i - both needles & fibers of amphiboles<br><br>(KNOWN TO J&J - NOT IN THE PAPER)<br>Sample i is Johnson & Johnson's Vermont talc | 477 |

# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 145 | 1991 | Peer Reviewed Published Paper (Dr. Alice Blount) | Italian consumer-grade talc | (PUBLIC - Published Paper): Amphibole fibers are labeled either "needles" or "fibers" depending on how long they are but all are regulatory fibers (3:1 aspect ratio or larger)<br><br>Sample h - found asbestos: needles of amphiboles<br><br>(KNOWN TO J&J - NOT IN THE PAPER)<br>Sample h is Italian Cosmetic-Grade talc | 478 |
| 146 | 3/5/91 | Microscopic Analysis for Amphiboles & Chrysotile | Vermont | Actinolite fibers<br>16 times | 494 |
| 147 | 3/5/91 | Microscopic Analysis for Amphiboles & Chrysotile | Vermont | Tremolite fibers | 495 |
| 148 | 1/29/92 | Johnson & Johnson's Talc Supplier (Cypress Industrial Minerals) | Vermont | AMPHIBOLES<br>6 samples<br><0.1% to 2.3% by weight | 501 |
| 149 | 2/10/92 | J&J hired consultant (Dr. Alice Blount) | Johnson's Baby Powder | Analyzed many talc samples and only a few reported. 5 samples reported in Dr. Blount's 1991 published article.<br><br>"individual deposits, the shape distribution and quantity [of asbestos] remains fairly constant over time" | 506 |
| 150 | 3/25/92 | Johnson & Johnson's Talc Supplier (Cypress Industrial Minerals) | Vermont | "The other serious mineralogical contaminant in the talc ores of Vermont is the fibrous variety of the amphibole minerals, tremolite and actinolite… which has been classified as asbestiform minerals by OSHA and EPA."<br><br>Visible tremolite and actinolite in deposits used for cosmetic talc - Hammondsville and Argonaut | 508 |

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# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 151 | 5/21/92 | Johnson & Johnson's Talc Supplier (Cypress Industrial Minerals) | Vermont | Fibrous amphiboles (actinolite) dikes extending in places into the contacting talc ores | 509 |
| 152 | 10/13/95 | J&J Hired Lab (RJ Lee) | Johnson's Baby Powder | Tremolite | 510 |
| 153 | 3/26/96 | Johnson & Johnson testing information from its supplier | Composition sample from Vermont | Amphibole | 511 |
| 154 | 8/25/97 | Health Science Center at Syracuse testing | Johnson's Baby Powder | Asbestiform fibers | 512 |
| 155 | 12/4/97 | Johnson & Johnson's Talc Supplier testing w/ an outside lab (Bain Environmental) | Vermont | Chrysotile | 513 |
| 156 | 3/16/98 | Geologist and Mineralogist hired by J&J | Johnson's Baby Powder | Dr. Blount has "written extensively on talc and asbestos contamination in commercial talc preparations."<br><br>"In her opinion, commercial talcum powder preparations including Johnson & Johnson Baby Powder contain trace amount of asbestos." | 513 |
| 157 | 12/4/00 | Johnson & Johnson's Talc Supplier testing w/ an outside lab (Bain Environmental) | Vermont | Asbestos Analysis had a "hit" of asbestos in monthly floated composition talc sample | 514 |
| 158 | 5/23/02 | Johnson & Johnson's Talc Supplier's testing | Vermont | Fibrous Tremolite in waste rock in Argonaut mine | 515 |

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# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 159 | 3/31/03 | Johnson & Johnson's Talc Supplier's testing | Vermont | 4% Tremolite in the Argonaut mine | 516 |
| 160 | 1/5/04 | Forensic Analytical (outside lab) | Johnson's baby Powder | ASBESTOS - anthophyllite 0.20% by weight | 517 |
| 161 | 2/26/04 | Johnson & Johnson's Talc Supplier's testing | Vermont | Quarterly Composite testing on Vermont Talc Summary Report for 2003<br><br>Found asbestos each quarter reported | 520 |
| 162 | 2/26/04 | Johnson & Johnson's Talc Supplier's testing | Vermont | Quarterly Composite testing on Vermont Talc Summary Report for 2001<br><br>Found asbestos each quarter reported | 523 |
| 163 | 2/27/04 | Johnson & Johnson's Talc Supplier's testing | Vermont | Quarterly Composite testing on Vermont Talc Summary Report for 2002<br><br>Found asbestos each quarter reported | 527 |
| 164 | 3/11/04 | Johnson & Johnson's Talc Supplier's testing | Vermont | Chrysotile 4 samples | 531 |
| 165 | 2014 | Peer Reviewed Published Paper (Gordon, et. al) | Italian North Carolina Montana | ASBESTOS anthophyllite, tremolite + chrysotile 50 samples 1,840 - 1,104,000 fibers per gram<br><br>Air monitoring: 1.9 f/cc when using a talc bottle | 581 |
| 166 | 5/22/14 | Scientific Analytical Institute (Litigation Report) | Italian | Grade 1615 is from Val Chisone Italy in Piedmont. Geologically the talc formed from amphiboles.<br><br>Labs testing confirmed ASBESTOS Anthophyllite, Tremolite + Chrysotile Asbestos | 582 |

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# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 167 | 8/1/17 | MVA Scientific (Litigation Report) | Italian | Lab reviewed 13 Italian samples collected by A. Seagrave (expert used by mine owner)<br><br>Asbestos<br>anthophyllite + tremolite/actinolite<br>11 samples (85% of the samples)<br>0.00002% - 0.68% by weight<br>1.7 - 600 million fibers per gram | 593 |
| 168 | 8/2017-5/2018 | Material Analytical Services<br><br>(Litigation Report) | Johnson's Baby Powder + Shower to Shower (Vermont, Italian & Chinese) | Client Samples obtained from lawyers + eBay/Collector Samples<br><br>ASBESTOS - Tremolite (Richterite), Actinolite + Anthophyllite<br>20 samples (56% of the samples)<br><br>7,160-15.1 million fibers per gram<br><br>concentration used + TEM | 613 |
| 169 | 4/6/18 | RJ Lee Litigation Report | Vermont | ASBESTOS - Chrysotile<br>2 samples | 615 |
| 170 | 4/23/18 | MVA Scientific (Litigation Report) | Vermont | Reviewed 15 samples collected by Mickey Gunter/RJ Lee from Argonaut mine in Vermont<br><br>ASBESTOS<br>anthophyllite + tremolite/actinolite<br>10 samples (67% of the samples)<br>0.00009% - 4.5% by weight<br>1.16 - 2,285 million fibers per gram | 625 |
| 171 | 7/18/18 | J3 Resources (Litigation report) | Johnson's Shower-to-Shower | ASBESTOS - Anthophyllite<br>11 samples (69% of the samples)<br><br>7,419 - 95,321 fibers/bundles per gram<br>concentration + TEM | 636 |
| 172 | 9/25/18 | Material Analytical Services<br><br>(Litigation Report) | Italian | Testing on cosmetic talc product using Italian Talc<br><br>ASBESTOS<br>9 samples (60% of the samples)<br>concentration + TEM | 645 |

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# Decades of Evidence of Asbestos Content in Johnson & Johnson Products

| Number | Date | Source of Information | What Was Tested | Results | Tally |
|---|---|---|---|---|---|
| 173 | 2/1/19 | Material Analytical Services<br><br>(Litigation Report) | Johnson's Baby Powder<br>+<br>Shower to Shower (Vermont, Italian & Chinese) | Historical Samples produced by J&J in litigation<br><br>ASBESTOS - Anthophyllite + Tremolite<br>36 samples (72% of the samples)<br><br>7,420 - 268,000 fibers/bundles per gram concentration + TEM | 681 |
| 174 | 2/1/19 | Material Analytical Services<br><br>(Litigation Report) | Vermont talc | Historical Samples produced by J&J's supplier in litigation<br><br>ASBESTOS - Anthophyllite + Tremolite<br>8 samples (53% of the samples)<br><br>4,600 - 59,000 fibers/bundles per gram concentration + TEM | 689 |
| 175 | 10/11/19 | FDA<br>AMA Analytical Services (testing done by an expert J&J recommended and expert) | Johnson's Baby Powder (Chinese) | ASBESTOS - Chrysotile<br>.00002% | 690 |
| 176 | 10/29/19 | J&J Announcement re lab results from RJ Lee | Johnson's Baby Powder (Chinese) | ASBESTOS<br>3 samples | 693 |
| 177 | 9/29/20 | Material Analytical Services (Litigation Report) | Johnson's Baby Powder (Chinese) | ASBESTOS - Chrysotile<br>3 samples | 696 |

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# EXHIBIT 7

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2023 Jul 27 8:53 PM
CLERK OF THE COURT
CASE NO. A-23-873846-C
DEPT. 24
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ORIGINAL
CASE NO. A-23-873846-C
DEPT. 24

Johnson & Johnson

New Brunswick, N.J.
July 29, 1971

**Subject:** Talc/Asbestos

Mr. L. Foster

Please refer to your memo of July 26, 1971.

The talc used in JOHNSON'S Baby Powder is obtained from a selected mine in Vermont where the ore consists mainly of platy talc with only trace amounts of fibrous minerals (tremolite/actinolite). It is free of chrysotile fibers which may be called "pure asbestos" by the layman.

The ore undergoes a careful purifying process which includes a 36-step washing process to maximize its content of high lubricity platy talc and to remove or substantially reduce any traces of fibrous minerals which may be present in the unrefined ore. The resulting talc has been shown by three independent consulting laboratories* to contain negligible traces of fibrous minerals and no chrysotile fibers.

We will be receiving sometime next week a report from our consultant, Professor F. D. Pooley of the University College of Wales, Mineral Exploitation Section, Cardiff, Great Britain. He has completed an exhaustive examination of a sample of baby powder by electron microscopy and other sophisticated techniques. His oral report is that it contains no asbestos.

W. Nashed

WN/cw

* 1. Colorado School of Mines Research Institute (CSMRI):

a) June 30 report on JOHNSON'S Baby Powder sample Lot 344-L and 6 monthly samples of purified talc from the Vermont mine.

b) July 7 report on ore sample, tailings removed in the processing and finished purified talc.

The CSMRI analyses are based on standard petrographic and X-ray testing technique.

EXHIBIT 7 RoA 03255
EXHIBIT 41
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2. Report from McCrone Associates, Inc. (July 27, 1971)

reporting on their findings by electron microscopic and electron diffraction analysis of a Baby Powder sample.

3. Report from the Dartmouth College Geology Department (June 28, 1971)

reporting on their findings of no tremolite, garnet, or asbestos in a sample of purified talc from the Vermont mine.

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# EXHIBIT 8

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2023 Jul 27 8:53 PM
CLERK OF THE COURT
CASE NO. A-23-873946-C
DEPT. 24
DOCUMENT NO. 3946

Johnson & Johnson

BABY PRODUCTS COMPANY

MAY 2 RECD

April 26, 1973

SUBJECT: WINDSOR MINERALS AND TALC

To: D. D. Johnston

Bill Ashton and I visited with Roger Miller and Vernon Zeitz on April 18th. We covered a number of points of considerable concern.

1. It is our joint conclusion that we should not rely on the "Clean Mine" approach as a protective device for Baby Powder in the current Asbestos or Asbestos-Form controversy. We believe this mine to be very clean; however, we are also confident that fiber forming or fiber type minerals could be found. The usefulness of the "Clean Mine" approach for asbestos only is over.

2. It is possible that the technique of identification for asbestos or asbestos-form materials will be an optical approach. It probably will be some variation of the McCrone method. This method with appropriate concentrating techniques will permit a good laboratory to identify asbestos or tremolite in a talc sample.

3. The current medical research is confirming that it is particle shape, not chemical substance which is harmful as such fiber-like materials will be suspect. The argument rages as to whether an aspect ratio of 3/1, 5/1, or 10/1 will be adopted.

4. The problem then is two fold, one for Windsor and one for Baby Powder.

   a. At Windsor the mine is currently under the jurisdiction of the Bureau of Mines. The inspections of the mine indicate that we are well within the limits presently accepted for non-fibrous dust. Roger Miller feels that they could live within the current TLV values for fibrous talc of 5 parts per million. We don't know the impact of a TLV of 2 fibers per cubic meter.

      The May 8th meeting will primarily be an information meeting on mine and manufacturing safety. We would not expect standards to be set, however, there will be agitation probably by OSHA, NIOSH, and the Consumer Groups (Selikoff), to lower the standards for the industrial exposure to the same level as asbestos.

J&J-0145685

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Windsor is currently cooperating heavily with the local Bureau of Mines man out of Albany and in fact teaching him how to use microscopic techniques to identify the presence or absence of fibers.

We recommend that Windsor have a representative at the May 8th meeting as observers and that no other J&J representation should be had at the Bureau of Mines meeting. We will review this strategy next week after a meeting with the Johns Manvill people.

b. As for Baby Powder, the entire thrust of our communications with the FDA has concentrated on asbestos as harmful fiber-like material. Sophisticated techniques have been proposed to make sure that fiber-form materials present in samples were identified as being asbestos. The implication is that all other fiber-forms, if present, were talc or other minerals and these were safe. This posture will no longer be satisfactory. If the FDA Food Division, which is moving more rapidly than the Cosmetic Division, publishes a standard, it will probably be to ban asbestos-form or fibrous material in talc. That could eliminate the current uses of talc in packaging materials. These talcs contain widely varying amounts of tremolite or fibrous talc. Our Baby Powder contains talc fragments classifiable as fiber. Occasionally sub-trace quantities of tremolite or actinolite are identifiable (optical Microscope) and these might be classified as asbestos fiber.

5. We have been pursuing several alternatives to better protect our powder franchise. These include:

a. An improvement in the flotation technique to better select platy talc, and perhaps reduce any tremolite or talc shards. The work is still in the lab and the timetable for commercialization is unknown. It is, however, a chemical procedure and therefore would probably not require major equipment change.

b. A program investigating two different ways of removing a large portion of the very fine particles presently found in talc. We have demonstrated the feasibility of both approaches. The equipment and process development would take between 9 and 12 months on a crash basis. Other approaches which might be less expensive or more effective, have only been talked about. A crash engineering program could be

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undertaken with a good chance of success in this area. It should be cautioned, however, that no final product will ever be made which will be totally free from respirable particles. We are talking about a significant reduction in fine particle count but not 100% clean-up.

c. Corn Starch is obviously another answer. The product by its very nature does not contain fibers. Furthermore, it is assimilated by the body.

We would recommend that items "a" and "c" receive top priority. The Corn Starch program is primarily one of merchandising and the development of explosion proof facilities. We would recommend this program be spear-headed by a task force under Jim Dettre.

The flotation program is currently being worked on at Windsor by Vernon Zeitz. We would propose a task force of Zeitz, Goodman, and Ashton and Rolle, to identify the opportunities in removing fiber-like materials from the beneficiated talc, with a recommendation to Management in 30 days.

6. If we are agreed with the above, then the Battelle Program should be restudied to include cells of animals on a, b, and c. We might wish these to be new cells, or to delete certain cells now in the program.

D. R. Petterson

DRP/mm
cc: W. Ashton
R. Miller
File

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# EXHIBIT 9

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2/7/2023 8:53 PM
CRIMINAL CASE NUMBER: 2023-003946

Strategy.

October 23, 1973

Mr. J. Mullen

The proposal will have no impact on our talc since the method of analysis in the proposal will show that our talc is acceptable.

However, if they change the method, we may have problems.

W. Nashed

wn/cw

Attach.

In reply to Mullen's question regarding 9-28-73 regulations proposed by FDA.

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# JNJAZ55_000006212

## Metadata

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| **Confidentiality** | Y | ORIGINAL |
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| **DateMod** | 10/23/1973 12:00 AM | ORIGINAL |
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# EXHIBIT 10

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SCIENTIFIC CONSULTANTS

ERNEST F. FULLAM, INC.

ELECTRON MICROSCOPY · DIFFRACTION · MICROPROBE ANALYSIS

P. O. BOX 444 · SCHENECTADY, NEW YORK 12301 · 518/785-5533

COPY

October 16, 1973

Mr. Ray R. Krammes
Manager-Technical Services
Whittaker, Clark and Daniels, Inc.
1000 Coolidge Street
South Plainfield, New Jersey 07080

Ref:Request for quotation, October 11, 1973

Dear Ray:

Regarding your telephone conversation with Ernie on October 11 and your subsequent correspondence, we are definitely interested in analyzing talc samples for asbestos. Our charge for this work would be $50.00 per sample, based on the official procedure described in the Federal Register (v. 38, no. 183, pg. 27080). The results would be described in terms of two parameters: the number of chrysolite fibers/mg. and the number of amphibole type fibers/mg.

As you know, it is often difficult to prove the identity of fibrous material by light microscopy, particularly if two or more particles have nearly identical refractive indices or are not clearly resolved at a magnification of 430 times. Electron microscopy and diffraction of the suspect particles may be required to positively identify specific types of asbestos. There would be an additional charge of $100 per sample for the electron optical characterization of particles in each sample (qualitative information only).

It was good to hear from you again, and to find that you are still involved with microscopy. Drop me a note if you have time.

With best regards,

ERNEST F. FULLAM, INC.

Dick

Richard E. Stevens
Scientist

RES:jbc

LABORATORY AND OFFICE: 900 ALBANY SHAKER ROAD · LATHAM, NEW YORK



LoGiudice/WCD/0170

BRISTOL-MYERS PRODUCTS
A DIVISION OF BRISTOL-MYERS COMPANY

225 LONG AVENUE
HILLSIDE, NEW JERSEY 07207
TELEPHONE 201-923-5000

October 19, 1973

Mr. Fred Roesch
Whittaker, Clark and Daniels
1000 Coolidge Street
South Plainfield, New Jersey 07080

Dear Fred:

We have mailed to your attention six samples of talc, each from different geographic areas of the United States, including also a sample of Italian Talc. Code numbers for the talc sent to you are as follows:

| | |
|---|---|
| Italian 1615 | WH-010 |
| Montana-Pfizer | WH-009 |
| Montana-Ferry | WH-073 |
| Alabama | WH-025 |
| Vermont | WH-033 |
| North Carolina | WH-037 |

In addition, enclosed herewith is a small sample of talc which has been deliberately spiked with chrysotile and tremolite, for your use in the recognition of these materials. The sample size is sufficient only for use in the optical microscopic procedure. If you have x-ray diffraction capabilities, I have some residual sample from which we could draw an additional amount (0.5 gm.) for the diffraction analysis. Please contact me if this is your wish.

Thanks for your cooperation in this very important project.

Sincerely,

George

George W. Sandland

GWS:dd
Enclosure



LoGiudice/WCD/0171

# DETERMINATION OF ASBESTOS IN TALC BY LIGHT-OPTICAL MICROSCOPY

for

Whittaker, Clark & Daniels, Inc.
South Plainfield, New Jersey

November 20, 1973

Report No. 1621

RoA_03267

ERNEST F. FULLAM
INCORPORATED
Scientific Consultants
P.O. BOX 444 • SCHENECTADY, N. Y. 12301

For: Whittaker, Clark & Daniels, Inc.
South Plainfield, New Jersey
November 20, 1973
Page One

## DETERMINATION OF ASBESTOS IN TALC BY LIGHT-OPTICAL MICROSCOPY

Six samples of talc were received for analysis on October 29, 1973 as follows:

| | |
|---|---|
| WH-009 | WH-033 |
| WH-010 | WH-037 |
| WH-025 | WH-073 |

Information requested by the customer included the number of chrysotile and amphibole-type asbestos particles in each milligram of talc.

Samples were to be analyzed according to the method described on page 27080 of the "Federal Register," Vol. 38, No. 188, Friday, September 28, 1973. One milligram of sample was weighed out onto each of two microscope slides. To one slide was added 3 drops of 1.574 refractive index liquid; to the other, the same amount of a 1.590 refractive index liquid. This procedure was repeated for all six samples.

Particles were dispersed in the oil with the aid of a needle, capped with a 18 mm square cover glass, and the resulting mounts examined by phase-contrast microscopy at a total magnification of 430 diameters. Crossed polars were utilized as required to determine the optical orientation and extinction characteristics of specific fibers.

Report No. 1621



LoGiudice/WCD/0173

ERNEST F. FULLAM
INCORPORATED
*Scientific Consultants*
P.O. BOX 444 • SCHENECTADY, N. Y. 12301



When the number of asbestos fibers reached 150 per milligram, the count was stopped at a suitable location on the slide and the total number of asbestos fibers calculated from the total area of the slide divided by the area actually counted.

## RESULTS AND CONCLUSIONS

Particle count data are tabulated as follows:

| Sample No. | Chrysotile fibers per mg. | Amphibole fibers per mg. |
|---|---|---|
| WH-009 | 450 | 18,000 |
| WH-010 | 1,350 | 8,250 |
| WH-025 | 6,075 | 21,825 |
| WH-033 | 675 | 3,225 |
| WH-037 | 6,000 | 20,850 |
| WH-073 | 5,200 | 29,250 |

There are perhaps an equal number of particles in each sample which escape detection since they fall below the 3:1 aspect ratio required for positive identification.

ERNEST F. FULLAM, INC.

Richard E. Stevens

Richard E. Stevens

Report No. 1621

MONTANA-PFIZER
1615
ALABAMA
VERMONT
N. CAROLINA
MONTANA-FERRY

0.04 %
0.14
0.61
0.07
0.60
0.52

1.80 %
0.28
2.18
0.32
2.08
2.97



LoGiudice/WCD/0174

# EXHIBIT 11

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2023 Jul 27 8:53 PM
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CASE NO. A-23-873846-C
DEPT. 24
DOCUMENT 3846

Luzenac America Technical Center • 8985 East Nichols Avenue • Englewood, CO 80112 • (303) 643-0451 • Fax: (303) 799-8926

# TECHNICAL REPORT

To: **David Crouse**

Analytical Project No: **A01709**
Date: **23-May-02**

From: **Julie Pier**
**Analytical and Technical Support**

Copy: **J. M. Godla**
**S. S. Mauney**
**R. J. Zazenski**

Subject: **ANALYSIS OF FIBROUS MATERIAL FROM ARGONAUT WASTE ROCK**

**Request:**

A sample of fibrous material from the waste rock on the west side of the south end of the Argonaut mine was submitted to the Technical Center for identification. The waste rock was being considered for road paving applications.

**Results:**

**The fibrous material is tremolite.**

The material was first examined by polarizing light microscopy, using the dispersion staining technique. Tremolite was preliminarily identified by this method.

Subsequent analysis by scanning electron microscopy (SEM) and transmission electron microscopy (TEM) confirmed the tremolite identification. SEM micrographs and chemical analysis by energy dispersive X-ray spectroscopy (EDS) are included in Plate 1.



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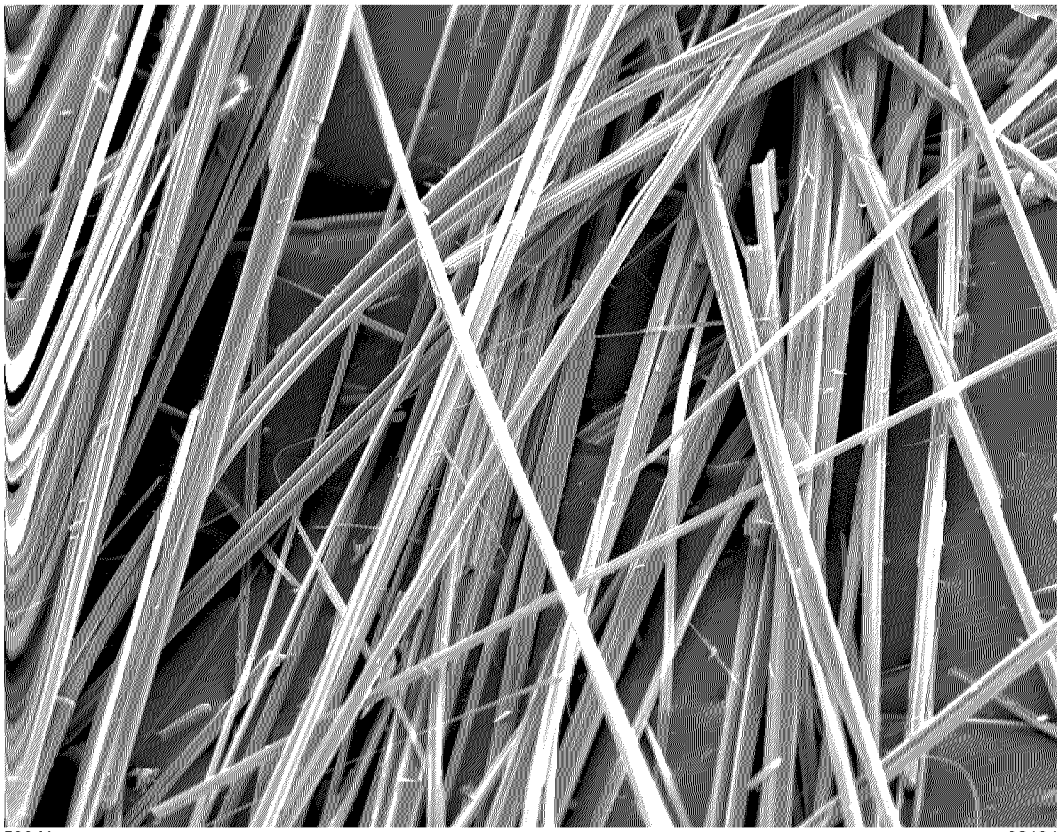
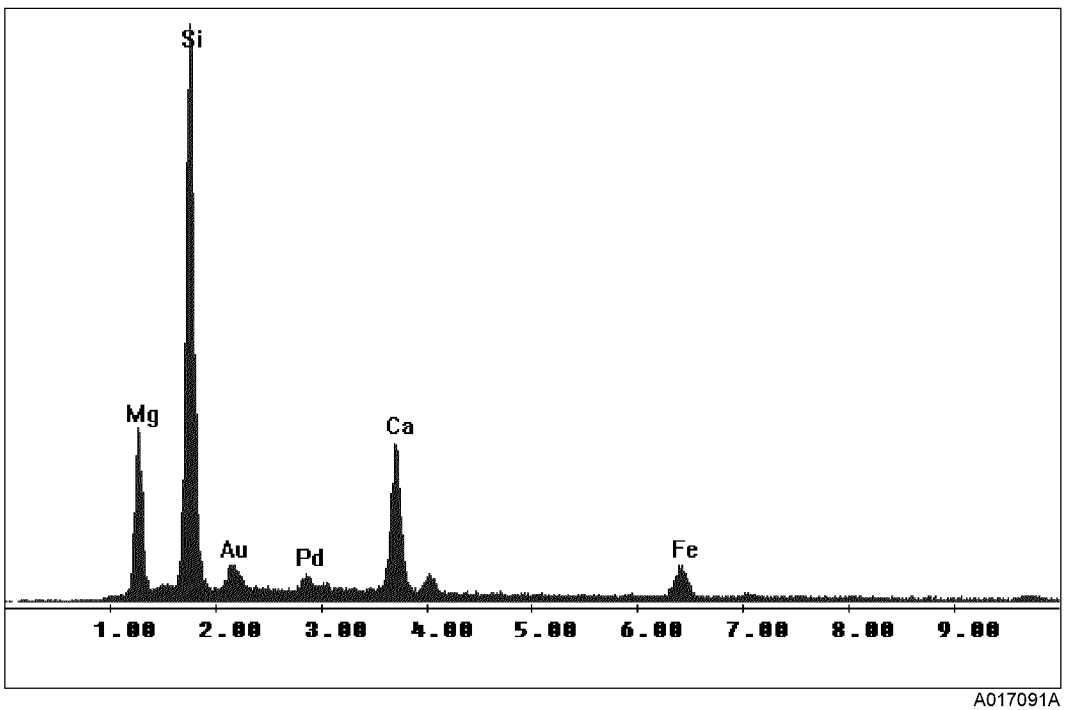



***SEM IMAGE***

Fibrous material found in Argonaut waste rock identified as tremolite. The material clearly has an extremely high aspect ratio.




***EDS CHEMICAL ANALYSIS***

The chemical analysis of the material, above, is consistent with tremolite.

Au and Pd peaks are from a conductive coating applied for SEM analysis.

# EXHIBIT 12

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*Environmental Health Perspectives*
*Vol. 94, pp. 225–230, 1991*

ELECTRONICALLY FILED 2020 Aug 27 8:53 PM CRAIG RILEY CLERK COMMONWEALTH OF MASSACHUSETTS SUFFOLK SS 2020 0003246

# Amphibole Content of Cosmetic and Pharmaceutical Talcs

## by A. M. Blount*

**Pharmaceutical and cosmetic-grade talcs were examined for asbestiform amphibole content using a new density-optical method. Talcs under the Food and Drug Administration are not regulated as to asbestos content; however, all talcs were well below the level mandated by the Occupational Safety and Health Administration for industrial talcs. Only one was found to contain an amphibole particle size distribution typical of asbestos.**

## Introduction

In 1973 the Food and Drug Administration (FDA) proposed a regulation on the permissible asbestos content of talc (*1*). This regulation proposed to limit the amount of amphibole minerals to less than 0.1% and chrysotile to less than 0.01%. However, the optical microscopy method proposed was so complicated, lengthy, and subject to error that the proposed method was never finalized. Since then no final ruling has been issued.

The Occupational Safety and Health Administration, on the other hand, has been more rigorous and has instituted regulations despite the lack of methods to carry out the required measurements. One regulation, instituted in 1986, defines amphibole minerals as asbestos if the length to width ratio is 3:1 or greater. Because many nonfibrous cleavage fragments of amphibole minerals have a 3:1 aspect or greater and because there is no good evidence for adverse effects of these particles, a stay has been in affect on this part of the regulation (*2*). The second applicable regulation is the Hazard Communication Regulation (*3*), which applies to all chemicals used in the workplace. Specifically, it requires labeling of substances containing $>$ 1% of a chemical hazardous to health and $>$ 0.1% of a carcinogenic chemical.

Unfortunately, asbestos and amphiboles cannot be measured using currently developed methods to the level of 0.1% in the presence of talc. Some investigators have suggested that tremolite can be measured to that level by X-ray diffraction. But others have shown that the peak intensities vary between nonfibrous and fibrous tremolite (*4*) so that the 0.1% level of detection and measurement is doubtful except in cases where the sample has been spiked so that the exact nature of the tremolite is known. For anthophyllite there is little argument about the fact that detection cannot be made to 0.1%. However, the main problem with using X-ray diffraction for detection of amphibole minerals is that it gives no information about the shape of the particles, and shape is important in view of the uncertainity in the outcome of the asbestos regulation pertaining to nonfibrous amphiboles.

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The talcs that are pharmaceutical grade fall under the domain of the FDA and are therefore nonregulated in regard to fibrous mineral content. In the course of developing a technique to facilitate quantification of amphiboles in talc (*5*), pharmaceutical and high-grade talcs were examined. They were found to have very low amphibole content and, because of this, were extensively used in examining the lower limit of detection of the new method. The purpose of this paper is to describe the results of analyses for content and shape of amphibole mineral fragments in cosmetic and pharmaceutical talc powders of the United States.

## Methods

The method proposed by the FDA in 1973 for analysis of talc was an optical procedure as described below (*1*):

> Weigh out 1 milligram of a representative portion of talc on each of two microscope slides. Mix the talc with a needle on one slide with a drop of 1.574 refractive index liquid, and then the other with 1.590 liquid, and place on each a square or rectangular cover glass sufficiently large so that the liquid will not run out from the edge (ca. 18 mm square) and will provide a uniform particle distribution. Fibers counted by this method should meet the following criteria: (i) Length to width ratio of 3 or greater (ii) length of 5 $\mu$m or greater (iii) width of 5 $\mu$m or less. Count and record the number of asbestos fibers in each 1 milligram as determined from a scan of both slides with a polarizing microscope at a magnification of approximately 400×. In the 1.574 refractive index liquid, chrysotile fibers with indices less than 1.574 in both extinction positions may be present: in the 1.590 refractive index liquid, the other five amphibole types of asbestos fibers with indices exceeding 1.590 in both extinction positions may be present. Check the extinction and sign of elongation for tentative identification. For specific identification of asbestos fibers, make additional mounts in appropriate refractive index liquids, and refer to the optical crystallographic data in the table. A count of not more than 1000 amphibole types of asbestos and not more than 100 chrysotile asbestos fibers per milligram-slide constitutes the maximum limit for the presence of these asbestos fibers in talc. These limits assure a purity of at least 99.9 percent free of amphibole types of asbestos fibers and at least 99.99 percent free of chrysotile asbestos fibers.

The problem with the proposed method is that talc flakes are often oriented vertically or at a sufficient angle that they appear to be needles and thus must be tested for refractive index (Fig. 1). A typical number of such particles is five per field of view. This

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FIGURE 1. Talc flakes in 1.584 refractive index liquid. Note that there are particles in this field that have aspect ratios greater than 3:1. Width of view 0.13 mm.

means that some 20,000 particles would need to be examined in a typical case. In additon, chlorite is often present and when on edge must be examined in two extinction positions. This is clearly beyond what could be expected of any sane microscopist for a routine analysis. Since no other procedure has been developed as an alternative, a compromise has been to count 100 fields of view (FOV). In this way one need only examine about 500 particles in detail.

Because 500 particles is still a lengthy process, a more rapid and equally accurate method has been developed based on concentrating the amphibole particles by density difference. Figure 2 illustrates that there is a distinct break in density ranges between talcs and amphiboles. A heavy liquid of intermediate density is used, either Klein's (cadmium borotungstate) or Clerici's (thallium formate-malonate) solution. Experimentation showed that a heavy liquid of density 2.810 gives good separation even though values given in the literature and shown in Figure 2 would suggest that the density should be slightly higher. Because the density difference between particles and liquid is small, to get separation in a reasonable length of time a microcentrifuge is used with tubes containing 1.5 mL liquid. The height of the liquid column is, in this case, about 10 mm.

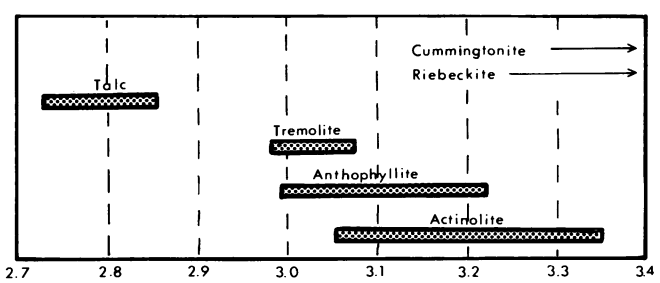


FIGURE 2. Specific gravities of talc and amphibole (6).

The general procedure involves weighing about 60 mg sample into a microcentrifuge tube and adding heavy liquid of density 2.810. After these are mixed, the tube with sample is placed in a vacuum for 3 min to remove the small bubbles adhering to the particles. After centrifuging the sample for 10 min at 7000 rpm, the heavy particles are removed from the bottom of the tube with a micropipette.

The counting of particles can be done either on a membrane filter (Nuclepore, 1.0 $\mu$m pore size) which has been placed on a microscope slide or as particles directly on the glass slide. In the first case, the heavy liquid with sample is forced through a membrane filter followed by distilled water to clean out the heavy liquid. The filter is then placed on a glass slide while wet. When dry, 1.584 refractive index liquid is placed on the filter followed by a cover glass. The photographs shown in this paper are of particles on filters.

The second case, particles directly on the microscope slide, requires transferring the heavy particles and some of the heavy liquid to a second centrifuge tube. Distilled water is added and the sample centrifuged. The liquid is pipetted off and more distilled water added. This is repeated several times to clean out the heavy liquid. Finally, the particles with several drops of water are transferred to a glass microscope slide. The advantage of this procedure is that any refractive index liquid can be used, whereas, in the former case, the refractive index is constrained by having to match the index of the membrane filter (either 1.584 or 1.625). The 1.584 value is good for analyzing amphiboles in talc, but the centrifuge method described has application to other mineral combinations, such as talc-quartz. With other combinations, refractive indices other than the two exhibited by the membrane filter may be more appropriate.

The particles are counted in 20 FOV. Being concentrated from 60 mg or more of sample, one will see more amphiboles than in 100 FOV using the old method. The number of amphibole particles per milligram (ppmg) is calculated:

$$\text{ppmg} = \text{amphibole particles/mg} = \frac{(\text{number of amphibole counted/number FOV counted}) \times \text{total number FOV}}{(\text{efficiency}) \times (\text{number of mg of sample})}$$

Efficiency of the spin-down is determined experimentally. For more details of the method see Blount (5).

Figure 3 illustrates the results obtained when testing the method using known mixtures. Because it is difficult to measure and mix in very small weights of amphibole, a sample containing 2% tremolite in talc was mixed with pure talc to make mixtures containing very low percentage values of tremolite. For example, sample A (Fig. 3) consisting of 0.06% tremolite was made by weighing 58.9 mg of pure talc with 1.7 mg of talc containing 2% tremolite (1.7 mg/60.6 mg $\times$ 2% = 0.06%). It is not necessary to make a homogeneous mixture since the entire sample was used in the experiment. Also, the talc containing amphibole was put in the tube second in order not to give the amphibole any "head-start" in sinking to the bottom.

The centrifuge method was also tested with a commercial talc. 100 FOV were counted in ten 1-mg samples according to the FDA procedure for amphibole. This was compared with 20 FOV counts on 60-mg centrifuge samples (Fig. 4). The agreement is quite good. The standard deviations were determined in two

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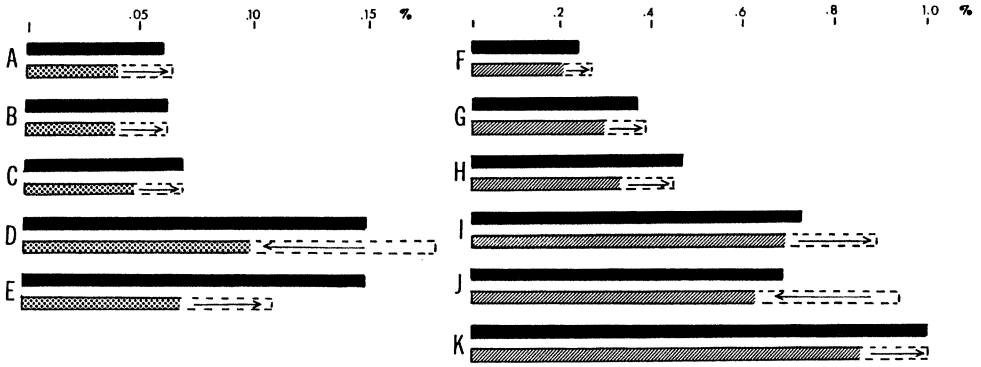


FIGURE 3. Percent tremolite in talc as determined by the centrifuge/optical method (shaded bars) compared with that actually present in experimental mixtures (black bars). The dashed part of the shaded bars indicates +2 SD (right arrow) or −2 SD (left arrow).

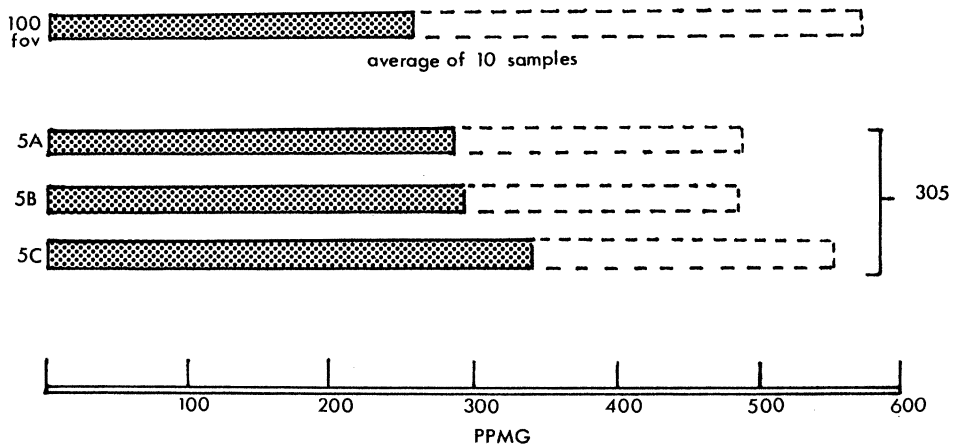


FIGURE 4. Comparison of traditional (100 FOV) count with centrifuge/optical count of same talc. The three lower bars indicate the values in particles/mg obtained by the centrifuge/optical method for three 60-mg samples. The top bar is the average of ten 100 FOV (traditional method). The dashed part of all the bars is +2 SD.

ways: for the traditional method by calculating in the usual way from multiple analyses and for the centrifuge method by means of the Poisson distribution from single counts. Standard deviations are high for the centrifuge method because of the very few particles counted. These could be decreased by making a larger count, but isnce the purpose of the study was to find a reasonably rapid method of monitoring amphibole content of talcs, larger counts were not generally made.

## Results

High-grade talc products from five deposits in Montana, three in Vermont, and one each in North Carolina and Alabama were examined using the centrifuge/optical method. In addition, four talcs from outside the U.S. but available in the U.S. market were included in this study. Talcs from other districts in the U.S. were examined, but these talcs had grades with less stringent requirements and are not included in this report.

Results of particle counts are shown in Table 1. The FDA has equated 0.1% with 1000 particles per milligram. In order for amphibole particle content to be less than 0.1%, 20 or less particles must be observed in 20 FOV (5). Since all were well below this value, more extensive counts were not generally made.

It should be borne in mind that the 0.1% indicated is percent by count and not percent by weight or volume. The question of the validity of this relation has been considered (5). Briefly, the relation implies (1000 amphibole particles)/(1,000,000 total particles). Counts of total particles per milligram of talc have shown that 1 million particles per milligram of talc is a low value. Most show at least 2 to 3 times this number. The only exception was a baby powder with very large flakes which showed 0.4 to 0.8 million particles per milligram. It was not clear, however, whether this was a true value or due to the problem of counting where large, flakey particles could potentially hide other particles even in the most carefully prepared samples. Using 1000 particles/mg = 0.1% would, in most samples, give a percentage value on the high side and in this sense be a conservative answer.

The counts shown in Table 1 were made of regulatory fibers i.e., aspect ratio > 3:1. In some samples there were as many or more nonregulatory particles of amphibole as regulatory fibers. The shape of the amphibole varies greatly and seems to be highly characteristic of each deposit. In Table 1, the particles having aspect ratios less than 6:1 are designated cleavages and prismatic pieces. Those greater than 6:1 and less than 15:1 are labeled

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**Table 1. Counts of regulatory fibers in processed talcs.**

| Sample | Counts, particles/mg | SD | Particle shapes | Particles/FOV[a] |
|---|---|---|---|---|
| A | 38 | 25 | Cleavages | 3/100 |
| B | ND[b] | | | 0/20 |
| C | ND | | | 0/20 |
| D | < 25[c] | | Cleavages | 0/20 |
| E | ND | | | 0/20 |
| F | ND | | | 0/20 |
| G | ND | | | 0/20 |
| H | 17 | 17 | Cleavages and needles | 2/20 |
| I | 226 | 59 | Needles and fibers | 17/20[d] |
| | 283 | 100 | Needles and fibers | 8/20 |
| | 291 | 98 | Needles and fibers | 9/20 |
| | 341 | 108 | Needles and fibers | 10/20 |
| | 102 | 51 | Needles and fibers | 3/20 |
| J | 25 | 14 | Cleavages | 1/20 |
| | 27 | 27 | Cleavages | 3/20 |
| K | 25 | 25 | Cleavages | 1/20 |
| L | < 10[c] | | Needles | 0/20 |
| M | 39 | 21 | Cleavages and fibers | 4/20 |
| N | 25 | 17 | Prismatic pieces | 3/20 |
| O | ND | | | 0/20 |

[a]FOV, fields of view.
[b]ND, none detected.
[c]No particles seen during a 20 FOV count, but some particles could be seen during a random scan of the filter. Value shown is the lower limit of detection.
[d]Large sample used for this analysis (305 mg).

"needles." The remainder, which are greater than 15:1, are labeled "fibers." Whereas in many samples only a few particles were counted as shown in the right-hand column of Table 1, it should be remembered that even if only one particle was present in 20 FOV that about 300 were present on the slide. Because of the low interference by talc particles, these were seen so that it was easy to get a sense of the general particle shape.

The shape distribution of particles for several samples was determined. Figure 5 shows a photograph of a particle of tremolite in sample *I*. The particle is composed of fibrils. The length and width of 100 amphibole particles in this talc were measured. The resulting distribution of aspect ratios is shown in Figure 6. The results when compared with the aspect ratios determinded for tremolite asbestos with SEM by Campbell et al. (*7*) show sample *I* has a distribution similar to asbestos. Sample *M* was analyzed in the same way (Figs. 6 and 7). The graph of aspect ratio verses percent is compared with Campbell's results for nonfibrous tremolite. The similarity of the curves indicates that the tremolite in this talc is of the nonfibrous type.

Because the fractions produced by centrifuge are not generally pure after a single spin-down, a sample containing a variety of particle shapes was tested to see if the aspect ratio distribution results become biased in favor of larger, chunky grains (low aspect ratio) over small, long grains (high aspect ratio). The sample used contained 6.5% tremolite, a sufficient quantity that the traditional optical method could be used to compare with the centifuged sample. The resulting aspect ratio distribution curves (Fig. 8) do not show significant differences. With the traditional method, 69% of the amphibole particles have an aspect ratio of 3:1 or greater, whereas for the centrifuged samples the value is 64%, a variation which is not significant. The differences shown for 5:1 and 10:1 are probably due to the limited number of particles measured, in this test 100 particles in each sample.

Despite the similarity of the curves, the mean length and mean width of the amphibole particles measured using the centrifuge method are greater than those obtained using the traditional method (Table 2). Analysis of size distribution indicates that the proportion larger than 15 $\mu$m is greater in the centrifuged sample. This difference in dimension distribution does not appear, however, to affect the aspect ratio distribution. Other investigators have found that as particles increase in length, the aspect ratio shifts to higher values (*8,9*). This applies to both asbestos and nonasbestiform amphiboles, so presumably the effect of centrifuging down longer particles would be to force the aspect ratio distribution peak to higher values.

## Discussion

The high-grade talc powders are uniformly low in amphibole content. Counts obtained were 0 to 341 particles/mg. Indeed, talc from some districts appears to be completely free of such minerals. In those containing amphibole minerals there are two distinct types: cleavage type and asbestos type. These two types show distinctly different aspect ratio distributions as demonstrated in Figure 6 (samples *I* and *M*). The aspect ratio difference probably accounts in a large part for the higher particle count per milligram of sample *I* compared with the others which show cleavage fragments. It is easy to see that the number of particles showing greater than 3:1 aspect ratio would be greater in the former case even if the total number of particles of amphibole were equal. This observation reinforces the original decision to count particles visually rather than attempting to use X-ray diffraction. It is not wise to try to convert information on dimensions to percent by weight or volume because a few very large particles can drastically affect the resulting value. Campbell et al. (*8*) discuss this in some detail.

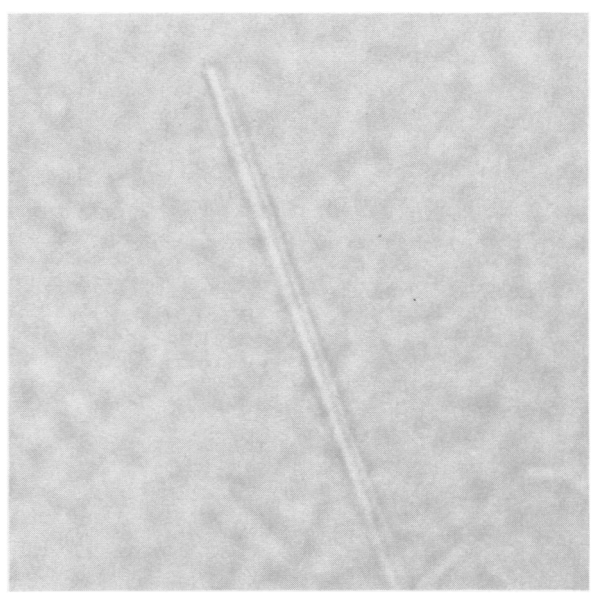

FIGURE 5. Particle of amphibole in centrifuged sample *I*. Width of view 0.07 mm and 1.584 refractive index liquid. Particle is on a membrane filter.

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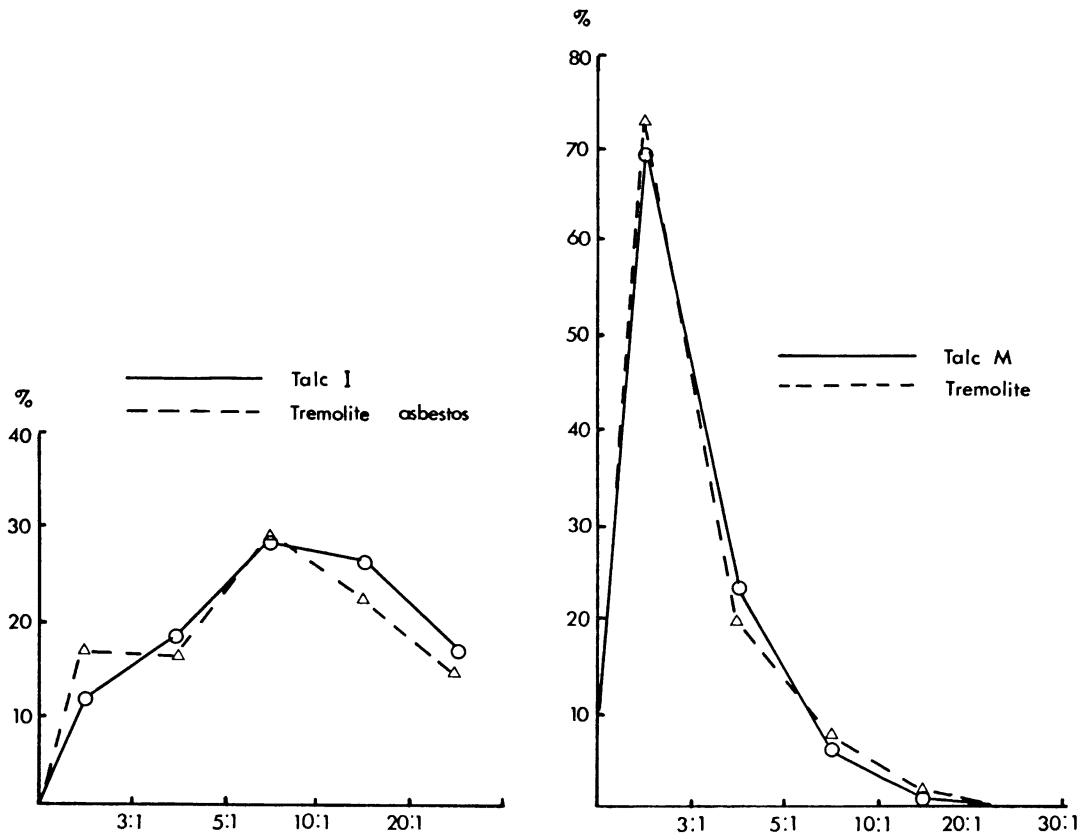


FIGURE 6. Percent amphiboles in each aspect ratio group for talc sample *I* (left) and *M* (right) compared with tremolite asbestos (*7*) and tremolite (nonasbestiform) (*7*).

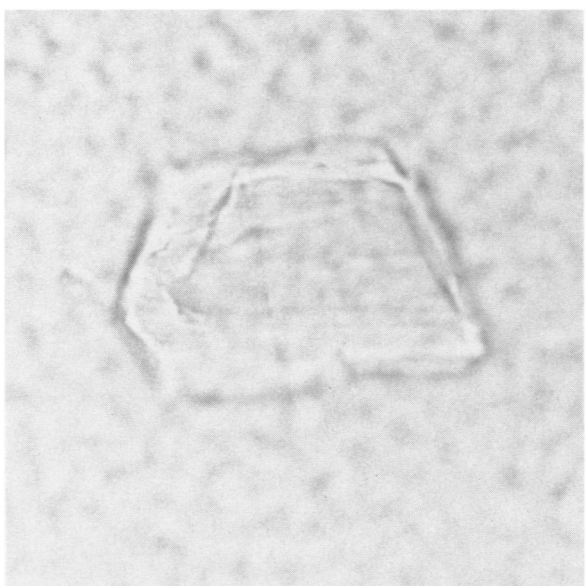

FIGURE 7. Particle of amphibole in centrifuged sample *M*. Width of view 0.07 mm and 1.584 refractive index liquid. Particle is on a membrane filter.

FIGURE 8. Percent amphiboles in each aspect group for a sample handled in two ways: solid line shows results using traditional method and dashed line shows results using centrifuge method. Dimensions of 100 particles measured for each curve.

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**Table 2. Summary of size and aspect ratio data used to construct Figure 8.**

| Method | Size, % | | |
|---|---|---|---|
| | 5–10 μm | 10–15 μm | ≥ 15 μm |
| Traditional | 57 | 26 | 16 |
| Centrifuge | 33 | 27 | 38 |
| | Mean length, μm | Mean width, μm | Mean aspect ratio, μm |
| Traditional | 12.5 | 3.0 | 4.4 |
| Centrifuge | 17.5 | 4.7 | 4.6 |

Further, the results from this study demonstrate the utility of the centrifuge method not only for obtaining a count of particles, but also for obtaining information on the shape of particles in a population. It should be emphasized that the aspect ratio curves determined for samples *I* and *M* would have been virtually impossible to obtain using the FDA procedure. The determination would have required examining over 3000 FOV. As indicated previously, many talc flakes on edge appear to be fibers and must be examined during such a scan, making the whole job impossibly tedious.

Finally, even in those cases where one may wish to use the standard 100 FOV count, the centrifuge method offers a way to screen samples between those times when a more lengthy count is made, and it permits a double check of values so determined. In addition, the tendency to bring down a disproportional number of larger particles has the advantage that with true asbestiform amphiboles one generally sees some particles showing bundles of fibrils which removes any doubt about the nature of the amphibole.

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C. 1976.

February 10, 1992

Dr. Michele Refregier
Talc De Luzenac
B.P. 1162
3136 Toulouse Cedex
FRANCE

Dear Dr. Refregier:

Slim Thompson called recently about my paper in Environmental Health Perspectives. He said that you had been in contact with him. I am not trying to cause the talc industry any problems. I think lack of knowledge is a more serious problem. I have been told by the Industrial Hygienist that consults for this institution that all talc contains asbestos and we should not use any products containing talc.

The reason I have carried out this study is that I am asked to analyze very pure talcs for amphiboles. I takes a great deal of time to do 100 fields of view. Sometimes it is necessary to go to 1000 f.o.v. It is not fun! It seemed to me that there had to be an easier way, and to establish the validity of a method it is necessary to publish it for peer review. That is why the paper has appeared in print. Even if I use the old method, the new one is useful to give me an idea of how much effort will be needed to do the analysis to the accuracy required.

As I told Slim Thompson I have analyzed many talc samples (only a few reported) and often blind, in that I did not know their sources at the time the analyses were done. I do not believe I am misrepresenting these talcs. For individual deposits, the shape distribution and quantity remains fairly constant over time.

Sincerely yours,

Alice M. Blount

Alice M. Blount

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A Italian

B Willow Creek, MT

C Pfizer, MT

D. North Carolina

E Alabama

F Willow Creek, MT

G Barretts, MT (floated in Alabama)

H Italian

I Windsor, VT - baby powder

J Vermont

K Vermont

L Vermont

M Vermont

floated - one from Windsor + Troy

N Steetley, Ontario

O Montana Talc Co., MT

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# Serous Ovarian Cancer Caused by Exposure to Asbestos and Fibrous Talc in Cosmetic Talc Powders—A Case Series

*Joan E. Steffen, BA, Triet Tran, BA, BS, Muna Yimam, BS, Kate M. Clancy, Tess B. Bird, DPhil, Mark Rigler, PhD, William Longo, PhD, and David S. Egilman, MD, MPH*

**Objective:** Asbestos is a known cause of ovarian cancer. We report 10 cases of serous ovarian cancer among users of Johnson & Johnson (J&J) asbestos-containing "cosmetic" talc products. **Methods:** We conducted an asbestos exposure assessment during talc application and analyzed surgical tissues and talc containers for asbestos and talc. **Results:** Talc was found in all cases and tremolite and/or anthophyllite asbestos was found in 8/10 cases. The asbestos fibers found in the "cosmetic" talc containers matched those found in tissues. We estimated inhaled asbestos dose ranged from 0.38 to 5.18 fiber years. **Conclusion:** We provide evidence that the inhaled dose of asbestos/fibrous talc from "cosmetic" talc use causes ovarian cancer. The unique combination of the types of asbestiform minerals detected in cancerous tissue and "cosmetic" talc is a fingerprint for exposure to asbestos-containing talc.

**Keywords:** asbestos, baby powder, cosmetics, Johnson & Johnson, ovarian cancer, talc

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Known amongst oncologists as a "silent killer," ovarian cancer is the leading cause of death from all gynecologic cancers and the fifth leading cause of cancer-related deaths among women in the United States.[1] The American Cancer Society estimates that about 22,000 American women will be diagnosed and 13,850 will die of the disease in 2019.[2] In 2010, the agency determined that perineal talc powder use is possibly carcinogenic to humans (group 2b).[3]

Epidemiological studies have examined the relationship between perineal talc use and ovarian cancer. In a 1982 case–control study, Cramer et al[4] first reported an association between genital talc use and ovarian cancer. At least 32 subsequent epidemiologic studies have examined the association between talc powder use and ovarian cancer.[5–36] High-grade serous carcinoma (HGSC) is the most common form of ovarian cancer and the type of ovarian cancer that has been most consistently associated with perineal use of cosmetic talc products.[6–8,10,12,14,15,24,27,29,32,33,36,37] Meta-analyses have consistently shown an increased risk of HGSC of about 1.3 for perineal talc use.[18,38–40]

Asbestos exposure by inhalation occurs during cosmetic talc use.[41,42] International Agency for Research on Cancer (IARC) concluded in 2009 that asbestos was a group 1 ovarian carcinogen.[43,44] Dr Wyers' first reported a case of ovarian cancer in a woman with asbestosis in 1949.[45] Twenty-seven epidemiologic studies have since examined the relationship between asbestos exposure and ovarian cancer.[46–72] Nine of these 27 studies report a statistically significant elevation in ovarian cancer risk.[46–48,51,61,62,68,69,71] Epidemiologic findings have demonstrated consistency in different populations: studies of asbestos and ovarian cancer have shown a statistically-significant association among women in different countries with exposures to different types of asbestos fibers and in various occupational and environmental settings.[46–48,51,61,62,68,69,71] Epidemiologic research also suggests a dose–response relationship for asbestos and ovarian cancer when comparing low-exposure and high-exposure subgroups.[47,72] Camargo et al[73] performed a meta-analysis of 18 cohort studies of occupational asbestos exposure and reported a pooled standardized mortality ratio (SMR) for ovarian cancer of 1.77 (95% confidence interval [CI], 1.37–2.28).

Epidemiologic studies of talc and ovarian cancer have generally accepted representations by talc mining and manufacturing companies that consumer talc has been asbestos-free since 1976.[6–8,10,12,14,15,24,25,27,29,32,36] However, studies show that

From the Never Again Consulting, Attleboro, Massachusetts (Ms Steffen, Mr Tran, Ms Yimam, Ms Clancy, Dr Bird, Dr Egilman); College of Engineering and Mines (student), University of Alaska – Fairbanks, Fairbanks, Alaska (Ms Clancy); Mellon Postdoctoral Fellow, Wesleyan University, Middletown, Connecticut (Dr Bird); Materials Analytical Services LLC, Suwanee, Georgia (Dr Rigler, Dr Longo); Department of Family Medicine, Warren Alpert Medical School, Brown University, Providence, Rhode Island (Dr Egilman).

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Institution and Ethics approval and informed consent: There was no requirement for ethics review or institutional review board approval because this research was not experimental and was originally conducted pursuant to a lawsuit. Informed consent was obtained from all living patients. For one deceased patient (Case No. 8), consent was obtained from the surviving spouse. For the remaining two deceased patients (Case No. 4 and Case No. 9), authors relied only on public information revealed during court proceedings.

Disclosure (Authors): T.T., J.S., K.C., M.Y. and T.B. work for Dr Egilman, who served as an expert witness in litigation at the request of people who were injured as the result of using talcum powders. Mr Tran, Ms Steffen, Ms Clancy, Ms Yimam, and Dr Bird were not compensated by law firms for work on this paper and the lawyers for the injured plaintiffs did not review this paper and had no input into the content of the paper.

Dr Egilman, Dr Rigler and Dr Longo report payments from lawyers related to the submitted work. All serve as expert witnesses in litigation at the request of people who were injured as the result of using talcum powders; plaintiffs' lawyers paid for the patient examinations taken by Dr Egilman as part of his expert witness work.

Dr Rigler and Dr Longo originally performed the tissue analysis for talc and asbestos as part of their expert witness work and were paid by plaintiffs' lawyers for their work. Dr Egilman has also served as an expert witness at the request of companies who have been sued for exposure to asbestos from their mines or products. They were not compensated for work on this paper and the lawyers for the injured plaintiffs did not review this paper and had no input into the content of the article.

Disclaimer: Historic testing of talc for asbestos is limited in methodology and scope. Courts and plaintiff lawyers have agreed, without the knowledge or permission of their clients, to keep secret some of the documents reported here; these documents became public during court proceedings over the objections of J&J and Imerys. Many documents remain sealed.

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Clinical significance: We provide evidence that asbestiform minerals present in "cosmetic" talc causes ovarian cancer. We provide an estimate of asbestiform minerals inhaled per talc application and cumulative lifetime exposure. The unique combination of asbestiform minerals detected in cancerous tissue and "cosmetic" talc is a fingerprint for exposure to asbestos-containing talc.

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consumer talc contains asbestos and a review of the world's largest talc producers records indicated that talc mines contained asbestos, that asbestos cannot be removed from talc, and that talc used in cosmetics was not asbestos-free.[41,74–82] Case control and cohort studies of talc use and ovarian cancer have not differentiated inhalation and perineal talc exposures, and have not considered inhalation exposures in their analyses; this has contributed to misclassification of exposed cases and inaccurate dose–response assessments.[42] In addition, industry marketing studies from the 1970s indicate that up to 85% of women used talc powders thus many ''controls'' were probably exposed to asbestos containing talcs.[42,83]

We report 10 cases of serous ovarian cancer among users of asbestos-containing Johnson & Johnson (J&J) cosmetic talc products. Unlike most previous studies on talc and ovarian cancer, we focused on inhalation exposures to asbestos during various talc uses and not perineal exposure.[4,6,12,40] We measured inhalation exposures during perineal application of asbestos-containing cosmetic talc. Based on exposure histories, we estimate the dose of inhaled asbestos and the increase in ovarian cancer risk for each case. Our case series also includes tissue analysis for talc and asbestos in both product and cancer tissue. By synthesizing current knowledge of asbestos carcinogenicity and evidence of asbestos in consumer talc products, our case series provides novel insight into the link between cosmetic talc use and ovarian cancer.

## MATERIALS AND METHODS

We report 10 cases of serous ovarian cancer in women who primarily or exclusively used a variety of J&J cosmetic talc products including Johnson's Baby Powder (JBP), Shower to Shower (STS), and STS Shimmer.[84] These cases were identified among a group of 22 plaintiffs in Ingham et al versus Johnson & Johnson et al. All plaintiffs were diagnosed with ovarian cancer after exposure to J&J cosmetic talc products and transmission electron microscope (TEM) tissue analysis for talc and asbestos was performed for 10 of these plaintiffs. We only report on the 10 plaintiffs for whom TEM tissue analysis was completed.

There was no requirement for ethics review or institutional review board approval because this research was not experimental and patients participated voluntarily in conjunction with a lawsuit. Informed consent for publication was obtained from all living patients. One patient (Case No. 8) passed away after her exposure history was collected but before consent for publication was obtained. In this case, consent was obtained from the surviving spouse. For the remaining two deceased patients (Case No. 4 and Case No. 9), authors relied only on public information revealed during court proceedings. For the exposure assessment, the researcher wore a respirator and was decontaminated post-assessment. The researcher was not exposed to any risk, required to reveal personal information or subjected to specimen collection. The assessment did not meet the requirements to necessitate Institutional Review Board (IRB) approval.[85]

### Patient Histories

Medical histories, exposure histories (history questionnaire attached as Appendix 1, http://links.lww.com/JOM/A685), and physical examinations were collected for all living patients (8/10 cases). Exposure histories included questions about talc powder use and other sources of asbestos exposure. We analyzed the frequency and duration of talc uses for each case. For the two deceased patients (Case No. 4 and Case No. 9), a rough exposure history was compiled from the testimony of relatives who were familiar with each patient. Available medical records were also reviewed for all cases.

### Exposure Assessment—Perineal Application

The exposure assessment was completed in a $15'' \times 15'' \times 8''$ room with appropriate negative asbestos airflow technology. The experiment was videotaped using two Sony Model HDR-CX900 cameras with alternating Tyndall and standard lighting. (See Appendix 2, http://links.lww.com/JOM/A686.) Area and background samples were collected using four high-volume area sampling pump stations set up 5″ to 6″ from the talc user; these pump stations used 25 mm air cassettes containing 0.8 μm pore size mixed cellulose ester (MCE) filters with 5.0 μm backing pads and were calibrated to run at 10 L/min. Personal samples were collected using four low-volume pumps affixed to the talc user with the cassettes adjusted to be in the breathing zone of the investigator; the ''personal'' pumps were calibrated to 2.5 L/min. During the experiment, air samples were collected for 5 minutes from all sources.

A researcher wearing personal protective equipment and ''personal'' air pumps used a metal container of JBP for the experiment. Based on JBP advertisements featuring product images, we estimated that the JBP used in this test had been manufactured sometime in the 1950s and sourced from the Val Chisone mine.[86,87] (See Appendix 3, http://links.lww.com/JOM/A688 for images of JBP product tested and for full written report on exposure assessment.) J&J used this mine source from 1946 until 1968 and 1980 to 1981.[86–88] From 1969 to 2003, J&J used Vermont talc in their powder products and later switched to Chinese talc.[42,89] Using *t* test analysis, the asbestos content (fibers per gram) in all the bottles tested were statistically comparable across these three talc sources. (See Appendix 4, http://links.lww.com/JOM/A689)

The JBP can was weighed before the experiment using a Fisher Scientific balance. The researcher wore a bikini bottom over an inner pair of boxer briefs and sat on a chair in the middle of the room for the experiment. To simulate perineal talc application, the researcher shook the talc powder into his hand twice and then rubber the powder into the upper leg area. This was repeated for the other leg. Then, the researcher stood, pulled the bikini bottom down and away from the body, and applied two squeezes of talc powder into the bikini bottom. The researcher released the briefs and sat down on the chair for the remainder of the study. The metal container of JBP was weighed again following the study. After the study, two field blanks were opened inside the study room.

A total of four background samples, four personal samples, and four area samples were collected along with two field blanks. All 12 air samples were analyzed for asbestos by the National Institute Occupational Safety and Health (NIOSH) 7400 phase contrast microscopy method using ''A'' counting rules and by the NIOSH 7402 TEM method.[90,91] For TEM analysis, amphibole asbestos fibers or bundles with substantially parallel sides and an aspect ratio of 3:1 or greater, at least longer than 5.0 μm in length and greater than 0.25 μm were counted as per NIOSH 7402 asbestos structure sizing rules.[91] The four personal air samples were also analyzed by the NIOSH 7402 method for fibrous talc particles.[91] The two field blanks were analyzed for asbestos by phase contrast microscopy and TEM in accordance with NIOSH 7400 and NIOSH 7402.[90,91]

### Dose Calculations

For each case, we calculated asbestos dose in environmental fiber years (for consistency with the Environmental Protection Agency (EPA) risk assessment model) and in total fibers inhaled (to account for changes in respiratory intake in infancy vs. adulthood).[92] We used the asbestos dose in environmental fiber years to calculate the excess risk. (See section on Dose–Response Risk Assessment.)

We calculated total asbestos dose based on the four most common usages of J&J talc powder reported among the 10 cases: perineal application (10/10), upper body powdering (9/10), exposure as an adult during diapering (8/10), and exposures as an infant during diapering (7/10). For each of these scenarios, we incorporated the intensity of the exposure (f/cc), duration of each exposure (minutes), and total number of applications (from exposure

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histories) to calculate the dose. Although we did not adjust for latency, we excluded exposures that occurred after ovarian cancer diagnosis. Fibrous talc exposures from powdering were excluded from our calculations except exposure from baby diapering.[41] Dement et al[93] did not differentiate type of fiber detected.

For perineal powdering exposures, we relied on measurements from our exposure assessment. (See above.) Air samples were collected over the course of 5 minutes in this test.

For upper body powdering, we used Gordon's et al[41] measurements for shaker application of cosmetic talc powder to the underarm, shoulder, and upper arm area. Gordon et al[41] used Cashmere Bouquet, which used the same Italian mine source as J&J (Val Chisone) from 1940 until 1992.[94,95] Gordon et al[41] found that users were exposed to 1.9 f/cc of asbestos fibers over the course of 5 minutes.[41]

For exposures during diapering, Dement et al[93] from NIOSH found that an adult is exposed to 2.2 f/cc of fibrous material and that a baby is exposed to 1.8 f/cc over the course of two minutes. When subjects reported that their parents had used talc on them during diaper changes as an infant, we relied on diaper changing norms to estimate infant exposures. United States market research and survey data show that diaper changes typically occur 8 to 10 times per day for infants (0 to 6 months) and 4 to 6 times per day for toddlers (6 to 24 months).[96–98] Diaper changing frequency in the U.S. also changed over time: the average number of diaper changes per day over the first two years of life dropped from eight times per day in the 1960s to 5 to 6 times per day by the 1980s due to improvements in disposable diapers and reduction in cloth diaper use.[97,99] Since all of the women in our series were born prior to 1975, we assumed that diaper changes occurred eight times per day for two years.

We calculated the dose for each case in fiber years $\left(\frac{f}{cc} \times year\right)$ using the same conversions as Anderson et al.[100] For consistency with the EPA dose–response curve used for our risk assessment, we calculated the total duration of exposure based on a continuous, 24-hour exposure period (525,600 min/yr) until date of diagnosis.[92]

Formula 1:

Formula to estimate inhalation exposure from talc application:

$$\text{Asbestos exposure in } \frac{f}{cc} \times \frac{\text{duration of each exposure} \times \text{total number of applications}}{525,600 \text{ min per year}} = \text{total dose in } \frac{f}{cc} \cdot \text{years}$$

We also calculated the total number of asbestos fibers inhaled in each case. For adults, we used the National Research Council (NRC)'s estimate of "an annual inhaled air volume of 7,300 $m^3$" and formula to convert the dose from fiber years to total fibers.[101] We relied on measurements of infant lung volume from Hall[102] and on median infant respiratory rates calculated by Fleming et al[103] to estimate the total inhaled air volume for infants from age 0 to 2. Using time-weighted averages for tidal volume and respiratory rate, we calculated that infants breathed 11,025,072,000 ccs in the first 2 years of life, or 5,512,536,000 ccs per year on average.

Formula 2:

Formula to convert adult exposures to total fibers based on NRC (1984):

$$\left[\text{total does in } \frac{f}{cc} \times \text{years}\right] \times \frac{7,300,000,000 \ cc}{\text{year}} = \text{Total number of asbestos fibers}$$

Formula 3:

Formula to convert infant exposures to total fibers based on Hall[102] and Fleming et al[103]:

$$\left[\text{total does in } \frac{f}{cc} \times \text{years}\right] \times \frac{5,512,536,000 \ cc}{\text{year}} = \text{Total number of asbestos fibers}$$

We added together adult and infant exposures to calculate the exposures in total number of asbestos fibers. See Appendix 5, http://links.lww.com/JOM/A690 for the full dose calculations for each case.

## Dose–Response Risk Assessment

We developed a method to apply the EPA dose–response curves for inhaled asbestos and mesothelioma risk to ovarian cancer risk.[92] First, we examined the EPA dose–response table for mesothelioma from environmental asbestos exposure (24-hours, 365 days per year).[92] Utilizing the EPA dose–response estimates, we extrapolated a formula for the line of best fit for mesothelioma risk.

We then identified studies that reported mesothelioma and ovarian cancer rates in the same cohort and calculated comparative risk of mesothelioma versus ovarian cancer for each study.[58,62,63,68,71] (See Table 1.)

Using these studies, we calculated the geometric mean comparative risk of contracting mesothelioma versus ovarian cancer from the same asbestos exposures. We applied this comparative risk to the line of best fit for mesothelioma based on the EPA dose–response data to determine a formula for risk of ovarian cancer.

The subjects of the EPA occupational exposure study were entirely men.[92] Since women are more susceptible to cancer from asbestos exposure, we used Lacourt's[104] findings comparing the mesothelioma odds ratio (OR) in men versus women with the same exposures to adjust the formula for the increase in cancer risk for women. At total doses more than 0 to 0.1 fiber years, women were 1.725 times more likely to have mesothelioma than men.[104] At total doses more than 0.1 to 1 fiber years, women were 2.855 times more likely to have mesothelioma than men.[104] We applied these ratios to the EPA dose curve calculated to obtain a better estimate of the ovarian cancer dose–response in women.

The resulting dose–response curve for inhaled asbestos and ovarian cancer is shown in Fig. 1. We used each case's asbestos dose estimate in fiber years to identify their relative lifetime risk of developing ovarian cancer along the dose–response curve. We then compared each case's risk of contracting ovarian cancer due to inhaled asbestos exposure to the expected incidence of ovarian cancer for those without asbestos exposure: 11.4 per 100,000 from the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program.[105]

## Tissue Analysis for Asbestos and Talc

Samples from a combination of the left and right ovaries, left and right fallopian tubes, and left and right pelvic lymph nodes were obtained from the hospital for each of the 10 patients. Tissues were analyzed to identify and quantify talc and asbestos content in the tissue.

For tissue analysis, a small portion of the tissue in each block was removed with a clean razor blade and placed in a pre-weighed 20 to 30 mL borosilicate glass vial. The vial was filled with 10 mL of filtered extraction solvent (hexane) and placed in a 60 °C water bath. The filtered extraction solvent was replaced every 20 minutes for a total of three changes. After the last extraction solvent change, two changes of filtered ethanol (10 mL, each) 10 minutes each were performed, then the tissue piece(s) were dried at 110 to 120 °C.

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**TABLE 1.** Studies with Both Mesothelioma and Ovarian Cancer Rates in the Same Cohort and Calculated Comparative Risk of Mesothelioma to Ovarian Cancer in Female-Only Cohorts

| Study | Mesothelioma Risk (SMR) | Ovarian Cancer Risk (SMR) | Comparative Risk M/OC |
|---|---|---|---|
| Loomis 2009 | 10.92 | 1.23 | 8.88 |
| Magnani 2008 | 51.49 | 2.27 | 22.68 |
| Pira 2016 | 51.3 | 3.03 | 16.93 |
| Wang 2013 | 166.67 | 7.69 | 21.67 |
| Wilczyńska 2005 | 22.67 | 1.76 | 12.88 |
| Geometric mean of comparative risk | | | 15.69 |

Tissue samples were digested with 15 to 30 mL of filtered sodium hypochlorite (appx. 8.0% bleach). After digestion, the remaining digested material was filtered through a 25 mm, 0.4 μm polycarbonate (PC) filter. The filter containing the tissue residue was dried and subsequently prepared for TEM examination.

A paraffin control sample (wax blank) was obtained by dissolving a known quantity of the paraffin blocks (devoid of tissue) in 10 mL of filtered extraction solvent and the dissolved solvent/wax solution was then filtered onto a 25 mm, 0.4 μm PC filter. The filter was allowed to dry and then prepared for TEM analysis. A process blank (sample vial) was prepared in the same manner and followed the wax blank and tissue sample vials through all steps.

For TEM analysis, 100 to 300 grid openings were analyzed for all asbestos and talc structures at a magnification of between 4000 and 20,000×. As per standard TEM analysis protocols, asbestos fiber/bundle identification was done by morphology (substantially parallel sides and length to width ratio of at least 5:1), length (greater than 0.5 μm in length), selected area electron diffraction (SAED), and energy dispersive X-ray spectroscopy (EDS).[106–112] Talc structures (platy and fibrous) were identified morphologically, by selected area diffraction (SAED), and energy dispersive spectroscopy (EDS).

## RESULTS

### Exposure Assessment

Total weight used during the application process was 4.05 g of talc powder. For the five minute sampling time, the average total fiber exposure was 4.52 f/cc (5.86, 4.38, 3.85, and 3.98 f/cc), the average asbestos exposure was 2.57 f/cc (4.51, 1.88, 2.07, and 1.81 f/cc), and the average talc exposure was 1.95 f/cc (1.35, 2.50, 1.78, and 2.16 f/cc) for the talc user personal samples. For area samples, the average total fiber exposure was 0.41 f/cc (0.52, 0.28, 0.42, 0.40 f/cc), the average asbestos exposure was 0.2 f/cc (0.31, 0.20, 0.13, and 0.16 f/cc) and the average fibrous talc exposure was 0.19 f/cc (0.13, 0.08, 0.29, and 0.24 f/cc). The type of asbestos fiber identified in all samples was tremolite asbestos. No fibers were detected in the background samples or field blanks. The complete exposure assessment report, including count sheets and fiber images, is available as Appendix 3, http://links.lww.com/JOM/A688.

### Dose Calculations and Risk Assessment

Results for dose calculations, risk assessment, and tissue analysis are summarized in Table 2. See Appendix 5, http://links.lww.com/JOM/A690 for complete past medical history, history of present illness, other ovarian risk factors, exposure history, and dose calculations for each case.

STS was comprised of talcum powder mixed with cornstarch. The STS products contained between 80% and 100% talc sourced from the same mines as JBP.[84] Only four cases used these products for brief or unknown periods of time. Case No. 3 reported infrequent use of unidentified facial make-up powder, and Case No. 6 reported infrequent use of generic store-brand talcum powder. We could not calculate exposures for the brief use of these unknown products.

All cases had pathologically confirmed serous ovarian cancer. Age at diagnosis ranged from 41 to 78 years, with a mean age at diagnosis of 51.1 years and median age at diagnosis of 50 years. By contrast, the median age of ovarian cancer diagnosis in the United States is 63 with most cases occurring in women aged 55 to 64. Seven of 10 cases tested negative for BRCA mutations; two cases were never tested (No. 2 and No. 5), and one case (No. 8) tested positive for BRCA2 variant L771 V.

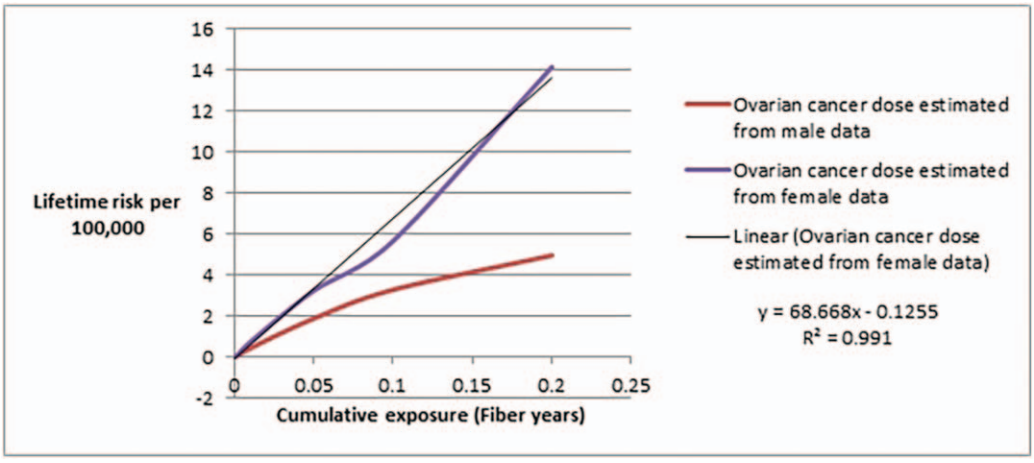


**FIGURE 1.** Ovarian cancer dose response (adjusted for difference in female mesothelioma risk).

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All cases reported perineal talc application; the frequency of perineal powdering with talc ranged from once per day to 10 times per day and the duration ranged from 24 years to 47 years. Nine of 10 cases reported upper body powdering with talc ranging from 1 to 5 times per day and lasting from 20 to 47 years. Seven of 10 cases reported that their parents used talc powder on them during diaper changes and eight of 10 cases used talc powder during diapering. The total asbestos dose from talc powder use ranged from 2,774,000,000 to 37,742,501,440 asbestos fibers (0.38 to 5.18 fiber years) and the average dose was 9,308,551,008 asbestos fibers (1.28 fiber years). No other known asbestos exposure was identified for any of the cases. Based on EPA dose–response estimates, the risk of developing ovarian cancer due to inhaled asbestos exposure was calculated to be 2.3 to 31.1 times greater in these cases compared with baseline risk for ovarian cancer.[105] On average, the risk of ovarian cancer increased 7.7-fold among these cases.

### Tissue Analysis

Talc and/or asbestos was identified in the tissue from all cases. Platy talc was found in 9/10 cases (90%) with an average concentration of 264,487 structures per gram (s/g) (range, 0 to 2,057,640 s/g). Fibrous talc was found in 8/10 cases (80%) with an average concentration of 5878 s/g (range, 0 to 21,545 s/g). Tremolite asbestos was found in 6/10 cases (60%) with an average concentration of 6488 s/g (range, 0 to 22,000 s/g). Anthophyllite asbestos was found in 4/10 cases (40%) with an average concentration of 2393 s/g (range: 0 to 12,000 s/g). Ferro-anthophyllite asbestos was also identified in two cases (20%), winchite and richterite asbestos were identified in one case (10%), and crocidolite asbestos was identified in one case (10%). Two tremolite structures with aspect ratios less than 5:1 were observed in one case, but were not counted as asbestos.

In the ''possible fallopian tube B'' tissue of Case No. 2, a cluster measuring $20.0 \times 16.0\,\mu m$ was identified composed of 36 counted talc plates, two fibrous talc structures, and one tremolite fiber. (See Fig. 2.)

## DISCUSSION

This case series identified asbestos and/or talc in the tissue of 10 women diagnosed with serous ovarian cancer and exposed to J&J cosmetic talc products. Prior to their ovarian cancer diagnosis, these women were exposed to as much as 2,774,000,000 to 37,742,501,440 asbestos fibers (0.38 to 5.18 fiber years) due to their use of J&J cosmetic talc products. In all reported cases, asbestos exposures due to J&J talc use resulted in a substantial increase in ovarian cancer risk (2.3 to 31.1) based on our model. Early median age of diagnosis (50 in this case series vs. 63 nationally), and the EPA dose response table, indicates that asbestos exposure in infancy may cause ovarian cancer to occur sooner than it would have occurred absent this exposure.[92,105]

The asbestos type found in the perineal talc use inhalation exposure assessment (tremolite asbestos) and the predominant asbestos types identified in these tissue samples (tremolite and anthophyllite asbestos) matched the fiber types previously identified in cosmetic talc products and in talc mines.[41,74,75,77–81] (See Table 3.) Researchers have previously identified anthophyllite asbestos in Johnson's Baby Powder (by TEM analysis),[79] amphibole needles and fibers in baby powder sourced from Vermont,[76,77] and tremolite asbestos fibers in commercial talc produced prior to 1975 from J&J's talc source in Val Chisone, Italy.[81,89]

In 2017, a bundle of tremolite asbestos fibers was found in a bottle of JBP purchased by Case No. 3 in 2014. (See Appendix 6, http://links.lww.com/JOM/A691 for full purchase report.) Tremolite asbestos was also identified in Case No. 3's right pelvic lymph node. (See Fig. 3.) Winchite and richterite asbestos were found in the tissue in one case. However, richterite was called sodium tremolite prior to 1978.[113] Winchite is found in talc from the Allamoore, Texas mine, and may have contaminated J&J Italian talc processed at the same plant in the 1970s.[114–118] Similarly, Transite pipes present in Royston Plant for J&J baby products may have contaminated J&J talc with crocidolite.[119,120] Furthermore, Colgate acknowledges that there is crocidolite in some talc.[121]

The most common structures identified by tissue analysis (platy talc, fibrous talc, tremolite and anthophyllite asbestos) strongly indicate talc powder as the source of asbestos exposure in these cases. Tremolite asbestos has had minor commercial production in India and Italy and is mainly found as an accessory mineral in talc, vermiculite, and chrysotile.[122–124] Anthophyllite asbestos, which occurs as an accessory mineral in talc and chrysotile, has also had limited commercial use.[123–125] Anthophyllite and tremolite together account for less than 1% of asbestos production and consumption worldwide.[124]

None of the cases reported in this series had any known history of alternative asbestos or vermiculite exposure and no chrysotile or vermiculite was found in any of the tissue samples. Churg and Warnock[126] performed a population study of lung asbestos and noted that ''. . . in women a major source [of asbestos fibers] may be cosmetic talc, which is often contaminated with anthophyllite and tremolite.'' Finkelstein's[127] analysis of mesothelial tissue found a statistically significant association for tremolite detected with talc in tissue. This association was higher for women, 82% of whom had talc in their tissue compared with 68% of men.[127] The increased use of talcum-based cosmetics by women, and the similar fiber type combination is a fingerprint of cosmetic talc migrating to the pelvic organs. The combination of talc with tremolite and/or anthophyllite asbestos, as identified by Finkelstein[127] and the 10 cases reported here, are a fingerprint for exposure to asbestos-containing talc.[128–130] (Appendix 7, http://links.lww.com/JOM/A692: a chart of fibers detected in J&J compared with fibers in tissue). These results indicate that perineal use can result in important inhalation exposure to asbestos, which is an accepted route of transmigration to the peritoneum and ovary.[131]

Our exposure assessment found that cosmetic talc users can be exposed to 2.57 f/cc asbestos in the breathing zone during perineal talc application; this finding was generally in agreement with previous studies of asbestos exposures during talc use.[41,93] The bottle of JBP used in this exposure assessment was tested by TEM which detected 15 million fibers per gram. Further analysis found asbestos in 56/90 JBP bottles with a range of 4400 to 15,100,000 asbestos fibers per gram (appendix 4, http://links.lww.com/JOM/A689). For comparison, Gordon et al[41] conducted examination on 50 samples of a single brand of cosmetic talc, sourced from either Montana, North Carolina or Val Chisone. Gordon et al[41] found a range of 1840 to 200 million asbestos fibers per gram. Asbestos is not evenly distributed in talc ores and sampling cannot be completely representative of exposure.[88,132]

Gordon et al[41] selected a bottle with 18 million asbestos fibers per gram for the inhalation study. The results for Gordon's et al.'s[41] simulation of body powdering, 1.9 f/cc, is comparable to our findings of 2.57 f/cc asbestos exposure per application. Application of cosmetic talc varies greatly, including differences in product, application time, grams per use, and location of application. In addition, talc is mined and milled prior to sale, potentially modifying fiber size or dispersing asbestos unequally in finished cosmetic talc product.[133] Talc was sourced from various mines and processing methods changed over time, adding to the variability of asbestos content in talc-containing cosmetic products. However, our findings of an asbestos fingerprint in the tissue reveal that regardless of the dose, exposure to talc-containing cosmetic products is sufficient to cause ovarian cancer.

We relied on NIOSH measurements by Dement et al[93] to calculate exposures during diapering, however these measurements did not account for airborne asbestos exposures that continued after

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**TABLE 2.** Summary of Cases

| Case Number | Diagnosis | Age at Diagnosis | Talc Exposure History | | | | Calculated Asbestos Dose | Relative Increase in Ovarian Cancer Risk | Pathological Examination | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Perineal Powdering | Upper body Powdering | Infant Exposure During Diapering | Adult Exposure During Diapering | | | Tissue Examined | Findings (Structures Per Gram of Tissue) |
| 1 | Metastatic high grade papillary serous carcinoma | 45 | 10x/d, 40yrs | 5x/d, 40yrs | 8x/d, 2yrs | 10x/d, 8yrs | 37,742,501,440 fibers, (5.18 fiber years) | 31.1 | Ovary (R) | Platy talc (333 s/g), Fibrous talc (4,000 s/g), Ferro-anthophyllite (3,667 s/g) |
| | | | | | | | | | Ovary (L) | Fibrous talc (1,200 s/g), ferro-anthophyllite (399 s/g) |
| | | | | | | | | | Fallopian tube (R) | NSD* |
| | | | | | | | | | Fallopian tube (L) | ——† |
| | | | | | | | | | Pelvic Lymph Node (R) | ——† |
| | | | | | | | | | Pelvic Lymph Node (L) | NSD* |
| 2 | Poorly differentiated high grade serous ovarian carcinoma | 53 | 1x/d, 36yrs | 1x/d, 23yrs | 8x/d, 2yrs | 7.5x/d, 7.5yrs | 4,892,501,440 fibers, (0.68 fiber years) | 4.1 | Ovary A | NSD* |
| | | | | | | | | | Ovary B | Platy talc (323 s/g) |
| | | | | | | | | | Possible fallopian tube A | NSD* |
| | | | | | | | | | Possible fallopian tube B | Platy talc (56,700 s/g), Fibrous talc (4,720 s/g), Tremolite (22,000 s/g) |
| 3 | High grade serous carcinoma | 49 | 3x/d, 39yrs | 3x/d, 20yrs | 8x/d, 2yrs | 7x/d, 5yrs | 11,535,501,440 fibers, (1.59 fiber years) | 9.6 | Ovary, fallopian tube (R) | Platy talc (2,001,503 s/g), Fibrous talc (13,343 s/g) |
| | | | | | | | | | Adnexa, fallopian tube (L) | Platy talc (12,308 s/g), Fibrous talc (8,202 s/g) |
| | | | | | | | | | Pelvic lymph node (R) | Tremolite (15,670 s/g), Winchite (15,670 s/g),‡ Richterite (15,670 s/g)‡ |
| | | | | | | | | | Pelvic lymph node (L) | Platy talc (43,829 s/g) |
| 4 | Poorly differentiated serous adenocarcinoma | 78 | 1x/day, 43yrs§ | unknown§ | unknown§ | unknown§ | 2,774,000,000 fibers, (0.38 fiber years) | 2.3 | Ovary (R) | Platy talc (2,860 s/g), Anthophyllite (952 s/g) |
| | | | | | | | | | Ovary (L) | Tremolite (604 s/g) |
| | | | | | | | | | Fallopian tube (R) | Platy talc (30,000 s/g) |
| | | | | | | | | | Fallopian tube (L) | Fibrous talc (868 s/g) |
| | | | | | | | | | Pelvic Lymph Node (R) | Platy talc (12,600 s/g) |
| | | | | | | | | | Pelvic Lymph Node (L) | Platy talc (17,600 s/g), Tremolite (2,510 s/g) |
| 5 | Low grade serous carcinoma | 52 | 1x/d, 47yrs | 1x/d, 47yrs | 8x/d, 2yrs | 10x/d, 10yrs | 7,812,501,440 fibers, (1.08 fiber years) | 6.5 | Ovary (R) | Platy talc (10,900 s/g), Fibrous talc (1,810 s/g) |
| | | | | | | | | | Ovary (L) | Platy talc (25,000 s/g), Fibrous talc (5,000 s/g), Tremolite (5,000 s/g) |
| | | | | | | | | | Int. Iliac lymph node (R) | Platy talc (77,200 s/g), Fibrous talc (7,720 s/g), Tremolite (3,860 s/g), Anthophyllite (3,860 s/g) |
| | | | | | | | | | Comm. Iliac lymph node (R) | Platy talc (50,600 s/g) |

(*continues*)



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**TABLE 2.** (*Continued*)

| Case Number | Diagnosis | Age at Diagnosis | Talc Exposure History | | | | Calculated Asbestos Dose | Relative Increase in Ovarian Cancer Risk | Pathological Examination | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Perineal Powdering | Upper body Powdering | Infant Exposure During Diapering | Adult Exposure During Diapering | | | Tissue Examined | Findings (Structures Per Gram of Tissue) |
| 6 | High grade serous papillary carcinoma | 51 | 1x/d, 40yrs | 1x/d, 40yrs | 8x/d, 2yrs | 10x/d, 10yrs | 7,009,501,440 fibers, (0.97 fiber years) | 5.8 | Adnexa, tumor/ovary (R) | Platy talc (21,300 s/g) |
| | | | | | | | | | Adnexa, tumor/ovary (L) | Platy talc (4,720 s/g) |
| | | | | | | | | | Adnexa, fallopian tube (R) | Platy talc (12,000 s/g), Tremolite (12,000 s/g), Anthophyllite (12,000 s/g) |
| | | | | | | | | | Adnexa, fallopian tube (L) | Platy talc (13,700 s/g) |
| | | | | | | | | | Pelvic lymph node (L) | Platy talc (11,500 s/g) |
| 7 | Serous adenocarcinoma | 56 | 1x/d, 37yrs | 1x/d, 37yrs | Unknown | 7.5x/d, 6yrs | 5,183,000,000 fibers, (0.71 fiber years) | 4.3 | Ovary (R) | Platy talc (8,740 s/g), fibrous talc (1,090 s/g) |
| | | | | | | | | | Ovary (L) | Platy talc (10,500 s/g) |
| | | | | | | | | | Fallopian tube (R) | Platy talc (8,500 s/g) |
| | | | | | | | | | Fallopian tube (L) | Platy talc (10,900 s/g) |
| 8 | High grade ovarian serous carcinoma | 44 | 1x/d, 24yrs | 1x/d, 24yrs | Unknown | 3.5x/d, 4yrs | 2,993,000,000 fibers, (0.41 fiber years) | 2.5 | Ovary (R) | Platy talc (3,340 s/g), Ferro-anthophyllite (1,670 s/g), Crocidolite (1,670 s/g) |
| | | | | | | | | | Ovary (L) | Platy talc (799 s/g) |
| | | | | | | | | | Fallopian tube (R) | Platy talc (9,690 s/g), Fibrous talc (1,380 s/g), Tremolite (1,385 s/g), Anthophyllite (1,385 s/g) |
| | | | | | | | | | Fallopian tube (L) | Platy talc (7,400 s/g), Tremolite (1,850 s/g) |
| 9 | Poorly differentiated serous papillary adenocarcinoma[‖] | 41 | 1x/d, 42yrs[§] | 1x/d, 42yrs[§] | 8x/d, 2yrs[§] | n/a[§] | 4,965,501,440 fibers, (0.69 fiber years) | 4.1 | Ovary (R) | NSD[*] |
| | | | | | | | | | Ovary (L) | NSD[*] |
| | | | | | | | | | Fallopian tube (R) | NSD[*] |
| | | | | | | | | | Fallopian tube (L) | NSD[*] |
| | | | | | | | | | Pelvic Lymph Node (L) | Fibrous talc (8,770 s/g) |
| 10 | High-grade ovarian papillary serous carcinoma | 42 | 2x/d, 32yrs | 2x/d, 32yrs | 8x/d, 2yrs | 8x/d, 4yrs | 8,177,501,440 fibers, (1.13 fiber years) | 6.8 | Ovary, fallopian tube (R) | Platy talc (10,800 s/g)[¶] |
| | | | | | | | | | Ovary, fallopian tube (L) | Platy talc (5,520 s/g) |
| | | | | | | | | | Pelvic lymph node (R) | Platy talc (79,300 s/g) |
| | | | | | | | | | Pelvic lymph node (L) | Platy talc (84,400 s/g) |

[*]No asbestos or talc structures detected.
[†]Tissue received, but not analyzed.
[‡]Richterite asbestos were known as sodium tremolite.
[§]Patient deceased; exposure history based on recollections of family and friends.
[‖]The final pathology report also noted minor components of transitional cell and mucinous carcinoma.
[¶]Two tremolite structures were reported with an aspect ratio of less that 5:1 that were not counted.

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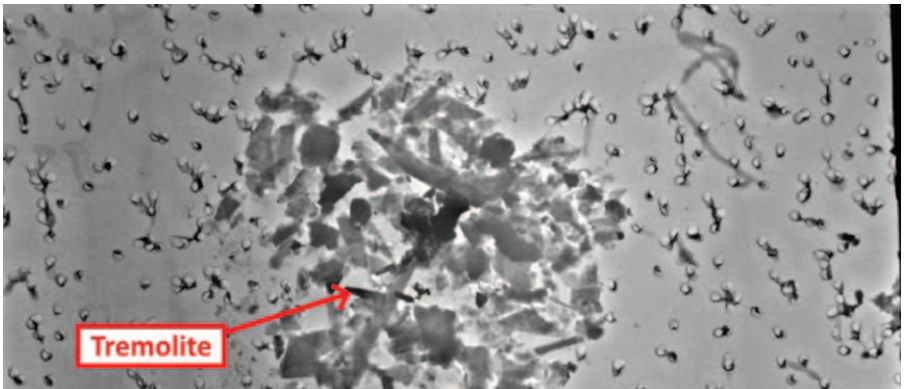


**FIGURE 2.** TEM image of cluster measuring 20.0 × 16.0 μm composed of 36 counted talc plates, two fibrous talc structures, and one tremolite fiber identified in ''possible fallopian tube B'' tissue of Case No. 2.

the sampling time.[93] Dement et al[93] collected air samples for 2 minutes during a simulated diaper change with JBP, but another experiment in the same study indicated that exposures continued for at least 3 minutes and likely persisted for even longer. Dement et al[93] used phase contrast microscopy and did not differentiate between asbestos and fibrous talc. However, in 1968, NIOSH injected asbestos containing ''cosmetic'' talc into hamsters and detected tremolite asbestos bodies but no fibrous talc in the animal lungs.[134] Anderson et al[100] reported much lower levels during body dusting with talc (0 to 0.0039 f/cc). However, the microscopist in the Anderson et al[100,135] study originally identified four anthophyllite asbestos fibers in the air samples by TEM, but changed the result to transition fibers at the request of the project supervisor due to concern that the results would be used in litigation.[135]

Both our study and Gordon's et al [41] exposures assessment used less talc powder than the average user: these experiments used 4.05 and 0.37 g of talc respectively, but J&J's unpublished studies found that women used 8.16 g and men used 13.02 g of talc powder on average during body powdering.[41,136] Anderson et al[100] reported that subjects used 11.6 g of talc on average to powder their bodies after showering. Therefore, our use estimates were 3 to 20 times lower than Anderson et al[100] and J&J's.

We also excluded many reported talc uses from our dose calculations due to a lack of exposure data. For instance, three cases (No. 1, No. 3, and No. 5) regularly used talc powder on their sheets and pillows; several other cases also reported seeing and smelling dust in the air while cleaning the room where they regularly applied talc. (See Appendix 5, http://links.lww.com/JOM/A690 for complete exposure

**TABLE 3.** Summary of Studies Reporting Asbestos in Consumer Talc Products

| Study | Test Method | Summary of Findings |
|---|---|---|
| Rohl et al (1976) | XRD, PLM, TEM, SEM | 0.1–14% tremolite and anthophyllite (mostly fibrous) by weight in 10 of 20 consumer talc products tested |
| Paoletti et al (1984) | TEM | 0.5–1.6% tremolite asbestos in two of six Italian cosmetic talc powders tested<br>Trace to 0.15% chrysotile in 3 of 14, 18.7–21.7% anthophyllite asbestos and tremolite asbestos in 2 of 14, and 0.13% tremolite asbestos & chrysotile in 2 of 10 samples provided by the European Pharmacopeia |
| Blount (1991) | PLM | 10 to 341 structures per mg amphibole fibers, needles, cleavages and ''prismatic pieces'' in 9 of 14 samples of pharmaceutical and cosmetic-grade talc powders tested |
| Jehan (2004) | PLM | Qualitative identification of tremolite asbestos in 13 of 28, chrysotile in 12 of 28, anthophyllite asbestos in 3 of 28, and a mixture of asbestos fibers in 4 of 28 cosmetic talc powder products used in Pakistan |
| Floyd (2004) | TEM | 0.20% anthophyllite asbestos by weight in Johnson's Baby Powder |
| Mattenklott (2009) | SEM | 0.001–0.0073% asbestos by weight in 13 of 57 samples of talc powders sold on the German market from 1996 to 2005 |
| Gordon et al (2014) | PLM | 1,840–1,104,000 fibers per gram asbestos in 50 of 50 historical samples of one brand of cosmetic talc powder tested (40 of 50 contained anthophyllite asbestos only, four contained tremolite asbestos only, four contained tremolite and anthophyllite asbestos, two contained tremolite, anthophyllite, and chrysotile asbestos) |
| | TEM | 0.004–0.9% amphibole asbestos by weight in nine of nine samples of the same cosmetic talc product |
| Ilgren et al (2017) | TEM | $3.687 \times 10^6$ tremolite asbestos fibers/g in an authentic sample of commercial talc produced prior to 1975 from the talc mine in Val Chisone, Italy |

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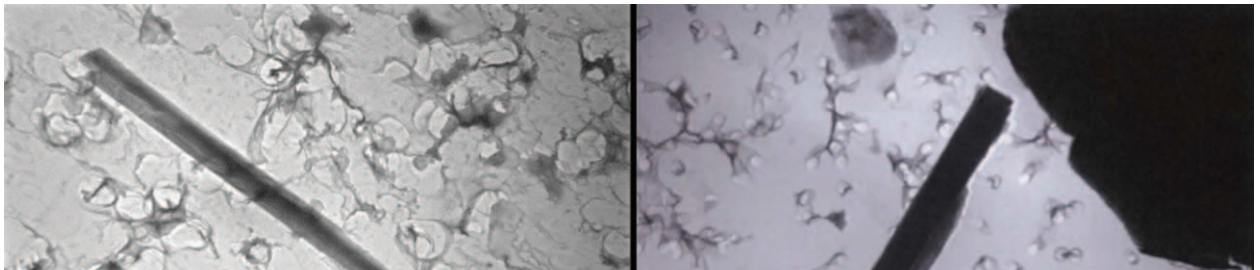


**FIGURE 3.** TEM images of a tremolite asbestos fibers in Case No. 3 right pelvic lymph node tissue (left) and in sample of JBP purchased by Case No. 3 in 2014 (right).

histories.) Although our findings indicate that asbestos is present in consumer talc products at a level sufficient to cause disease, our dose estimates may under or over estimate the total exposure to asbestos in talc in these cases.

Burns et al[137] created a dose estimation-model for cosmetic talc, relying on previous assessments to predict asbestos exposure, including Moon et al[138], Gordon et al[41], Russell et al[136], and Anderson et. al.[100] Burns's et al[137] assessment was based on an assumption of 0.1% level of asbestos in talc mathematical model that incorrectly reduced the exposure estimate by 1000. For example, Gordon et al[41] reported, 4.8 f/cc, however, Burns's et al[137] math model reduces this figure to 0.0048 f/cc. In comparison, Addison et al (1988)[139] reported that dusts containing 0.1% asbestos may release 1.17 to 2.79 asbestos fibers/cc into the air, consistent with our measurements.

Our tissue analysis results were consistent with previous reports of asbestos and/or talc in ovarian tissue.[136,140–144] (See Table 4.) The number of asbestos structures per gram, however, was approximately one order of magnitude lower in our study than in previous quantitative studies of asbestos in ovarian tissue.[143] This discrepancy may be due to differences in tissue preparation and analytical procedures. Other quantitative studies relied on wet tissue weight for their analysis whereas we used a dry weight procedure.[143] Additionally, we counted 100 to 300 grid openings in our study while other studies appear to have counted the entire grid area.[143] We also found that some tissue samples contained "hot spots" with very high concentrations of asbestos and/or talc compared with the surrounding tissue. (See Fig. 2.) The occurrence or absence of "hot spots" may also account for variability in reported asbestos concentrations in tissue. The predominant types of asbestos identified in our series (tremolite and anthophyllite asbestos) are the same as those most commonly reported in past studies.[140,143,144]

We did not consider latency in our risk estimate because our calculations followed the EPA risk assessment, which did not consider latency.[92] In addition, Pira et al[68] found that for asbestos-caused ovarian cancer "…the SMRs increased monotonically with time since first employment, although the number of deaths was small in several categories..." Our omission of latency from this study is to remain consistent with the EPA assessment and reflect the lack of effect demonstrated by Pira's et al analysis.

We omitted fibrous talc from our risk assessment due to a lack of dose–response data in the published literature. IARC has previously classified fibrous talc as a Group 1 carcinogen and OSHA regulates fibrous talc per the asbestos standard.[3,43,145–147] Further research on the relationship between talc powder use and ovarian cancer should include studies of fibrous talc toxicity.

## CONCLUSION

Of the 10 reported cases of serous ovarian cancer, all were found to have talc and eight were found to have asbestos in their tissue samples. The main types of asbestos identified in tissue, tremolite and anthophyllite, constitute a fingerprint for talc containing asbestos and indicate that "cosmetic" talc powder as the source of asbestos exposure in these cases. IARC has concluded that asbestos is an ovarian carcinogen.[43] IARC has likewise classified talc containing asbestiform fibers (including both asbestos and fibrous talc) as a carcinogen.[3,43,148] These cases provide more evidence of the causal link between asbestos, talc, and ovarian cancer and indicate that asbestos is present in consumer talc products at a level sufficient to cause disease.

In 1973, J&J told the Food and Drug Administration (FDA) that "Johnson & Johnson's policy of full cooperation with FDA and that if the results of any scientific studies show any question of safety of talc, Johnson & Johnson will not hesitate to take it off the market" and their corporate position is that there is no known safe level of exposure to asbestos.[149] J&J's studies have shown that asbestos has been present in its cosmetic talc ores since the 1950s. In 2019, the FDA has found asbestos in JBP sourced from China and Claire's cosmetics.[150,151] At least three retailers of cosmetic talc accept the causal relationship between talc use and ovarian cancer: Angel of Mine, Perfect Purity, and Assured Body and Foot Powders warn that "frequent application of talcum powder in the female genital area may increase the risk of ovarian cancer."[152] In addition, J&J's talc supplier Rio Tinto Minerals has warned its customers since 2006 of this risk in Material Safety Data Sheets (MSDS) for talc: "perineal use of talc-based body powder is possibly carcinogenic to humans."[153,154] J&J removes this warning from its talc MSDS and cosmetic talc products.[155] Because talc powder is a cosmetic product with no medical benefit, these warnings still do not warrant the sale of a products when the benefits cannot outweigh the risks, especially when there is a safer substitute.[156–158]

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**TABLE 4.** Summary of Studies Finding Asbestos and/or Talc in Ovarian Tissue From Cosmetic Talc Use

| Study | Tissue Weight Type | Test Method | Summary of Findings |
|---|---|---|---|
| Henderson et al (1971) | n/a | TEM | Qualitative identification of talc in 10/13 ovarian tumors<br>Qualitative identification of talc in 12/21 cervical tumors |
| Langer (1971) | n/a | Unknown | Qualitative identification of talc and chrysotile asbestos in Henderson et al (1971) samples |
| Heller, Westhoff et al (1996) | Wet weight | PLM | 26–464 talc particles per gram in 12/12 samples of benign ovarian neoplasms from 12 women with history of adult perineal talc use<br>69–420 talc particles per gram in 11/11 samples of benign ovarian neoplasms from 12 women with history of talc diapering during infancy<br>6–2,200 talc particles per gram in 6/7 samples of benign ovarian neoplasms from 12 women with no history of adult perineal talc use and an unknown history of other talc uses |
| | | TEM | 151,300–7,565,000 talc particles per gram in 5/12 samples of benign ovarian neoplasms from 12 women with history of adult perineal talc use<br>151,300–1,600,288 talc particles per gram in 6/11 samples of benign ovarian neoplasms from 12 women with history of talc diapering during infancy<br>63,042–1,669,000 talc particles per gram in 3/7 samples of benign ovarian neoplasms from 12 women with no history of adult perineal talc use and an unknown history of other talc uses |
| Cramer et al (2007) | n/a | PLM and SEM | Qualitative identification of birefringent particles consistent with talc in pelvic lymph nodes of a 68-year-old woman with stage III ovarian papillary serous carcinoma and a 30-year history of perineal talc use |

J&J should comply with its self-proclaimed obligation to take talc-containing cosmetic products off the market ''if the results of any scientific studies show any question of safety of talc, Johnson & Johnson will not hesitate to take it off the market.''[149]

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# EXHIBIT 14

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# EXPERT REPORT REGARDING TERESA GARCIA

## *Background*

Teresa Garcia was born on February 8th, 1967. Mrs. Garcia began using Johnson's Baby Powder on herself starting in 1974 at the age of 7 and she continued to use it for 30 years until 2008. She used it on a daily basis by shaking it out and rubbing it onto her neck, under arms, chest and bottom. She also used Johnson's Baby Powder during daily diaper changes starting in 1985 when her first child was born and she used it to powder all six of her children until each of them was three years old. She performed at least four diaper changes per day on each of her six children applying the powder to their neck, arms, chest, and bottom. She described the areas where she used the powder as dusty, and that the powder also got onto the floor.

Teresa Garcia Also also used Avon powder products starting when she was 11 years old in 1978 and until the age of 15 in 1982, for a total of four years. The Avon powder products she used were Skin So Soft, Candid, and Sweet Honesty. She used the powders approximately 75% of the time by pouring it out and rubbing it onto her neck, under arms, chest, and her bottom. She described the areas where she used the powder as dusty, and the powder also got onto the floor and sink.

Teresa Garcia also used Jean Nate powder starting when she was 15 years old in 1982 and until the age of 20 in 1987, for a total of five years. She used the Jean Nate powder on a daily basis by shaking it out and rubbing it onto her neck, her arms, chest, and her bottom. She described the areas where she used the powder as dusty, and the powder also got onto the floor.

## EXPERT OPINIONS

1. It is my opinion that Teresa Garcia was repeatedly exposed to asbestos and talc from the Johnson's Baby Powder that was used on and around her during her lifetime.

2. It is my opinion that she would have had exposure to asbestos contained in Johnson's Baby Powder talc sourced from Vermont and China.

3. It is my opinion that Teresa Garcia, more likely than not, would have had significant exposures to airborne amphibole asbestos fibers from the use of Johnson's Baby Powder.

4. It is my opinion that Teresa Garcia was repeatedly exposed to asbestos and talc from the Avon powder that was used on and around her during her lifetime.

5. It is my opinion that she would have had exposure to asbestos contained in Avon powder talc sourced from Vermont, Montana and North Carolina.

6. It is my opinion that Teresa Garcia, more likely than not, would have had significant exposures to

airborne asbestos fibers from the use of Avon powder.

7. It is my opinion that Teresa Garcia was repeatedly exposed to asbestos and talc from the Jean Nate powder that was used on and around her during her lifetime.

8. It is my opinion that she would have had exposure to asbestos contained in Jean Nate powder talc sourced from Italy and Montana.

9. It is my opinion that Teresa Garcia, more likely than not, would have had significant exposures to airborne asbestos fibers from the use of Jean Nate powder.

## BASIS OF OPINIONS

### Airborne Asbestos and Fibers From Talcum Powder Is Consistent With Published Studies and Industry Tests

Talc used in cosmetics and body powders has been found to contain talc fibers as well as asbestos fibers and bundles. In the early 1970s, FD Pooley, in a 10-2-72 report, determined the amount of talc and powder particles from a Johnson and Johnson talcum powder product in the vicinity of an infant on a table located in a 12' x 15' x 15' room. Results showed that when using a container of Johnson and Johnson talcum powder the dust cloud produced talc powder particles at a level of 58 particles/cc of air in the area of the infant and the adult applying the talc. Assuming, as did Dr. Rolle on 2-12-73 when he cited the 10-2-72 study by Dr. Pooley, that if only 1% of the particles were asbestos, the amount of asbestos would be approximately 0.6 asbestos fibers/cc (f/cc) of air in the area of the infant and the adult applying the talc.

Also in the early 1970s, Dement et.al. of NIOSH performed a study entitled, "Fiber Exposure During Use Of Baby Powders." Nine (9) commercial talc powder products were analyzed for fiber content and 7 of the powders were determined to be fibrous. Two (2) of the fibrous powders were Johnson and Johnson cosmetic powder products. Both of the Johnson and Johnson cosmetic powder samples contained between 10,000 and 18,000 fibers per milligram of talc (10 million to 18 million fibers per gram of talc) measuring greater than 5 μm in length. The powders were then used during a simulated exposure test in a 4' x 5'10" x 7'7" room in which a doll was diapered. Air was collected within 10 inches of the baby doll's breathing zone and from the breathing zone of the diapering individual. Powdering was performed during diapering for 5 or 15 seconds. Results showed that for both of the powders the exposure was 1.8 to 2.25 f/cc for the mother and 0.9 to 1.8 f/cc for the baby. The study did not identify whether the fibers were talc fibers or asbestos fibers.

Johnson and Johnson also performed talcum powder usage studies in the late 1970s to determine the amount of talcum powder used by men and by women, and while diapering a baby. Powdering times were assessed after showering and a full 9 ounce container of Johnson's baby powder was used. The average powdering time for the women was approximately 1.5 minutes and the average adult



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exposure concentrations of the powder was 1.61 mg/m³ and 0.21 mg/m³ for diapering.

In October 1972, J. Dement of NIOSH performed a walk-through of the Avon products Springdale Ohio manufacturing cosmetics facility and collected samples of talc to be analyzed for silica and asbestos. Five talc samples were analyzed for asbestos and free silica content by optical microscopy and x-ray diffraction (XRD). Two of the talc samples contained small amounts (< 1.0 - 2.0%) of tremolite asbestos and one talc sample was confirmed to have been possibly contaminated with chrysotile asbestos.

More recently Gordon, et.al. published a study in 2014 that quantifIed the release of amphibole asbestos from a cosmetic talc product dispensed with a shaker (perforated) top and from the use of a talc product that contained a powder puff applicator. In their study using a container with a perforated top, a commercial talc powder product containing 0.1% anthophyllite asbestos by weight was applied to the neck, torso and the arms of the investigator in a bathroom size chamber at a rate of 0.37 grams over 1 minute. Results showed "*for the talc user, the average PCM fiber concentration in his breathing zone during application was 4.8 F/cc (3.1, 7.3, 3.9, and 4.9 F/cc). The asbestos to total fiber percentage as determined by TEM was 40% and the asbestos concentration in the breathing zone of the talc user during application was 1.9 F/cc. For the bystander the PCM fiber concentration was 1.35 F/cc (0.9 and 1.8 F/cc) and the TEM derived percentage of asbestos was 35%, which results in a bystander asbestos concentration of 0.5 F/cc*."

Also in Gordon's study, a commercial talc powder product containing 0.05% anthophyllite asbestos was applied to the neck, torso and the arms of the investigator located in a bathroom size chamber. The investigator used a powder puff to apply talc powder at a rate of 6.25 grams over 1 minute. Results showed that, "*for the talc user, the average PCM fiber concentration in his breathing zone during the 5 minute sampling period was 20 F/cc (23.6 and 16.5 F/cc). The asbestos to total fiber percentage as determined by TEM was 21%. Therefore, the asbestos concentrations in the breathing zone of the talcum powder user were 5 and 3.5 F/cc. The short term sample in the breathing zone of the applier had a PCM value of 60 F/cc. Using the TEM-derived percentage of asbestos of 10%, the result for the short term sample was an asbestos concentration of 13 F/cc. For the bystander, the PCM fiber concentration was 11.7 F/cc (13.7 and 9.7 F/cc). Using the minimum TEM-derived percentage of asbestos of 36% results in a bystander asbestos concentration of 4.9 and 3.5 F/cc*."

**MAS Laboratory Finds Asbestos In Historical Johnson & Johnson Talc Powder Samples**

On February 1, 2019, the MAS laboratory issued a Second Supplemental Report by Drs. William E. Longo and Mark W. Rigler entitled, "The Analysis of Johnson & Johnson's Historical Product Containers and Imerys Historical Railroad Car samples from the 1960's to the Early 2000's for Amphibole Asbestos." This Supplemental Report provided the testing results for 72 talc samples of which there were 57 separate Johnson & Johnson (J&J) powder samples, including 34 Johnson's Baby Powder (JBP) samples, 23 Shower to Shower (STS) containers, and 15 separate cosmetic talcum powder samples from Imerys that were labeled "Railroad Car." These 72 historical

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containers and samples of Johnson's Baby powder (JBP) were analyzed by using polarizing microscopy (PLM), analytical transmission electron microscopy (ATEM), and heavy liquid separation (HLS) for the possible presence of amphibole asbestos fibers and fibrous talc. Many of the J&J containers analyzed were supplied by J&J from their historical inventory. The source of the talcum powder for these J&J historical samples came from both the Italian (1960 to 1967) and Vermont talc mines (late 1960's, 1980's, 1990's and early 2000's).

Results from the 57 historical J&J talc samples tested showed that 42 of the JBP/STS talc containers were positive (73% positive) for amphibole asbestos and possessed significant amounts of amphibole asbestos fibers/bundles per gram of talc. Asbestos concentrations ranged from approximately 4,400 amphibole asbestos fibers/bundles per gram to 268,000 amphibole asbestos fibers/bundles per gram of talc.

Additionally from the 72 samples, MAS analyzed 15 historical Imerys railroad car talc powder samples from the late 1980's to the early 2000's. Of the 15 Imerys railroad car samples, 8 were positive for asbestos (53% positive). The amphibole asbestos concentration range of those samples was from approximately 4,400 asbestos fibers/bundles per gram of talc to 59,000 fibers/bundles per gram of talc.

Of the 72 talc samples from the 1960s to the 2000's that were tested, 84% were also positive for fibrous talc. Of the talc samples that tested positive for fibrous talc, the talc fiber numbers ranged from 290,000 talc fibers to 1,020,000 talc fibers per gram of talc.

**$J^3$ Laboratory Finds Asbestos In Historical Johnson & Johnson Talc Samples Verifying MAS Results**

The 16 historical Vermont talc sourced J&J Shower to Shower talc samples that were also a part of the 72 J&J samples, were also tested for amphibole asbestos by MAS and an additional lab, the $J^3$ Laboratory, using the ISO 22262-2 heavy liquid and ATEM methods as a way to verify the MAS results. A July 13, 2018 $J^3$ Laboratory report showed that of the 16 historical Vermont talc J&J/STS containers analyzed, 11 containers were found to be positive (69% positive) for anthophyllite solid solution series asbestos. However, 5 samples were reported to be below the $J^3$ detection limit (BDL). When MAS analyzed these same 16 samples, 9 of the 16 STS sample containers were verified to contain asbestos using ATEM. Two (2) of the $J^3$ tested STS samples were then verified by MAS to contain amphibole asbestos using the Blount PLM method and 4 of the 5 BDL $J^3$ samples were also determined to be positive for amphibole asbestos by using the Blount PLM method. For the 11 STS positive samples from the 16 STS containers the $J^3$ results were only reported in weight percent but, by using the $J^3$ report data (weight analyzed by ATEM, filter size, ATEM count sheets) the standard TEM calculation for the number of anthophyllite solid solution series asbestos fibers/bundles per gram was determined to range from approximately 7,000 anthophyllite asbestos fibers/bundles per gram to 95,000 fibers/bundles per gram of talc powder.

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**MVA Laboratory Finds Asbestos In Talc Sourced From Vermont Mines**

The MVA laboratory has also tested talc ore samples from the Vermont mines, a major source of J&J talc. The MVA talc/ore sample analyses from the Vermont mines, as well as the included reference documents, demonstrate that the Vermont talc mines possessed trace amounts of anthophyllite, tremolite and/or chrysotile asbestos as an accessory mineral in the talc ore samples tested.

**MAS Laboratory Finds Airborne Asbestos In Hygiene Exposure Studies Using Johnson & Johnson Talc**

The MAS lab has also performed hygiene exposure studies to determine the amount of asbestos in the air during the use of Johnson's Baby Powder. The January 2018 MAS study by Drs. William E. Longo, Mark W. Rigler, and Mr. William B Egeland entitled, "Below the Waist Application of Johnson & Johnson Baby Powder" involved the application of approximately 4 grams of Johnson's Baby Powder to the lower body of an investigator while measuring the exposure levels of airborne amphibole asbestos during this application process. Using the NIOSH 7400 and 7402 methods, the PCME personal airborne amphibole asbestos exposure ranged from 1.8 fibers/cc (f/cc) to 4.5 f/cc of tremolite asbestos. The bystander airborne amphibole asbestos exposure was 0.13 f/cc to 0.31 f/cc of tremolite asbestos. This study has since been published In the Journal of Occupational and Environmental Medicine (JOEM).

In addition to the MAS Below the Waist Hygiene Study, MAS performed a hygiene study by Drs. William E. Longo, Mark W. Rigler, Mr. William B Egeland, and Martin Bennett with Johnson's Baby Powder entitled, "Johnson's Baby Powder Application to a Baby during Diaper Change." In this January 2019 study, approximately 0.6 grams of Johnson's Baby Powder was applied to only the diaper area of a baby doll while measuring the exposure levels of airborne amphibole asbestos to both the investigator as well as in the breathing zone of the baby doll. Using the NIOSH 7400 and 7402 methods, the investigator's PCME personal airborne amphibole asbestos exposures ranged from <0.50 f/cc to 0.78 f/cc of tremolite asbestos. For the baby doll, the two personal air sample asbestos exposures ranged from 1.6 f/cc to 3.0 f/cc of tremolite asbestos. The bystander airborne amphibole asbestos exposure was 0.12 f/cc to 0.3 f/cc of tremolite asbestos.

Both the MAS "Below the Waist Hygiene Study" and the MAS diaper exposure study, "Johnson's Baby Powder Application to a Baby during Diaper Change" demonstrate that the typical use of an amphibole asbestos-containing talcum powder would cause significant exposures from airborne amphibole asbestos (tremolite series and/or anthophyllite asbestos) to either the person using the product or to a bystander and to others using these types of products. Both studies produced exposure results that were consistent with the predicted J&J exposure range in a J&J document entitled "Adding TEM to the Global Talc Specification" which was authored by Dr. Timothy J. McCarty who was the Director of Toxicology at Johnson & Johnson at the time. In that document J&J provided hypothetical consumer asbestos exposure estimates while using J&J talcum powder. For diapering a baby they predicted an exposure range of 0.16 f/cc to 0.18 f/cc. For an adult they predicted

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an exposure range of 4.5 f/cc to 9.3 f/cc. I have reviewed the published literature and internal J&J documents and the MAS analytical results are consistent with these documents.

**MAS Laboratory Finds Asbestos In Historical Cashmere Bouquet Talc Samples**

Since cosmetic talcum powder manufacturers used some of the same talc source mines (Vermont, Italy, Montana, etc.), cosmetic talc powder products made by other manufacturers were tested for asbestos. In a September 25, 2018 report by Drs. William E. Longo and Mark W. Rigler entitled, "Analysis of Colgate Palmolive Cashmere Bouquet Cosmetic Talc Products For Amphibole Asbestos Supplemental Expert Report," the MAS laboratory showed results for the presence of amphibole asbestos in 38 Cashmere Bouquet historical talc powders. Using the most sensitive analytical ATEM method and the heavy liquid separation method, 28 Cashmere Bouquet talc samples out of the 38 Cashmere Bouquet talcum powder samples tested positive for amphibole asbestos (74% positive). Results ranged from 3,600 fibers-bundles of amphibole asbestos per gram of talc to 474,000 fibers-bundles of amphibole asbestos per gram of talc. Both regulated tremolite series and anthophyllite series asbestos were found in the Cashmere Bouquet cosmetic powders. In addition to tremolite series and anthophyllite series amphibole asbestos, 32 of the 38 Cashmere Bouquet talcum powder samples contained fibrous talc.

Additionally, in a March 24, 2019 report by Drs. William E. Longo and Mark W. Rigler entitled, "Analysis Of Cashmere Bouquet Cosmetic Talcum Powder Products For Amphibole Asbestos Expert Report", the MAS laboratory reported results after testing 20 additional historical Cashmere Bouquet talc powders for the presence of amphibole asbestos. Using the heavy liquid separation method and the Blount/PLM analysis, 15 of the 20 samples were found to be positive for the presence of amphibole asbestos. Using the most sensitive analytical ATEM method and the heavy liquid separation method on 5 of the 20 Cashmere Bouquet talc samples, results showed that all 5 of the cosmetic talc samples tested positive for the presence of amphibole asbestos (100% positive). The amount of a amphibole asbestos ranged from approximately 5,400 fibers-bundles of amphibole asbestos per gram of talc to 25,200 fibers-bundles of amphibole asbestos per gram of talc. Only regulated amphibole tremolite series asbestos structures were found. Overall, 20 of the 20 samples analyzed were positive for amphibole asbestos (100% positive).

The results from all of these studies show that the use of talcum powder products containing asbestos would cause significant exposures from airborne fibers and asbestos to either the person using the product, to bystanders, and to others using these types of talcum powder products.

**Talc Has Not Been Shown To Be a Component of Indoor Air**

Talc has not been shown to be present as a component of indoor residential air in any published scientific literature. According to The National Toxicology Program (NTP) Board of Scientific Counselors Report on Carcinogens, the source of talc in a residential indoor setting would be from products that contain talc. This would include products such as those containing cosmetic talcum powder.

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**Other Talc Based Cosmetic Powders Have Been Shown To Contain Talc and Tremolite**

Pierce et al. evaluated 6 historical talc samples sold between 1940 and 1977 manufactured by Avon, Coty, Colgate Palmolive and Centaur (1 Coty, 2 Avon, 2 Cashmere Bouquet and 1 ZBT talc powder product) which included; 1 facial powder 3 talcum powder's, 1 baby powder and 1 "beauty dust" powder. A majority of the fibers found in all of the samples were talc. Accessory minerals, such tremolite cleavage fragments, were found in 3 of the 6 talcs by ATEM (analytical transmission electron microscopy).

**Avon Talc Sources Including Italy, Montana, and North Carolina Have Been Shown To Contain Asbestos**

In January 1968, the Battelle Memorial Institute reported to Johnson and Johnson that samples of Stone Creek Montana talc tested positive for tremolite. Additionally they reported that samples of Italian number 1 and number 2 talc tested positive for tremolite.

In August 1971, Louis Murino of Cyprus Minerals informed Dr. John Travers, Director Exploration Research, that there was trace tremolite in Avon 0768 (WD 2450) North Carolina talc.

In September 1973, Travers reported that 7 North Carolina Avon 0768 (WD 2450) talc samples, 4 Italian 0747 talc samples, and 5 Montana 0815 talc samples tested positive for asbestiform minerals.

In April 1973, a test request for DTA analysis by the Avon laboratory showed that Avon Montana talc 0747 and 0815 had tested positive for tremolite.

In October 1973, The Ernest Fullam laboratory reported to Whitaker, Clark, and Daniels, (WCD) a supplier of talc to Avon, that Italian talc 0747 (1615) tested positive for chrysotile and amphibole asbestos. Chrysotile was reported at a concentration of 1,350,000 fibers per gram and amphibole fibers were reported at 8,250,000 fibers per gram of talc.

In February 1974, the McCrone laboratory reported that talc samples from the Regal North Carolina mine tested positive for the presence of chrysotile asbestos.

In July 1979, Triglia reported to Hemstock of Engelhard Minerals that talc from the Cyprus, Beaverwhite, Montana mine tested positive for trace amounts of asbestos.

And in July 1988, testing of talc from the Beaverhead mine in Montana showed positive results for the presence of actinolite asbestos.

**Avon Plant Inspection Revealed Asbestos Contamination**

In October 1972, Dement of NIOSH performed a walk-through of the Avon products Springdale

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Ohio cosmetics manufacturing facility and collected samples of talc to be analyzed for silica and asbestos. Five talc samples were analyzed for asbestos and free silica content. Two of the talc samples contained small amounts of tremolite asbestos and one talc sample was confirmed to have been possibly contaminated with chrysotile asbestos.

**Jean Nate Powder Products Have Been Shown To Contain Talc and Asbestos**

In August 1972, in a report to Dr. A. Weissler, Acting Director of the Division of Colors and Cosmetic Technology for the FDA, Dr. S. Lewin of New York University reported the presence of small percentages of tremolite in two Jean Nate cosmetic talc powders, Jean Nate Spray Bath Powder and Jean Nate Talc. Dr. Lewin's findings were followed up in a July 1973 memorandum from Dr. Weissler to Dr. Robert Schaffner, Director of the Office of Technology for the FDA.

More recently from May 2019 to August 2020, Dr. William Longo of the the MAS Laboratory examined 15 historical Jean Nate cosmetic powder products. Five of the products tested positive for tremolite asbestos and all 15 tested positive for chrysotile asbestos.

**OSHA Finds Asbestos in Some Consumer Cosmetics**

In March of 2018, DT Crane of the Occupational Safety And Health Administration's (OSHA) Salt Lake Utah laboratory reported to the US Food and Drug Association (FDA) on 10 different talc bearing materials that were submitted for analysis for the presence of asbestos using optical microscopy (PCM/PLM), scanning electron microscopy (SEM), and energy dispersive X-ray analysis (EDS). Eight of the samples were commercial cosmetics (seven of which were analyzed) and two were talc powders. The cosmetics included eyeshadow, pressed powder, highlight, and contour powder. All samples were found to contain fibers and four of the samples contained tremolite asbestos fibers.

**SAI Laboratory Finds Asbestos in Some Consumer Cosmetics**

From 2015 to 2019, Fitzgerald et al. at the SAI laboratory examined the talc from numerous off-the-shelf cosmetics products by PLM, ATEM, EDS, and SAED (selected area electron diffraction). The SAI lab found asbestos in a number of those products including; Justice Shine Shimmer Powder, Claire's Black Shiny Makeup Kit Light Tan Compact powder, and Claire's Bejeweled Heart eyeshadow. The SAI Lab results were published on the FDA website as well as presented to scientists at a February 2020 FDA meeting concerning asbestos in talc.

**FDA Advises Consumers to Stop Using Certain Body Powders, Face Powders, Eye Shadows and Other Talc Powder Based Makeups**

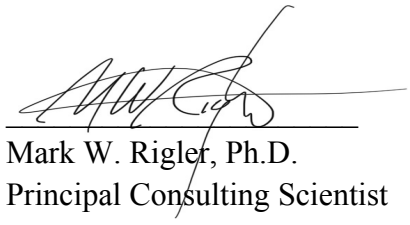
In March, June, September, and October of 2019, the FDA advised consumers to stop using certain cosmetic products, including certain body powders, face powders, eye shadows and other talc powder based makeups because those products had tested positive for asbestos. Manufacturers had recalled certain lots of their talc based products including Johnson's baby powder, Claire's and Beauty Plus

Global Inc. eyeshadow, blush compact powder, and contour makeup.

## CONCLUSIONS

All of the above information and analytical testing results demonstrate that the use of Johnson & Johnson's Baby Powder, Avon cosmetic powder and Jean Nate cosmetic powder on and around Teresa Garcia during her lifetime exposed her to significant levels of airborne regulated asbestos fibers.

All of the opinions expressed in this report are held within a reasonable degree of scientific certainty, and I reserve the right to modify this expert report if additional information becomes available



Mark W. Rigler, Ph.D.
Principal Consulting Scientist

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# EXHIBIT 15

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# Expert Report of R. Mark Bailey, P.G. on *Asbestos in Talc Products from the Hammondsville Mine, Vermont, USA*

For

Jessica Dean, Esq.
Dean Omar Branham Shirley, LLP

Date

November 16, 2020

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A. Diagrammatic Tectonic History of Vermont

B. Geologic Time Scale

# 1. Introduction to Asbestos in Talc Deposits of Vermont

Asbestos is a well-documented human health hazard and cause of serious and frequently fatal lung disease and cancer. It is one of the most thoroughly documented sources of cancer known to man including:

Mesothelioma
Lung Cancer
Asbestosis
Pleural plaques
Other various lung and immune system diseases

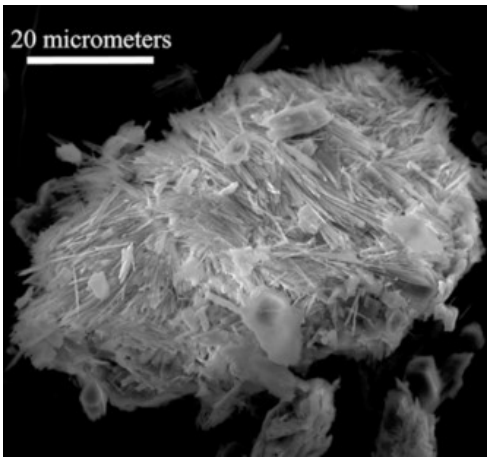

Fig. 1.1 - SEM Photo asbestos fibers in talc.

Exposure to asbestos fibers leading to lung disease most commonly occurs when friable (easily powdered) materials are disturbed in such a manner that asbestos fibers are released into the air and inhaled into the lungs. Unfortunately, it has been found that many talc products contain asbestos.

Fig. 1.2 – Highly friable powdered talc.

Talc is a material used widely in both cosmetic and industrial applications. Generally, talc is not considered to be hazardous to human lungs, however, it has been found that many talc products contain various amounts of asbestos. The particular problem with talc products is that they are most often used in a finely powdered form which can easily become airborne and inhaled during use.

In this report I address the Hammondsville Talc Mine located in south central Vermont, mines which have produced talc used for cosmetic purposes for a wide range of products.

Fig. 1.3 – Talc rock ore.

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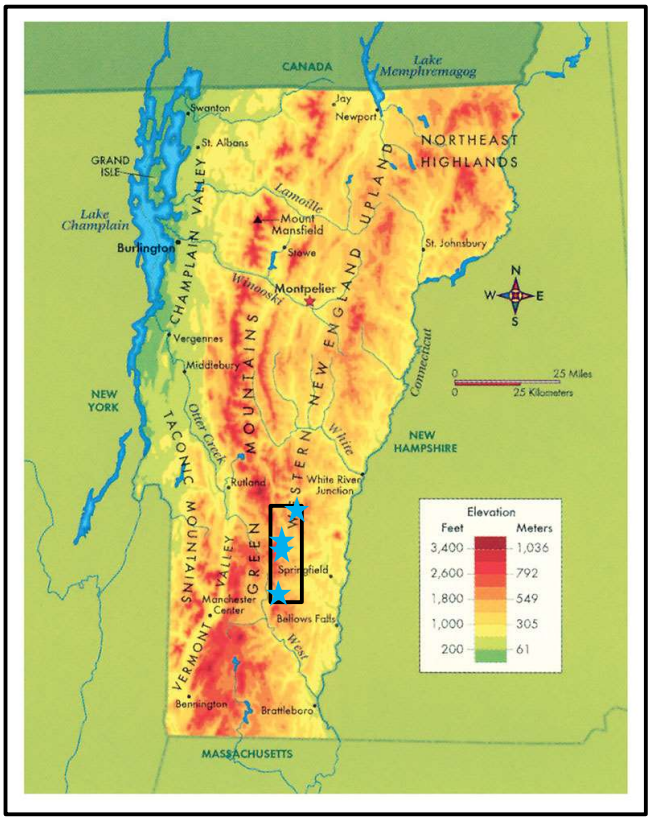


Fig. 1.4 – Physiographic map of Vermont (MapHero.com n.d.) with general location of the J&J talc mines (blue stars) occurring in a N-S trending belt approximately 25 miles long and 10 miles wide. From north to south: A) Hammondsville, B) Rainbow, C) Argonaut & D) Hamm.

## 2. Definition of asbestos

Typically, to define a substance as asbestos it has to meet various criteria including:

- Mineral type
  - Serpentine Asbestos (Regulated)
    Chrysotile
  - Amphibole Asbestos (Regulated)
    Tremolite/Actinolite
    Amosite (Grunerite)
    Crocidolite (Riebeckite)
    Anthophyllite
- Morphology & Optical Characteristics

Fig. 2.1 – The six regulated asbestos minerals.

**Several of the many regulatory definitions of asbestos**

California Air Resources Board Method 435 - Determination of Asbestos Content in Serpentine Aggregate (CARB 1991)

Fiber Identification – Positive identification of asbestos requires the determination of the following optical properties

Morphology (3 to 1 minimum aspect ratio)…

USEPA Asbestos-containing materials in schools: final rule and notice. Appendix A to Subpart E – Interim Transmission Electron Microscopy Analytical Methods (MISSING:TEM-AHERA 2020)

- Fiber – A structure greater than or equal to 0.5 µm in length with an aspect ratio (length to width) of 5:1 or greater and having substantially parallel sides…

NIOSH 7400 Method: Asbestos and Other Fibers by PCM (NIOSH n.d.)

- Count any fiber longer than 5µm which lies entirely within graticule area.
  - Count only fibers longer than 5 µm. Measure the length of curved fibers along the curve.
  - Count only fibers with a length-to-width ratio equal to or greater than 3:1

ASTM D5755 Standard Test Method for Microvacuum Sampling and Indirect Analysis of Dust by Transmission Electron Microscopy for Asbestos Structure Number Surface (ASTM 2014)

- fiber—a structure having a minimum length of 0.5 µm, an aspect ratio of 5:1 or greater, and substantially parallel sides

USEPA Bulk Method 600-R-93-116, Method for the Determination of Asbestos in Bulk Building Materials (Perkins 1993)

Mean aspect ratios ranging from 20:1 to 100:1 or higher for fibers longer than 5µm. Aspect ratios should be determined for fibers, not bundles

- Very thin fibrils, usually less than 0.5um in width
- Two or more of the following:

  Parallel fibers occurring in bundles

  Fiber bundles displaying split ends

  Matted masses of individual fibers

  Fibers showing curvature

These characteristics refer to the population of fibers as observed in a bulk sample…

Proposed FDA definition (FDA 2020)

FDA IWGCAP - Executive Summary – Preliminary Recommendations on Testing Methods for Asbestos in Talc and Consumer Products Containing Talc

- Chrysotile (but not other serpentine minerals) and members of the amphibole group (inclusive; not restricted to the five amphiboles used commercially).
- Countable EMPs have an aspect ratio (AR) of >3:1 and a length of > 0.5 µm using the most inclusive criteria for length and AR from among the “asbestos” counting rules in established testing protocols.

Numerous other definitions of asbestos exist. It is important to note that there are considerable differences between them, such as 3:1 aspect ratio [(NIOSH n.d.), (NIOSH 1994) and(CARB 1991) to 5:1 (MISSING:TEM-AHERA 2020), or minimum width and length [(NIOSH n.d.), (NIOSH 1994)] which can lead to significantly different fiber counts for air samples and wt.% for bulk samples. Also, fiber properties observed depend on the magnification used by the particular analytical method – e.g. small fibers observable by TEM often show no curvature or split ends.

Counting amphiboles in rock and soil which have been subjected to grinding/pulverization can be challenging. Below is an example of a highly asbestiform tremolite bundle to the left which, when ground to a powder, transformed into a material that some would call cleavage fragments, yet it is a truly asbestiform material.

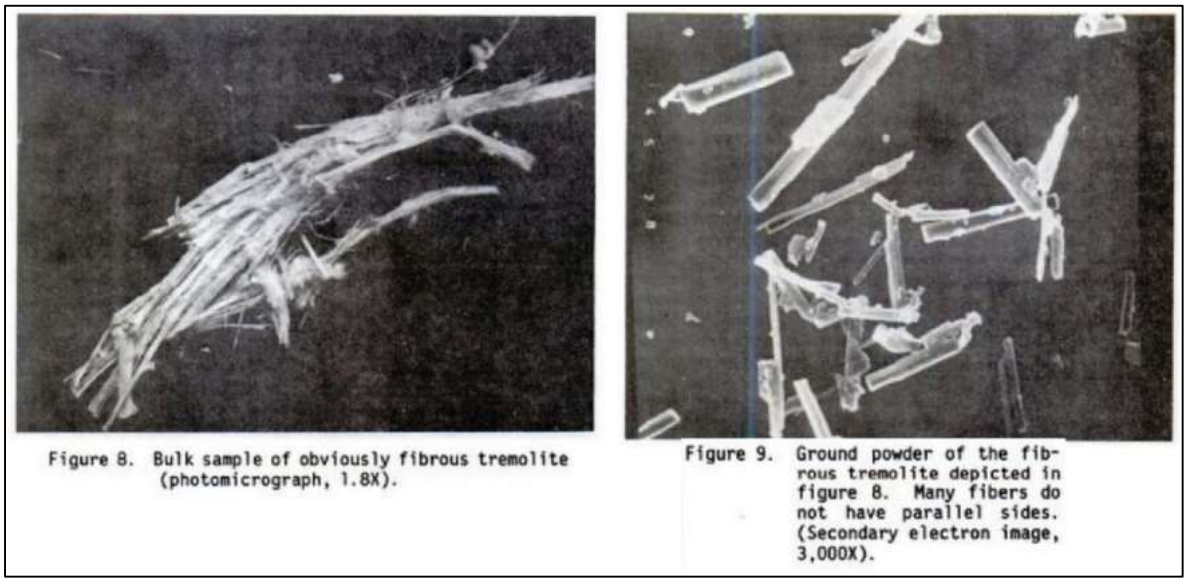

Figure 8. Bulk sample of obviously fibrous tremolite (photomicrograph, 1.8X).

Figure 9. Ground powder of the fibrous tremolite depicted in figure 8. Many fibers do not have parallel sides. (Secondary electron image, 3,000X).

Fig. 2.2 – Scanning electron microscopy photomicrographs of asbestiform tremolite and the effects on fiber morphology of grinding (Graf & Draftz 1982).

# 3. General guide to geology & geologic process

Geology is the study of minerals and rocks. To understand how talc forms and whether it can contain asbestos we need to use the language of geology. Below are a few geologic terms to allow us to begin a discussion of asbestos and talc and how they form.

Minerals, by definition, are crystalline materials that are found in nature. Below are ten common minerals which define what is called the Mohs hardness scale. Note that talc is the softest mineral (1) and diamond is the hardest (10).

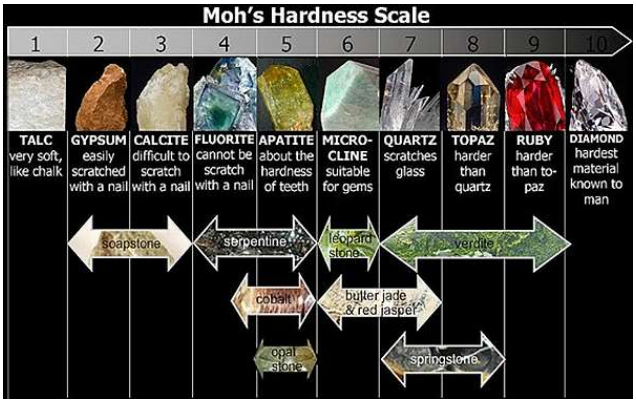


Fig. 3.1 - Mohs hardness scale is a general table used by geologist for ranking mineral hardness – Talc is the softest mineral (#1) and diamond as the hardest (#10) on a scale of 1 to 10.

# 4. Geology of Asbestos and Non-Asbestos Bearing Talc Deposits

Before discussing the specifics of the geology of the talc deposits of the J&J Mines in Vermont, it is important to understand the mechanisms by which talc forms in the natural environment. These mechanisms greatly affect not only the type and quality of the talc, but also the presence of accessory minerals such as amphiboles which may become asbestiform, and which are ultimately hazardous to human health. An excellent discussion of this topic is provided by (Van Gosen 2004) of the USGS, who describes three primary types of economic talc deposits and ranks them by the level of amphibole content:

(1) **Amphibole-free talc deposits formed by <u>hydrothermal processes</u> (Green zone A in fig. 4.1 )**

The term hydrothermal is commonly used in a general sense to describe the actions and products of heated fluids, often, but not always, implying an association with igneous processes. Hydrothermal talc refers to deposits (usually of shallow depth) thought to be the product of fluids heated by a distant magma source.

An example is the Talc City district in eastern California. In this talc deposit, dolomitic rocks are altered to talc, but with a significant difference in that the Talc City Hills talc deposit formed as a result of hydrothermal alteration and not during regional metamorphism, leaving it amphibole free. In addition, the talcose alteration is generally more widespread throughout the affected rocks than is found in the. Studies of the Talc City Hills and other similar deposits indicate the temperature of the fluids which formed the talc were in the range of 280 – 405 deg. C., which is not conducive to the formation of amphiboles.

Another hydrothermal talc occurrence known to be amphibole free is the talc extracted from a series of mines in southwest Montana where hydrothermal fluids of 190 to 250 C believed to have come from a set of deep seated intrusive sills has altered an overlying dolomite to talc.

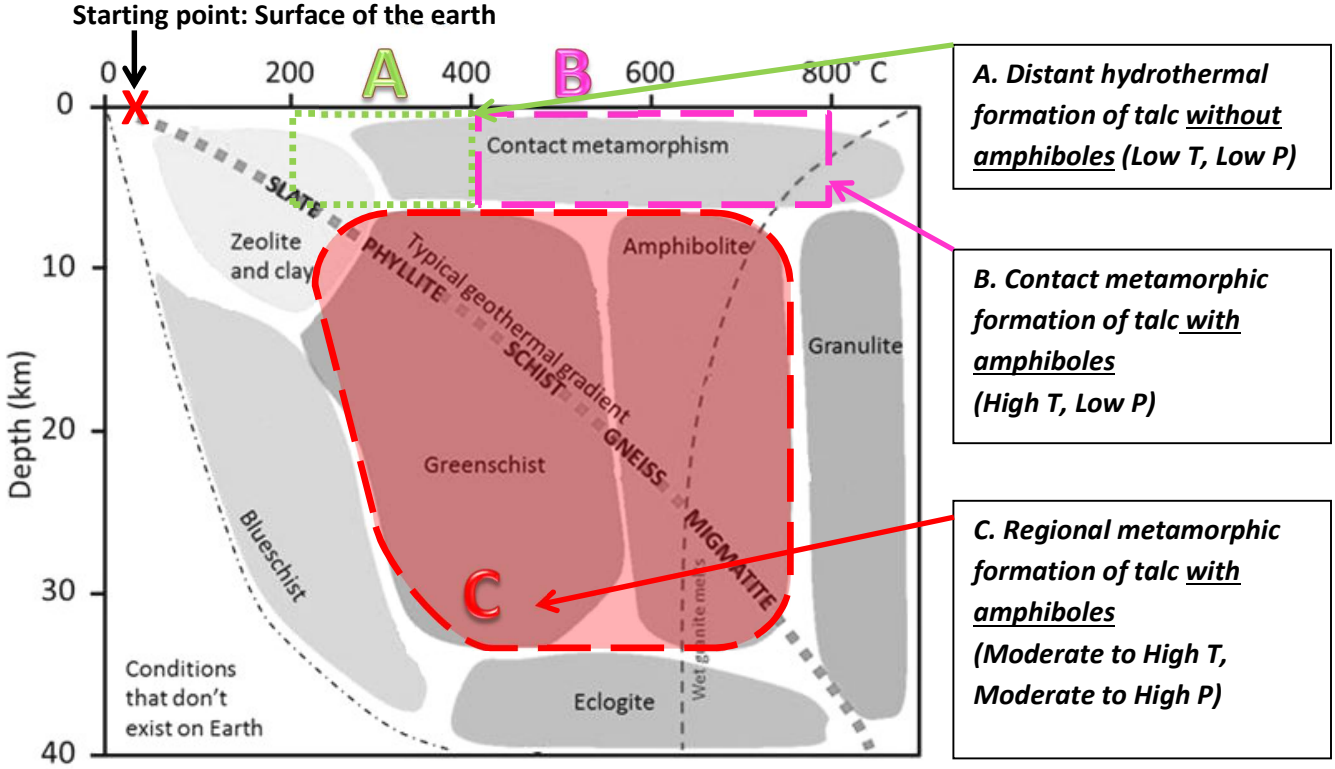


Fig. 4.1 – Pressure - Temperature diagram of talc deposits by type (with or without asbestos) (Van Gosen 2004)(Earl 2015)

(2) **Amphibole-bearing deposits formed by <u>contact metamorphism</u> (pink zone B in fig. 4.1)**

Talc bodies formed in this manner are deposits found in direct contact with an igneous body. The talc is thought to have formed by metasomatism (a change in the composition of a rock as a result of the introduction or removal of chemical constituents) due to the magmatic intrusion. An example is the Death Valley talc district where dolomitic rocks were intruded by basaltic magma which altered the nearby dolomite to talc as well as abundant asbestiform tremolite and winchite/richterite amphibole.

Another example of amphibole-containing talc deposits formed by contact metamorphism is found in the Appalachian mountains of western North Carolina where the ultramafic Day Book dunite body is injected with pegmatitic intrusives. At the contact between the two, forsteritic olivine in the dunite is altered to talc, as well as anthophyllite asbestos and phlogopite mica by as much as several meters.

(3) **Amphibole-bearing talc deposits formed by <u>regional metamorphism</u> (red zone C in fig. 4.1)**

Talc ore bodies formed in this manner generally occur without heat supplied from an immediately adjacent magma source, but instead due to being buried deeply in the earth, and/or a mountain building geologic event, where heat from the earth itself, along with moderate to high pressures, cause the rock to recrystallize. Rocks typically convert to talc from a) serpentinite or b) dolomitic source rocks and include amphibole minerals such as tremolite/actinolite, a portion of which are found to be asbestiform. Examples of these types of talc deposit are the a) metamorphosed dolomitic rocks of the Gouvenour district in New York and possibly the Hammondsville, VT mine, and the ultramafic bodies of southern Vermont. The Vermont deposits, in particular, generally form as rinds or halos around ultramafic rocks which are sometimes almost completely replaced. The talc-forming events in these districts have been interpreted as metasomatism accompanying significant fluid flow during regional metamorphism.

# 5. Geology and Geo-Tectonic History of the Rowe-Hawley Belt: Host of the Vermont and J&J Talc Ultramafic Deposits

The J&J Vermont talc mines talc mine sit in a geologic series of rocks which runs roughly north-south through central Vermont called the Rowe-Hawley Belt (RHB) or Rowe-Hawley lithotectonic zone (Hatch 1988). It consists of metamorphosed sedimentary and volcanic rocks lying between the western contact of the Rowe Schist and eastern contact of the Hawley and Cobble Mountain Formations. All rocks of the RHB pre-date the Taconian Orogeny and are presumed to be of Late Precambrian to Middle Ordovician in age. The rocks have been severely deformed, sheared and altered by a series of tectonic events described generally below, in figures 5.1 thru 5.5, and in detail in Appendix A.

It is within these rocks that the talc mines of Vermont are found. The Rowe schist consists of interlayered lenticular masses of metabasalt (greenschist), pelitic metasediments (gray schist), amphibolite (typically higher grade versions of greenschist) and serpentinized ultramafic rock. The Moretown Formation east of the Rowe schist (except on the left side of the Chester Dome where it is overturned, best seen in cross-section Fig.5.6) consists of light-gray pinstriped granofels and micaschist.

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## 7. Geology and Mode of Occurrence of Talc Mines in Vermont

The source and method of creation of the talc deposits of Vermont has been determined to be almost always related to serpentinized ultramafic rock which has been altered by a process called metasomatism; the chemical alteration of a rock by hydrothermal and other fluids resulting in the replacement of one rock by another having different chemical composition and mineralogy (Chidester et al. 1951). Ultra-mafic orebodies are found to be tabular to podiform extending in length from several hundred feet to as much as 3.5 miles in length and range in width from a few feet to about a mile. The serpentine in the deposits is typically highly altered, sometimes almost completely to talc, chlorite and other minerals.

Two general types of deposits have been identified:

(1) Verde antique type – completely serpentinized and strongly steatized – Virtually all commercial deposits are of this type. The mineral assemblage associated with this type of deposit reflects the effects of regional metamorphism (Chidester et al. 1951)
(2) Partly serpentinized dunite or peridotite +/- pyroxenite

Chidester in his 1951 paper developed a geologic model of how the typical verde antique type of Vermont talc deposit occurs. This model states the ultramfic body contains a mixture of steatite (talc) and grit (a mix of talc and carbonate) at the margins and core of the body. The steatite zone at the border of the ore body is typically a few inches to a few. He also states, however, that there are considerable gradations from ultramafic bodies formed entirely of serpentinite, with no talc alteration, to bodies where no serpentine remains and it is composed entirely of steatite and grit. Notation is also made of the fact that it is common to see what are called “cinders” within the ore bodies made up of various forms of country rock called inclusions (individual masses within the talc ore), septa (elongate bubble like areas of country rock filled with talc) usually at the edge of the ore body, as well as tongues of partially separated wall rock projecting well into the talc ore body. Often these cinders are altered to some degree.

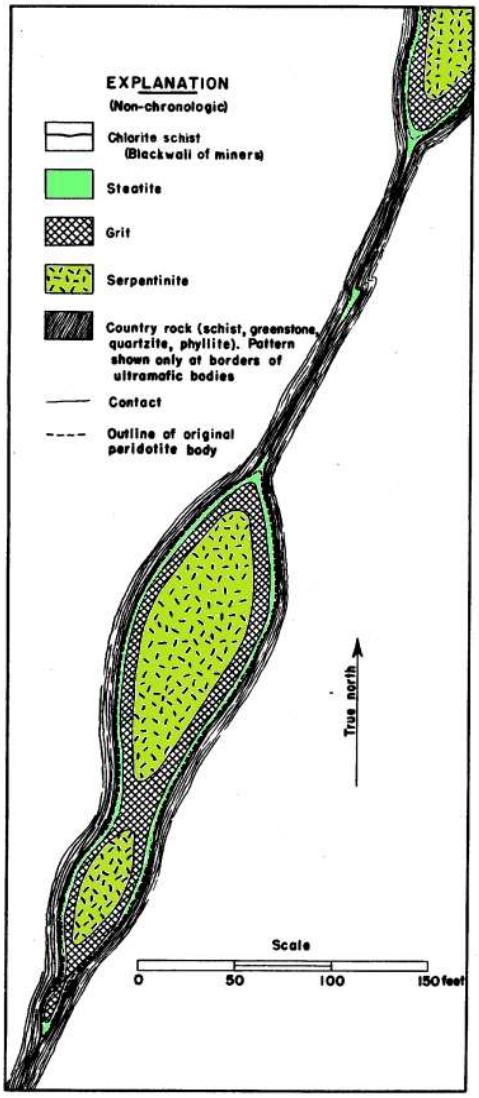


Fig. 7.1 - Idealized sketch map of a typical steatite-grit-serpentinite body showing the distribution of rock types, and illustrating small, nearly isolated lenses of steatite in the country rock. The width of the steatite zone outside the borders of the original ultramafic body is slightly exaggerated (after Chidester, 1951).

The degree of temperature and degree of metasomatism (exchange of chemical components between wall rock and ultramafic body mediated by fluids) which the ultramafic body has experienced plays a role in the mineral assemblages seen within and adjacent to it. In low temperature altered

deposits, the blackwall country rock/ultramafic border zone is seen to be composed almost entirely of chlorite, the steatite zone is almost entirely talc, and the grit zone is talc and carbonate. In bodies with higher temperature assemblages the blackwall border zone is composed primarily of biotite, part or all of the steatite zone is composed of actinolite with minor talc, and the grit zone is composed of flaky talc, carbonate, and radiating acicular talc probably pseudomorphic after enstatite or anthophyllite.

The metamorphic grade of the ultramafic bodies of the verde antique type appears to vary sympathetically with that of the country rock. Moreover, the metamorphic grade of the country rock is fairly uniform over moderately large areas, remote from and also close to these ultramafic bodies. In other words, it is regional in scope and not produced by a contact metamorphic action of the ultramafic body.

The verde antique type of serpentinite shows various degrees of alteration to grit and steatite. The wide range in degree of steatitization is striking. Many of the serpentinite bodies show only relatively thin zones of grit and steatite at the margins. At the other extreme are the talc bodies which are, throughout much of their extent, entirely altered to grit and steatite; only small residual cores of serpentinite occur at (some other mines), and no serpentinite is known as some such as in the Hammondsville mine.

In addition to the changes within the ultramafic body proper, associated changes in the country rock at the contact with the ultramafic body are evident. The latter changes include the alteration of the country rock to chlorite or biotite schist referred to as the blackwall. The serpentinites and country rocks that border them exhibit a rather well-defined zonal arrangement as an effect of these changes. An ideal sequence from the center of such an ultramafic body outward (to be described in more detail later) is serpentinite, grit, steatite (or talc-actinolite rock), and blackwall, each of which occupies a more or less definite zone. The blackwall grades into unaltered country rock.

In some talc deposits such as the Rochester Verde antique quarry, between the blackwall and steatite zone, actinolite in rosettes from 1 to 3 inches across are found. This deposit also was found in one locale to have a thin zone of steatite, which is bordered in turn by a foot of actinolite. And in another, the Davis (or Holden) talc quarry, surrounding the central (serpentine) core is a thin shell of radiating actinolite, which is bordered by a shell of biotite.

In all, it can be seen that the process of metasomatism as a result of regional metamorphism resulted in the formation of the talc deposits, but which also caused tremolite/actinolite to form in various regions at the edge or within the ore bodies.

## 8. Mineralogical Zonation of Vermont Talc Mines

The mineral zonation observed in talc deposits described above by Chidester has been extensively studied (Sanford 1982). Sanford looked at four ultramafic deposits including three in Vermont (Rochester, Newfane and Grafton), and one in Massachusetts (Blandford). Of these four, the one closest to the Hammondsville talc mine geographically, and located in a similar structural/metamorphic position but at the opposite end of the Chester dome to the south, is the Grafton mine, which will be focused upon here. It also was the only ultramafic body studied in which no serpentine core was found, which some authors claim is the case at Hammondsville.



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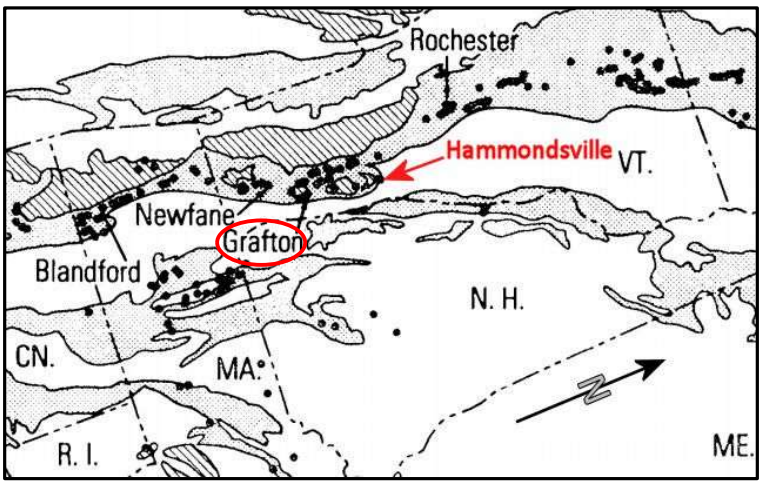


Figure 8.1 – Location map of the four mines studied by Sanford including Grafton circled in red, the closest to the Hammonsville talc mine (Sanford, 1982).

Four ultramafic bodies deemed to represent the range of types of ultramafic rock alteration seen in western New England were studied (three of four were in Vermont). These deposits showed general similarities, as well as a number of consistent differences, but can be summarized in the diagram below which plots as a cross section from far left (ultramafic rock) to far right (country rock) the mineralogical zonation generally identified. Note the red zone indicating the presence of calcium amphibole (tremolite/actinolite) as one of the consistent alteration zones.

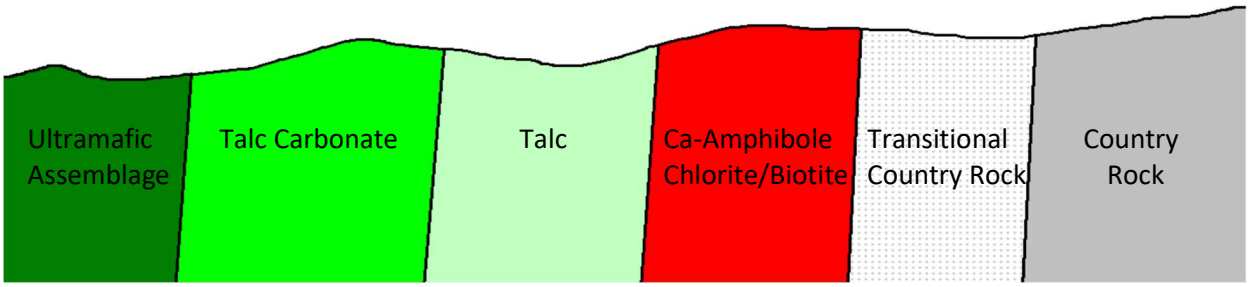


Figure 8.2 – Generalized sequence of mineral zonation seen in altered ultramafic bodies in New England (Sanford, 1982). Please note that ultramafic bodies have a mirror image zonation on the opposite side of the deposit.

Sanford visualized the alteration occurring between the ultramafic rock assemblage and the country rock schist as being driven by chemical potential differences between the rocks causing minerals to breakdown and then elements with high chemical potential moving across the ultramafic rock assemblage/ country rock schist boundary into the other rock type causing a series of new minerals to form. The following series of diagrams (Figures 8.3, 8.4 & 8.5) show this progression of metasomatic alteration.

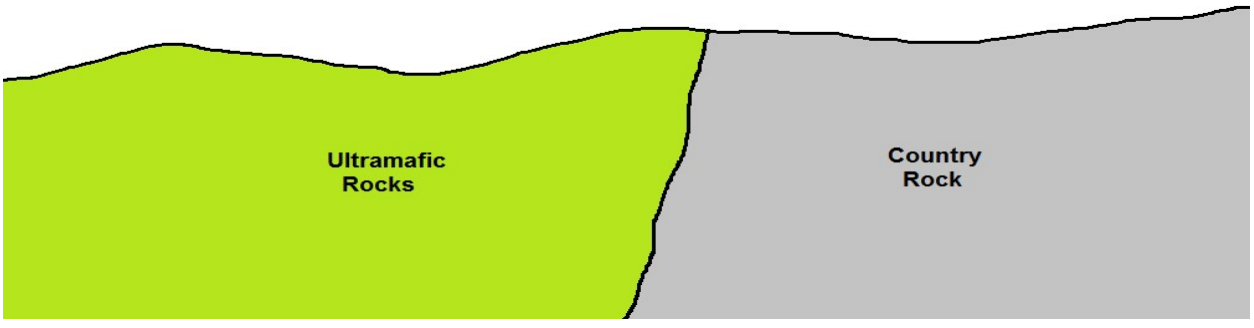


Figure 8.3 – Hypothesized unaltered ultramafic rock assemblage/country rock schist border emplaced during the Taconian low temperature orogeny.

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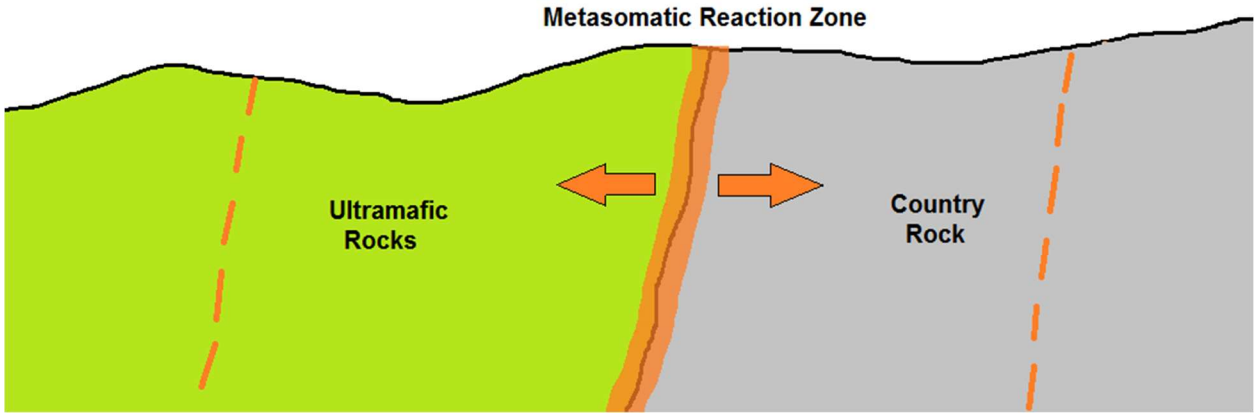


Figure 8.4 – Beginning stages of metasomatic reactions between ultramafic assemblage rocks and country rock schist as pressure and temperature start to build during the early Acadian orogeny. Hot fluids flowing through the fault boundary between the two rock bodies facilitates the mobilization of mineral elements.

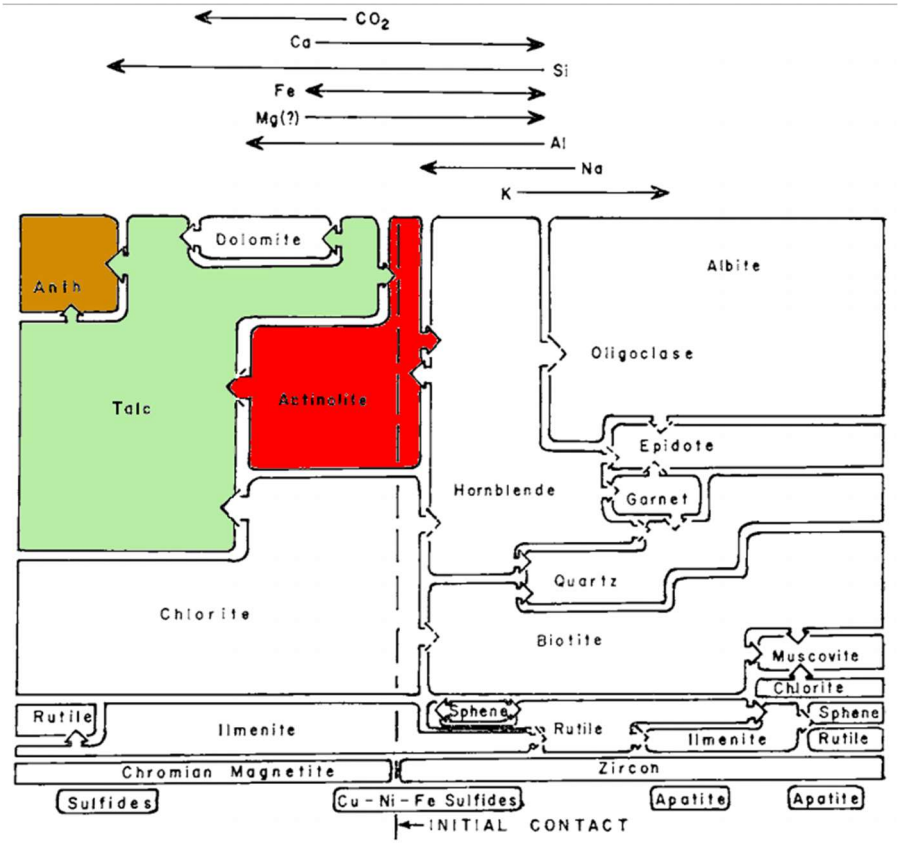


Fig. 16. Schematic mineral reactions at Grafton. Axes and symbols as in figure 13.

Figure 8.5 – Metasomatic chemical reactions observed at the Grafton mine (Sanford, 1982). At top of diagram is a list of chemical elements with longest arrows indicating the elements with the highest potential to move in the arrow direction. Note Mg (magnesium) in the ultramafic rock moves towards the country rock and Si (silicon) in the country rock moves toward the ultramafic rock. In the lower part of figure, boxes representing the approximate concentration of various minerals have arrows attached to them indicating the mineral zones expand over time as metasomatism progresses, initially starting at or near the initial contact, and then replacing pre-existing minerals in the direction of the box arrows. Note the actinolite (/tremolite) and hornblende amphibole zone grow into and replace both the country and the ultramafic rocks.

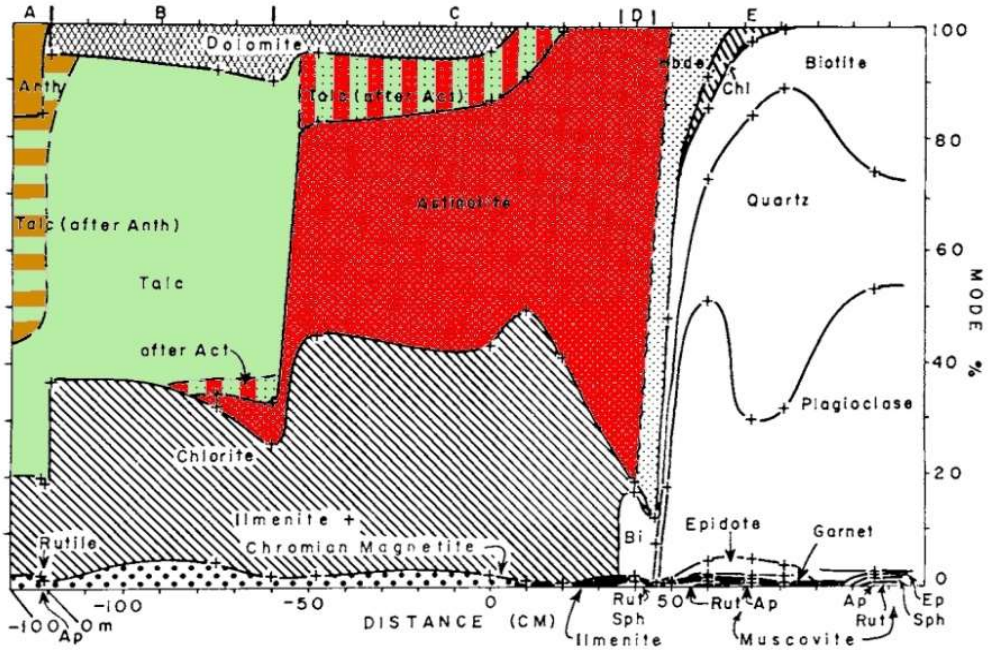


Figure 8.6 – Plot of modal amounts of different minerals across the metasomatic mineral replacement zones as seen at the Grafton mine. Note the actinolite (/tremolite) zone extends into and replaces both the old country and the ultramafic rocks, and that the talc actinolite/tremolite boundary is not sharp, but grades into the talc zone and is present to some degree in most of the talc. Also note the presence of anthophyllite amphibole which has also been identified in the Hammondsville mine. While plot this is not exactly representative of the Hammondsville mine, it has many of the same attributes, particularly with the general distribution of amphiboles.

Sanford, like Chidester above (section 7.) also observed a difference between the metamorphic grade and the minerals observed where at higher grades biotite begins replacing chlorite in the ca-amphibole chlorite zone, and anthophyllite begins to appear.

An interesting side note on the application of Sandford's chemical potential model of talc and amphibole replacement of pre-existing ultramafic and country rocks is the observation that it should also apply to contacts between ultramafic rock and cinders (country rock inclusions, septa and tongues both surrounded by and protruding) in the talc ore, which are a common occurrence in talc mines. Amphibole halos about cinder zones, though likely in lower amounts than at the actual ultramafic/wallrock boundary, can be expected to be broadly present throughout the talc ore body, resulting in a significant potential source of fibrous amphiboles.

## 9. The Hammondsville Talc Mine

Historically, four Vermont talc mines were used by Johnson and Johnson as source for their talc: Hammondsville, Rainbow, Argonaut and Hamm. By far the largest source was the Hammondsville mine, which will be the focus of the remainder of this geological analysis.

The Hammondsville mine is located in Chester County. The mine has been described by a number of geologists (Chidester et al. 1951), and the Colorado School of Mines Research Institute(Ashton 1970). Both papers note the complete lack of serpentine. Chidester states the deposit consists entirely of grit and steatite, and also notes the presence "in the southwestern face of the quarry there is a large mass of

actinolite rock." And, "It is possible that much, perhaps even most, of the talc-rock exposed is not of ultramafic origin, but was formed by alteration of the schist. Nevertheless, the deposit is believed to be related to an ultramafic body."

## 10. Review of Colorado School of Mines Report on the Hammondsville Mine

The Colorado School of Mines Research Institute (CSMRI) compiled a report titled "Geology and Ore Reserves, Hammondsville Mine" for Windsor Minerals in 1970 related to the cosmetic talc operations at the mine. The study began with the diamond core drilling of approximately 40 holes throughout the mine site (see Figure 10.1 – Talc thickness contours – isopach map). All drill core that contained talc-rich zones was then assayed for chemical and mineralogical content. The testing of the drill core included one or more of the following petrographic tests: 1) gross observation of the core in hand sample, 2) thin section analysis using a polarized light microscope as evidenced by the term "crossed polarizers" on several photomicrographs, 3) X-ray powder diffraction (XRD) of "ground samples of rock" using an X-ray diffractometer as evidenced by the discussion of XRD "peak heights", 4) microscopical examination of insoluble residues from chemical testing assumed to be of "ground samples of rock", and 5) electron microprobe analysis of selected mineral grains within a thin section. The results of these test are compiled in figure 10.2.

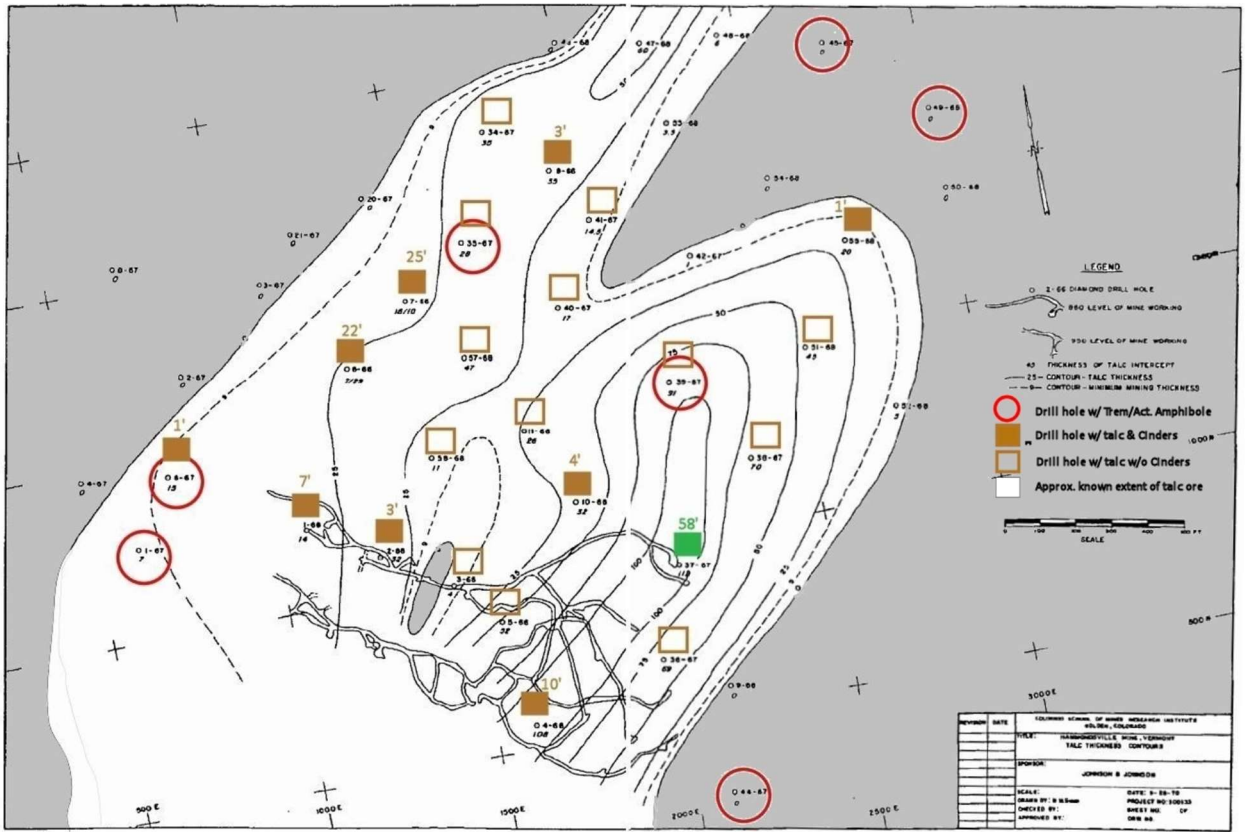


Figure 10.1. Talc ore thickness contour map with diamond core hole drill locations (1970 CSMRI ore reserve report). Drill holes where the small sections tested were found to contain amphibole are circled in red. Also indicated in in solid brown are drill hole locations within the mineable ore body observed to contain cinders (inclusions of country rock schist or gneiss). Analysis of drill hole data found that 13 out of 27 drill holes (~50%) which contained talc, contained notable quantities of cinders, and the ratio of cinders to ore was ~20% by volume.

## 12. Testing of Hammondsville talc ore, milled talc and finished products

I have reviewed voluminous reports of laboratory data which used a variety of analytical methods (primarily TEM, XRD, PLM), to test Hammondsville talc ore, milled talc and finished products (namely J&J Baby Powder and Shower to Shower) that utilized Hammondsville talc. These test reports also cover testing performed under method specific protocols which changed over time (some of which are commented on in section 13, below). For instance, during TEM testing of talc from the Hammondsville mine from 1972 to 1995 J&J used at least 4 different test protocols, 1) Pooley-1972, Windsor 66-1977, TM7024 B- 1989, and TM7024-1995). Each technique and methodology had different strengths and weaknesses. Unfortunately, J&J's modifications to its methods while improving in some aspects, would also cause new problems in others. None of these testing protocols provides clear unambiguous results. For instance, J&J presents large amounts of TEM data that report results as "non-detect for asbestos", or "examination found no quantifiable amounts of asbestiform minerals" or other similarly worded phrases where it is unclear as to whether no asbestos fibers were actually found, or if asbestos fibers had been detected, but were removed when the fiber count was below an arbitrary countable threshold value they selected. When J&J's testing protocols are examined in detail, they consistently show flaws. Notably, testing by other outside groups not limited by J&J's testing protocols shows the regular, consistent and frequent presence of amphiboles, including asbestiform amphiboles, in the talc from the Hammondsville mine. These results are summarized in the EMP's in Vermont Talc 2.4.20 testing chart.

## 13. J&J Asbestos in Talc Testing Protocol Review

Below is a list of comments on the various TEM and XRD protocols I have been provided with which J&J used.

1972 Pooley combined Optical Microscopy/XRD/TEM Method

Dr. Pooley's method is described above in section 7

1977 Windsor 66 Asbestos in Talc TEM Method – comments in bold italics

General testing method

- ***No EDX – lack of EDX means no chemical data is available for the fibers.***

Sample prep

- ***Does not describe the crushing/pulverizing protocol used if samples of unground ore and other mine rocks are to be tested***
- ***Allowing samples to settle for an extended time (20 minutes) biases the material emplaced on the TEM grids so amphibole fibers will be less likely to be counted than platy minerals like talc, chlorite or mica due to particle mass, density, shape and size factors***
- ***Sample prep procedure might overload the sample***
- ***Gives no guidance on how to sample the liquid to achieve a constant droplet size – pipette, capillary tube, etc.***
- ***The difference between using the prescribed 1 or 2 drops is 100% and will drastically effect TEM sample grid loading and any concentrations reported so testing procedure will generate non-reproducible results.***

Sample analysis

- ***No rules for sample loading and what to do if samples are overloaded***
- ***Gives no rules as to the definition of a countable fiber (length, width, etc..)***
- ***Does not discuss what to do in the case of complex structures (bundles, clusters, etc.)***
- ***1 hour analyst time is insufficient to determine a bulk sample is free of asbestos***
- ***1 hour analyst counting time will effect particle counts as the amount of area and amount of sample material scanned will be different every time leading to non-reproducible results***
- ***Gives no guidance on what to do if fiber SAED patterns are unclear***
- ***No EDX chemical data means fibers with unclear SAED patterns which could be calcic amphiboles could be dismissed and not counted, whereas with the chemical data they could be included***

Sensitivity

- **Says nothing about effect of loading on sensitivity or determination of weight percentages**

Background correction

- ***No mention is made of running method blanks to determine potential contamination of the sample prep system.***

Calculate testing results

- ***No rules stated as to how the total fiber count is to be corrected by the "ambient count"***
- ***Gives no rules as to whether usage of the term "No Asbestiform Minerals Detected" is determined before or after the fiber count has been corrected for the ambient fiber count.***

Summary

***This method has many holes that are so large it is impossible to say what a test result means. Method is not reproducible.***

<u>J&J Test Method TM7024 B – 1989 version</u>

Sample prep

- ***Does not describe the crushing/pulverizing protocol used if samples of unground ore and other mine rocks are to be tested***
- ***Method could overload sample with particulate***

Sample analysis

- ***Loading level is too high, will obscure fibers, in violation of NIST/NVLAP laboratory accreditation requirement samples not to exceed 10%***
- ***Nothing is mentioned regarding the expected difference in particle counts that will be occur at the two different magnifications, i.e. small fibers may be missed at the lower magnification level.***

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Sensitivity

- **Says nothing about effect of loading on sensitivity or determination of weight percentages**

Calculate testing results

- ***This test method does not adjust for the fiber counts taken at the two different magnifications which will likely lead to and undercount of smaller fibers.***

Limit of Quantifiable Detection and Calculation of Detection Limit

- ***Assuming all amphibole fibers have a Thickness equal to 30% of the width is not justified as a universal rule. Amphiboles fibers range from equant in diameter to lath shaped. Amphibole bundles. A proper conservative approach, unless thickness is directly determined, is to square the width.***
- ***Requiring 5 amphibole fibers be counted before a detection of asbestos can be registered is an incorrect procedure.***
- ***The only justifiable reason to exclude fibers from an analysis is if method blank and/or filter batch blanks are positive. And, if they are positive, then the samples should be tossed, the sample prep equipment cleaned and the source of the contamination eliminated.***

Summary

***This method is much improved in its sample preparation and analytical procedures compared to the 1977 method. However, there are several serious flaws***

- ***Samples are overloaded per NIST/NVLAP accreditation requirements***
- ***The exclusion from counting of the first 4 fibers detected of a given asbestos type is wrong and artificially lower or eliminate the concentration of asbestos fibers reported***
- ***That each asbestos type is counted separately in meeting the 5 fiber threshold level for a detection to have occurred***
- ***Setting the fiber thickness equal to 30% of the width may cause the mass concentration counted to be as much as 70% lower than is actually present.***

<u>J&J Test Method TM7024 – 1995 version</u>

Same as 1989 version with following exceptions:

Numerous typographical errors related to units – mm used instead of µm, ml used instead of µl

Typographical error related to use of K in section 13.1 “aspect ratio K3:1”. Should be “aspect ratio <u>≥</u>3:1”.

Calls for use of blank suspensions (method blanks) to monitor contamination in sample jars. Says contamination up to 4 fibers is OK.

Limits instituted on time spent on sample prep and analysis:

- Sample prep – 1 hour
- Sample analysis – 2 hours

Summary

***Good to use blank suspensions to monitor contamination, but if contamination is found analysis should stop until the problem is found and eliminated. Not OK to just not report fibers under a randomly set value of 5.***

***4 large fibers on a sample could easily exceed 0.1 wt.%***

***Not counting fibers will lead to false "non-detects" or "sample below quantifiable limits" being reported.***

***Placing a limit on the time spent analyzing a sample will force analysts to do shoddy work on difficult samples.***

CTFA J-4 XRD method

The J-4 method uses X-ray powder diffraction to determine the presence of total amphibole in talc samples. If amphibole is identified, then a follow up analysis by optical microscopy may be performed.

**The J-4 method suffers from serious limitations:**

- **It is unable to differentiate fibrous from non-fibrous amphiboles**
- **It has a working analytical sensitivity of 1-2% by weight of amphibole**
- **Round robin test results (CTFA May, 1977) showed poor ability to detect a sample spiked with tremolite and poor reproducibility between testing labs on positive samples**
- **A calculation by Dr. Art Rohl** (Rohl 1974) **shows that "even at the lowest level of detection by X-ray diffraction , ie. 0.25%, chrysotile, there would be about $10^9$ (1 billion) fibers per milligram", or $10^{12}$ (1 trillion) fibers per gram. (citation). Translating that to amphibole concentrations, given that amphibole fibers are ~10 times greater in width than chrysotile, for the sample fiber length, the volume/mass of an amphibole fiber is ~100 times greater. This would reduce the number of fibers/gram by an equivalent amount to $10^{10}$ or 10 billion.**

Summary

- **XRD is an ineffectual method for assessing the presence of asbestos in talc.**

## 13.A. Overall Conclusion of J&J Asbestos in Talc Testing Protocol Review

J&J's test methods for the analysis of asbestos in talc have significant problems with providing accurate concentrations of asbestos in their talc products. While many problems have been fixed and the reliance on TEM analysis is a good thing, the use of protocols which hide fibers from being counted leads to erroneous results. The J-4 method, and the XRD technique itself, is not designed to identify asbestos to the levels necessary for meaningful assessment of asbestos concentrations in talc.

## 14. Expert Report Summary and Conclusion

Talc is a material which is almost always used in applications where it is ground to a find powder which easily becomes airborne and inhalable during standard usage. Asbestos is well known to occur as a naturally occurring contaminant in many, if not most, talc deposits. The presence of asbestos in talc, therefore, presents a potentially serious lung disease hazard. A comprehensive study of talc deposits by Bradley Van Gosen of the USGS has found that talc deposits which formed from ultramafic or magnesium rich carbonate rocks under geological pressure and temperature conditions called regional metamorphism in almost all cases contain amphibole minerals. And, some portion of these amphiboles will be asbestiform and meet regulatory definitions of asbestos.

The geology of the Rowe Hawley Belt, which contains the Vermont talc deposits, has been documented to contain ultramafic rock bodies which accreted to the Bronson Island arc complex during oceanic plate subduction and was then tectonically thrust onto the proto-North American tectonic plate called Laurentia during the Taconic orogeny forming the highly sheared and dismembered RHB sequence of rocks, and a potential source for talc deposits. The ultramafic rock bodies in the RHB were then subjected to greenschist to amphibolite grade regional metamorphism when the island arc/micro-continent of Avalonia collided with Laurentia during the Acadian orogeny causing the talc deposits and associated amphiboles to form as the temperature and pressure increased during a phase of mountain building. Studies by Spear et all of PT indicator minerals in country rock in the Hammondsville area show peak Acadian metamorphic grade reached amphibolite facies which, per Van Gosen, would cause amphibole mineralization to occur within the VT talc bodies.

The talc mines of Vermont have been well studied and documented (Chidester, 1951) and are confirmed to have formed from alteration of ultramafic rocks and that they consistently contain some amount of tremolite/actinolite and/or anthophyllite. Additionally, Chidester states that all VT talc deposits are contaminated to some degree with calcium carbonate “grit” as well as pieces of country rock called “cinders” occurring as discrete inclusions, septa and unconnected projections of wall rock into the talc ore body . In his 1951 study, Chidester specifically states he visited the Hammondsville Mine and that, “a large amount of actinolite was found in the southwest wall of the mine”.

A series of highly detailed studies of mineralogical zonation theorized to have been caused by metasomatic action during the Acadian regional metamorphic event within a number of talc mines was performed (Sanford, 1982). The studies identified the cause of the mineral zonation to be a series chemical potential gradients between the ultramafic and country rocks (high magnesium/low silica elements in ultramafic rock and low magnesium/high silica elements in country rock) during metasomatism causing a range of minerals including amphiboles to form in particular zones between, and inside of, the original rocks, replacing them with new minerals/rock material. Furthermore, Sanford identified, 1) tremolite/actinolite was found to be consistently present to some degree at or near the country rock/talc deposit boundary, 2) that the observed amphibole mineralization often spread well into the deposit beyond the border regions, and 3) anthophyllite amphibole would also occur if the metamorphic grade reached high levels. From Sanford’s analysis it can also be inferred that the chemical

gradients that exist at wall rock/talc boundaries should also be present at the contacts between cinders (wall rock inclusions and projections) and ultramafic talc, which would provide a significant additional asbestiform amphibole source of contamination of the talc ore.

A talc ore reserves study of the Hammondsville talc body itself was performed by the Colorado School of Mines (CSM) which found amphibole present in 7 of a total of 38 drill holes using both X-ray diffraction (XRD) and polarized light microscopy analysis of drill core, the latter method including three different techniques: 1) visual inspection of the core, 2) petrographic thin section analysis, 3) mineral powder grain mount analysis following acid digestion. These drill holes were located both around the perimeter of the mine, as well near the center of the deposit. Unfortunately, an extensive number of studies has shown these techniques do not have the requisite analytical sensitivity to detect levels of asbestos below 1 to 2%, a value which can correlate to hundreds of millions of fibers per gram or more. This lack of CSMRI test method sensitivity is corroborated by the fact the XRD and microscopy techniques showed zero correlation for all seven samples where both XRD and optical methods were used to test insoluble residue of powders. It is expected that far more occurrences of amphibole would have been detected if more sensitive methods, such as TEM had been used.

Furthermore, an analysis of drill hole data collected by CSMRI found that 13 out of 27 drill holes which contained talc (~50%) contained notable quantities of cinders and the ratio of cinders to ore was ~20% by volume. As stated above, Sanford's chemical potential gradients between wall rock and talc make it highly likely the cinders and nearby ore contain amphibole. Furthermore, small pieces of contaminated cinder would be impossible to remove during standard sorting processes. It was noted in the CSMRI report that when the miners encountered cinders they assessed its purity simply by eye, without any type of microscopic or other analytical assistance, and then would try to avoid mining the material by leaving it as mine support pillars, a very crude technique. In all, it appears much amphibole was likely missed during the CSMRI analysis.

In addition, assuming miners at the Hammondsville mine were aware of the presence of high concentrations of tremolite/actinolite in the wall rock zone bordering the mine, CSMRI found that it was often extremely difficult to pinpoint this boundary due to constant shifting orientations it presented, leading to a high likelihood that tremolite/actinolite contaminated rock was often inadvertently incorporated into the talc ore during the mining process.

A study of the rocks in the area of the Hammondsville mine was additionally undertaken by Dr. Pooley in 1972. Though his report claims no asbestos is present in the mine, his testing results show asbestiform actinolite as lath-like particles is present in high concentrations in at least one mine sample, V9. He also mentions actinolite is present in several discrete locations in low concentrations, which are not identified. His sample preparation technique for TEM analysis, the only method which could directly view individual fibers of concern, was problematic with particulate loading on TEM grids observed to be as high as ~70-80%. These high loadings have been found by NIST/NVLAP and others to severely obscure fibers precluding the ability to assess the concentration, or even the presence, of asbestos. His reliance on thin section evidence, which was inaccurately interpreted and appears to have missed the presence of striated amphiboles indicating the presence of asbestos, as well as his failure to apply now-industry standard petrographic grain mount and TEM analysis identification as the core methods to apply to bulk material testing, has led him to incorrectly declare asbestos is not present in the Hammondsville mine.





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And, Johnson and Johnson's own TEM test method which uses a lath-like particle as a standard amphibole asbestos in talc reference shape with fiber thickness 30% of the width would, if applied to Dr. Pooley's data, find that actinolite asbestos is present in the mine.

Extensive studies of talc ore and finished J&J products sourced from the Hammondsville mine have found them to contain fibrous tremolite/actinolite and anthophyllite, a significant amount of which meets regulatory definitions of asbestos fibers. Furthermore, documentation exists that J&J knew it had a problem with the presence of asbestos in the Hammondsville mine and did extensive research on possible beneficiation techniques by Dr. Pooley to find a way to remove it from the finished product, but was unable to do so, all the while continuing to produce ore from the deposit.

A detailed review of J&J's testing protocols for TEM and XRD was undertaken. While improvement in general analytical methodology has occurred, and numerous positive changes have been made, additional changes were implemented that left its methods short of the mark in providing meaningful test results. As a result, interpretation of J&J's massive amount of testing data is problematic with "negative" test results often misleading in their stated accuracy, and with numerous instances which in fact validate the presence of asbestos in the mine.

In total, it can be stated with a reasonable degree of scientific certainty the talc from the Hammondsville mine consistently contained trace amounts of fibrous tremolite/actinolite, which J&J itself, freely admitted to in a memo from Mr. W. Nashad to Mr. M.L. Foster dated July 26, 1971 which states

> *"The talc used in Johnson's Baby Powder is obtained from a selected mine in Vermont where the ore consists mainly of platy talc with only trace amounts of fibrous minera!s (tremolite/ actinolite)."*

And for any given bottle, within the limits of statistical uncertainty, there exists an extremely high scientific likelihood that the amphibole minerals tremolite/actinolite and/or anthophyllite will be present when the talc came from the Hammondsville talc mine.

Based on my review of peer-reviewed scientific literature, analysis of internal documents which I assume to be correct and proper representations of fact, discussions with other scientists, my personal experience as an asbestos analyst, my academic and professional field experience, the opinions expressed in this report are held to a reasonable degree of scientific certainty. I reserve the right, however, to amend or supplement my opinions should new information become available. I reserve the right to rely on supporting documents produced in my reliance materials including but not limited to documents cited in this report.

R. Mark Bailey, PG
President
Asbestos TEM Laboratories, Inc.

# EXHIBIT 16

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# Mesothelioma Associated With the Use of Cosmetic Talc

*Jacqueline Moline, MD, MSc, Kristin Bevilacqua, MPH, Maya Alexandri, JD, and Ronald E. Gordon, PhD*

**Objective:** To describe 33 cases of malignant mesothelioma among individuals with no known asbestos exposure other than cosmetic talcum powder. **Methods:** Cases were referred for medico-legal evaluation, and tissue digestions were performed in some cases. Tissue digestion for the six cases described was done according to standard methodology. **Results:** Asbestos of the type found in talcum powder was found in all six cases evaluated. Talcum powder usage was the only source of asbestos for all 33 cases. **Conclusions:** Exposure to asbestos-contaminated talcum powders can cause mesothelioma. Clinicians should elicit a history of talcum powder usage in all patients presenting with mesothelioma.

## BACKGROUND

Asbestos in all forms is recognized by the International Agency for Research on Cancer (IARC) as a human carcinogen and all forms of asbestos are recognized as the primary risk factor for malignant mesothelioma.[1–9] By the mid-1950s, over 60 cases of asbestos-related lung cancer had been published in the literature. In 1955, Doll[10] published a seminal paper describing the increased risk of lung cancer among asbestos-exposed workers. In 1960, Wagner et al[2] published a study of 33 cases of malignant mesothelioma among individuals who were exposed to asbestos in and around the crocidolite mines in South Africa. By the mid-20th century, as asbestos use rose in the industrialized world, diseases associated with its use also began their upward curve.[3,8,11,12] On average between 2003 and 2008 1.05 cases per 100,000 of malignant mesothelioma (MM) were diagnosed in the United States and in 2015, 2597 deaths resulted from the disease.[13,14]

The presence of asbestos in talc and talcum powder consumer products including body powder, baby powder, facial cosmetics, and pharmaceutical talc was first discussed in the medical and scientific literature beginning in the 1940s.[15–17] Asbestos contamination of talc products is understood to occur during the mining process, in which talc deposits overlap or lie in close proximity to naturally occurring asbestos deposits.[18–22] The natural presence of asbestos within talc deposits makes selective mining or the extrication of asbestos from mined talc nearly impossible.[19] During application in its commercial talcum powder form, asbestos fibers become airborne and can be inhaled.[23,24] In 1968, Cralley et al[25] found the presence of three different types of asbestos fibers in 22 of 22 talcum products tested (tremolite, anthophyllite, and chysotile). However, talcum powder is still widely produced and consumed with a reported 58.3 million adults using body and baby powder in the United States in 2017.[26]

While the relationship between occupational exposure to asbestos and mesothelioma is well established, multiple studies have shown that not all individuals who develop mesothelioma can pinpoint exposures to asbestos.[8,11] Among women, occupational exposure explains less than half of malignant mesothelioma cases.[27,28] Some studies have focused on conventional exposure categories that for women only reflect take home exposures from (male) family members who worked in one of the selected occupations. In one such study, data on home or personal use exposures were not collected, yet increased amounts of tremolite asbestos fibers noted in the lungs of women with MM with no identified source of asbestos contact led study authors to hypothesize that the tremolite could be related to talcum powder use.[28] The high prevalence of unexplained or, ''idiopathic mesothelioma'' among women necessitates further inquiry into potential non-occupational exposures, such as exposure to asbestos-contaminated talcum powder.

In light of these gaps in the existing literature, we present 33 cases of individuals with malignant mesothelioma who were exposed to commercial talcum powder products. Of those cases, we present six in detail, where the individuals had no other known exposure to asbestos and for whom tissue studies show the presence of asbestos commonly found in talcum powder (such as tremolite, and/or anthophyllite). For all 33 cases, other potential exposures to asbestos were considered, with no identified source apart from the talcum powder. The cases were referred to author J.M. for medico-legal evaluation as part of tort litigation, and tissue digestions were performed by author R.G. as part of this litigation. In every case, a pathology report confirmed the diagnosis of malignant mesothelioma. This study was conducted with approval from the Northwell Health Feinstein Institute for Medical Research (#18-0225 FIMR).

## MATERIALS AND METHODS

### Case Histories

Data gathered for all 33 patients were gathered from each individual's medical records and sworn testimony (deposition transcripts) of individuals. All cases were reviewed by an occupational physician with experience evaluating asbestos exposure in thousands of patients. Data abstracted included medical diagnosis, review of pathology reports confirming the diagnosis of malignant mesothelioma, and clinical course. Exposure data was obtained from sworn testimony by the cases, which included extensive questioning regarding all sources of asbestos exposure. This included family occupational histories (parents and anyone cohabitating with the patient) for all cases to assess potential asbestos exposure, hobbies that included use of products that might contain asbestos (such as ceramics), residence in an area that might have had asbestos industry leading to possible environmental exposures, known abatement of asbestos while the patient was in school, home renovations that might have used asbestos containing materials, and any other potential sources of asbestos exposure. Additional data related to family history of cancers was obtained from the sworn testimony. Any data related to potential genetic mutations such as BRCA1 associated protein-1 was collected, if present.

From the Northwell Health Department of Occupational Medicine Epidemiology and Prevention (Dr Moline, Ms Bevilacqua); Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, Hempstead (Ms Alexandri); Department of Pathology, The Icahn School of Medicine at Mount Sinai (Dr Gordon), New York, New York.

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Conflicts of Interest: Authors J.M. and R.G. have served as expert witnesses in asbestos litigation, including talc litigation for plaintiffs.

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Clinical Significance: This manuscript is the first to describe mesothelioma among talcum powder consumers. Our case study suggest that cosmetic talcum powder use may help explain the high prevalence of idiopathic mesothelioma cases, particularly among women, and stresses the need for improved exposure history elicitation among physicians.

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Talcum powder exposure histories were reviewed based on sworn testimony by patients and in some cases, family members with first-hand knowledge of the use of talcum powder, such as parents who recalled using talcum powder while diapering the patient. Data including type of talcum powder used (Appendix 3, http://links.lww.com/JOM/A651), age at first use of talcum powder, and duration of use was obtained to ensure adequate latency from first exposure was present.[29] In some cases, individuals were also interviewed in person, and these data were merged with the data obtained in medical records and deposition transcripts.

The six cases described below also had tissue digestions performed by author R.G. These case reports are presented in greater detail; their clinical course was similar to all 33 cases evaluated, and the same rigor with respect to obtaining information related to any asbestos exposure was applied to all 33 cases.

## Case 1

Case 1 is a 70-year-old woman who presented to a physician with shortness of breath and chest pain in January 2015. A chest x-ray revealed a small pleural effusion with left basilar atelectasis. In August 2015, a CT angiogram showed development of two subpleural nodules anterior to the lingula and a pleural based mass; a pleural effusion was still present. A thoracentesis was done and the cytology showed large clusters of cells suspicious for mesothelioma. A positron emission tomography (PET) scan showed pleural thickening and focal intense uptake inferiorly and posteriorly on the left side of her chest. In September 2015, she underwent thoracoscopic surgery. The pathology showed epithelial malignant mesothelioma with invasion of the visceral pleura and pulmonary parenchyma with tumor present at the stapled margin.

Case 1 applied loose face powder on a daily basis from the 1940s to the 1970s. Her mother also used the same loose face powder and Case 1 cleaned residual powder from her mother's dresser and clothing every other week from 1994 to 2012.

Electron microscopic analysis (EMA) of the lung tissue revealed anthophyllite fibers in a calculated concentrations of 3286 fibers per gram weight. There was also significant amount of fibrous and platy talc and aluminum silicates.

Case 1 was treated with four cycles of combination chemotherapy with cisplatin and pemetrexed for four cycles.

## Case 2

In August 2015, Case 2, a 65-year-old woman presented with exertional dyspnea and dry cough. A chest x-ray showed a large left pleural effusion. A chest CT scan in September 2015 showed a freely-movable, large-volume, left pleural effusion, nodularity/lobulation of the left pleura, left lower lobe atelectasis, three nodules in the left upper lobe, and no hilar or mediastinal lymphadenopathy. A thoracentesis showed carcinoma cells. A PET-CT scan on September 22, 2016 reported showed abnormal deposits of tumor in the left pleura. There was no reported disease outside the chest.

Case 2 underwent a bronchoscopy in October, 2015. Pathology showed malignant mesothelioma, biphasic mixed type (50% sarcomatoid, 50% epithelioid). A second opinion confirmed the diagnosis. She underwent two cycles of chemotherapy with doxorubricin, ifosfide, and mensa and completed treatment in November. A PET scan showed no response to the chemotherapy. In December, Case 2 underwent left radical pleurectomy/decortication, resection of left hemidiaphragm, and one lymph node dissection. Surgical pathology showed residual biphasic malignant mesothelioma with negative nodes and negative margins. In January 2016, radiation oncology recommended adjuvant radiation therapy to the left chest, which she received in February and March of 2016. As of April 2016, Case 2 had no evidence of disease recurrence.

Case 2 reported starting to use talc around age eight or nine and would apply powder after her daily shower or bath. She would also use talcum powder when visiting her grandmother because she enjoyed the scent and would apply the powder before going on a date. She continued to use powder after getting married and used baby powder with all three of her children. In the early 2000s she began to regularly apply a fragrance and its matching talcum powder in the morning and at night, describing it as her signature scent. She also sprinkled the powder in her lingerie drawer and traveled with the powder which she would rub on her suitcases and other surfaces.

EMA of the lung tissue revealed anthophyllite fibers in a calculated concentration of 8625 fibers per gram wet weight with a limit of detection of 2875 fibers per gram wet weight. A significant amount of fibrous and platy talc was seen. EMA of the lymph node tissue revealed anthophyllite and tremolite fibers in a calculated concentrations of 34,500 fibers per gram wet weight with a limit of detection of 11,500 fibers per gram wet weight. They were seen in a ratio of 2:1 anthophyllite:tremolite/actinolite. All fibers counted were 5 μm or greater in length with aspect ratios greater than 8. There was also some amount of fibrous and platy talc noted in the lymph node tissue.

## Case 3

In September 2014, Case 3, an 84-year-old woman, developed shortness of breath, a cough, and chest tightness. A chest x-ray in November 2014 showed a large left pleural effusion. A CT angiogram showed a large left pleural effusion with compressive atelectasis of the left middle and lower lobes and ground glass opacities in the left upper lobe and right lung. A thoracentesis showed carcinoma cells. Case 3 underwent a video thoracoscopy with pleural biopsy and evacuation of a pleural effusion. Pathology revealed a malignant epithelial neoplasm consistent with malignant epithelial mesothelioma. Case 3 then underwent a left pleurectomy and decortication in June 2015. The mesothelioma had spread to the lymph nodes and chest wall, and the pathology now showed malignant biphasic mesothelioma. Case 3 entered hospice care in September 2015 and died in late October 2015.

Case 3 worked as an elementary school teacher with no known occupational exposure to asbestos. Case 3 used talcum powder "before [she] was 12 and 13 years old," applying it under her arms and in her shoes daily. She shook the powder out of the can and applied it onto her body. She noted that her mother also used talcum body powder, and they shared a small bathroom. She used talcum powder beginning in the 1940s and continuing for decades, until her preferred brand was no longer available for purchase.

EMA of the lung tissue did not reveal any asbestos fibers above the limit of detection of 6900. However, there were a number of very small chrysotile asbestos fibers. Analysis of the lymph node tissue revealed tremolite asbestos fibers in calculated concentrations of 9409 fibers per gram wet weight with a limit of detection of 9409. All fibers counted were 5 μm or greater in length with aspect ratios greater than 20. There was also a significant amount of aluminum silicates, silica particles, and both fibrous and platy talc. Light microscopic analysis revealed a calculated concentration of 409 asbestos bodies per gram wet weight of lymph node tissue by phase contrast light microscopy.

## Case 4

In August 2014, Case 4, a 66-year-old woman, developed abdominal pain and had a CT scan of the abdomen and pelvis that showed omental caking, ascites, a fluid pocket in the right lower quadrant, and enlarged diaphragmatic lymph nodes. She underwent a paracentesis and an omental biopsy in August 2014. The cytology revealed atypical mesothelial cells. She then underwent a laparotomy, appendectomy, omentectomy, and left salpingo-oophorectomy. The pathology showed malignant epithelioid mesothelioma. In September 2014, a PET/CT showed increased uptake in the abdomen consistent with malignant ascites, omental metastatic disease, and cardiophrenic


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nodules. A thoracoscopy showed tumor covering the right hemidiaphragm. She was treated with multiple rounds of chemotherapy with cisplatin and pemetrexed and therapeutic paracenteses due to persistent ascites. Her tumor progressed, and she died in February 2016. She was 68 years old.

Case 4 grew up in a home where her mother used talcum powder "for as long as [she could] remember." She recalled personally using talcum powder starting around the age of 9 or 10, applying the powder to her armpits, groin, and around her body, using a powder puff. She applied talcum powder to her body for approximately 40 years. Case 4 had additional exposure to talcum powder in the 1960s while working as a licensed cosmetologist, applying talcum powder on clients' necks after a haircut. She shook the talcum powder onto the client's neck, and would wipe off the excess with a brush or blow dryer. She also used talcum powder inside the gloves that she donned prior to applying hair color.

EMA of the peritoneal tissue revealed chrysotile type asbestos fibers in a calculated concentration of 920 fibers per gram wet weight with a limit of detection of 920 fibers per gram wet weight. Fibrous and platy talc was also observed. Also seen were non-asbestiform tremolite and silica crystals.

## Case 5

Case 5 was a 76-year-old woman who developed chest pain and fatigue in September 2015 and was diagnosed with viral pericarditis. A CT scan in October 2015 showed mild pericardial thickening and mild perihepatic ascites. She was treated with steroids for viral pericarditis. In late fall 2015, Case 5 developed decreased appetite, weight loss, tenderness around the umbilicus, and abdominal pain. In December 2015 she had an abdominal ultrasound that showed a mild to moderate amount of ascites. An abdominal CT scan showed slightly bilateral pleural thickening with minimal linear atelectatic change. There was copious perihepatic ascites extending to the right and left paracolic gutter and deep pelvis, nodularity at the paracolic gutter, and a right sided deep pelvic mass. A paracentesis was done and showed atypical epithelioid cells and tissue fragments with an inflammatory background. A laparoscopy showed peritoneal carcinomatosis with a diffuse miliary excrescence, a moderate sized pelvic mass and ascites. In January 2016 she underwent an exploratory laparotomy and resection of the omentum, spleen, resection of abdominal tumor, and resection of the abdominal wall tumor. The pathology showed malignant mesothelioma involving the omentum, spleen, colon, and mesentery, as well as the fibroadipose tissue of the peritoneum. Malignant mesothelioma also involved the parietal peritoneum as well as the appendix, with fibrous obliteration of the appendiceal lumen. Case 5 died in October 2017.

Case 5 had daily personal use of talcum body powder from the 1950s to the mid-1970s. She would pour the powder onto her hands and pat it under her arms, in her genital area, between her toes, and on her legs. When she was menstruating she would apply talcum powder on her feminine napkins and her underwear. She also applied talcum powder to her shoes. Case 5's husband also used talcum powder. Both Case 5 and her husband applied the powder in the bathroom. She shook the bathroom floor mat and cleaned up residual powder from the bathroom sink.

EMA of the omental tissue did not reveal any asbestos fibers above the limit of detection of detection of 651 fibers per gram wet weight. EMA of the lymph node tissue revealed chrysotile and anthophyllite asbestos fibers in a calculated concentrations of 20,700 fibers per gram wet weight with a limit of detection of 10,350 fibers per gram wet weight. All fibers counted were 5 μm or greater in length with aspect ratios greater than 20. There was also a significant amount of fibrous and platy talc as well as fibrous and platy aluminum silicates.

## Case 6

Case 6 is a 44-year-old man who developed chest pain after playing hockey in 2012 and was evaluated in the Emergency Department. A CT scan that showed no pulmonary abnormalities. Case 6 continued to have chest pain over the next 4 years and underwent multiple cardiac evaluations. A CT scan in February 2016 showed increased pleural thickening or non-calcified pleural plaque along the right major fissure and anterior right hemithorax along the right upper lobe. A PET/CT scan in March 2016 showed unilateral hypermetabolic pleural fissural and non-fissural soft tissue abnormalities suspicious for malignancies involving the pleura. There were non-specific tiny parenchymal lung nodules. Case 6 underwent a tissue biopsy in March 2016. The pathology showed malignant epithelioid mesothelioma with invasion to the skeletal muscle.

Case 6 underwent neo-adjuvant chemotherapy with pemetrexed, cisplatin, and bevacizumab in April 2016. In May 2016, Case 6 underwent a mediastinoscopy which showed metastatic spread to the level VII lymph node. Additional chemotherapy was administered, which was not well tolerated. In July 2016, a parietal pleurectomy was done along the fissure between the upper and lower lobe. There was spread to the site of previous inferior right chest tube site. Case 6 developed acute thrombus in the right upper extremity. In September 2016, a chest x-ray showed unchanged right pleural thickening versus a small right pleural effusion. Three additional cycles of chemotherapy were recommended. A PET/CT scan in November 2017 showed a persistent hypermetabolic focus in the right anterobasal pleura and a slight increase in a right pleural effusion.

Case 6 was exposed to talcum powder beginning when he was an infant. His mother applied it to him after his bath until he was able to apply it himself, starting around the age of six. Case 6 recalled using the powder in the bathroom and in his room, and that there would be powder on his floor. He applied the talcum powder directly to his torso, groin, legs, and back, often twice a day after showering. He played hockey as a youth and used powder in his hockey gear before donning the equipment. He recalled getting mouthfuls of powder during the application. He often applied talcum powder once or twice a day after showering. He had no occupational exposure to asbestos.

EMA of the lymph node tissue revealed anthophyllite and tremolite asbestos fibers in a calculated concentrations of 17,250 fibers per gram wet weight with a limit of detection of 3450 fibers per gram wet weight. They were seen in a ratio of 2:3 anthophyllite:tremolite. All fibers counted were 5 μm or greater in length with aspect ratios greater than 14.7 or greater. There was also some amount of fibrous and platy talc along with platy aluminum silicates and magnesium aluminum silicates.

## Tissue Sample Analysis

Tissue samples from six patients were analyzed: (a) lung and lymph node tissue from four of the patients diagnosed with pleural mesothelioma; and (b) lung and lymph node from two of the patients diagnosed with peritoneal mesothelioma. The tissue samples had been preserved in paraffin blocks or as formalin fixed tissues.

## Tissue Digestion Protocols

### Paraffin Blocks

The tissue was extracted from paraffin blocks was done according to the methodology described in Heller et al[30] and Wu et al.[31] The tissues were cut from the paraffin blocks and deparaffinized by melting and xylene treatment. They were brought to water, blotted and weighted. The tissues were digested with KOH and the inorganic pellet cleaned with distilled water by multiple centrifugation steps on an asbestos locator grid coated with formvar. In

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addition, 250 μL samples were prepared using a cytocentrifuge onto a standard glass slide to identify ferruginous bodies and longer fibers by phase contrast microscopy.

### Formalin Fixed Tissue

This protocol is similar to above without the deparaffinizing step as described in [23,39]. Controls for both the paraffin and formalin fixed tissues included looking at the paraffin, if from blocks, the formalin, if from fixed wet tissue, or any other materials used to process the tissue to view the remaining inorganic material on the grids.

## Asbestos Fiber Counting

The grids were analyzed two ways: (a) transmission electron microscopy (TEM) using a standard fiber-counting protocol (23,40)[23,32] on 800 grid openings; and (b) phase contrast light microscopy on two cytocentrifuge preparations per tissue type in accordance with a standard asbestos body-counting protocol (23,40).[23,32] Asbestos fibers were evaluated to determine whether they met the definition of a fiber, which includes having at a 5:1 length:width ratio and parallel sides and at least 5 μm in length. The fibers were also analyzed by Energy Dispersive Spectroscopy (EDS) to determine the ratio of elements contained in the fibers and by Selected Area Electron Diffraction (SAED) to confirm the crystalline structure of the fiber to confirm that they were asbestos. To evaluate for potential contamination, control samples were prepared from the same distilled water used to wash the samples and the paraffin surrounding the tissue. Verification techniques of fiber counting were used for quality control and quality assurance. All fibers, regardless of size, were counted in 800 grid openings.

### Calculating Asbestos Fiber Concentration

#### *TEM and PCM*

Asbestos fiber concentration in the samples examined with transmission electron microscopy was calculated (see Appendix 1, http://links.lww.com/JOM/A649). The 250 μL samples centrifuged onto standard microscope slides were examined using phase contrast light microscopy (Appendix 2, http://links.lww.com/JOM/A650). The asbestos fiber concentration in these samples was calculated (see Appendix 2, http://links.lww.com/JOM/A650).

#### *Control Samples*

Background control samples were obtained at autopsy or from surgical specimens from pulmonary or obstetrical and gynecologic pathologists. Samples included lung, thoracic, mesenteric and abdominal lymph nodes, abdominal tissue, ovaries, fallopian tubes, uteri and mesentery tissue. Exposure histories had been obtained by treating pulmonologists or surgeons from all individuals; all were screened for asbestos exposure from personal use, family exposure, and personal or family use of talcum powder. For those patients in whom there was any question of asbestos exposure from any source, the pathologists conferred with the treating clinician to ensure there was no known asbestos exposure. If there was potential asbestos exposure, the specimens were not included in the group. As a result, the background control specimens reflect only asbestos exposure from the overall community.

## RESULTS

The data associated with the exposure history of all 33 patients is presented in Table 1. The table identifies talcum powder as the only asbestos exposure these patients have experienced. No individual identified any asbestos exposure apart from contaminated talcum powder from workplace or household exposures.

Table 2 provides the results of the fiber burden analyses for the six cases in which asbestos fibers were identified in the anatomic vicinity of the patients' mesotheliomas. Uniformly, the tissue fiber burdens reveal the presence of the following: talc, aluminum silicates, aluminum magnesium silicates, silica crystals, and asbestos fibers. The asbestos fibers are all anthophyllite, tremolite, and/or chrysotile. These three types are typical contaminants of talcum powders.[19] They have been identified as contaminants in talcum powders in repeated laboratory testing at numerous institutions.[33–37] The tissue fiber burdens contained no amosite or crocidolite, commercial amphibole asbestos fibers. Testing results of talcum powders have failed to show the presence of commercial amphiboles.

Table 3 presents the asbestos fiber burden results from background controls in tissues from autopsy and surgical population with no evidence of ovarian cancer or other malignancy, and with no known asbestos exposure. The lung and lymph nodes sampled showed only chrysotile and non-commercial amphibole asbestos in a small percentage of control samples—six of the 35 control samples, or 17%. All women with asbestos present were over 60 years of age. While asbestos is present at extremely low concentrations in the ambient air,[38] in the control samples presented in the study, there was no evidence of asbestos in women under the age of 60 years of age. Two fibers were seen in two specimens and one fiber was seen in four samples, all under 1 μm in size. The asbestos fiber burdens in the six talc exposed patients were all greater than the control population. No aluminum silicates, aluminum magnesium silicates, and silica crystals, all components of talcum powder identified in our patients, were not found in the control population that did not use talcum powder.

## DISCUSSION

This paper provides the first large case series to identify cosmetic talcum powder contaminated with asbestos as the cause of malignant mesothelioma in cosmetic talc users. In 1960, Wagner presented 33 individuals exposed to crocidolite asbestos from occupational and environmental exposures, providing the first large case series of individuals diagnosed with mesothelioma with clearly identifiable exposure to asbestos.[2] Since then, the high prevalence of idiopathic mesothelioma cases suggested other possible exposures, including exposure to asbestos contaminated talc. Like Wagner, we present 33 cases, predominantly of women, who had no known exposure to asbestos other than prolonged use of talcum powder. This is consistent with the distribution of talcum powder usage in the United Sates, with greater numbers of women using powder than men.[26] Furthermore, the six case histories detailed years or decades of talcum powder use as well as tissue analysis that showed asbestos present in either tumor tissue or lymph nodes. In all six cases, asbestos fibers consistent with those identified as contaminants in repeated laboratory testing of talcum powder samples across several institutions were identified.[20,23,33,39] Notably, the fiber types found were consistent with the types of asbestos found in talc. Amosite and crocidolite, asbestos fibers that are encountered in cases of industrial and occupational exposure, not cosmetic talcum powder,[40] were not found in any of these cases.

This paper is also the first, to the authors' knowledge, to utilize background controls for which an extensive exposure history was elicited and for which no known asbestos exposure had occurred. Background controls are the best comparison when analyzing tissue of asbestos exposed individuals however, one of the biggest challenges is to choose a population of patients with no history of environmental or occupational exposure to asbestos apart from ambient air concentration of asbestos. Previous fiber burden studies of non-occupationally exposed individuals have compared the asbestos content in their tissue to workers in the same community where asbestos mines or asbestos containing factories were


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**TABLE 1.** Description of 33 Mesothelioma Cases

| Talcum Powder Exposure | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Case | Sex | Year of Diagnosis | Age at Diagnosis | Mesothelioma Site | Histology | Talcum Powder Brand | Estimated Years of Use | Occupation (s) |
| 1* | F | 2015 | 70† | Pleural | Epithelial | A | 30 | Medical technician |
| 2* | F | 2015 | 65 | Pleural | Biphasic | C, H, V | 50 | Homemaker |
| 3* | F | 2014 | 82† | Pleural | Biphasic | C | 70 | Teacher |
| 4* | F | 2014 | 66† | Peritoneal | Epithelial | B, C | 30 | Hairdresser |
| 5* | F | 2015 | 75† | Peritoneal | Epithelial | C | 25 | Teacher |
| 6* | M | 2016 | 43 | Pleural | Epithelial | D | 40 | Finance |
| 7 | M | 2016 | 65 | Peritoneal | Epithelial | D | 62 | None provided |
| 8 | M | 2016 | 76† | Pleural | Epithelial | U | 38 | Accountant |
| 9 | F | 2016 | 66† | Pleural | Epithelial | C, E | 35 | Hair dresser |
| 10 | F | 2015 | 80 | Pleural | Epithelial | F | 30 | Administrative assistant |
| 11 | F | 2018 | 73 | Pleural | Epithelial | C, V | 30 | Flight attendant |
| 12 | F | 2017 | 57 | Peritoneal | Epithelial | A, D, G, H, I | 40 | Medical technologist |
| 13 | M | 2016 | 56 | Peritoneal | Biphasic | D, I, S | 15 | Maintenance worker |
| 14 | M | 2017 | 56 | Peritoneal | Epithelial | D | 50 | Molding press operator |
| 15 | F | 2016 | 40 | Peritoneal | Epithelial | D, J | 12 | Retail worker |
| 16 | F | 2015 | 30 | Pleural | Epithelial | D, K, L, M | 19 | Retail worker |
| 17 | F | 2015 | 80† | Pleural | Epithelial | A, C, N | 40 | Office worker |
| 18 | F | 2015 | 64 | Pleural | Sarcomatoid | C | 40 | Real Estate agent |
| 19 | F | 2009 | 62 | Pleural | Epithelial | C | 15 | Teacher and fitness instructor |
| 20 | F | 2016 | 69 | Peritoneal | Epithelial | D, G | 30 | Hair dresser |
| 21 | F | 2013 | 34† | Peritoneal | Epithelial | C | 10 | Teacher |
| 22 | F | 2018 | 59 | Pleural | Epithelial | C, D | 42 | School custodian |
| 23 | F | 2016 | 27 | Peritoneal | Epithelial | D, O | 10 | Not provided |
| 24 | F | 2016 | 38 | Peritoneal | Epithelial | D, I | 18 | Social services |
| 25 | F | 2017 | 64 | Pleural | Epithelial | D, G, J | 27 | Mathematician |
| 26 | F | 2016 | 83 | Pleural | Epithelial | C, D, I | 60 | Not provided |
| 27 | F | 2017 | 41 | Peritoneal | Epithelial | D | 30 | Computer programmer |
| 28 | F | 2016 | 79 | Peritoneal | Epithelial | A, C, T, | 21 | Not provided |
| 29 | M | 2015 | 46 | Pleural | Epithelial | D, R, U | 15 | Informational technology |
| 30 | F | 2016 | 88† | Pleural | Epithelial | A, D, C, I | 80 | Administrative worker |
| 31 | F | 2017 | 53 | Pleural | Epithelial | D | 23 | Cleaner |
| 32 | F | 2017 | 76 | Pleural | Epithelial | D, C | 17 | Rehabilitation coordinator |
| 33 | F | 2017 | 46 | Peritoneal | Epithelial | D | 25 | Clerical worker |

*Tissue analysis presented done by author. Tissue analysis might have been done in some cases by other investigator, these results are not presented in this paper.
†Deceased as of writing; vital status of many individuals is currently unknown.

present.[41,42] Autopsy studies have been performed[43–45] in individuals without a specific history of workplace asbestos exposure; full exposure histories were not obtained. Langer measured asbestos fiber burdens in New York City residents with no known history of asbestos.[46] Roggli and Longo[47] measured tissue burdens for individuals who had bystander or household exposure from family members who directly worked with asbestos in their work, such as laundering clothes. However that type of exposure does not truly reflect background or ''unexposed'' individuals. Lee and Van Orden[32] measured background air exposure in and outside of buildings. They found short chrysotile, tremolite, and actinolite fibers, but no anthophyllite or crocidolite, and very small levels of amosite. Lee and Van Orden's results are consistent with the background asbestos fibers found in the older women the present study.[32] While fiber burden studies are rarely undertaken in the course of clinical treatment, and are used primarily for medico-legal purposes, the findings of various fibers in the lung tissues can provide guidance as to potential prior asbestos exposure, whether from occupation, residential, or para-occupational exposure to asbestos. Attention to true background rates for fiber burdens is critical.[48]

Our findings strongly suggest that asbestos exposure through asbestos-contaminated cosmetic talc explains cases once deemed idiopathic or ''spontaneous,'' and underline the importance of

**TABLE 2.** Tissue Digestion of Six Mesothelioma Cases

| Case | Sex | Mesothelioma Site | Asbestos Type | Site Found | Concentration (Fibers/g) (Lung, Lymph) | Limit of Detection (Lung, Lymph) | Asbestos Bodies |
|---|---|---|---|---|---|---|---|
| 1 | F | Pleural | Anthophyllite | Lung | 3,286 | 1,643 | 0 |
| 2 | F | Pleural | Anthophyllite, tremolite, actinolite | Lung, lymph node | 8,625, 34,500 | 2,875, 11,500 | 0 |
| 3 | F | Pleural | Tremolite | Lung, lymph node | 0, 9,409 | 6,900, 9,409 | 0, 409 |
| 4 | F | Peritoneal | Chrysotile | Peritoneum | 920 | 920 | 0 |
| 5 | F | Peritoneal | Anthophyllite | Lymph node | 20,700 | 10,350 | 0, 0 |
| 6 | M | Pleural | Anthophyllite, tremolite | Lymph node | 17,250 | 3,450 | 0 |

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**TABLE 3.** Current Levels of Asbestos Fiber Burden Observed in Digests of Tissue From Autopsy and Surgical Population With no History of Asbestos Exposure (Controls)

| Tissue Type | *N* | Asbestos Type | Mean (Fibers/Gram Wet Weight)* | Range (Fibers/Gram Wet Weight) |
|---|---|---|---|---|
| Lung tissue | 35 | Chrysotile | 892 | 0–30,000 |
| | | Tremolite | 84 | 0–1,552 |
| | | Chrysotile and tremolite | 35 | 0–1,208 |
| | | Asbestos bodies | <1 bodies/gram wet weight | 0–6 |
| Paratracheal or parachronchial lymph node tissue | 35 | Chrysotile | 72 | 0–1,1035 |
| | | Tremolite | 29 | 0–552 |
| | | Chrysotile and tremolite | 24 | 0–828 |
| | | Asbestos bodies | <1 bodies/gram wet weight | 0–5 |
| Peritoneum + gynecological tissue | 10 | Chrysotile | 0 | 0 |
| | | Tremolite | 0 | 0 |
| | | Chrysotile and tremolite | 0 | 0 |
| | | Asbestos bodies | 0 | 0 |

*All fibers that were counted were always 1 μm or less in length.

collecting detailed exposure histories that incorporate these findings in patients presenting with mesothelioma. Several factors may hinder the collection of comprehensive exposure histories among individuals diagnosed with mesothelioma. Minimal training in occupational medicine and exposure taking practice among medical students may contribute to a lack of or incomplete exposure history elicitation on the part of clinicians.[49,50] Secondly, long latency periods between exposure and illness pose a challenge both to individual recall as well the ability to establishing causality. Due to the relatively short period between diagnosis and death among mesothelioma patients, patients are often too ill or are deceased before being able to provide a full history. Furthermore, though the presence of asbestos in talc and talcum powder was first discussed in the scientific literature in the 1940s, individuals may not be aware that the products they used contained asbestos. Few clinicians are aware that this is a potential exposure. Typically, patients with mesothelioma will be simply asked whether they worked with or around asbestos, rather than being providing with a listing of potential sources of the types of exposure in which one might encounter asbestos. Cases of mesothelioma among hairdressers characterized as idiopathic also underscore the contribution of an incomplete exposure history; the potential failure to identify the use of talcum powder exposure in their work would prevent the linking of occupational exposure to asbestos to their mesothelioma. In our paper, there were three female hairdressers who regularly used talcum powder in their work. It was unclear from any of the histories noted in the medical records that these women were asked if they used talcum powder as part of the hair cutting process. In a report from the National Mesothelioma Registry of Italy, staff noted a cluster of mesothelioma due to ''unknown exposure'' among hairdressers, but only examined hairdryer use as a potential exposure. There was no discussion of the occupational use of talcum powder.[51] However, McDonald et al,[52] noted that a barber's occupational exposure to asbestos to talc could explain the increased finding of tremolite in the individual's lung fiber burden.

The case series presented should be understood in the context of its limitations. Data were obtained from medication records and transcripts of depositions, rather than structured, in-person interviews. However, the information solicited during the course of the patients' depositions were thorough, and included exhaustive questioning about alternative sources of asbestos exposure, including household exposure, exposures from external industrial sources, occupational exposure, and potential exposure from family members. While deposition testimony is by definition self-report, depositions were given under oath and the potential for recall bias noted would be presented whether patients completed a structured interview or were asked questions during sworn testimony. Furthermore, the utilization of medical records allowed the authors to corroborate important medical information and confirm the pathological diagnosis.

In March 2019 the Federal Drug Administration (FDA) released a statement as an update to their 2017 finding, confirming asbestos contamination of certain cosmetic products marketed and sold to young girls and outlining new steps to work with manufacturers to ensure the safety of their products.[53] While such public acknowledgment of the potential for asbestos contamination in cosmetic talc marks an important turning point, manufacturers are not legally obligated to register cosmetic products with the FDA. The results of this study coupled with the widespread use of such products[26] underline the continued risks posed to consumers through common household and cosmetic products. While these products remain unregulated and on the shelves, the use of talcum powder must be incorporated into standard exposure history practice in order to promote earlier detection of asbestos related disease among non-occupationally exposed individuals. This paper provides evidence that mesothelioma cases once considered idiopathic may be attributable to asbestos-contaminated cosmetic talcum powder usage and that the elicitation of a history of such usage is imperative to obtaining a full exposure history in all patients presenting with mesothelioma.

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RESEARCH ARTICLE

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# Malignant mesothelioma following repeated exposures to cosmetic talc: A case series of 75 patients

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## Abstract

**Background:** Asbestos is the primary known cause of malignant mesothelioma. Some cosmetic talc products have been shown to contain asbestos. Recently, repeated exposures to cosmetic talc have been implicated as a cause of mesothelioma.

**Methods:** Seventy-five individuals (64 females; 11 males) with malignant mesothelioma, whose only known exposure to asbestos was repeated exposures to cosmetic talcum powders, were reviewed in medical-legal consultation. Out of the 75 cases, 11 were examined for asbestiform fibers.

**Results:** All subjects had pathologically confirmed malignant mesothelioma. The mean age at diagnosis was 61 ± 17 years. The mean latency from exposure to diagnosis was ±13 years. The mean exposure duration was 33 ± 16 years. Four mesotheliomas (5%) occurred in individuals working as barbers/cosmetologists, or in a family member who swept the barber shop. Twelve (16%) occurred in individuals less than 45 years old (10 females; 2 males). Forty-eight mesotheliomas were pleural (40 females; 8 males), 23 were peritoneal (21 females; 2 males). Two presented with concomitant pleural and peritoneal disease. There was one pericardial, and one testicular mesothelioma. The majority (51) were of the epithelioid histological subtype, followed by 13 biphasic, 8 sarcomatoid, 2 lymphohistiocytoid, and 1 poorly differentiated. Of the 11 individuals whose nontumorous tissues were analyzed for the presence of asbestiform fibers, all showed the presence of anthophyllite and/or tremolite asbestos.

**Conclusions:** Mesotheliomas can develop following exposures to cosmetic talcum powders. These appear to be attributable to the presence of anthophyllite and tremolite contaminants in cosmetic talcum powder.

KEYWORDS

anthophyllite, females, mesothelioma, peritoneal, pleural, talc, tremolite

## 1 | INTRODUCTION

Asbestos, a generic term for naturally occurring fibrous mineral silicates, is recognized as a carcinogen by the general medical and scientific communities. In 1960, Wagner et al[1] reported a large series of malignant mesotheliomas in individuals who had been exposed to asbestos from a South African asbestos mine. It has been demonstrated that all types of asbestos and even brief and low-dose exposures are capable of causing malignant mesothelioma.[2-4] In the 1970s, several types of cosmetic talcum powder products were

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demonstrated to contain asbestos.[5-7] Asbestos fibers in commercial talcum powder have also been shown to become airborne upon application, and repeated exposures to cosmetic talc were implicated as a cause of mesothelioma by Gordon et al.[8] Recently, Moline et al,[9] reported a series of 33 subjects with malignant mesothelioma, whose only known exposure to asbestos was cosmetic talc. We present 75 additional subjects, with malignant mesothelioma, whose only known exposure to asbestos was cosmetic talc.

## 2 | METHODS

One hundred forty subjects with documented exposures to cosmetic talc were initially reviewed. Exposures were identified through sworn deposition testimonies and answers to sworn interrogatories provided from subjects, parents, and spouses. Sixty-five subjects were excluded due to recalled occupational or paraoccupational exposures to other sources of asbestos. Seventy-five subjects, whose only known exposure to asbestos was via cosmetic talc, were included for further examination. The asbestos content of talcum products and airborne asbestos concentrations during simulations of the usage of these products was determined in previously published studies.[10,11]

Tissues from biopsies and/or debulking procedures were examined and the diagnosis of malignant mesothelioma was confirmed by a board-certified pathologist (JCM, TSE, RLK). Immunohistochemical staining results for BAP-1 were available in a few cases but was not routinely performed as a part of this study.

No efforts were made to reconstruct levels of exposure but all subjects had been repeatedly exposed over many years. Eleven cases were examined for the presence of asbestiform fibers (aspect ratio, ≥3:1) in sampled tissues. Nine subjects were examined both by analytical transmission electron microscopy (ATEM) and microprobe analysis (MA) (see Table 2), whereas two were examined by scanning electron microscopy (SEM) and MA (results not shown).

## 3 | RESULTS

The pertinent data from the 75 subjects is shown in Table 1. All had pathologically confirmed malignant mesothelioma. Sixty-four subjects were females, 11 were males. The mean age at diagnosis was 61 ± 17 years, with a range of 14 to 94 years. The mean exposure duration was 33 ± 16 years with a range of exposure from 6 to 65 years. The mean latency from time of first exposure to diagnosis was 50 ± 13 years with a range of 14 to 72 years. A total of 4 of the 75 cases (5%) occurred in barbers/cosmetologists, or in a family member who swept the barber shop. Twelve (16%) were 45 years old or younger (10 females, 2 males) at the time of diagnosis. Forty-eight mesotheliomas were pleural (40 females; 8 in males); 23 peritoneal (21 females; 2 men). Two presented with both pleural and peritoneal disease. There was one pericardial (woman), and one testicular mesothelioma. The majority, 51 (68%) were of epithelioid subtype, 13 biphasic (17%), 8 sarcomatoid (11%), 2 lymphohistiocytoid (3%), and 1 poorly differentiated (1%). Treatment, therapeutic outcomes, and survival were not determined in this study.

For the 11 subjects whose tissues were examined by ATEM and ASEM, the analysis showed the presence of tremolite and/or anthophyllite in all 11 subjects (Table 2).

## 4 | DISCUSSION

The 75 individuals with malignant mesothelioma caused by asbestos in cosmetic talc is currently the largest series reported to date. Recently, Moline et al reported 33 cases of malignant mesothelioma attributed to exposures to cosmetic talc. Like Moline's work, most of mesotheliomas in the present series occurred in women. Several mesotheliomas occurred specifically in hairdressers/barbers. Similarly, the asbestos fiber types found by ATEM in the tissues examined were comparable to those found in laboratory testing for cosmetic talc.[10-12]

Mesothelioma is recognized as a "signal tumor" of asbestos exposure, that is, if a patient has mesothelioma, it should signal an inquiry into potential asbestos exposure. The presence of asbestos in talc deposits has been recognized since the late 1940s.[13,14] Since the 1960s, laboratory testing has identified asbestos in samples of cosmetic talc.[15,16] Studies have confirmed that the most common types of asbestos present in cosmetic talc are tremolite, anthophyllite, and chrysotile. Industrial asbestos products used in the United States generally contained chrysotile, amosite, and/or crocidolite,[17] and anthophyllite and tremolite were rarely present.[18]

While the latency between exposure and diagnosis in the present study is similar to the average latency for the development of mesothelioma (50 years) reported in surveillance epidemiology and end results program (SEER) data,[19] the average age at diagnosis in this report (61 years) is 11 years younger than that in the SEER data (72 years). In addition, fewer than 3% of mesotheliomas in the SEER data occurred in individuals less than 45 years of age, whereas 16% of mesotheliomas of the present study occurred in individuals less than 45 years of age, and 83% of these cases were in women.[20]

The present report of 75 cases, together with the 35 cases previously reported[8,9] currently brings the number of individuals with confirmed diagnoses of malignant mesothelioma following repeated exposure to cosmetic talcum powder to more than 100. The presence of anthophyllite and tremolite in the fiber analysis of tissues obtained from the 11 subjects in this series, is consistent with a source in cosmetic talc.

Unlike industrial or occupational exposure to asbestos, where materials have been regulated, exposure to asbestos in cosmetic talc has not been widely reported or recognized within the medical community or to the public. Cosmetic talc products are most frequently used by women in the United States, and while the incidence of mesothelioma in women is less than in men, the majority have previously been reported as "idiopathic," indicating no recognized source of asbestos exposure. The present study supports the contention that asbestos exposure through the use of cosmetic talc accounts may account for an uncertain percentage of these cases.

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**TABLE 1** Seventy-five mesothelioma cases exposed to talcum powder

| Case | Sex | Year of diagnosis | Age at diagnosis | Mesothelioma site | Histology | Estimated years of use | Estimated years of latency |
|---|---|---|---|---|---|---|---|
| 1 | F | 2017 | 72 | Pleural | Epithelioid | 20 | 57 |
| 2 | F | 2014 | 51 | Peritoneal | Epithelioid | 30 | 50 |
| 3 | F | 2017 | 50 | Pleural | Lymphohistiocytoid | 41 | 50 |
| 4 | F | 2017 | 57 | Peritoneal | Epithelioid | 30 | 52 |
| 5 | F | 2015 | 65 | Pleural | Epithelioid | 39 | 62 |
| 6 | F | 2017 | 39 | Peritoneal | Sarcomatoid | 15 | 39 |
| 7 | F | 2016 | 29 | Pericardial | Epithelioid | 29 | 29 |
| 8 | F | 2017 | 94 | Pleural | Epithelioid | 60 | 72 |
| 9 | F | 2015 | 80 | Pleural | Epithelioid | 19 | 59 |
| 10 | F | 2016 | 72 | Pleural | Sarcomatoid | 43 | 59 |
| 11 | F | 2013 | 66 | Peritoneal | Epithelioid | 20 | 52 |
| 12 | F | 2011 | 48 | Pleural | Lymphohistiocytoid | 13 | 21 |
| 13 | F | 2010 | 51 | Peritoneal | Epithelioid | 15 | 20 |
| 14 | F | 2018 | 55 | Peritoneal | Epithelioid | 40 | 42 |
| 15 | M | 2017 | 81 | Pleural | Sarcomatoid | 60 | 60 |
| 16 | F | 2018 | 56 | Pleural | Epithelioid | 48 | 52 |
| 17 | F | 2017 | 32 | Peritoneal | Epithelioid | 25 | 32 |
| 18 | F | 2017 | 89 | Pleural | Sarcomatoid | 40 | 42 |
| 19 | F | 2019 | 73 | Peritoneal | Epithelioid | 47 | 56 |
| 20 | M | 2016 | 70 | Pleural | Poorly differentiated | 50 | 55 |
| 21 | F | 2015 | 66 | Pleural | Epithelioid | 40 | 43 |
| 22 | F | 2016 | 45 | Pleural | Epithelioid | 10 | 45 |
| 23 | F | 2018 | 45 | Peritoneal | Epithelioid | 39 | 45 |
| 24 | M | 2015 | 67 | Pleural + peritoneal | Epithelioid | 35 | 60 |
| 25 | M | 2017 | 78 | Peritoneal | Biphasic | 50 | 62 |
| 26 | F | 2018 | 57 | Peritoneal | Biphasic | 25 | 57 |
| 27 | F | 2013 | 14 | Peritoneal | Epithelioid | 12 | 14 |
| 28 | F | 2016 | 67 | Peritoneal | Epithelioid | 15 | 59 |
| 29 | F | 2018 | 73 | Pleural | Epithelioid | 30 | 65 |
| 30 | F | 2018 | 76 | Pleural | Biphasic | 60 | 55 |
| 31 | M | 2017 | 39 | Testis | Epithelioid | 7 | 39 |
| 32 | F | 2018 | 57 | Pleural | Sarcomatoid | 57 | 57 |
| 33 | F | 2016 | 68 | Pleural | Epithelioid | 38 | 64 |
| 34 | F | 2017 | 80 | Pleural | Epithelioid | 50 | 60 |
| 35 | F | 2016 | 63 | Pleural | Epithelioid | 15 | 54 |
| 36 | F | 2017 | 58 | Pleural | Biphasic | 20 | 58 |
| 37 | F | 2017 | 71 | Pleural | Biphasic | 60 | 71 |
| 38 | F | 2014 | 70 | Pleural | Epithelioid | 41 | 39 |
| 39 | F | 2016 | 26 | Peritoneal | Epithelioid | 20 | 26 |

(Continues)

**TABLE 1** (Continued)

| Case | Sex | Year of diagnosis | Age at diagnosis | Mesothelioma site | Histology | Estimated years of use | Estimated years of latency |
|---|---|---|---|---|---|---|---|
| 40 | F | 2016 | 35 | Pleural | Epithelioid | 35 | 35 |
| 41 | F | 2017 | 72 | Pleural | Sarcomatoid | 23 | 60 |
| 42 | F | 2016 | 68 | Peritoneal | Epithelioid | 65 | 68 |
| 43 | F | 2018 | 77 | Pleural | Biphasic | 30 | 55 |
| 44 | M | 2015 | 58 | Plural | Biphasic | 6 | 49 |
| 45 | F | 2017 | 72 | Peritoneal | Biphasic | 30 | 42 |
| 46 | F | 2017 | 59 | Pleural + peritoneal | Epithelioid | 15 | 44 |
| 47 | F | 2016 | 80 | Pleural | Biphasic | 16 | 52 |
| 48 | M | 2019 | 71 | Pleural | Epithelioid | 40 | 57 |
| 49 | F | 2017 | 72 | Pleural | Biphasic | 58 | 58 |
| 50 | F | 2017 | 43 | Peritoneal | Epithelioid | 43 | 43 |
| 51 | F | 2017 | 75 | Peritoneal | Sarcomatoid | 55 | 59 |
| 52 | F | 2015 | 30 | Pleural | Epithelioid | 20 | 20 |
| 53 | F | 2017 | 79 | Pleural | Biphasic | 65 | 61 |
| 54 | F | 2017 | 66 | Peritoneal | Epithelioid | 20 | 60 |
| 55 | F | 2015 | 64 | Peritoneal | Epithelioid | 40 | 40 |
| 56 | F | 2017 | 24 | Pleural | Epithelioid | 12 | 24 |
| 57 | M | 2017 | 72 | Pleural | Epithelioid | 30 | 56 |
| 58 | M | 2017 | 74 | Peritoneal | Epithelioid | 30 | 52 |
| 59 | M | 2015 | 30 | Pleural | Epithelioid | 20 | 30 |
| 60 | F | 2016 | 81 | Pleural | Sarcomatoid | 52 | 52 |
| 61 | F | 2017 | 58 | Pleural | Epithelioid | 58 | 58 |
| 62 | F | 2016 | 75 | Pleural | Epithelioid | 8 | 47 |
| 63 | F | 2011 | 88 | Pleural | Epithelioid | 21 | 71 |
| 64 | F | 2016 | 73 | Peritoneal | Biphasic | 41 | 60 |
| 65[a] | M | 2017 | 64 | Pleural | Epithelioid | 18 | 40 |
| 66[a] | F | 2014 | 69 | Pleural | Epithelioid | 16 | 60 |
| 67[a] | F | 2014 | 44 | Peritoneal | Epithelioid | 30 | 39 |
| 68[a] | F | 2016 | 68 | Pleural | Epithelioid | 53 | 52 |
| 69[a] | F | 2016 | 72 | Pleural | Epithelioid | 40 | 51 |
| 70[a] | F | 2016 | 67 | Pleural | Epithelioid | 37 | 53 |
| 71[a] | F | 2017 | 58 | Pleural | Epithelioid | 41 | 46 |
| 72[a] | M | 2016 | 44 | Pleural | Epithelioid | 43 | 44 |
| 73[a] | F | 2017 | 51 | Pleural | Epithelioid | 28 | 49 |
| 74[a] | F | 2015 | 47 | Pleural | Epithelioid | 15 | 40 |
| 75[a] | F | 2014 | 62 | Pleural | Biphasic | 14 | 53 |

[a]Tissue analysis performed.

The present study has several limitations. It is both retrospective and uncontrolled, and the cases were submitted in medico-legal consultation, all of which potentially introduce bias. However, detailed deposition testimonies provide a level of detail concerning product exposure—including dates of exposure, duration, and frequency—that is rarely obtained in routine medical exposure histories, and which allowed for corroborating witness testimony in some cases. The strengths of the current series include its size, as malignant mesothelioma is a rare disease

RoA_03340

**TABLE 2** Fiber detection in tissue digestion from nine cases of malignant mesothelioma

| Case | Mesothelioma site | Asbestos type | Tissues examined | Concentration (fibers per gram of wet tissue) Lung, lymph node, omentum, ovary | Limit of detection (fibers per gram of wet tissue) Lung, lymph node, omentum, ovary | Tissue digest weight (g) Lung, lymph node, omentum, ovary |
|---|---|---|---|---|---|---|
| 65 | Pleural | Anthophyllite, tremolite | Lung, lymph node | 8625 | 4313 | 0.08, 0.34 |
| 66 | Pleural | Anthophyllite | Lung, lymph node | 15 333, 23 000 | 7667, 1150 | 0.06, 0.06 |
| 67 | Peritoneal | Anthophyllite, tremolite | Omentum, lymph node | 1917, 1725 | 639, 1725 | 0.54, 0.20 |
| 68 | Pleural | Anthophyllite, tremolite | Lymph node | 3044 | 1015 | 0.82, 0.34 |
| 70 | Pleural | Anthophyllite, amosite, chrysotile | Lymph node | 17 250 | 3450 | 1.06 |
| 71 | Pleural | Anthophyllite, tremolite | Lung, lymph node | 4313, 857, 3451 | 2156, 857, 575 | 0.16 |
| 72 | Pleural | Anthophyllite, tremolite | Lymph node | 17 250 | 3450 | 0.02 |
| 74 | Pleural | Anthophyllite, tremolite | Lung | 2300 | 460 | 2 |
| 75 | Pleural | Anthophyllite | Lung, ovary | 3450, 2070 | 1150, 2070 | 0.6, 0.2 |

*Note:* All cases shown were examined by analytical transmission electron microscopy and structures analyzed by microprobe analysis.

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(1-2 cases per 100 000), and its novelty, as exposures to cosmetic talc are rarely considered by most medical practitioners when they are eliciting an exposure history to asbestos.

The findings of the present and other recent studies suggest that cosmetic talc may be a cause of malignant mesothelioma. Large-scale controlled studies will be required to assess the prospective risk of developing mesothelioma following repeated exposures to talc. Although cosmetic talcs are not currently regulated by the Food and Drug Administration, the poor prognosis of malignant mesothelioma may warrant regulation or the withdrawal of cosmetic talcs from the market, as nontoxic alternatives such as corn starch are presently available.

## CONFLICTS OF INTEREST

Drs Emory, Maddox, and Kradin have testified in asbestos litigation, primarily for plaintiffs.

## DISCLOSURE BY AJIM EDITOR OF RECORD

John D. Meyer declares that he has no conflict of interest in the review and publication decision regarding this article.

## AUTHOR CONTRIBUTIONS

JCM and RLK developed the concept and the design of the work. JCM initiated the acquisition and developed the initial data analysis. TSE reviewed the materials, performed the statistical analysis, and was the primary author of the manuscript. RLK revised and gave the final approval of the version to be published.

## ETHICS APPROVAL AND INFORMED CONSENT

As these cases were selected from medical-legal consultation practice and no identifying information was included, there was no formal institutional consent nor informed consent required.

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RoA_03342

# EXHIBIT 18

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# Talc and Asbestos – J&J

David Madigan, PhD

## 1. Credentials

1. I am Provost and Senior Vice-President for Academic Affairs at Northeastern University in Boston where I am also Professor of Statistics in the Khoury College of Computer Sciences. From 2007 to 2020 I was Professor of Statistics at Columbia University in New York City. From 2013 to 2018 I was also the Executive Vice-President of Arts and Sciences and Dean of the Faculty at Columbia and, from 2008 to 2013 I was chair of the Columbia Department of Statistics. I received my bachelor's degree in Mathematical Sciences from Trinity College Dublin in 1984 and was awarded the College's gold medal. In 1990, I received a Ph.D. in Statistics, also from Trinity College. I have worked in the past for KPMG, SkillSoft, University of Washington, AT&T Labs, and Soliloquy Inc. From 2005 to 2007 I was Professor of Statistics and Dean of Physical and Mathematical Sciences at Rutgers University. Prior to serving as Dean I was Director of the Rutgers University Institute of Biostatistics. I am an elected Fellow of both the Institute of Mathematical Statistics and the American Statistical Association, as well as the American Association for the Advancement of Science, and was the 36th most cited mathematician worldwide from 1995-2005. I was an Institute of Mathematical Statistics Medallion Lecturer in 2009. I served a term as the Editor of *Statistical Science* from 2008 to 2010, the highest impact journal in Statistics.

2. I have published more than 200 technical papers on Bayesian statistics, biostatistics, pharmacovigilance, statistical graphics, Monte Carlo methods, computer-assisted learning, information retrieval, and text mining. Within the last few years I have consulted for Bayer, Heron Therapeutics, Jarvik Heart, Lilly, Pfizer, and Shire on a variety of issues, many related to drug safety. I have considerable statistical experience with clinical trials including the design and analysis of pain studies at the University of Washington and the Fred Hutchinson Cancer Research Center, both in Seattle, and service as a statistical consultant to multiple internal and external clients, particularly while I was director of the Institute of Biostatistics at Rutgers University, and continuing with Bayer and Shire Plc.

3. Drug safety is one of my significant research interests, with a focus on the development and application of statistical methods for pharmacovigilance. I have published my work in Drug Safety, Pharmacoepidemiology and Drug Safety, Therapeutic Advances in Drug Safety, Epidemiology, the American Journal of Epidemiology, and other journals. I have also served as an investigator in the Mini-Sentinel project. Mini-Sentinel is a pilot project sponsored by the FDA to inform and facilitate development of a fully operational active surveillance system, the Sentinel System, for monitoring the safety of FDA-regulated medical products. In 2010-11, I led the Mini-Sentinel Working Group on case-based methods in active surveillance. In addition, from 2010 to 2013 I was a Principal Investigator for the Observational Medical Outcomes Partnership (OMOP), a public-private partnership between the FDA and the pharmaceutical industry. The partnership conducted a multi- year initiative to research methods that are feasible and





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useful to analyze existing healthcare databases to identify and evaluate safety and benefit issues of drugs already on the market. The OMOP work now continues in the Observational Health Data Sciences and Informatics (OHDSI) collaborative where I co-direct the Columbia-based coordinating center. I was a member of the FDA's Drug Safety and Risk Management Advisory Committee (DSaRM) from 2011 to 2014 and served the FDA as a consultant from 2014 to 2017. DSaRM advises the FDA Commissioner on risk management, risk communication, and quantitative evaluation of spontaneous reports for drugs for human use and for any other product for which the FDA has regulatory responsibility. From 2010 to 2011 I was a member of a sub-committee of the FDA Science Board charged with reviewing the Center for Drug Evaluation and Research's pharmacovigilance program.

4. Further information concerning my background, training, and experience, including a complete list of my publications, is reflected in my curriculum vitae, a copy of which is attached as Appendix 2. A list of the testimony I have provided in the last four years is attached as Appendix 3.

## 2. Research Questions

5. I was asked to address the following questions:
   - Could the 90 Johnson & Johnson talcum powder containers (out of 129) in which MAS detected asbestos be the only 90 with asbestos?
   - Could the 70 Johnson's talcum Baby Powder containers (out of 104) in which MAS detected asbestos be the only 70 with asbestos?
   - What is the probability that a particular plaintiff was exposed to asbestos?
   - How many containers with asbestos was that plaintiff exposed to?
   - Repeat the previous two calculations by talc source.

6. I provide the results of my calculations as Opinions 1, 2, and 3 below. I also provide equivalent calculations drawing solely on MAS's U.S. samples (107 containers total; Opinions 4, 5, and 6), MAS's J&J Archive U.S. samples (50 containers total; Opinions 7, 8, and 9) and MAS's "outside J&J Archive" U.S. samples (57 containers total; Opinions 10, 11, and 12). I provide my source-specific analyses as Opinion 13. MAS provided the requisite testing data for these calculations on January 31st, 2021.

7. Note that I have updated my calculations a number of times in the past as MAS has produced incremental test results. Over this period, my conclusions have not changed. Furthermore, I do not expect them to change meaningfully if MAS conducts further testing.

8. I was asked to provide an assessment of studies by Rubino *et al.,* Coggiola *et al.,* Pira *et al.,* and Selevan *et al.* I was asked to calculate the statistical power of the Rubino *et al.* study with respect to mesothelioma. I was also asked to comment on epidemiology in general and observational study design. Appendix A provides the R code for the various calculations.

9. I was asked to calculate the statistical power of three talc pleurodesis studies with





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respect to mesothelioma.

10. The approach I have taken to the work would have been the same had Johnson & Johnson hired me to carry out the analyses. I am being compensated at the rate of $700 per hour for my work on this matter. As I continue to review the data (or review newly provided data) I reserve the right to supplement and refine my report. All the opinions I express herein I hold to a reasonable degree of scientific certainty.

## 3. Opinions

### Opinion 1.

11. These essentially could not be the only 90 containers of Johnson & Johnson talcum powder that contain asbestos.

12. Suppose *n* Johnson & Johnson talcum powder containers were ever produced. What is the probability that a sample of 129 would find the only 90 that exist?

| ***n*** | **Probability of finding the only 90** |
|---|---|
| 100 | n/a |
| 1,000 | $1.5 \times 10^{-97}$ |
| 10,000 | $3.6 \times 10^{-189}$ |
| 100,000 | $2.5 \times 10^{-279}$ |
| 1,000,000 | $< 2.2 \times 10^{-308}$ |
| 10,000,000 | $< 2.2 \times 10^{-308}$ |
| 100,000,000 | $< 2.2 \times 10^{-308}$ |
| 1,000,000,000 | $< 2.2 \times 10^{-308}$ |

13. These essentially could not be the only 70 Johnson & Johnson Baby Powder containers that contain asbestos.

14. Suppose *n* Johnson's talcum Baby Powder containers were ever produced. What is the probability that a sample of 104 would find the only 70 that exist?

| ***n*** | **Probability of finding the only 70** |
|---|---|
| 100 | n/a |
| 1,000 | $4.1 \times 10^{-82}$ |
| 10,000 | $4.4 \times 10^{-153}$ |
| 100,000 | $3.6 \times 10^{-223}$ |
| 1,000,000 | $3.5 \times 10^{-293}$ |
| 10,000,000 | $< 2.2 \times 10^{-308}$ |
| 100,000,000 | $< 2.2 \times 10^{-308}$ |
| 1,000,000,000 | $< 2.2 \times 10^{-308}$ |

15. For comparison purposes, the probability of wining the Powerball Lottery is $3.4 \times 10^{-9}$.

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**Opinion 2.**

16. Suppose a plaintiff used *n* Johnson & Johnson talcum powder containers. What is the probability that this plaintiff was *never* exposed to asbestos?

| ***n*** | **Probability plaintiff was not exposed** |
|---|---|
| 10 | $1.5 \times 10^{-5}$ |
| 20 | $8.9 \times 10^{-9}$ |
| 30 | $1.4 \times 10^{-12}$ |
| 50 | $3.6 \times 10^{-18}$ |
| 75 | $4.7 \times 10^{-25}$ |
| 100 | $7.0 \times 10^{-30}$ |
| 200 | $4.8 \times 10^{-46}$ |
| 300 | $6.9 \times 10^{-56}$ |
| 400 | $5.8 \times 10^{-65}$ |
| 500 | $2.6 \times 10^{-71}$ |

17. Suppose a plaintiff used *n* Johnson & Johnson Baby Powder containers. What is the probability that a plaintiff was *never* exposed to asbestos?

| ***n*** | **Probability plaintiff was not exposed** |
|---|---|
| 10 | $3.6 \times 10^{-5}$ |
| 20 | $5.3 \times 10^{-9}$ |
| 30 | $2.2 \times 10^{-12}$ |
| 50 | $3.7 \times 10^{-18}$ |
| 75 | $4.5 \times 10^{-24}$ |
| 100 | $5.2 \times 10^{-29}$ |
| 200 | $3.1 \times 10^{-43}$ |
| 300 | $7.2 \times 10^{-53}$ |
| 400 | $3.6 \times 10^{-60}$ |
| 500 | $4.8 \times 10^{-66}$ |

**Opinion 3.**

18. Depending on each plaintiff's usage of Johnson & Johnson talcum powder containers, the number of asbestos-containing containers each plaintiff was exposed to is as follows:

| **Number of Containers Used** | **95% Prediction Interval for Number of Asbestos-containing containers** |
|---|---|
| 10 | ( 3 , 10 ) |
| 20 | ( 8 , 18 ) |

| | |
|---|---|
| 30 | ( 14 , 26 ) |
| 50 | ( 26 , 42 ) |
| 75 | ( 41 , 62 ) |
| 100 | ( 56 , 81 ) |
| 200 | ( 116 , 159 ) |
| 300 | ( 177 , 237 ) |
| 400 | ( 238 , 315 ) |
| 500 | ( 299 , 392 ) |

19. Depending on each plaintiff's usage of Johnson & Johnson Baby Powder containers, the number of asbestos-containing containers each plaintiff was exposed to is as follows:

| **Number of Containers Used** | **95% Prediction Interval for Number of Asbestos-containing containers** |
|---|---|
| 10 | ( 3 , 9 ) |
| 20 | ( 8 , 18 ) |
| 30 | ( 13 , 26 ) |
| 50 | ( 24 , 41 ) |
| 75 | ( 38 , 61 ) |
| 100 | ( 52 , 80 ) |
| 200 | ( 109 , 156 ) |
| 300 | ( 167 , 233 ) |
| 400 | ( 224 , 309 ) |
| 500 | ( 281 , 385 ) |

20. These 95% intervals are constructed so that 95% of such intervals contain the corresponding true value. Thus, for example, if a plaintiff used 20 containers, the number of those containers with asbestos is between 8 and 18 with 95% "confidence."

**Opinion 4 (U.S. Containers).**

21. These essentially could not be the only 74 containers of Johnson & Johnson talcum powder that contain asbestos.

22. Suppose *n* Johnson & Johnson talcum powder containers were ever produced. What is the probability that a sample of 107 would find the only 74 that exist?

| ***n*** | **Probability of finding the only 74** |
|---|---|
| 100 | n/a |
| 1,000 | $2.3 \times 10^{-86}$ |
| 10,000 | $1.9 \times 10^{-161}$ |
| 100,000 | $1.5 \times 10^{-235}$ |
| 1,000,000 | $1.4 \times 10^{-309}$ |

| | |
|---|---|
| 10,000,000 | $< 2.2 \text{ X } 10^{-308}$ |
| 100,000,000 | $< 2.2 \text{ X } 10^{-308}$ |
| 1,000,000,000 | $< 2.2 \text{ X } 10^{-308}$ |

23. These essentially could not be the only 55 Johnson & Johnson Baby Powder containers that contain asbestos.

24. Suppose *n* Johnson's talcum Baby Powder containers were ever produced. What is the probability that a sample of 83 would find the only 55 that exist?

| ***n*** | **Probability of finding the only 55** |
|---|---|
| 100 | $1.7 \text{ X } 10^{-7}$ |
| 1,000 | $5.9 \text{ X } 10^{-70}$ |
| 10,000 | $1.5 \text{ X } 10^{-125}$ |
| 100,000 | $1.3 \text{ X } 10^{-180}$ |
| 1,000,000 | $1.3 \text{ X } 10^{-235}$ |
| 10,000,000 | $1.3 \text{ X } 10^{-290}$ |
| 100,000,000 | $< 2.2 \text{ X } 10^{-308}$ |
| 1,000,000,000 | $< 2.2 \text{ X } 10^{-308}$ |

25. For comparison purposes, the probability of wining the Powerball Lottery is $3.4 \text{ X } 10^{-9}$.

**Opinion 5 (U.S. Containers).**

26. Suppose a plaintiff used *n* Johnson & Johnson talcum powder containers. What is the probability that this plaintiff was *never* exposed to asbestos?

| ***n*** | **Probability plaintiff was not exposed** |
|---|---|
| 10 | $2.1 \text{ X } 10^{-5}$ |
| 20 | $2.0 \text{ X } 10^{-9}$ |
| 30 | $5.6 \text{ X } 10^{-13}$ |
| 50 | $4.8 \text{ X } 10^{-19}$ |
| 75 | $2.8 \text{ X } 10^{-25}$ |
| 100 | $1.8 \text{ X } 10^{-30}$ |
| 200 | $1.9 \text{ X } 10^{-45}$ |
| 300 | $1.3 \text{ X } 10^{-55}$ |
| 400 | $2.3 \text{ X } 10^{-63}$ |
| 500 | $1.6 \text{ X } 10^{-69}$ |

27. Suppose a plaintiff used *n* Johnson & Johnson Baby Powder containers. What is the probability that a plaintiff was *never* exposed to asbestos?

| *n* | **Probability plaintiff was not exposed** |
|---|---|
| 10 | $5.9 \times 10^{-5}$ |
| 20 | $1.6 \times 10^{-8}$ |
| 30 | $1.4 \times 10^{-11}$ |
| 50 | $9.9 \times 10^{-17}$ |
| 75 | $6.9 \times 10^{-22}$ |
| 100 | $4.1 \times 10^{-26}$ |
| 200 | $5.1 \times 10^{-38}$ |
| 300 | $6.4 \times 10^{-46}$ |
| 400 | $7.6 \times 10^{-52}$ |
| 500 | $1.4 \times 10^{-56}$ |

**Opinion 6 (U.S. Containers).**

28. Depending on each plaintiff's usage of Johnson & Johnson talcum powder containers, the number of asbestos-containing containers each plaintiff was exposed to is as follows:

| **Number of Containers Used** | **95% Prediction Interval for Number of Asbestos-containing containers** |
|---|---|
| 10 | ( 3 , 10 ) |
| 20 | ( 8 , 18 ) |
| 30 | ( 14 , 26 ) |
| 50 | ( 25 , 42 ) |
| 75 | ( 40 , 62 ) |
| 100 | ( 54 , 81 ) |
| 200 | ( 114 , 159 ) |
| 300 | ( 173 , 237 ) |
| 400 | ( 232 , 315 ) |
| 500 | ( 292 , 393 ) |

29. Depending on each plaintiff's usage of Johnson & Johnson Baby Powder containers, the number of asbestos-containing containers each plaintiff was exposed to is as follows:

| **Number of Containers Used** | **95% Prediction Interval for Number of Asbestos-containing containers** |
|---|---|
| 10 | ( 2 , 9 ) |
| 20 | ( 7 , 18 ) |
| 30 | ( 13 , 26 ) |
| 50 | ( 23 , 41 ) |
| 75 | ( 37 , 60 ) |
| 100 | ( 50 , 80 ) |
| 200 | ( 105 , 156 ) |

| | |
|---|---|
| 300 | ( 160 , 233 ) |
| 400 | ( 215 , 309 ) |
| 500 | ( 270 , 385 ) |

30. These 95% intervals are constructed so that 95% of such intervals contain the corresponding true value. Thus, for example, if a plaintiff used 20 containers, the number of those containers with asbestos is between 8 and 18 with 95% "confidence."

**Opinion 7 (J&J Archive U.S. Containers).**

31. These essentially could not be the only 36 containers of Johnson & Johnson talcum powder that contain asbestos.

32. Suppose *n* Johnson & Johnson talcum powder containers were ever produced. What is the probability that a sample of 50 would find the only 36 that exist?

| ***n*** | **Probability of finding the only 36** |
|---|---|
| 100 | $4.7 \times 10^{-16}$ |
| 1,000 | $6.6 \times 10^{-55}$ |
| 10,000 | $3.7 \times 10^{-91}$ |
| 100,000 | $3.5 \times 10^{-127}$ |
| 1,000,000 | $3.5 \times 10^{-163}$ |
| 10,000,000 | $3.5 \times 10^{-199}$ |
| 100,000,000 | $3.5 \times 10^{-235}$ |
| 1,000,000,000 | $3.5 \times 10^{-271}$ |

33. These essentially could not be the only 18 Johnson & Johnson Baby Powder containers that contain asbestos.

34. Suppose *n* Johnson's talcum Baby Powder containers were ever produced. What is the probability that a sample of 27 would find the only 18 that exist?

| ***n*** | **Probability of finding the only 18** |
|---|---|
| 100 | $1.5 \times 10^{-13}$ |
| 1,000 | $3.5 \times 10^{-32}$ |
| 10,000 | $3.0 \times 10^{-50}$ |
| 100,000 | $3.0 \times 10^{-68}$ |
| 1,000,000 | $3.0 \times 10^{-86}$ |
| 10,000,000 | $3.0 \times 10^{-104}$ |
| 100,000,000 | $3.0 \times 10^{-122}$ |
| 1,000,000,000 | $3.0 \times 10^{-140}$ |

35. For comparison purposes, the probability of wining the Powerball Lottery is $3.4 \times 10^{-9}$.

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**Opinion 8 (J&J Archive U.S. Containers).**

36. Suppose a plaintiff used *n* Johnson & Johnson talcum powder containers. What is the probability that this plaintiff was *never* exposed to asbestos?

| ***n*** | **Probability plaintiff was not exposed** |
|---|---|
| 10 | $2.6 \times 10^{-5}$ |
| 20 | $8.6 \times 10^{-9}$ |
| 30 | $1.3 \times 10^{-11}$ |
| 50 | $4.7 \times 10^{-16}$ |
| 75 | $3.1 \times 10^{-20}$ |
| 100 | $1.6 \times 10^{-23}$ |
| 200 | $2.3 \times 10^{-32}$ |
| 300 | $5.8 \times 10^{-38}$ |
| 400 | $4.5 \times 10^{-42}$ |
| 500 | $2.5 \times 10^{-45}$ |

37. Suppose a plaintiff used *n* Johnson & Johnson Baby Powder containers. What is the probability that this plaintiff was *never* exposed to asbestos?

| ***n*** | **Probability plaintiff was not exposed** |
|---|---|
| 10 | 0.0003 |
| 20 | $1.0 \times 10^{-6}$ |
| 30 | $1.5 \times 10^{-8}$ |
| 50 | $2.9 \times 10^{-11}$ |
| 75 | $1.0 \times 10^{-13}$ |
| 100 | $1.4 \times 10^{-15}$ |
| 200 | $2.3 \times 10^{-20}$ |
| 300 | $2.6 \times 10^{-23}$ |
| 400 | $1.9 \times 10^{-25}$ |
| 500 | $4.1 \times 10^{-27}$ |

**Opinion 9 (J&J Archive U.S. Containers).**

38. Depending on each plaintiff's usage of Johnson & Johnson talcum powder containers, the number of asbestos-containing containers each plaintiff was exposed to is as follows:

| **Number of Containers Used** | **95% Prediction Interval for Number of Asbestos-containing containers** |
|---|---|
| 10 | ( 3 , 10 ) |
| 20 | ( 8 , 19 ) |

| | |
|---|---|
| 30 | ( 14 , 27 ) |
| 50 | ( 25 , 44 ) |
| 75 | ( 39 , 65 ) |
| 100 | ( 54 , 86 ) |
| 200 | ( 111 , 170 ) |
| 300 | ( 168 , 254 ) |
| 400 | ( 226 , 338 ) |
| 500 | ( 283 , 422 ) |

39. Depending on each plaintiff's usage of Johnson & Johnson Baby Powder containers, the number of asbestos-containing containers each plaintiff was exposed to is as follows:

| **Number of Containers Used** | **95% Prediction Interval for Number of Asbestos-containing containers** |
|---|---|
| 10 | ( 2 , 10 ) |
| 20 | ( 6 , 18 ) |
| 30 | ( 11 , 27 ) |
| 50 | ( 20 , 44 ) |
| 75 | ( 31, 65 ) |
| 100 | ( 43 , 86 ) |
| 200 | ( 89 , 169 ) |
| 300 | ( 135 , 253 ) |
| 400 | ( 181 , 336 ) |
| 500 | ( 227 , 420 ) |

40. These 95% intervals are constructed so that 95% of such intervals contain the corresponding true value. Thus, for example, if a plaintiff used 20 containers, the number of those containers with asbestos is between 6 and 18 with 95% "confidence."

**Opinion 10 (Outside J&J Archive U.S. Containers).**

41. These essentially could not be the only 38 containers of Johnson & Johnson talcum powder that contain asbestos.

42. Suppose *n* Johnson & Johnson talcum powder containers were ever produced. What is the probability that a sample of 57 would find the only 38 that exist?

| ***n*** | **Probability of finding the only 38** |
|---|---|
| 100 | $1.1 \times 10^{-13}$ |
| 1,000 | $6.8 \times 10^{-55}$ |
| 10,000 | $3.6 \times 10^{-93}$ |
| 100,000 | $3.4 \times 10^{-131}$ |
| 1,000,000 | $3.3 \times 10^{-169}$ |

| | |
|---|---|
| 10,000,000 | $3.3 \text{ X } 10^{-207}$ |
| 100,000,000 | $3.3 \text{ X } 10^{-245}$ |
| 1,000,000,000 | $3.3 \text{ X } 10^{-283}$ |

43. These essentially could not be the only 37 Johnson & Johnson Baby Powder containers that contain asbestos.

44. Suppose *n* Johnson's talcum Baby Powder containers were ever produced. What is the probability that a sample of 56 would find the only 37 that exist?

| ***n*** | **Probability of finding the only 37** |
|---|---|
| 100 | $1.2 \text{ X } 10^{-13}$ |
| 1,000 | $1.1 \text{ X } 10^{-53}$ |
| 10,000 | $6.2 \text{ X } 10^{-91}$ |
| 100,000 | $5.9 \text{ X } 10^{-128}$ |
| 1,000,000 | $5.8 \text{ X } 10^{-165}$ |
| 10,000,000 | $5.8 \text{ X } 10^{-202}$ |
| 100,000,000 | $5.8 \text{ X } 10^{-239}$ |
| 1,000,000,000 | $5.8 \text{ X } 10^{-276}$ |

45. For comparison purposes, the probability of wining the Powerball Lottery is $3.4 \text{ X } 10^{-9}$.

**Opinion 11 (Outside J&J Archive U.S. Containers).**

46. Suppose a plaintiff used *n* Johnson & Johnson talcum powder containers. What is the probability that this plaintiff was *never* exposed to asbestos?

| ***n*** | **Probability plaintiff was not exposed** |
|---|---|
| 10 | $8.1 \text{ X } 10^{-5}$ |
| 20 | $4.7 \text{ X } 10^{-8}$ |
| 30 | $9.6 \text{ X } 10^{-11}$ |
| 50 | $4.6 \text{ X } 10^{-15}$ |
| 75 | $3.2 \text{ X } 10^{-19}$ |
| 100 | $1.6 \text{ X } 10^{-22}$ |
| 200 | $1.6 \text{ X } 10^{-31}$ |
| 300 | $2.6 \text{ X } 10^{-37}$ |
| 400 | $1.4 \text{ X } 10^{-41}$ |
| 500 | $5.5 \text{ X } 10^{-45}$ |

47. Suppose a plaintiff used *n* Johnson & Johnson Baby Powder containers. What is the probability that this plaintiff was *never* exposed to asbestos?





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| *n* | **Probability plaintiff was not exposed** |
|---|---|
| 10 | $9.5 \times 10^{-5}$ |
| 20 | $6.3 \times 10^{-8}$ |
| 30 | $1.5 \times 10^{-10}$ |
| 50 | $8.7 \times 10^{-15}$ |
| 75 | $7.5 \times 10^{-19}$ |
| 100 | $4.4 \times 10^{-22}$ |
| 200 | $7.1 \times 10^{-31}$ |
| 300 | $1.6 \times 10^{-36}$ |
| 400 | $1.1 \times 10^{-40}$ |
| 500 | $5.4 \times 10^{-44}$ |

**Opinion 12 (Outside J&J Archive U.S. Containers).**

48. Depending on the plaintiffs' usage of Johnson & Johnson talcum powder containers, the number of asbestos-containing containers each plaintiff was exposed to is as follows:

| **Number of Containers Used** | **95% Prediction Interval for Number of Asbestos-containing containers** |
|---|---|
| 10 | ( 2 , 10 ) |
| 20 | ( 7 , 18 ) |
| 30 | ( 12 , 26 ) |
| 50 | ( 23 , 42 ) |
| 75 | ( 36 , 62 ) |
| 100 | ( 49 , 81 ) |
| 200 | ( 101 , 160 ) |
| 300 | ( 154 , 239 ) |
| 400 | ( 207 , 318 ) |
| 500 | ( 260 , 396 ) |

49. Depending on the plaintiffs' usage of Johnson & Johnson Baby Powder containers, the number of asbestos-containing containers each plaintiff was exposed to is as follows:

| **Number of Containers Used** | **95% Prediction Interval for Number of Asbestos-containing containers** |
|---|---|
| 10 | ( 2 , 9 ) |
| 20 | ( 7 , 18 ) |
| 30 | ( 12 , 26 ) |
| 50 | ( 22 , 42 ) |
| 75 | ( 35 , 61 ) |
| 100 | ( 48 , 81 ) |



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| | |
|---|---|
| 200 | ( 100 , 159 ) |
| 300 | ( 152 , 238 ) |
| 400 | ( 204 , 316 ) |
| 500 | ( 256 , 394 ) |

50. These 95% intervals are constructed so that 95% of such intervals contain the corresponding true value. Thus, for example, if a plaintiff used 20 containers, the number of those containers with asbestos is between 7 and 18 with 95% "confidence."

**Opinion 13 (Source-specific).**

51. Depending on the plaintiffs' usage of Johnson & Johnson talcum powder containers with **Italian**-sourced talc (19 contaminated out of 35), the number of asbestos-containing containers each plaintiff was exposed to is as follows:

| **Number of Containers Used** | **Probability plaintiff was not exposed** | **95% Prediction Interval for Number of Asbestos-containing containers** |
|---|---|---|
| 10 | 0.002 | ( 1 , 9 ) |
| 20 | $1.4 \times 10^{-5}$ | ( 4 , 16 ) |
| 30 | $3.3 \times 10^{-7}$ | ( 8 , 24 ) |
| 50 | $9.5 \times 10^{-10}$ | ( 15 , 38 ) |
| 75 | $4.2 \times 10^{-12}$ | ( 24 , 56 ) |
| 100 | $6.2 \times 10^{-14}$ | ( 33 , 74 ) |
| 200 | $9.3 \times 10^{-19}$ | ( 70 , 145 ) |
| 300 | $8.8 \times 10^{-22}$ | ( 106 , 216 ) |
| 400 | $5.4 \times 10^{-24}$ | ( 143 , 287 ) |
| 500 | $9.9 \times 10^{-26}$ | ( 179 , 359 ) |

52. Depending on the plaintiffs' usage of Johnson & Johnson talcum powder containers with **Vermont**-sourced talc (33 contaminated out of 40), the number of asbestos-containing containers each plaintiff was exposed to is as follows:

| **Number of Containers Used** | **Probability plaintiff was not exposed** | **95% Prediction Interval for Number of Asbestos-containing containers** |
|---|---|---|
| 10 | $1.9 \times 10^{-6}$ | ( 4 , 10 ) |
| 20 | $2.1 \times 10^{-10}$ | ( 10 , 20 ) |
| 30 | $1.9 \times 10^{-13}$ | ( 17 , 29 ) |
| 50 | $4.4 \times 10^{-18}$ | ( 30 , 48 ) |
| 75 | $2.6 \times 10^{-22}$ | ( 47 , 71 ) |
| 100 | $1.5 \times 10^{-25}$ | ( 64 , 94 ) |
| 200 | $4.6 \times 10^{-34}$ | ( 131 , 187 ) |





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| | | |
|---|---|---|
| 300 | $2.3 \times 10^{-39}$ | ( 198 , 280 ) |
| 400 | $3.2 \times 10^{-43}$ | ( 265 , 373 ) |
| 500 | $3.0 \times 10^{-46}$ | ( 332 , 465 ) |

53. Depending on the plaintiffs' usage of Johnson & Johnson talcum powder containers with **Chinese**-sourced talc (23 contaminated out of 35), the number of asbestos-containing containers each plaintiff was exposed to is as follows:

| **Number of Containers Used** | **Probability plaintiff was not exposed** | **95% Prediction Interval for Number of Asbestos-containing containers** |
|---|---|---|
| 10 | 0.0002 | ( 2 , 10 ) |
| 20 | $4.5 \times 10^{-7}$ | ( 6 , 18 ) |
| 30 | $3.7 \times 10^{-9}$ | ( 11 , 26 ) |
| 50 | $2.4 \times 10^{-12}$ | ( 20 , 43 ) |
| 75 | $2.9 \times 10^{-15}$ | ( 32 , 63 ) |
| 100 | $1.6 \times 10^{-17}$ | ( 44 , 83 ) |
| 200 | $1.9 \times 10^{-23}$ | ( 92 , 164 ) |
| 300 | $3.9 \times 10^{-27}$ | ( 140 , 245 ) |
| 400 | $8.0 \times 10^{-30}$ | ( 187 , 326 ) |
| 500 | $6.2 \times 10^{-32}$ | ( 235 , 407 ) |

54. Depending on the plaintiffs' usage of Johnson & Johnson talcum powder containers with **Asian**-sourced talc (7 contaminated out of 9), the number of asbestos-containing containers each plaintiff was exposed to is as follows:

| **Number of Containers Used** | **Probability plaintiff was not exposed** | **95% Prediction Interval for Number of Asbestos-containing containers** |
|---|---|---|
| 10 | 0.0007 | ( 2 , 10 ) |
| 20 | $2.3 \times 10^{-5}$ | ( 6 , 20 ) |
| 30 | $2.3 \times 10^{-6}$ | ( 10 , 30 ) |
| 50 | $1.1 \times 10^{-7}$ | ( 18 , 49 ) |
| 75 | $7.9 \times 10^{-9}$ | ( 28 , 74 ) |
| 100 | $1.2 \times 10^{-9}$ | ( 38 , 98 ) |
| 200 | $1.2 \times 10^{-11}$ | ( 78 , 195 ) |
| 300 | $7.2 \times 10^{-3}$ | ( 117 , 292 ) |
| 400 | $1.0 \times 10^{-13}$ | ( 157 , 390 ) |
| 500 | $2.1 \times 10^{-14}$ | ( 197 , 487 ) |

**Assumptions**

55. With respect to the presence of asbestos, the various samples of containers analyzed above are not biased.

56. The various samples of containers analyzed above are representative of the respective populations of containers ever produced.

**Discussion of the Assumptions**

57. The use of a sample to make inference about a population represents the central pillar of statistical practice. The sample produces an "estimate" of a numerical characteristic of the population (such as the proportion with a given trait). A "simple random sample" provides mathematical guarantees of unbiasedness as well as a margin of error with known operating characteristics (e.g., a 95% confidence interval that "covers" the population proportion exactly 95% of the time). The generation of a simple random sample requires an enumeration of every member of the population and every member has a chance, however small, to be included in the sample. Unfortunately, in practice, simple random samples are uncommon. In healthcare, for example, it is essentially never possible to enumerate all people in the world with a given medical condition. Instead, a typical healthcare study recruits patients at a given medical center or set of medical centers. Statisticians still use the machinery of statistical and probabilistic inference to generalize from these (non-random) samples of patients to the general patient population. The underlying notion here is that the sample, while not a random sample, is "representative" of the larger population. A representative sample is one which is drawn without bias from the population of interest. For example, a study of a treatment for atrial fibrillation might recruit patients in New York, but since there is no reason to believe that atrial fibrillation behaves differently in California, physicians would apply the New York results to guide patient care in California. Similarly, a study conducted in 2015 would routinely guide care for patients in 2019 even though today's patients could not possibly have been included in the 2015 study.

58. No mathematical test for "representativeness" exists. Instead, what statisticians primarily concern themselves with is the potential for bias; could the non-random sample yield biased results? "Sampling variability" means that different samples can and do yield different estimates. This is not the issue. Bias concerns the average behavior across many samples. To make this more concrete, consider the population of all baby powder containers that have ever been produced. Note that a simple random sample is clearly infeasible in this context since we can neither enumerate nor locate all the containers. Denote by $p$, the proportion of the containers in this population that contain asbestos. Evidently $p$ is a number between zero and one. Any sample of containers can produce an estimate of $p$. For example, if a sample of 50 containers contains 20 with asbestos, the corresponding estimate would be 0.4. Even if this were a simple random sample of containers, no one expects that $p$ is exactly 0.4. In fact, another sample of 50 containers might yield 25 with asbestos and a corresponding estimate of 0.5. Bias concerns the average of this hypothetical stream of estimates. If the sampling process systematically selects containers that are more likely than containers in general to contain asbestos, the average of the stream of estimates will be bigger than $p$. This is upwards bias. Similarly, If the sampling process systematically selects containers that are less likely than containers in general to contain asbestos, the average of the stream of estimates





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will be smaller than *p*. This is downwards bias. Neither type of bias is desirable. However, if the sampling process is independent of and oblivious to the asbestos state of the containers it chooses to include, this will ensure that the average of the stream of estimates will be precisely *p*, the very definition of an unbiased estimate.

59. In order for the sampling process to yield a biased estimate (let's say biased upwards), the process would need to systematically include containers with a higher propensity than others to contain asbestos. Could this happen? Hypothetically, suppose containers produced in even-numbered years had a high propensity to contain asbestos and containers produced in odd-numbered years had a low propensity. If the sampling process only selected containers from even-numbered years, a biased estimate would ensue. However, the samples are known to cover a broad swath of years including the 1960's, the 1970's, the 1980's, and the 1990's. Even if the propensity to contain asbestos ebbed and flowed over the years, to introduce bias, both the lawyers and J&J would need to have sampled containers from the "high" years and avoided the "low" years, all the while with J&J claiming that no asbestos was present at all.

60. I now consider the containers included in my analyses in more detail:

    1) The first report from MAS that I considered analyzed containers of baby powder spanning many years. Three different law firms obtained these containers from multiple sources. More than half of these containers were positive for asbestos. Setting aside a nefarious scheme, there is no rational basis to believe that the sources of these samples would preferentially be asbestos-containing.

    2) MAS then analyzed a 1978 container produced out of the J&J Museum. This was positive for asbestos; and again, there is no rational basis to speculate that J&J preferentially kept (and produced pursuant to a court order) asbestos-containing baby powder.

    3) MAS then analyzed many additional samples of talcum powder produced by J&J out of its historical archives pursuant to court order. Asbestos was detected in those containers at an even higher rate. Again, there is no rational basis to speculate that J&J preferentially kept (and produced pursuant to a court order) asbestos-containing talcum powder.

61. Failure to detect asbestos in the sample does not mean there is none present – asbestos may well be present below MAS's detection limit or it may be present in untested powder from a container that MAS classifies as negative. Because I treated the non-detects as negatives, my probability calculations and predictions are conservative.

62. It is my opinion that with respect to asbestos, the sample of containers tested by MAS *is* representative of the population of all containers. The following facts inform this opinion:

    - The sample covers a broad swathe of time from the 1920's to the present day,





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and includes, for example, every single year from 1962 to 1986.

- The sample includes talc from all of the sources used by J&J during this period.
- J&J provided the majority of the containers.
- No rational basis exists to preferentially select containers that are more likely to contain asbestos than other containers.

Therefore, the probability calculations and predictions I have made using the sample are entirely proper.

**Rubino et al.**

63. Rubino *et al.*[1] compared mortality rates in a group of talc miners and millers in Pinerolo, Italy to an age-matched group of residents of Alba, Italy. They concluded "By exposed versus controls comparison the observed overall mortality of talc miners and millers is significantly lower than expected."

64. Rubino *et al.* is an example of an "observational study." Such studies have well-documented limitations.[2] A particular concern with the Rubino *et al.* study is the so-called "healthy worker" effect.[3] Workers are systematically healthier than non-workers thereby biasing the comparison in Rubino *et al.* In my opinion, this represents a potentially fatal flaw in the Rubino *et al.* study. Furthermore, individual exposure data was not available to the authors, so they assume that everyone in the mine received the same exposure. At best, this is extraordinarily crude. The provenance of even this overall exposure data is unclear, in particular whether it was gathered in the same mine or mines where the workers were. No data are provided to establish that the control subjects were *not* exposed to talc. The follow-up Rubino *et al.*, Coggiola *et al.*, and Pira *et al.* [4] studies fail to address any of these concerns.

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[1] Rubino, G. F., Scansetti, G., Piolatto, G., & Romano, C. A. (1976). Mortality study of talc miners and millers. *Journal of Occupational and Environmental Medicine*, *18*(3), 186-193.

[2] Ioannidis, John PA. "Why most published research findings are false." *PLoS medicine* 2.8 (2005): e124; Madigan, D., Ryan, P. B., Schuemie, M., Stang, P. E., Overhage, J. M., Hartzema, A. G., Suchard, M.A., DuMouchel, W. & Berlin, J. A. (2013). Evaluating the impact of database heterogeneity on observational study results. *American Journal of Epidemiology*, *178*(4), 645-651; Madigan, D., Stang, P. E., Berlin, J. A., Schuemie, M., Overhage, J. M., Suchard, M. A., Hartzema, A. G., DuMouchel, W & Ryan, P. B. (2014). A systematic statistical approach to evaluating evidence from observational studies. *Annual Review of Statistics and Its Application*, *1*, 11-39.

[3] Rothman, K. J., Greenland, S., & Lash, T. L. (Eds.). (2008). *Modern Epidemiology*. Lippincott Williams & Wilkins, p.109.

[4] Rubino, G. F., Scansetti, G., Piolatto, G., & Gay, G. (1979). Mortality and morbidity among talc miners and millers in Italy. *Dusts and disease. Park Forest South, Illlinois: Pathodox Publisher, Inc*, 257-363; Coggiola, M., Bosio, D., Pira, E., Piolatto, P. G., Vecchia, C. L., Negri, E., ... & Bacaloni, A. (2003). An update of a mortality study of talc miners and millers in Italy. American journal of industrial medicine, 44(1), 63-69; Pira, E., Coggiola, M., Ciocan, C., Romano, C., La Vecchia, C., Pelucchi, C., & Boffetta, P. (2017). Mortality of talcum miners and millers from Val Chisone, Northern Italy: An updated cohort study. *Journal of Occupational and Environmental Medicine*, *59*(7), 659-664.





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65. Concerning mesothelioma in particular, the Rubino *et al.* study lacks statistical power. Statistical power is the probability of finding a statistically significant difference between exposed and control subjects when one truly exists. Assuming a 40-year working life for the 1,784 exposed workers in Rubino *et al.*, and assuming an annual background rate of 2 mesothelioma cases per 100,000 people,[5] the power to detect a doubling of the risk is 2.0%. The power to detect a quadrupling is 21.2%. I provide the corresponding R code in Appendix A. Thus, the Rubino *et al.* study would almost certainly not be able to find a substantial difference in mesothelioma rates between "exposed" and "unexposed" subjects, if one existed. The study provides no meaningful scientific evidence with regards to mesothelioma.

66. Ideally, the background rate for the power calculation above would reflect what the mesothelioma rate was in Rubino *et al.*'s control town, Alba. Rubino *et al.*, noted that Alba has a "dominant traditional agricultural activity and very little industrial development not involving any obvious hazard of occupational diseases or carcinogenesis to its workers." Marinaccio *et al.* (2012) do provide a mesothelioma rate for both Italy as whole (male rate is 3.49 per 100,000) and for Piedmont (male rate is 5.56 per 100,000).[6] However, Marinaccio et al. also note that 81.5% of interviewed male mesothelioma cases in Italy "exhibit an occupational exposure," suggesting that the rate in Alba might be closer to 1 per 100,000 and certainly smaller than the rate I used above.

67. The choice of 2 per 100,000 in paragraph 54 above is conservative in the sense that it includes both exposed and unexposed individuals. Several authors have estimated the unexposed rate and suggest a rate of 1-2 cases per 1,000,000 person years.[7] Teta et al. utilized SEER data through 2002. I extended their analysis through 2016 producing an estimated unexposed rate of 2.1 per 1,000,000. Using this rate as a background rate for calculating the power of the Rubino study yields close to zero for either doubling or a quadrupling of the risk.

68. Marsh et al.[8] provided extended follow-up for the Rubino cohort and three others. They reported the power to detect a 3-fold and 2.5-fold increased risk as 79% and 62% respectively but used a background rate that reflected exposed and unexposed individuals. Using an unexposed rate of 2.1 per 1,000,000, the one-sided power to detect a 3-fold and 2.5-fold increased risk is 18% and 14% respectively. The Table below shows power at various risks.[9]

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[5] https://seer.cancer.gov/faststat

[6] Marinaccio, A., Binazzi, A., Marzio, D. D., Scarselli, A., Verardo, M., Mirabelli, D., ... & Zotti, R. D. (2012). Pleural malignant mesothelioma epidemic: incidence, modalities of asbestos exposure and occupations involved from the Italian National Register. *International Journal of Cancer*, 130(9), 2146-2154.

[7] Teta, M. J., Mink, P. J., Lau, E., Sceurman, B. K., & Foster, E. D. (2008). US mesothelioma patterns 1973–2002: indicators of change and insights into background rates. *European Journal of Cancer Prevention*, *17*(6), 525-534; McDonald, J.C. (1985). *Health implications of environmental exposure to asbestos.* Environmental Health Perspectives, 1985. **62**: p. 319-328.

[8] Marsh, G. M., Ierardi, A. M., Benson, S. M., & Finley, B. L. (2019). Occupational exposures to cosmetic talc and risk of mesothelioma: an updated pooled cohort and statistical power analysis with consideration of latency period. *Inhalation toxicology*, *31*(6), 213-223.

[9] This analysis has been accepted to be published in *Inhalation Toxicology*



RoA_03361

| Assumed True Risk Ratio | Power |
|---|---|
| 2 | 11% |
| 2.5 | 14% |
| 3 | 18% |
| 4 | 25% |

69. The Selevan *et al.*[10] study in Vermont suffers from an even more extreme lack of statistical power and provides no meaningful statistical information about mesothelioma risk. Fordyce et al.[11] recently published extended follow-up of this cohort. The authors discovered a mesothelioma case in the cohort and refer to a different earlier case of mesothelioma from Lamm and Starr[12] as being "in the Vermont cohort." Lamm and Starr state unambiguously "Mesothelioma caused the death of…one Vermont talc man." Even using the conservative 2 per 100,000 background rate, this represents a borderline statistically significant increased risk, SMR=5.82, 95% confidence interval 0.98 to 19.24, p=0.052. Using the 2.1 per 1,000,000 rate yields a p-value of less than 0.001 (SMR=55.47, 95% confidence interval from 9.30 to 183.3).[13]

**Pleurodesis**

70. The three pleurodesis studies I was asked to examine are:

Research Committee of the British Thoracic Association. (1979). A survey of the long-term effects of talc and kaolin pleurodesis. *British journal of diseases of the chest*, *73*, 285-288.

Lange, P., Mortensen, J., & Groth, S. (1988). Lung function 22-35 years after treatment of idiopathic spontaneous pneumothorax with talc poudrage or simple drainage. *Thorax*, *43*(7), 559-561.

Viskum, K., Lange, P., & Mortensen, J. (1989). Long term sequelae after talc pleurodesis for spontaneous pneumothorax. *Pneumologie (Stuttgart, Germany)*, *43*(2), 105-106.

[10] Selevan, S. G., Dement, J. M., Wagoner, J. K., & Froines, J. R. (1979). Mortality patterns among miners and millers of non-asbestiform talc: preliminary report. *Journal of Environmental Pathology and Toxicology*, 2(5), 273.
[11] Fordyce, T.A., Leonhard, M., Mowat, F.S., and Moolgavkar, S.H. (2019). A 37-year update on mortality patterns in an expanded cohort of Vermont talc miners and millers. Journal of Occupational and Environmental Medicine, to appear.
[12] Lamm, S.H. and Starr, J.A. (1988). Similarities in lung cancer and respiratory disease mortality of Vermont and New York State talc workers. Proceedings of the NIOSH-ILO International Pneumoconioses Conference (7th). Part 2. 1576–1581.
[13] This analysis has been accepted to be published in the *Journal of Occupational and Environmental Epidemiology*.

I note that these studies are featured on a J&J website.[14]

71. Collectively, these studies include 316 talc pleurodesis patients with approximately 7,500 patient years of follow-up. Using a conservative background rate of 2 per 100,000, these studies have a statistical power of 9% to detect a doubling and 19% to detect a quadrupling. Using a more realistic rate of 2.1 per 1,000,000 person years, these studies have a statistical power of 6% to detect a doubling and 8% to detect a quadrupling.

72. In addition to the above-stated opinions, I am prepared to answer any hypotheticals, concerning my areas of expertise or related to my above opinions, presented to me at the time of trial. I am also prepared to consider plaintiff-specific exposure data if made available to me.

David Madigan, PhD
Professor of Statistics
February 21st, 2021

[14] https://www.factsabouttalc.com/litigation





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# EXHIBIT 19

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Levin Samples of Shower to Shower Aug 10, 1972

About 1 fiber or rod/needle every 500 particles

Approx. 1/3 of these are tremolite - 2/3 rolled talc or talc shards.

Several fibers observed which appear to be non mineralic (hairs or artificial fibers)

No crinkled fibers or small bundles of chrysotile asbestos were observed.

---

Sample mounted in Cargilles 1.60 n oil - under cover glass -

Observations made in plane polarized light, crossed nicols, and Nomarski Interference contrast - magnification 250 to 1000 X.

Fiber resolution about 5 u x 0.2 u

Particle density: About 125,000 particles in an 18 mm square area.

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Zeiss Universal Stand 47-16-89
10x wide angle eyepieces - binocular
Planachromat Objectives -
Nomarski Interference Contrast Equipment attachment
Observations made up to 1000 X in
Cargilles 1.60 n oil (250-1000x)

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