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Transcript of Dr. Robert Lochhead

Date: July 10, 2025

Case: Dr. Squatch, LLC -v- The Proctor and Gamble Company (PTAB)

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WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

Exhibit 1081
Dr. Squatch v. P&G
IPR2024-01105

Transcript of Dr. Robert Lochhead
Conducted on July 10, 2025

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2 (5 to 8)

5 1 PROCEEDINGS 2 (Witness sworn.) 3 WHEREUPON: 4 DR. ROBERT LOCHHEAD, 5 called as a witness herein, having been first duly 6 sworn, was examined and testified as follows: 7 CROSS-EXAMINATION 8 BY MR. CALABRO: 9 Q Good morning, Dr. Lochhead. 10 A Good morning. 11 Q Is that how -- did I pronounce your name 12 correctly? 13 A Yes, yes. 14 Q Good morning. So you've been deposed 15 before, right? 16 A Yes. 17 Q You know how this works? 18 A Well, I think so. Everybody is -- 19 Q Fair. So I'll be asking you a series of 20 questions. If you could respond verbally so the 21 court reporter can transcribe your testimony, that 22 would be good. 23 Understood? 24 A Yes. 25 Q And let's try to wait for each other to	7 1 going over my reports with counsel. And before 2 that, more than 50 years of experience in the 3 field prepared me in a nutshell. 4 Can you hear me okay? 5 Q I can hear you well. Can you hear me? 6 A Yes. My allergies are kicking in today. 7 So if you can't hear me, just let me know. 8 Especially, Court Reporter, let me know and I'll 9 try my best to speak up. 10 Q Appreciate it. Sounds fine on my end so 11 far. 12 A Okay. 13 Q Tell me about your educational background, 14 Dr. Lochhead. 15 A Okay. I began as -- I did something 16 called High National Certificate in Scotland, 17 which was the Royal Society of Chemistry. That 18 led me to a bachelor's degree in chemistry at 19 University of Strathelyde, which then led to a 20 Ph.D. at the University of Strathelyde and postdoc 21 at Carnegie-Mellon University. And that was my 22 formal education. And the postdoc was in chemical 23 engineering. All the rest were in chemistry, 24 material science. 25 Q Do you have any specialty? Or what was
6 1 finish our answers so we can get a clean 2 transcript. All right? 3 A Yes. 4 Q And you understand you're under oath, 5 correct? 6 A I do. 7 Q Okay. And who is in the room with you 8 today? 9 A Marlee Hartenstein is in the room with me. 10 Q Anyone else? 11 A No, that's all. 12 Q And you have some documents with you? 13 A Yeah. We have the documents. I think all 14 the documents I relied on are here and my reports. 15 Q So you have your reports, and you have 16 Dr. Michniak-Kohn's reports? 17 A I don't know -- yeah. Yes, I do. 18 Q And then you have the exhibits to those 19 reports as well? 20 A Yes. 21 Q Anything else with you, any notes or 22 anything like that? 23 A No, no. 24 Q How did you prepare to testify today? 25 A Well, I spent the last couple of days	8 1 your thesis in? 2 A Oh, my thesis was in dielectric 3 relaxation. What it looked at was how helical 4 molecules -- what were the shape of helical 5 molecules in a nutshell. People couldn't figure 6 out DNA fit in the cell because they thought it 7 was a spring, and I showed it was a Slinky. But 8 not with DNA, with other helical molecules. But 9 that explained to people how a Slinky could fit 10 into the nucleus of a cell. It's a rod. 11 Basically that's what my Ph.D. was about showing 12 the helical molecules were Slinkies rather than 13 rods. 14 Q And please tell me about your employment 15 history. 16 A I started as a lab assistant in ICI Nobel 17 Division. What I did there was explosives 18 analyses, ethers, surfactants, and also silicon 19 that I was a silicon synthesis, silicon chemist. 20 And then after, then I did my bachelor's, Ph.D., 21 and then 10 years with Unilever. I was a 22 background scientist in the Unilever lab. My job 23 was to know background scientists guided 24 formulators. 25 Following that, I came to B.F. Goodrich,

9 1 where I eventually headed up the hydrophilic 2 polymers group. But we made hydrophilic polymers 3 for all sorts of applications, including 4 cosmetics, personal care, pharmaceuticals. And my 5 job was to, again, understand where it was fitted 6 and educate customers on -- clients on how to use 7 materials and to invent new materials. 8 Then I transferred to the University of 9 Southern Mississippi and the School of Polymer 10 Science and Engineering. And it was Polymer 11 Science at the time. It's now Polymer Science and 12 Engineering. But I chaired that department for 13 about 20 years and was a faculty member the other 14 times, and then currently I'm professor emeritus 15 in the university. 16 Q Let me go back to your time at Unilever. 17 What sorts of products were you involved with 18 formulating there? 19 A Well, actual formulating was in 20 conditioning shampoos. We were looking at varying 21 conditioning shampoos. My job was actually to be 22 in the background. I provided background 23 information to hair, skin, dental -- hair, skin, 24 and dental people formulating. So what I did was 25 I guided the formulators with the science. That	11 1 on. Most of my work was in hair, but I did go 2 into the other areas as well. 3 Q And by "other areas," what do you mean? 4 A Skin and teeth. Hair, skin, teeth. 5 Products for skin, products for teeth, products 6 for hair. 7 Q And do you have any experience either 8 formulating or providing background information to 9 formulators that specifically relates to 10 deodorants? 11 A Yes, yes, I did some work in Unilever, 12 mainly guiding people a little. But I've 13 consulted in deodorant, yes. Indeed, yes. 14 Q What time period was this? 15 A Oh, in Unilever, this was the '70s. My 16 consultation -- well, when I worked for Goodrich, 17 I was guiding people on how to use polymers. But 18 my consultation in sticks started in the '90s and 19 in deodorants in general, that's when I worked 20 with companies and consulting. 21 Q Okay. And what kind of consulting 22 services did you provide with respect to 23 deodorants? 24 MS. JEFFRIES: And, Dr. Lochhead, I'd at 25 this point caution you to not reveal any
10 1 was my job. That was basic -- I did basic 2 science. 3 Q Okay. So what kind of background 4 information would you provide? 5 A Oh, well, take conditioning shampoos, for 6 example. I would explain to them -- in those 7 days, we didn't really know how they work. I 8 figured out the mechanism and taught the 9 formulators how they worked and, therefore, what 10 they could do and what they couldn't do. 11 In hairsprays, I figured out the 12 properties of the polymers, how to use the 13 polymers, how to measure, how to test the 14 polymers, how to put them into your formulation, 15 how to specify what you need. And I did lots in 16 polymers. 17 Then I moved to Colloid and Surface 18 Science. In Colloid and Surface Science, we 19 covered not just polymers but advised the people 20 in skin and dental as well on things like hardness 21 for toothpastes, for example, and then how to 22 measure, how to incorporate what to do, what 23 problems they might run into. 24 But basically that was -- my gamut was I 25 was called in to see which other area was going	12 1 confidential information of your consulting that 2 you may have done. Of course you can answer and 3 speak generally at a high level. I just want to 4 make sure you don't breach any confidentiality 5 agreements. 6 A I can't remember the detail because the 7 kind of things that we did in my consulting was 8 mainly to help my students and get my students 9 involved with these companies, to get my students 10 internships in these companies and, as part of 11 that, I did consulting. I can't remember the 12 detail of deodorants and antiperspirants, but 13 yeah, I did some deodorant and antiperspirant 14 consulting. 15 Q And do you recall generally the nature of 16 the services you provided? 17 MS. JEFFRIES: Objection. Asked and 18 answered. 19 A Services, well, I think the services, I 20 said were -- I was more interested in getting the 21 companies to be interested in my students, and so 22 I provided -- and as a result, they usually come 23 in and ask me to consult, and I consulted for many 24 companies across the board. They'd ask me before 25 we started projects, for example, that's how we'd

13 1 get into projects. They'd come to me with 2 problems and of any work done. We actually did 3 work in my lab in the university, and that was the 4 kind of consulting. I don't know if that answers 5 your question, but that's the kind of consulting I 6 did. 7 Q What kind of question would a company -- 8 you don't have to reveal the company's name. But 9 what kind of question would a company come to you 10 that relates to deodorants and seek your expertise 11 in? 12 A Oh, I can't remember off the top of my 13 head here. But mainly how to put things together 14 and how to measure properties. That was what we 15 did. 16 Q Do you recall generally when the last time 17 you consulted regarding a deodorant was, like, 18 what the general time period was? 19 A Oh, gosh. 20 MS. JEFFRIES: That's vague. 21 A I don't know. I could have consulted on 22 the basic science all the way through. For a 23 natural deodorant -- remember when the companies 24 consulted with me, we were looking at broad 25 science that was mainly to specify what became	15 1 the right particles for sprays. Looking at 2 sticks, how to measure sticks, how to formulate 3 sticks, what the composition -- what the structure 4 property relationships would be in things like 5 sticks. 6 Q And what type of sticks are you referring 7 to? 8 A All kind. Lipsticks, deodorants. All 9 kinds of sticks. And all kinds of technologies 10 that are behind sticks. 11 Q So is the technology that's behind sticks 12 generally applicable to deodorants? 13 MS. JEFFRIES: Objection. Vague. 14 Mischaracterizes testimony. Misstates. 15 A There are many different stick 16 technologies. And some of them are common 17 technologies or common understanding. But, of 18 course, you have to modify the properties of the 19 product for the application that you're using. So 20 you just can't take a stick from one area and pop 21 it into another or one technology and pop it 22 general. So I think that was the question you 23 asked. 24 Q And can you identify any specific 25 deodorant stick that you worked on formulating?
14 1 more specific. I would think somewhere between 2 the '90s and -- 1990s and the 2000s is when I 3 probably consulted in that area. 4 Q Okay. So fair to say it's been about 5 20 years since you consulted with respect to a 6 deodorant? 7 MS. JEFFRIES: Objection. 8 Mischaracterizes testimony. 9 A Actively consulted, perhaps 10 years ago. 10 I've been involved in the industry and reading and 11 understanding and guiding people up until, well, 12 very recently. 13 Q Now, you have a number of publications 14 that you've authored, right? 15 A Yes. 16 Q Have you published on deodorants? 17 MS. JEFFRIES: Objection. Vague. 18 A I don't think I've published on deodorants 19 per se, but I've certainly published on the 20 science that is behind deodorants. 21 Q And what would that science be? 22 A Well -- 23 MS. JEFFRIES: Objection. Vague. 24 A -- rheology. Looking at sprays, looking 25 at particles -- where the particles -- to design	16 1 MS. JEFFRIES: And, Dr. Lochhead, I'll 2 just give you that same instruction, not to reveal 3 any confidential information. 4 A Again, could you repeat your question, 5 please? 6 Q Sure. Can you identify any specific 7 deodorant stick that you worked on formulating? 8 MS. JEFFRIES: Objection. Or instruction. 9 A As I said, I didn't work on specific 10 products. Some of them became specific products. 11 But my job was to -- or not my job, my role was to 12 tell the people the basics, how to put things 13 together, what would work and what wouldn't work. 14 Some of them, I think you're saying could I 15 identify particular products. I could point to 16 things I think became products, but I can't be 17 sure that the actual technology was used in that 18 particular product. I know it was used in many 19 products. 20 Q Can you identify something that you worked 21 on that you think became a deodorant stick? 22 MS. JEFFRIES: Again, same objection not 23 to reveal confidential information. 24 A That I worked on, well, I'll give you an 25 example, I did work with the Bianchi team a while

17 1 ago, and I did some work with them. I did work 2 generally with the whole company, so I can't 3 remember the detail. 4 Q Did you work with the Bianchi team on a 5 deodorant stick? 6 MS. JEFFRIES: Same instruction not to 7 reveal confidential information. If you can 8 answer without doing that, you may. 9 A I worked on the basic science that may 10 have become deodorant. 11 Q You have -- 12 A I'm sorry. Antiperspirant. 13 Antiperspirant in the case of Bianchi. 14 Q You have some patents on which you're 15 named as an inventor, right? 16 A Yes. 17 Q Do any of those relate to deodorants? 18 MS. JEFFRIES: Objection. Vague. 19 A Not that I'm aware, no. 20 Q You're listed as the editor of some books, 21 correct? 22 A Yes. 23 Q You edited Cosmetic Nanotechnology, 24 Polymeric Delivery of Therapeutics, and Cosmetic 25 Science and Technology, right?	19 1 Before we do, I just want to close out 2 something on your background. You've done some 3 work for Procter & Gamble, right? 4 A Yes. 5 MS. JEFFRIES: Objection. 6 A Yes, I've done some work for Procter & 7 Gamble. 8 Q And can you tell me about that consulting 9 work? 10 A Again, the consulting that I did for 11 Procter & Gamble is the same as the consulting I 12 did generally. It was mainly looking at -- I was 13 trying to place my students in -- Procter & 14 Gamble, Johnson & Johnson, SC Johnson, L'Oreal, 15 they take my interns, and we did research for them 16 at the university. So consulting was mainly in 17 association with that kind of activity. And so it 18 was mainly directed towards guiding them in the 19 science but also placing my students as interns 20 and placing my students eventually as employees. 21 Q Did the consulting relate to any 22 particular product? 23 MS. JEFFRIES: Objection. 24 A Sorry. Across the board. We consulted 25 generally in all sorts of areas.
18 1 A Yes. 2 Q What did you do in your role as editor of 3 those books? 4 MS. JEFFRIES: Objection. Compound. 5 Vague. 6 A As editor, I identified -- first of all, 7 identified what content you want in the book and 8 then identify people who had expertise in that 9 area and who were willing to write in that area. 10 And then as editor, I then brought the book 11 together and basically guided the writers down to 12 edited the writing and then put the -- brought the 13 chapters together in the right order and worked 14 with the publisher and published the book. 15 (Deposition Exhibit Number 1 marked 16 for identification.) 17 Q I dropped into the chat what we'll call 18 Exhibit 1. It's U.S. Patent No. 10,966,915. 19 Do you have that? 20 A Yes. And I think I'm just going to work 21 with the paper because I just dropped something 22 from the chat and I think it cut everyone off a 23 moment ago. 24 Q Yeah, that's fine. You can look at your 25 paper copies.	20 1 Q What general areas would you consult in 2 for Procter & Gamble? 3 A Same as I consulted for the other 4 companies, things like skin products, hair 5 products, oral products, the basic science 6 pertaining to oral products, sprays. Basically 7 cosmetics and some pharmaceuticals in general, we 8 did. 9 Q And what time period did this consulting 10 for Procter & Gamble take place? 11 A Oh, in that instance of my students from 12 1990 until last June -- maybe 5 years ago, 13 10 years ago. About 10 years ago I stopped 14 actively consulting with all the companies. 15 Q Do you recall generally how much you 16 earned from your consulting work with Procter & 17 Gamble? 18 A It's actually listed on my CV. The 19 earning was mainly to support my research, and I 20 think about, I don't know, 250,000, 300,000 in 21 total. But that was research funds. I mean, 22 that's mainly what they gave me was research 23 funds. 24 Q And what research did you do with the 25 funds that you got from Procter & Gamble?

21 1 A I think it's listed on my CV. I can't 2 remember off the top of my head. But the projects 3 are actually listed on my CV. 4 Q Okay. You've also testified on behalf of 5 Procter & Gamble in the past? 6 A Yes, I did once. I testified -- I don't 7 know if "testified on behalf of." I was an expert 8 in a case between Procter & Gamble and Unilever, 9 but as an expert, I suppose, I don't take sides. 10 Q Fair enough. Do you recall the -- what 11 that case was about? 12 A Yes. It was about conditioning shampoos. 13 Two-in-one shampoos. 14 Q Yeah. Did you review the final decision 15 in that case? 16 A I heard about the final decision. I 17 didn't review it. 18 Q And what was the decision? 19 A I know that Unilever -- it was an IPR. 20 And as far as I'm aware, Unilever won the IPR. 21 Q Now, let's turn back to Exhibit 1. Let me 22 know when you've got your paper copy. 23 A Got it. 24 Q Okay. So you recognize Exhibit 1 to be 25 U.S. Patent No. 10,966,915, right?	23 1 claim is written in the context of the patent, and 2 so that's -- I don't know what you mean if there's 3 something that's missing from that. That's a 4 hypothetical question, I think. 5 Q Well, you're an expert. So in the context 6 of this patent, the claim recites three 7 ingredients, right? 8 MS. JEFFRIES: Objection. Vague. 9 A Claim 1 says a liquid triglyceride, an 10 antimicrobial, and a primary structurant. That's 11 the requirement of claim 1 and it has to be free 12 of aluminum salt. 13 Q My question is: There's a stick with at 14 least 25 percent liquid triglyceride, at least one 15 antimicrobial, and a primary structurant with a 16 melting point at least 50 degrees C. 17 Is that stick a deodorant? 18 A Yes. It says it's a deodorant, yes. It 19 specifies a deodorant stick. 20 Q Now, if the claim didn't say deodorant, if 21 a stick had at least 25 percent liquid 22 triglyceride, an antimicrobial, and a primary 23 structurant, would that stick be a deodorant? 24 MS. JEFFRIES: Objection. Incomplete 25 hypothetical. Misleading. Mischaracterizing the
22 1 A I do. 2 Q We can call that the '915 patent, right? 3 Is that okay? 4 A Okay. 5 Q So I'm going to direct your attention to 6 the claims, which are at the end of this patent. 7 Let me know when you're there. Last page. 8 A I'm there. 9 Q Okay. So please take a look at claim 1. 10 And you see it recites a deodorant stick 11 comprising (a), (b), and (c), and (a), (b), and 12 (c) each list one of the ingredients of the 13 deodorant, right? 14 A Yes. 15 Q So (a) is at least 25 percent liquid 16 triglyceride; (b) is at least one antimicrobial; 17 and (c) is a primary structurant with a melting 18 point of at least about 50 degrees Celsius. 19 Right? 20 A That's right, yes. 21 Q Now, is there any ingredient missing from 22 that list to be necessary for a stick to be 23 considered a deodorant? 24 MS. JEFFRIES: Objection. Vague. 25 A I don't understand your question. The	24 1 record. 2 A Well, the claim doesn't just sit there by 3 itself. You see the claim in the context of the 4 patent, and so -- or the claim or the written 5 description. So to understand the claim, I would 6 go to the written description to see what it 7 described. And that's why you figure out what it 8 applies to. 9 Q So if we set the claim aside and I have a 10 stick with at least 25 percent liquid 11 triglyceride, an antimicrobial, and a structurant, 12 it's in a stick, would that stick be considered a 13 deodorant? 14 MS. JEFFRIES: Objection. Incomplete 15 hypothetical. Irrelevant. Misleading. 16 A It may or may not be. 17 Q And what would determine whether it is or 18 is not? 19 A When I look at -- are you talking about 20 the claim, or are you talking about a stick in 21 general? 22 Q Just a stick in general. 23 MS. JEFFRIES: Objection. Incomplete 24 hypothetical and vague. 25 A Can you ask me the question again? I'm

25 1 sorry. I've forgotten what the question is. 2 Q A stick has at least 25 percent liquid 3 triglyceride, at least one antimicrobial, and a 4 structurant, it's in a stick, would that stick be 5 considered a deodorant? 6 MS. JEFFRIES: Objection. Incomplete 7 hypothetical and vague. 8 A It may or may not be. It depends on the 9 properties that that stick has, and so it may or 10 may not be considered a deodorant. 11 Q And what properties would the stick have 12 to have to be considered a deodorant? 13 MS. JEFFRIES: Same objections. 14 Incomplete hypothetical and vague. Misleading. 15 A A lot of properties. Is this in the 16 context of the patent, or is this -- sorry. I'm 17 asking you questions. 18 Q Just answer both ways if they're 19 different. 20 MS. JEFFRIES: Objection. Same 21 objections. Incomplete hypothetical. Misleading 22 and vague. 23 MR. CALABRO: Andrea, Andrea, one-word 24 objections. "Vague" is not a proper objection. 25 MS. JEFFRIES: It is.	27 1 deodorant. You said it may or may not be 2 depending on the properties. 3 My question was: What properties would a 4 stick have to have to be considered a deodorant? 5 MS. JEFFRIES: Same objections. 6 A In the context of this patent, yes, it 7 would be considered a deodorant. And I think the 8 patent, if you look at the context of the patent, 9 it describes the properties. 10 Q Okay. Now let's go to claim 15 in the 11 '915 patent. Claim 15 has one of the properties, 12 right? 13 A Yes. 14 MS. JEFFRIES: Objection. 15 Mischaracterizes. 16 Q And it says: The deodorant stick of 17 claim 1 wherein said stick has a hardness from 18 about 80 decimillimeters to about 140 19 decimillimeters measured by penetration with an 20 ASTM D1321 needle, right? 21 A Can you tell me the units you're using? 22 Q Maybe you can tell me the units if I got 23 them wrong. What units are recited in claim 15? 24 A Well, the patent tells you what the units 25 are. If you'd give me a minute, I'd like to be
26 1 MR. CALABRO: No, Andrea, the Trial 2 Practice Guide, page 128, examples of improper 3 objections, "objection, vague." You can't coach 4 the witness. You're limited to one word, so you 5 have to stop, all right. 6 MS. JEFFRIES: Thank you for the lesson. 7 I'll continue to defend the deposition. If you're 8 asking poor questions and you're trying to trick a 9 witness, then that's an inappropriate comment -- 10 MR. CALABRO: Andrea, Andrea -- 11 MS. JEFFRIES: -- so if you want to have a 12 conversation, we can do it on the record, we can 13 do it off the record, however you want. 14 MR. CALABRO: Stop talking. You can 15 object with one word. 16 MS. JEFFRIES: I'm allowed to speak. I 17 don't know where you're going with this. Why 18 don't we proceed to take a deposition and not 19 waste time on this stuff. 20 Q Dr. Lochhead, do you need the question 21 read back to you? 22 A Yes, please. 23 Q I asked if a stick with at least 24 25 percent liquid triglyceride, an antimicrobial, 25 and a primary structurant would be considered a	28 1 accurate. I'd like to look at where it tells you. 2 If you go to column 13, it says: To 3 report the results of penetration are 10ths of a 4 millimeter. 1/10th of a millimeter equals 100 5 microns. For example, 80 units is 80 millimeters 6 times 10, so that's reported in 10ths, 7 8 millimeters. Your penetration would be 8 8 millimeters, the specification would be -- of 9 the claim would be 8 millimeters to 10 14 millimeters, I'll do it that way. 11 Q Now, if we look back at claim 1, would all 12 deodorants with the three ingredients listed in 13 (a), (b), and (c), fall within the hardness range 14 of claim 15? 15 MS. JEFFRIES: Objection. Vague. 16 A Could you say the question again? I want 17 to get it right in my mind. Sorry. Would all -- 18 Q Would all deodorants with the three 19 ingredients listed in (a), (b), and (c) in claim 1 20 fall within the hardness range of claim 15? 21 A Yes, because claim 1 is written in the 22 context of the patent. The patent teaches you 23 what's required, and the patent actually -- if you 24 look at the patent, one of the requirements of the 25 patent is that deodorants have that hardness. So

29 1 if you read the patent in total, you find that 2 sticks that they talk about have that -- fall 3 within that hardness range. 4 Q Could there be a stick that had at least 5 25 percent liquid triglyceride, at least one 6 antimicrobial, and a primary structurant with a 7 melting point of at least 50 degrees C that did 8 not fall within the hardness range of claim 15? 9 MS. JEFFRIES: Objection. Incomplete 10 hypothetical. 11 A In the context of this patent, no. 12 Outside the context of this patent, it's possible. 13 Q So how would one skilled in the art have 14 gone about formulating a deodorant with these 15 three ingredients to meet the desired hardness? 16 A Well, the patent actually tells you. It 17 gets into -- the patent has pretty precise 18 instructions on how to make the stick, and so 19 that's -- a person trying to make the stick with 20 this hardness would follow the instructions in the 21 patent. 22 Q And what does the patent tell someone 23 skilled in the art about how to make a deodorant 24 that has the desired hardness? 25 MS. JEFFRIES: Objection. Calls for a	31 1 have the claimed hardness? 2 MS. JEFFRIES: Objection. Incomplete 3 hypothetical. 4 A Well, all sticks made by that process, you 5 have -- all sticks, that's a huge composition 6 range you've given me. But no, they specify a 7 particular process for the stick that they are 8 making. 9 Q So how would one skilled in the art go 10 about selecting the ingredients and the amounts of 11 ingredients to achieve the desired hardness? 12 A Well, if one -- 13 MS. JEFFRIES: Objection. Overly broad 14 and vague. Answer, if you can. 15 A One skilled in the art would read the 16 patent and it would -- they'd follow the 17 directions in the patent, and they would also have 18 enough skill to make a material. One skilled in 19 the art would know how to make these things. But 20 with the instructions in the patent, they could 21 follow the patent and make it. 22 Q How would a POSA have -- by "POSA," I'm 23 referring to a person of ordinary skill in the 24 art? 25 A I know.
30 1 narrative. 2 A I think the patent -- the patent defines 3 the ingredients pretty well and then actually does 4 lay out the procedure for making the -- making the 5 stick in the case of a deodorant stick. 6 Q Are you done answering, or are you going 7 to point me to something? 8 A You can ask me another question. 9 Q Sure. So what specifically does the 10 patent tell someone skilled in the art to do to 11 make a deodorant with the desired hardness? 12 A Well, for example, starting at column 10 13 is the method of making, and what it says is that 14 you take the different materials and you put them 15 together, and it specifies that you have to be 16 very careful that you don't get water or 17 adventitious water in the material that says Y. 18 So you have to have an open tank, an open mixer, 19 or a vented mixer to get rid of any water vapor. 20 You then melt the components together and 21 you -- once the components are melted together, it 22 then instructs you how to mold it, the material 23 into a stick on columns 10 and 11. And then it 24 goes on to tell you how to test the stick. 25 Q And will all sticks made by that process	32 1 Q So how would a POSA have gone about 2 selecting a structurant to achieve the desired 3 hardness? 4 A That actually tells you. There's a whole 5 section on structurants. And on columns 3 and 4 6 into 5 and even into 6, there's -- there's a 7 section on how to choose a structurant. Do you 8 want me to read it or ... 9 Q No, that's not necessary. 10 So let's say a POSA picked one of those 11 structurants. How would the POSA then vary the 12 amount of that structurant and to achieve the 13 desired hardness? 14 MS. JEFFRIES: Objection. Vague. 15 Incomplete hypothetical. 16 A Well, a person of ordinary skill in the 17 art would roughly know the limits of when to use a 18 structurant, how to use a structurant. And in 19 this case, they'd be guided, for example, by the 20 example in Table 1, which shows you the kind of 21 range of structurant that you can have, the types 22 of structurant you can have. And that would guide 23 a person how to use it. 24 The other thing is, of course it does -- 25 they do tell you in the patent in the section I've

33 1 just explained to you, they give these percentage 2 ranges that you can use for the structurant. 3 Q Now, so let's go to Table 1 that you 4 pointed to. And that lists a couple of 5 comparative formulas, right? 6 A Yes. 7 Q And the patent -- by the way, do you know 8 what those comparative formulas were? 9 A No, I don't. 10 MS. JEFFRIES: Objection. Vague. 11 Q Did you see Dr. Michniak-Kohn matched up 12 nine of the ingredients with the Native prior art 13 label? 14 A Yes, but the label is just a list of 15 ingredients. It doesn't tell you how to -- the 16 absolute concentrations are what they are. Yes, 17 speculation is it could be the Native product, but 18 that's all I've seen that says it could be Native. 19 You could speculate it's Native, but you need to 20 know more information. 21 Q And you understand Native is a P&G 22 product, right? 23 A Yes. 24 MS. JEFFRIES: Objection. Vague. And 25 misstates the factual record.	35 1 50 degrees C to provide stable structure to the 2 stick. 3 Is that accurate? 4 A I think it is, yeah. 5 Q And if you look at the top of column 3, it 6 says: In order to provide structure to the 7 deodorant stick composition, the formulation may 8 also include a number of waxes and other 9 structurants. However, the structurants used may 10 lead to deodorant sticks that are very hard. For 11 example, a currently marketed product, comparative 12 formula 1 below, has 34.15 percent liquid 13 triglyceride along with a number of structurants 14 resulting in a very hard stick, scoring 63 on a 15 needle penetration test under ASTM D1321 as 16 described herein. 17 And then it continues: Comparative 18 formula 2 contains even higher levels of 19 structurants resulting in a harder stick with a 20 lower hardness score. 21 Do you see that? 22 A Yes. 23 Q And so here, the inventors are saying that 24 it's the high levels of structurants that 25 contributed to the overly hard structure of the
34 1 Q Did you ask P&G if these comparative 2 formulas were Native? 3 A No. 4 Q Okay. So if we look at comparative 5 formulas 1 and 2, they're reported to be too hard, 6 right? 7 A Yes. 8 Q And so what adjustments were made to make 9 them less hard? 10 MS. JEFFRIES: Objection. Incomplete 11 hypothetical. Assumes. 12 A I think that's what the patent explains, 13 that they adjusted the composition to get the 14 hardness just right. 15 Q And what -- specifically what ingredients 16 did they adjust? 17 A Well, of course the principal ingredients 18 would be the structurant and the liquid. But all 19 of the ingredients would have had an effect on the 20 hardness. As you add other ingredients, it would 21 also have an effect on the hardness. 22 Q If you look right under Table 1, in column 23 3, it says: It is known that to formulate a solid 24 antipersperant or deodorant stick, the 25 structurants generally have a melting point above	36 1 comparative formulas, right? 2 A No. What they're saying is they know it's 3 a high level of structurant. As I explain in my 4 report, this is not just a case of putting things 5 together, arithmetically calculating things. 6 These structures that you get, wax structures 7 are -- basically what you have is wax crystals 8 that are flocculated, and it depends on the size 9 and shape and the right crystals and how they 10 flocculate. And they have to be put together so 11 you get -- that's what determines not just the 12 hardness or all the other properties of the stick 13 that make a useful product, so it's important to 14 get not just the structurants but the whole 15 formulation just right because anything in that 16 formulation could knock it off and change that 17 crystal structure. But someone skilled in the art 18 would, with the proper instructions, could 19 actually reproduce that structure. 20 Q Okay. But that's knowledge that you 21 brought to this patent as someone skilled in the 22 art, correct? 23 A No, it's knowledge that I would expect 24 someone skilled in the art -- remember, I teach 25 all levels, and this is kind of some of the stuff

37 1 I teach, that I'd expect someone skilled in the 2 art to be able to do that. 3 Q Now, if you turn back to claim 1 at the 4 end of the patent, would a deodorant stick with 5 the three ingredients, at least 25 percent liquid 6 triglyceride, at least one antimicrobial, and a 7 primary structurant with a melting point of at 8 least 50 degrees C, would that deodorant be 9 stable? 10 MS. JEFFRIES: Objection. Vague. 11 A It -- 12 MS. JEFFRIES: Incomplete hypothetical. 13 A If you followed the instructions in the 14 patent, you could make a stable stick. But of 15 course -- yeah, if you followed the instructions, 16 a person of ordinary skill in the art would know a 17 stick was stable. 18 Q How would the person of ordinary skill in 19 the art know that? 20 A By looking at it. By putting the thing 21 together and saying, yeah, does it -- is it 22 exuding liquid, for example. Is it separating in 23 some way. They would know that. That's part of 24 what a person of ordinary skill in the art would 25 do. They'd use this to put together the stick	39 1 right? 2 A Well, claim 1 doesn't stand alone. I've 3 said before, you have to read it in the context of 4 the patent. And the context of the patent says, 5 for example, if you -- if you don't follow the 6 instructions and you add some water, you don't 7 take all the water out. That's what it tells you. 8 You could make an unstable stick just because you 9 haven't taken all the water out. So you have to 10 follow what -- the instructions in the patent, and 11 then you'll know whether you've got a stable stick 12 or not. 13 Q Would all deodorants made according to the 14 instructions in the patent be stable? 15 MS. JEFFRIES: And asked and answered. 16 Incomplete hypothetical. 17 A Not necessarily. The patent describes how 18 to make a stable stick. But a POSA would know 19 when the stick was stable and when the stick is 20 unstable. That's what you expect from a POSA. 21 Q So a stick made with the ingredients in 22 claim 1, according to the patent, might be stable 23 or unstable, correct? 24 MS. JEFFRIES: Objection. 25 Mischaracterizes testimony.
38 1 and, as they put it together, they'd know whether 2 it was stable or not. 3 Q And then let's say they saw it was not 4 stable, how would a person of ordinary skill in 5 the art have gone about making it stable? 6 MS. JEFFRIES: Objection. Incomplete 7 hypothetical. 8 A A person of ordinary skill in the art 9 would follow the instructions in the patent and 10 adjust the formula as necessary. 11 Q Well, what does the patent tell the person 12 of ordinary skill in the art to do to make it 13 stable? 14 MS. JEFFRIES: Objection. Incomplete 15 hypothetical. 16 A The patent actually lays out how to make a 17 stick. And it lays out the ingredients in the 18 stick. It lays out how to select the ingredients, 19 how to put them together. And a person of skill 20 in the art with that information would know how to 21 make a stick and know how to know -- and know when 22 it was stable. 23 Q So just to be clear, though, claim 1 with 24 those three ingredients might -- that deodorant 25 stick might be stable or it might be unstable,	40 1 A No, I think if you follow the instructions 2 of the patent, you make a stable stick. But like 3 everything else, there might be some case where 4 you could make a stick that bled, for example. 5 Q Well, what in the patent specifically 6 guarantees that the stick would be stable, in your 7 view? 8 A List of ingredients, a POSA would know 9 which ingredients -- it tells which ingredients to 10 use. It tells you how much to use. It tells you 11 how to use them and how to make and use them, and 12 you follow the instructions. And -- well, if they 13 didn't make a stable stick, it wouldn't be a 14 patent. So it tells you how to make a stable 15 stick. But if the stick was unstable, a POSA 16 would recognize that that stick was unstable. And 17 that's what I'm saying. 18 Q And would a POSA be able to -- 19 A Let me, these structures, remember, are 20 flocculated structures. They're loose structures. 21 And what you do is you get a loose flocculated 22 structure that traps a liquid and metastases. And 23 sometimes slight changes can actually give you an 24 unstable stick. 25 But what this patent tells one is how to

41 1 make a stick, and a POSA would know when it was 2 stable and when it was unstable. And, you know, 3 it tells you how to make a stable stick. 4 Q And did you do any testing to see whether 5 the sticks made according to this process were 6 stable? 7 A No. 8 Q And is there any stability testing 9 disclosed in this patent? 10 A No. Not that I know of. 11 Q Okay. And you're concluding based on the 12 absence -- without any stability testing 13 whatsoever, without doing any testing of your own, 14 and without reviewing any reported testing, you're 15 concluding that all sticks made according to this 16 patent are stable? 17 MS. JEFFRIES: Objection. 18 Mischaracterizes testimony. 19 A No, I'm not making that assumption. I'm 20 telling you that the patent tells you how to make 21 a stable stick. And if something was -- if you 22 modified the formula or are putting it -- I think 23 what you're asking was, how would you know whether 24 it's unstable or not. A POSA would see the 25 instability. But what this does is it teaches you	43 1 the witness not to answer anything that would 2 reveal any attorney work product or confidential 3 information. You can answer generally. 4 A Yeah, that's what I did. We talked 5 niceties and pleasantries, and that's about it. 6 Q Did you discuss anything about the 7 substance of your testimony? 8 A No. 9 Q I want to circle back to our last 10 exchange. The question was: Where does it say 11 that the stick will be stable? The answer was: 12 Well, it says deodorant stick, gives you a 13 hardness range, and the hardness range then tells 14 you that you made the stick with that hardness. 15 So is it the case that a stick with a 16 given hardness is stable? 17 MS. JEFFRIES: Objection. 18 Mischaracterizes testimony. 19 A You wouldn't normally go to a hardness 20 test unless the stick was completely stable, and 21 the instructions tell you to hold the material for 22 24 hours, at least 24 hours, and then do the 23 hardness test. But I think a POSA would know when 24 it's a stable stick. 25 Q And let's turn back, please, to Table 1 in
42 1 how to make a stable stick. It says if you follow 2 these instructions, you can make a stable stick. 3 Q And where does it say that the stick will 4 be stable? 5 A Well, it says a deodorant stick, and it 6 gives you a hardness range. And the hardness 7 range then tells you that you made a stick with 8 that hardness. 9 MS. JEFFRIES: So, Josh, we've been going 10 a bit over an hour. When convenient, can we take 11 a short break? 12 MR. CALABRO: Yeah, I'm fine taking a 13 break now. How long do you want or how long do 14 you want, Dr. Lochhead. 15 MS. JEFFRIES: I would say maybe 16 10 minutes maybe just to use the restroom, if 17 that's okay. 18 MR. CALABRO: That's fine. Let's go off 19 the record. 20 (A short break was taken.) 21 Q Welcome back, Dr. Lochhead. Did you 22 discuss anything on the break? 23 A Did I discuss anything? Yeah, yeah. 24 Q What did you discuss and with whom? 25 MS. JEFFRIES: Object to that and instruct	44 1 the '915 patent that we've marked as Exhibit 1. 2 It's in column 3. And you see the comparative 3 formulas there, right, Dr. Lochhead? 4 A Yes. 5 Q Now, are those complete deodorant sticks? 6 A Well, the patent says that they're 7 complete deodorant sticks, yes. 8 Q Okay. But the patent says there were 9 issues with these sticks; they were too hard, 10 right? 11 A Yes. The comparative formula 1 and 12 comparative formula 2 were too hard. They were 13 complete deodorant sticks, but they were too hard. 14 They didn't meet the hardness requirement that the 15 patent -- the patent specifies. 16 Q And so there was a motivation to make them 17 better, to make them less hard, right? 18 A That's correct. 19 Q Do you -- and then if you look, again, 20 still on Table 1, you see the comparative formulas 21 as well as the inventive examples have arrowroot 22 powder, right? 23 A Yes, a comparative example. Inventive 24 formulas 1 through 4 have arrowroot powder, yes. 25 Q And is arrowroot powder a structurant in

45 1 the context of the patent? 2 MS. JEFFRIES: Objection. Incomplete 3 hypothetical. Beyond the scope. 4 A The purpose of adding arrowroot powder is 5 to absorb sweat, absorb water. And the use is a 6 structurant. It's not defined as a structurant. 7 But will it effect the structure? It could. You 8 know, many of the ingredients could affect the 9 structure. 10 Q And turn, please, to column 12 in the '915 11 patent. Line 20, do you see it refers to periodic 12 calibration should confirm, and then it lists 13 certain things that are confirmed through this 14 calibration? 15 A Oh, yeah. Periodic calibration confirm, 16 yeah, that the instruments are clean from dust and 17 grime. 18 Q What does periodic calibration mean? 19 A Well, if you're making measurements, and 20 we do this with all our instruments, they really 21 need to be calibrated to make sure that the 22 measurement you're making is accurate, and some 23 instruments need to be calibrated after every 24 measurement. Some instruments need to be 25 calibrated once a day, twice a day, once a week.	47 1 antimicrobials, pharmaceutical or other topical 2 active, preservatives, surfactants, chelants, and 3 so forth. Examples of other optional materials 4 are described in, and it lists three patents, 5 which descriptions are incorporated herein by 6 reference. 7 Do you see that? 8 A Yes. 9 Q Did you review those patents in connection 10 with your work on this case? 11 A No, I did not. 12 (Deposition Exhibit Number 2 marked 13 for identification.) 14 MR CALABRO: So I'm going to mark as 15 Exhibit 2, U.S. Patent No. 5,019,375, Tanner, et 16 al., that's referenced there. 17 MS. JEFFRIES: So, Dr. Lochhead, you won't 18 have this paper copy. This is not something 19 that's in the record as far as I'm aware. So you 20 will -- if you can, use the chat feature here to 21 see this patent. 22 Q Yeah, let me know if you have any issues 23 downloading it. It should be in the chat on the 24 Zoom? 25 MS. JEFFRIES: I'm not quite sure how
46 1 In my lab, that was normal procedure. 2 That was a very important thing to do is to 3 calibrate the instruments to make sure that they 4 were correct. For example, I ran the first NMR in 5 Scotland, and we had to shim the magnets after -- 6 before and after every measurement. If we were to 7 do that for MRI today, I think it would take -- 8 we'd never be able to get all the MRIs done. But 9 basically what you have to do is calibrate your 10 instruments to make sure they're measuring 11 accurately. 12 Q And then under periodic calibration, it 13 says in the third paragraph: Ensure the total 14 weight of the shaft and needle is 50 plus or minus 15 .2 grams when the shaft is in free-fall? 16 A Yes. 17 Q So why would periodic calibration be used 18 to confirm the weight of the shaft and needle? 19 A Because that's critical to measuring 20 hardness. If you change the weight, you're going 21 to get a wrong reading. 22 Q And if you go up to column 10, please, at 23 the bottom around line 57, and it says: 24 Non-limiting examples of other optional materials 25 include emulsifiers, distributing agents,	48 1 to -- 2 A I've got it, yes. 3 Q If you double click on it, it will open 4 up. 5 MS. JEFFRIES: Hang on. Mine is not 6 opening. Just give me a second. It's somehow 7 only wanting to download. I guess I have to 8 download it. Okay. 9 Q So, Dr. Lochhead, if you just match up the 10 numbers on this patent with the '915 patent 11 description we just looked at, can you confirm 12 that this is the Patent No. 5,019,375 to Tanner, 13 et al., that's mentioned in the '915 patent? 14 A Yes, yes. 15 Q Then you see in the upper left-hand side 16 of the -- I'll call this the '375 patent. The 17 assignee is the Procter & Gamble Company, right? 18 A Yes. 19 Q And this is one of the patents that the 20 '915 patent incorporates for optional materials 21 like antimicrobials that can be incorporated in 22 the '915 patent, right? 23 A Yes. 24 Q If you look at the abstract of the '375 25 patent, it refers to antiperspirant cream

49 1 compositions, right? 2 A It does, yes. 3 Q Halfway down it says: They may be 4 formulated to have relatively high viscosities, 5 include volatile silicone material, a particulate, 6 antiperspirant active, a clay thickening agent, an 7 activator for the clay thickening agent, various 8 other materials. Right? 9 A Yes. 10 Q So, now, the '915 patent relates to 11 natural deodorants, right? 12 A This '915 patent here? 13 Q Yeah, I'm -- 14 A '915 patent? 15 Q I'm switching back and forth. 16 A Sorry. 17 Q The '915 patent, it relates to natural 18 deodorant sticks, right? 19 A Yes. 20 Q So substantially free of silicones in at 21 least in some of the claims? 22 A Substantially free of silicones and free 23 of aluminum, yeah. 24 Q And in formulating those natural 25 deodorants, though, the inventors still looked to	51 1 formulations; and that didn't exclude it from the 2 universe of references that a POSA would look to, 3 correct? 4 A No, a POSA could look at -- a POSA is 5 being guided by in the patent, in the context of 6 the patent, it says you can look here, you can 7 look there. A POSA would know what to look at and 8 what not to look at. 9 Q And I'll direct your attention, please, to 10 column 2 in the '375 patent, around line 2, 2 or 11 3. And the first full paragraph in column 2 12 refers to a patent number, the Nabial issued in 13 1984, and says that patent describes deodorant 14 sticks containing an antiperspirant active. 15 Do you see that? 16 A Yes. 17 Q And what does it mean for a deodorant 18 stick to contain an antiperspirant active? 19 A I opined on this and "contains an 20 antiperspirant active" means it contains an 21 aluminum. 22 (Deposition Exhibit Number 3 marked 23 for identification.) 24 Q I want to drop into the chat, you probably 25 have a hard copy, Exhibit 3, U.S. Patent
50 1 other references like the '375 reference that has 2 silicone material in it, right? 3 MS. JEFFRIES: Objection. 4 Mischaracterizes the document and the record. 5 A I think what it actually says in the '915 6 patent, it says non-limiting examples include 7 emulsifiers, et cetera, et cetera, and so forth. 8 And examples of optional materials that are 9 described in, it doesn't -- that's actually what 10 it says, a non-limiting example. 11 Can you ask your question again, please? 12 Q So the inventors of the '915 patent, in 13 formulating their natural deodorant sticks, they 14 still looked to references that relied on silicone 15 for the formulation? 16 MS. JEFFRIES: Objection. That's 17 mischaracterizing the document and the record. 18 A They allude to other formulations to see 19 how to put other formulations together, and that's 20 what a POSA does. They notice a particular area 21 and they look at other formulations to see how to 22 put them together. And what they use -- they 23 would also know what not to use. 24 Q Right. But one of the references with 25 other formulations had silicone in the	52 1 No. 11,497,706. It's the '706 patent. 2 Let me know when you've got that up, 3 please. 4 A I've got it. 5 Q And you're familiar with this patent, 6 right, Dr. Lochhead? 7 A Yes, I've read it. 8 Q This is the '706 patent that's at issue in 9 one of the IPRs? 10 A Yes. 11 Q And the title of this patent is: 12 Antiperspirant and Deodorant Compositions, right? 13 A That's right. 14 Q And then in column 1, at the top it says: 15 Field of the Invention. It says: The present 16 disclosure relates to antiperspirant and deodorant 17 compositions and methods relating thereto. 18 Do you see that? 19 A Yes. 20 Q And that's an accurate description of the 21 field of this invention, right? 22 A Yes. 23 MS. JEFFRIES: Objection. Vague. 24 Q And then -- 25 A That's what it says. That's what it says

53 1 in column 1, Field of the Invention. 2 Q Then in -- if we stay in column 1, do you 3 see there's a section entitled Background of the 4 Invention, right? 5 A I see that, yes. 6 Q And then I'm going to read some language 7 from that section and ask you if it's out here. 8 So column 1, line 22, while aluminum is highly 9 effective as an active, there is consumer interest 10 in antiperspirants and deodorants that do not 11 contain aluminum. 12 Was that accurate? 13 A There's consumer interest, yes, in 14 antiperspirants -- consumers, some consumers 15 are -- don't like aluminum. They don't want 16 aluminum in their products. 17 Q Then the next sentence says: Consumers 18 are also seeking more natural products, complete 19 with fragrances that are mostly natural or 20 essential oil based. They are further seeking 21 products with lower irritation than they have 22 experienced with baking-soda-based products. 23 Were those sentences accurate? 24 MS. JEFFRIES: Objection. Vague. 25 A That's what the patent tells us. And yes,	55 1 Q And then the last -- and high water 2 solubility powders can also lead to gritty 3 products as the water-soluble powders can 4 agglomerate when exposed to moisture released from 5 powders during the hot batch process. 6 Do you see that? 7 A Yes. 8 Q Was that accurate? 9 A Well, that's what this patent tells us. 10 And it actually tells us again in the part that 11 was just looked at how to make it to avoid water, 12 you'll get gritty products. 13 Q Okay. Now we're going to jump ahead to 14 column 10 of the '706 patent. That will be marked 15 as Exhibit 3. 16 A Okay. I'm there. 17 Q So line 31, it says: The present 18 invention may include one or more antimicrobial 19 compositions, and then it lists a number of 20 antimicrobials. 21 Do you see that? 22 A Yes. 23 Q And then in the next paragraph, it says: 24 In general, the total amount of antimicrobial used 25 in the present invention may be from .1 percent to
54 1 I've seen -- generally I've seen people who have 2 said those things. I've seen references to people 3 who are seeking product with lower irritation. 4 And, yeah, I've seen that. 5 Q Okay. And then if we go to line 33, still 6 in column 1, it says: And products formulated 7 with baking soda, which has a relatively high pH 8 and high water solubility, can increase 9 irritation, even for consumers with moderate sweat 10 rates. Highly water soluble alkaline powders 11 contribute negatively toward natural or essential 12 oil stability as well, especially in a hot process 13 needed to melt waxes. 14 Was that accurate? 15 A Can we take this one at a time? 16 Q Sure. Yeah. 17 A Products formulated with baking soda with 18 a relatively high pH can increase irritation, yes, 19 I've seen reference to baking soda increasing 20 irritation. 21 Highly water soluble alkaline powders 22 contribute negatively towards natural essential 23 oil stability, that's also correct. They can 24 interact with the essential oils and react with 25 the essential oils over time.	56 1 about 30 percent by weight of the deodorant. 2 Do you see that? 3 A Yes. 4 Q Is that accurate and consistent with your 5 understanding of these inventions? 6 A Yes, I've seen that. But generally, for 7 deodorants, it would be a much lower 8 concentration. 9 Q Well, why would P&G say up to about 10 30 percent? 11 A I don't know. 12 Q And then it says specifically around 13 line 50, 49: Others could be as high as about 14 25 percent, such as if using magnesium hydroxide. 15 Do you see that? 16 A Yes. 17 Q And is that accurate? 18 A Well, they're telling you that in the 19 patent, you could use up to 25 percent. To my 20 knowledge, up to my experience, generally much 21 lower levels of these kind of activities are used 22 in deodorants. 23 Q Well, why was P&G saying you can use up to 24 25 percent? 25 A I don't know.

57 1 Q Do you think they made a mistake? 2 A I don't know. I don't think they made a 3 mistake, but I don't know why they put in those 4 concentration ranges. 5 Q And you see in the list of antimicrobials, 6 line 35, for example, has magnesium hydroxide and 7 line 40 has baking soda and line 34 has zinc 8 carbonate. 9 Do you see those three? 10 A Zinc carbonate, baking soda ... 11 Q And magnesium hydroxide -- 12 A Partially carbonated magnesium hydroxide. 13 Is that what you're talking about in line 40? 14 Q Line 35 has magnesium hydroxide. 15 A Okay. I got it, yes. 16 Q Just establishing that you see those three 17 antimicrobials listed. 18 A Yes. 19 Q Okay. 20 A The antimicrobials, zinc carbonate, 21 magnesium hydroxide, and baking soda, right? 22 Q Right. 23 Now let's turn to column 16, please, and 24 line 20. 25 A Okay.	59 1 Q Let's take a closer look at the sentence. 2 It doesn't say you must have aluminum, right? 3 A A POSA would understand that you have to 4 have aluminum. It's not an antiperspirant if it's 5 not aluminum. 6 Q Well, line 45 uses the word "or." It 7 doesn't say "and you must have aluminum." It says 8 the antiperspirant actives may include any of the 9 antimicrobials discussed above or may also include 10 a stringent metallic salt, especially, and it 11 continues to mention aluminum and zinc salts. 12 Right? 13 A And as I said, as a POSA, I would 14 understand aluminum is necessary, it's essential 15 if you're making an antiperspirant. 16 Q Why -- 17 A That's -- in this country, you can't make 18 an antiperspirant if it doesn't contain aluminum 19 or aluminum zirconium because antiperspirants are 20 drugs. 21 Q Why would P&G use the word "or" and say it 22 may include antimicrobials or aluminum? 23 A I don't know. 24 Q Why would P&G say it could include zinc 25 salts?
58 1 Q You see there's a section here with the 2 heading Antiperspirant Active? 3 A Uh-huh. 4 Q Okay. And if we jump down to line 40, it 5 says: The antiperspirant active for use in 6 anhydrous antiperspirant compositions of the 7 present invention may include any compound, 8 composition, or other material having 9 antiperspirant activity. 10 Do you see that? 11 A Yes. 12 Q Okay. And then the next sentence says: 13 More specifically the antiperspirant active may 14 include any of the antimicrobials discussed above 15 or may include a stringent metal salt, especially 16 inorganic and organic salts of aluminums, 17 zirconium, and zinc as well as mixtures thereof. 18 Do you see that? 19 A Yes. 20 Q And is that accurate? 21 A Well, what it's telling you is if you're 22 making an antiperspirant, you need to add 23 stringent aluminum salt or aluminum zirconium 24 complex. You can add other antimicrobials, but 25 you must have aluminum.	60 1 A I don't know. I could guess they're 2 saying you could include it. Of course you can 3 include it. But you have to have aluminum there. 4 And you can add other things. You can include it, 5 and that's what it says. You can include it. You 6 can include lots of things. 7 Q But just to be very clear, the patent does 8 not say you must have aluminum and you may include 9 other things. It says you may include 10 antimicrobials, aluminum salts, or zinc salts, 11 correct? 12 A But a POSA would understand if you're 13 talking about an antiperspirant, it has to have 14 aluminum. 15 Q Well, I understand your position. But I 16 just want to be very clear about what P&G said in 17 its patent, sir, so -- 18 A You know, it's not just what P&G says. 19 It's how does a POSA read it. If I'm a person of 20 ordinary skill in the art, I would understand you 21 have to have aluminum. And what this is telling 22 you is you can include those other antimicrobials, 23 and all it's saying you can include them. And 24 then you can include all sorts of aluminum salts, 25 but we know you have to have aluminum. It's not

61 1 an antiperspirant if it doesn't have aluminum or 2 an aluminum complex. 3 Q But just to be very clear, the patent 4 doesn't expressly say that? 5 MS. JEFFRIES: Objection. Asked and 6 answered. 7 A It doesn't have to because a POSA would 8 understand that. 9 Q Okay. But it's not there, right, in the 10 language of the patent? 11 A It says -- let's read this. It says that 12 these can be included. They may include any of 13 the antimicrobials discussed above. It doesn't 14 say only them. It does say, it says they may 15 include. But a POSA would know to be an 16 antiperspirant, it has to have aluminum, so ... it 17 say "may include." It doesn't say they're the 18 antiperspirant, the only antiperspirant active. 19 Q I want to -- you -- if we jump to the 20 claims of the '706 patent on the last page, are 21 you there? 22 A Yes. 23 Q And you opined on written description 24 support for some of these claims, specifically 25 claims 16 to 23, right?	63 1 because we're going to be going back and forth. 2 A Okay. 3 Q Okay. So we'll start with stearyl 4 alcohol. And in the '647 patent, can you show me 5 where the patent tells a POSA -- gives a POSA a 6 reason to use stearyl alcohol specifically in this 7 claim combination of ingredients? And you can 8 point me to whatever you need to, but I'll direct 9 your attention specifically to claim 16 of the 10 '647 patent. And I'll note that line 9 to 10 11 mentions stearyl alcohol as a non-limiting example 12 of a suitable primary structurant. 13 So the question again is: Where in the 14 '647 patent does it give a POSA a reason to use 15 stearyl alcohol specifically in this combination 16 of ingredients that form the deodorant? 17 MS. JEFFRIES: I'm just going to object as 18 vague. But maybe, Josh, I misunderstood 19 something. You referenced claim 16 of the '647. 20 MR CALABRO: Of the '706. I misspoke. 21 MS. JEFFRIES: Maybe you could -- 22 Q Where in the '647 patent does it provide a 23 POSA a reason to use stearyl alcohol specifically 24 in the combination of ingredients as in claim 16 25 of the '706 patent?
62 1 A I think so. Can I see my report to make 2 sure that -- 3 Q Yeah, refresh yourself with your report. 4 A Yeah, check things here. Okay. Claims 16 5 to 23, yes. I've got one paragraph that says 6 this. 7 Q Okay. So in your view, these claims have 8 adequate support in the priority application, 9 which is -- we refer to as the '647 patent, right? 10 A Yes, that's what I said in the 11 second-to-last page of my -- the third-to-last, 12 page 71, I said it. 13 (Deposition Exhibit Number 4 marked 14 for identification.) 15 Q I put -- you probably have a hard copy, 16 but I put the '647 patent in the chat. We'll mark 17 it as Exhibit 4, and I'd like to discuss the 18 support for these claims in the '647 patent. 19 A '647 patent. I'm trying not to get the 20 documents all mixed up. Okay. I have the '647 21 patent. 22 Q Let's focus on claim 16 in the '706 23 patent -- 24 A '706 patent, okay. 25 Q Yeah, just keep them both in front of you	64 1 A Yes. Again, it says non-limiting examples 2 include stearyl alcohol, beeswax, for example. 3 And earlier on, it described what -- the property 4 of the structurant you're looking for, and then 5 later it tells you how to use them. So basically, 6 yeah, it tells a person of ordinary skill in the 7 art that they could use stearyl alcohol in this 8 invention and use it in the way it's described to 9 get the result that the patent claims. 10 Q But what would the POSA's rationale be for 11 distinguishing stearyl alcohol from the other 12 listed structurants? Like you mentioned beeswax, 13 for example? Why is the POSA going to pick 14 stearyl alcohol over beeswax or any of the others? 15 MS. JEFFRIES: Objection. Incomplete 16 hypothetical and misleading. 17 A Well, what the patent says is you can use 18 these, if you use them the way the patent 19 describes them, and it leads a -- a POSA would 20 understand they could use the stearyl alcohol, if 21 it has the right properties, put it in there. Or 22 beeswax so they've listed -- they've actually 23 directed to what structurant is available. And, 24 of course, if there are other structures that 25 don't appear on this list, they haven't directed

65 1 attention to them. 2 Q So a POSA would understand that beeswax or 3 stearyl alcohol could be -- could both be used and 4 they could be used interchangeably? 5 MS. JEFFRIES: Objection. 6 Mischaracterizes testimony. 7 A No, I don't think they could be used 8 interchangeably. They could both -- they could 9 each be used. They could each be used in the way 10 that's described and to get the desired stick. 11 And what the POSA would do would take -- they've 12 identified that stearyl alcohol as a potential 13 structurant. It's showing you how to use it, and 14 a POSA would put it together and get the expected 15 result. 16 Q And claim 16 of the '706 patent also 17 mentions beeswax, which we've talked about in the 18 context of the '647 patent. And where in the '647 19 patent does it tell a POSA to use stearyl alcohol 20 and beeswax in the same composition? 21 A Well, stearyl alcohol and beeswax are both 22 listed as structurants, and the POSA would have 23 the option of using both of them in a 24 composition -- 25 Q Is there --	67 1 POSA? 2 A No, no. A POSA reading the method of 3 making would know how to -- would understand how 4 to make it. And then you would look and say what 5 structurants can I use, and that's when you would 6 look at the possible structurants you could use, 7 and you would then try those structurants. 8 Q And how would he go about choosing the 9 ones to try? 10 A Well, the patent tells him which ones -- 11 it's got a list of the ones you can try here, and 12 he could choose which ones to try and put it in 13 the method of making. 14 Q Wouldn't it be difficult for a POSA to 15 pick from the list of possible structurants to 16 arrive at a structurant or combination of 17 structurants that's actually going to work? 18 A I don't think it would be difficult 19 because you're told which structurants -- which 20 structures to choose and how to put them together 21 to make it work. 22 Q And by "work," what do you mean? 23 A To make an acceptable deodorant stick. 24 Q And the POSA is going to use his or her 25 own experience to determine the precise amounts of
66 1 A -- individual ones in the composition to 2 get the result. 3 Q Is there any reason the POSA would use 4 both? 5 MS. JEFFRIES: Objection. 6 A The reason is there -- that they're giving 7 here as examples of structurants that could be 8 used and the patent tells them how to use it. 9 Q And where in the patent does it tell them 10 how to use stearyl alcohol and beeswax? 11 A In which patent are you talking about? 12 '706? 13 Q '647. The specification is the same, but 14 '647. Where does it tell the POSA how to use 15 stearyl alcohol and beeswax together? 16 A In column 19 and 20, method of making. 17 Q But these don't relate to the stearyl 18 alcohol and beeswax combination specifically, 19 right? 20 A Yes, they do. They write to primary 21 structurants, and beeswax and stearyl alcohol are 22 listed as primary structurants. 23 Q Well, why doesn't the patent give guidance 24 on which ones to select and how precisely to 25 combine them? Wouldn't that be difficult for a	68 1 the structurants to use, correct? 2 MS. JEFFRIES: Objection. 3 Mischaracterizes testimony. 4 A No, I don't think so. I think the 5 patent -- the '647 actually somewhere tells you 6 that the range of weights of structurant and other 7 things you can use and also gives -- yeah. It 8 also gives an example of, in Table 4, of the types 9 of concentrations that could be used, but it also 10 gives range. 11 Q So let's -- let's go back to the '706 12 patent and look at the ingredient D, magnesium 13 hydroxide, right, in claim 16? 14 A Hang on a second. Just got my papers 15 mixed up. Yes, '706, where are you asking me to 16 go? 17 Q '706, claim 16, do you see ingredient D is 18 magnesium hydroxide? 19 A Yes. 20 Q Okay. And if you flip back to the '647 -- 21 A Okay. 22 Q -- and column 11 near the bottom, there's 23 a section E, antimicrobial activity? 24 A Yes. 25 Q Okay. And I'll read some of this text:

69 1 Table 2 below shows raw material microbial 2 inhibition concentration data tested against two 3 key underarm bacteria strains. As can be seen, 4 the first three listed antimicrobials -- lupamin, 5 hexamidine, and piroctone olamine -- perform 6 particularly well against the bacteria as raw 7 materials. Also performing well as raw materials, 8 and there's a few others, one, two, three, four, 9 five, six, seven others, I'm not going to 10 pronounce them all, and it says: Also performing 11 moderately well against the bacteria as raw 12 materials were magnesium carbonate and magnesium 13 hydroxide and calcium carbonate. 14 Do you see that? 15 A Yes. 16 Q So how does the '647 patent tell a POSA to 17 use magnesium hydroxide specifically as an 18 antimicrobial in the '706 patent, claim 16's 19 combination? 20 MS. JEFFRIES: Objection. 21 Mischaracterizes the record and the law. 22 A Well, it shows -- in the Table 2 23 especially it shows -- first of all, it says what 24 can be used. And then it shows in the table what 25 are effective, which of these are effective	71 1 know of, things like regulation spectra and what 2 they're going to use and what they're not going to 3 use. 4 Q You mentioned formulation considerations. 5 What formulation considerations would a POSA know 6 of that would inform a POSA's decision? 7 A Are these things liquid or solid? How to 8 add them. You're actually given the instructions 9 on how to make the thing, but that's -- normally 10 that's what a POSA would do, you look and say, 11 well, what are the physical characteristics or 12 chemical characteristics. Would you expect to get 13 an interaction between the ingredient, for 14 example. 15 Q And a POSA would know all this? 16 A Yeah, a POSA is making this stuff-- a 17 POSA would understand what to -- they might not 18 know from the top of their head, but they'd know 19 where to find it. They'd know where to look. 20 Q And turn back, please, to the '706, claim 21 16. You see there's sunflower seed oil and jojoba 22 seed oil as the last two ingredients there. 23 A Jojoba seed oil and sunflower seed oil, 24 yes. 25 Q Flip back, please, to the '647 patent,
70 1 against the particular bacteria, the strains that 2 give rise to underarm odor. 3 And the -- so it shows that -- which of 4 these -- basically you could choose any of the 5 ones that are shown. But then there are other 6 considerations that you need to take into 7 consideration. For example, irritation. You know 8 that some of them may -- if you know that some of 9 them may irritate, a POSA would not use them. So 10 if they've got the right antimicrobial activity, 11 that's not a stand-alone thing. A POSA would say, 12 well, I need to take things that are not an 13 irritant as well, for example. 14 Q So what would be the rationale for 15 distinguishing magnesium hydroxide from the other 16 listed antimicrobials, including ones that perform 17 better like piroctone olamine? 18 MS. JEFFRIES: Objection. Asked and 19 answered. Incomplete hypothetical. 20 A Formulation considerations, availability, 21 regulations. These are the kind of things that a 22 POSA would have to take into consideration when 23 they're making these things. The patent tells you 24 these things can be used and how to use them, but 25 there are other requirements that a POSA would	72 1 column 18, and lines -- in column 18, lines 41 to 2 44, this is discussing consumer preferred 3 emollient being liquid triglyceride. It goes on 4 to list a bunch of additional emollients that may 5 be used. And then on line 44, specifically it 6 mentions sunflower seed oil and jojoba seed oil, 7 right? 8 A Yes. 9 Q And what would be the basis, a POSA's 10 basis for choosing those two as opposed to any of 11 the others, say avocado oil, canola oil, or 12 anything else that's listed there? 13 A Differences in cosmetic attributes. So 14 the POSA would say here's the list of emollients I 15 can use, which ones will I use, and what are the 16 cosmetic attributes in choosing that. And then 17 I'd fit it into the formula as expected. I'd be 18 looking for different things. For example, 19 sunflower seed oil oxidizes much more readily than 20 jojoba oil, and that's something you'd have to 21 take into consideration depending on your 22 application. Other cosmetic attributes, you take 23 that into consideration. And a POSA would know 24 what cosmetic attributes they're looking for. 25 Q But to make the combination that's in

73 1 claim 16 of the '706 patent, which has eight or 2 nine different ingredients, wouldn't the POSA need 3 guidance on that specific combination? 4 MS. JEFFRIES: Objection. Vague. 5 Incomplete hypothetical. 6 A The question is to meet that specific 7 formulation? 8 Q Yeah. 9 A If a POSA was given that particular 10 formulation and the instructions on how to make 11 it, they could make that particular formulation. 12 But in looking at the formulations that are 13 possible in the context of the written description 14 of the patent, a POSA would also know to look at 15 the context of the patent and say what other 16 things are available, and the patent would tell 17 them. 18 Q And would different POSAs get to different 19 combinations of ingredients in different 20 concentrations? 21 MS. JEFFRIES: Objection. Incomplete 22 hypothetical. Misstates the law. 23 A I don't understand your question. Sorry. 24 Could you ... 25 Q So for written description, the POSA	75 1 '706 formulation, wouldn't a POSA need that kind 2 of guidance? Like, wouldn't the POSA need the 3 '647 patent to identify this particular 4 combination in the particular amounts of each of 5 these ingredients that the formulation requires? 6 MS. JEFFRIES: Just object as calling for 7 a legal conclusion and misstating the law. 8 A No. To make that particular -- if the 9 POSA had the instructions in the '706 patent and 10 the formulation -- and the claim, they could put 11 those things together to make that. Going from 12 the '647, they're given the choice of materials to 13 use. They're switching from one patent to 14 another. The materials are here. They're given 15 the choice of using those materials, and they're 16 taught how to do it. And that's how they actually 17 develop a formulation that became a claim. 18 Q And that's essentially what I'm asking. 19 So a POSA, in my question, doesn't have the '706 20 claim with all those ingredients listed in the 21 combination; he or she just has the '647 patent 22 disclosure. And is the listing of those 23 ingredients enough for the POSA to get to a 24 formulation in the '706 patent claim? 25 MS. JEFFRIES: Objection. Asked and
74 1 doesn't have this claim 16 in front of him or her. 2 So I'm asking why -- wouldn't the POSA need some 3 guidance in the written description in the '647 4 patent on those specific -- on that specific 5 combination, like here's how to combine these 6 eight or nine ingredients in these amounts to make 7 a deodorant? Wouldn't a POSA need more guidance 8 on how to do that, how to make that specific 9 combination and the amounts that are required? 10 MS. JEFFRIES: Object that it calls for 11 legal conclusion. 12 A I'm still not sure what you're asking. 13 Sorry. Could you say it some other way? You're 14 asking a POSA, they need to make that specific -- 15 Q Yeah, so to arrive -- 16 A -- that specific formulation. 17 Q To arrive -- you see claim 16 has eight or 18 nine different ingredients listed out in a 19 combination, right? 20 A Uh-huh. 21 Q And these ingredients are each separately 22 identified in the '647 patent, but they're not 23 combined into a single formulation, right? 24 A Right. 25 Q So wouldn't -- wouldn't -- to make the	76 1 answered. Same objections as earlier as well. 2 A Yeah, I'm having trouble understanding 3 your question. But yeah. If you're given the 4 claim and the instructions, you can follow and 5 make that -- and use that claim. If you're not 6 given the claim but you're following the context 7 of the patent, a formulator may or may not come up 8 with that exact formulation. But what they do is 9 come up with a formulation. I think that's the 10 question you were asking. I'm not sure. 11 (Deposition Exhibit Number 5 marked 12 for identification.) 13 Q I'm going to mark as Exhibit 5, I'm going 14 to drop it in the chat. You probably already have 15 it, U.S. Patent No. 11,433,018. I haven't been 16 tracking the time, but just let me know if you 17 need a break. 18 MS. JEFFRIES: Yeah, it's been over an 19 hour. The next convenient time, whenever, if 20 you're switching topics, now would probably be a 21 good time. Or if you want to continue, as long as 22 Dr. Lochhead is okay. 23 A Yeah, I'm just separating -- I've got my 24 papers mixed up again. 25 MR. CALABRO: I'm going to switch topics,

77 1 so why don't we take 10 minutes or 15, whatever 2 you need. 3 MS. JEFFRIES: Okay. Sounds good. Thank 4 you. 5 (A short break was taken.) 6 Q Dr. Lochhead, pull up what I marked as 7 Exhibit 5, please, U.S. Patent No. 11,433,018. I 8 think this is Exhibit 1003 from the IPRs. 9 A Got it. 10 Q Okay. And you recognize this as the 11 Lesniak reference that's at issue in the IPRs, 12 right? 13 A I do. 14 Q And let's start with the abstract on the 15 front page of Lesniak. And you see here, Lesniak 16 provides an overview of his invention, right? Or 17 her invention, I'm not sure. 18 A Yes, yes. 19 Q And it's an anhydrous personal care 20 composition comprising, and then it lists four 21 ingredients, (a), (b), (c), and (d), right? 22 A Yes. 23 Q Okay. And so let's just check off these 24 ingredients: (a) is 45 to 60 percent by weight of 25 at least one ester selected from a group that	79 1 lost it. 2 Q No worries. Line 32 or line 33. I just 3 want to confirm that the inventive composition 4 they're talking about here has the four 5 ingredients we were just looking at in the 6 abstract? 7 A One ester selected from one triglyceride, 8 yeah. Yes, it's got these four ingredients. 9 Q Okay. And then in the next paragraph, 10 when it's talking about that composition, it says, 11 starting at line 49: The present inventors have 12 surprisingly found that in addition to having good 13 micro-robustness, such compositions have reduced 14 greasiness and improved after feel, such as 15 reduced tackiness and drag on the skin as 16 compared -- 17 A Wait, wait, where are we looking? 18 Q Line 49 in column 5. It's right below the 19 paragraph. 20 A I thought you said column 6. 21 Q I may have. It's line 49, column 5. Are 22 you with me? 23 A Yes. 24 Q So it's beneath the paragraph we were just 25 looking at that had the compositions with the four
78 1 includes triglycerides, right? 2 A That's right, diglycerides and 3 monoglycerides. 4 Q Sure. (b) is a first wax having a melting 5 point from 35 degrees C to 75 degrees C. That's 6 in an amount of 5 to 25 percent by weight, right? 7 A Yes. 8 Q And (c) is a second wax having a melting 9 point of 73 to 90 degrees C present in an amount 10 of .5 to 15 percent by weight. Right? 11 A That's right. 12 Q And then finally (d), the fourth 13 ingredient is at least one plant oil having a 14 certain saponification value in the amount of 5 to 15 35 percent weight, right? 16 A Yeah, it specifies a saponification value, 17 yes. 18 Q Okay. And then go to column 5, please. 19 A I'm there. 20 Q And then in line 33, it says: Therefore, 21 in one aspect, there is provided an anhydrous 22 personal care composition comprising, and then it 23 lists (a), (b), (c), (d), the four ingredients we 24 just looked at in the abstract, right? 25 A Which -- where in column 5? Sorry. I've	80 1 ingredients. And it says: The present inventors 2 have surprisingly found that in addition to having 3 good micro-robustness, such compositions have 4 reduced greasiness and improved after feel, such 5 as reduced tackiness and drag on the skin as 6 compared to other anhydrous compositions. Such 7 compositions are also physically stable at high 8 and low temperatures. 9 Do you see that? 10 A Yes. 11 Q So, here, Lesniak is at least reporting 12 his compositions we looked at are physically 13 stable at high and low temperatures, right? 14 A He's saying those compositions are stable 15 at high and low temperatures. But, of course, in 16 another place, he actually points to ones that are 17 stable, which are stable and which are unstable. 18 Q And we'll get there. At least here, he's 19 reporting these compositions are physically stable 20 at high and low temperatures, correct? 21 MS. JEFFRIES: Objection. 22 Mischaracterizes the document. 23 A Well, no, he's giving a general range. 24 And then he says they're stable. But later on he 25 says that in some cases, they became unstable.

81 1 Q And we'll get there. And then it 2 continues: The present inventors have also 3 surprisingly found that the amount of white 4 residue remaining on the skin following 5 application of the composition is reduced when the 6 composition comprised a first wax having a melting 7 point of 35 to 72 degrees C and a second wax 8 having a melting point of 73 degrees C to 9 90 degrees C, right? 10 A That's what it says, yes. 11 Q Okay. And then still talking about the 12 same compositions: Present inventors have also 13 surprisingly found that such compositions are also 14 physically stable, i.e., do not exhibit separation 15 into a bulk solid portion and bulk liquid portion 16 when stored at 49 degrees C, zero percent 17 relative humidity for a period of 13 weeks, and 18 was stored at 40 degrees C/75 percent relative 19 humidity for a period of 13 weeks and show 20 acceptable dispensing characteristics in addition 21 to being non-greasy. Right? 22 A Yes. 23 Q That's what he reports. And now on 24 column 7, line 22, it's referring to the waxes. 25 And it says: In certain embodiments the first wax	83 1 asterisk, right? 2 A Yes. 3 Q And those two compositions, without the 4 asterisk are the only two with hydrogenated castor 5 oil, which says Castorwax MP-80. 6 Do you see that? 7 A That's right. It contained a small amount 8 of Castorwax. 9 Q And Castorwax is identified by Lesniak as 10 a secondary wax with a higher melting point than 11 the first wax, right? In the same column 6, lines 12 16 to 23. 13 MS. JEFFRIES: Just objection. 14 Mischaracterizing the record and the document. 15 A It just says the second wax has a melting 16 point of 77 to 85; second option, 73 to 83. It 17 doesn't say Castorwax. 18 Q We just looked. It says in certain 19 embodiments, the first wax is beeswax and the 20 second wax is hydrogenated castor oil. 21 Do you see that? 22 A Where? 23 Q Column 6, line 22 to 23. 24 A Yes, in second embodiments. Yes, in 25 second embodiments.
82 1 is beeswax and the second wax is hydrogenated 2 castor oil. 3 Do you see that? 4 A No. Where are we? Column 7, you said? 5 Q Column 6, line 22. 6 A Column 6 line 22, okay. 7 Q In certain embodiments, the first wax is 8 beeswax and the second wax is hydrogenated castor 9 oil. 10 Do you see that? 11 A Yes, yes. 12 Q Now let's go to the table with the 13 stability testing, Table 2 in column 11. Are you 14 there? 15 A Yes. 16 Q Table 2. So here Lesniak tested 11 17 compositions, right? 18 A Yes. 19 Q And nine of them have an asterisk, right? 20 A Yes. 21 MS. JEFFRIES: Objection. Vague. 22 Q The asterisk denotes a comparative 23 composition, right? 24 A It does. 25 Q And two of the compositions do not have an	84 1 Q The first wax is beeswax, the second wax 2 is hydrogenated castor oil, right? 3 A Yes. 4 Q So then if we go back to the table, the 5 only two compositions that's a secondary wax with 6 a melting point in Lesniak's range are 8 and 11, 7 right? 8 MS. JEFFRIES: Objection. Vague. 9 A Could you say the question again, please? 10 The only two ... 11 Q Compositions with a secondary wax with 12 melting point within the ranges disclosed by 13 Lesniak are compositions 8 and 11? 14 A The only two compositions with Castorwax 15 are 8 and 11 is present at 2 percent, yes. 16 Q And 8 and 11 both passed all of Lesniak's 17 tests, including high temperature stability, 18 right? 19 A Yes. As far as I know, so did all the 20 others, all the other compositions have all of 21 Lesniak's requirements. And what was the second 22 part of your question? Sorry. They're 23 compositions with the same ingredients, all of 24 them. 25 Q Well, let's get to that. Which -- what is

85 1 the -- remember we looked at the four ingredients, 2 one of which is a second wax having a melting 3 point of 73 to 90 degrees C present in an amount 4 of .5 to 15 percent by weight. And where is the 5 second wax in all of the other compositions? 6 Which wax is it? 7 A Could I have your question again, please? 8 I just want to make sure I get it right. 9 Q Your answer was all the other compositions 10 have all of Lesniak's requirements. And my 11 question, though, was: Where in the nine 12 comparative examples is the secondary wax with a 13 melting point of 73 to 90 degrees C? 14 A In these sunscreen compositions, only 8 of 15 the 11 contain Castorwax that I can see. And 16 Castorwax is ... 17 Q And Castorwax is, according to Lesniak, a 18 second wax with a melting point within Lesniak's 19 range, right? 20 A Castorwax is a second wax within the 21 range, yeah. 22 Q And as far as you can tell sitting here, 23 the other comparative compositions did not have 24 such a second wax, correct? 25 A All the compositions are beeswax, and only	87 1 Of course the sunscreen compositions, sunscreen 2 lotions probably. 3 Q These are not sticks? 4 A There's nothing to say there are sticks. 5 I don't think they are sticks. 6 Q And Lesniak discloses no instability data 7 on sticks, correct? 8 A Lesniak doesn't. That doesn't say 9 anything about stability of sticks, much less 10 instability of sticks. 11 Q Lesniak uses zinc oxide in his 12 compositions, correct? 13 A Yes, Lesniak uses zinc oxide as a 14 sunscreen active and as a diaper rash active. 15 Q Zinc oxide is also an antimicrobial, 16 correct? 17 A Depending on who you talk to, it may or 18 may not be an antimicrobial. 19 Q Does it have antimicrobial properties? 20 MS. JEFFRIES: Objection. Vague. 21 A That is -- antimicrobial, it may have 22 antimicrobial properties against some microbes, 23 yeah, but ... in the context of this patent, it's 24 not an antimicrobial. It's a sunscreen active or 25 a diaper active, as we say. And a POSA would
86 1 8 and 11 have two waxes. But the sunscreen, these 2 sunscreen compositions, only 8 and 11 have a 3 second wax. 4 Q And those two were stable, the two with 5 the second wax, correct? 6 A Yeah, those two compositions were stable. 7 They didn't separate into two phases. All the 8 rest separated into two phases when they did 9 testing, high-temperature testing. 10 Q When you prepared your declaration, did 11 you think that all of the compositions in this 12 table had all of Lesniak's requirements for 13 ingredients? 14 A Well, I looked at the differences between 15 the formulations, and there were very slight 16 differences between them, between the unstable and 17 the stable. Very slight differences. 18 Q But did you not pick up on the Castorwax 19 difference? 20 MS. JEFFRIES: Objection. Vague and 21 argumentative. 22 A I can't remember. I may or may not. I 23 noticed that all of them were -- eight or nine of 24 the 11 were unstable, and differences were very 25 slight. It was only a tiny amount of Castorwax.	88 1 understand that. 2 Q And do you have any evidence that the zinc 3 oxide in Lesniak's compositions lacked 4 antimicrobial properties? 5 A Well, the patent doesn't tell me anything 6 about the antimicrobial properties of zinc oxide. 7 If you look at the patent, I don't know whether it 8 acts as an antimicrobial here or not or which 9 species of microbe it might be active against. 10 Q Well, a POSA brings some background 11 knowledge to the patents, right? 12 A Yes, of course. 13 Q And a POSA would understand that zinc 14 oxide has antibacterial effects, correct? 15 MS. JEFFRIES: Objection. Vague. 16 A In some cases, zinc oxide could be an 17 antimicrobial. In other cases, it may not be an 18 antimicrobial. In this patent, there's nothing to 19 tell the POSA that it's an antimicrobial. 20 (Deposition Exhibit Number 6 marked 21 for identification.) 22 Q I'm going to mark as Exhibit 6, it's going 23 to take a minute to upload. Let me know when 24 you've got that. It looks like it's gone through 25 on my end.

89 1 A Which one? 2 Q Exhibit 6. I don't think you'll have a 3 local, a paper copy. 4 A Okay. Yes. 5 Q You've got it? 6 MS. JEFFRIES: Just give me a second to 7 catch up. It's sort of loading on my end. I 8 don't know what's happening. It looks pretty big. 9 MR. CALABRO: It's big, so ... 10 MS. JEFFRIES: It looks like I can open it 11 now. Hang on one more second, sorry. Okay. I 12 have it open now. 13 Q Okay. Dr. Lochhead, do you recognize 14 Exhibit 6? 15 A Yes. 16 Q This is a book you edited, right? 17 A It is, yes. 18 Q And what's the title of the book? 19 A Cosmetic Science and Technology, 20 Theoretical Principles and Applications. 21 Q What was your role in editing this? What 22 did you do? 23 A With the other three editors, we gathered 24 contributions. Well, first of all, we decided to 25 write a book, what should be in the book, what	91 1 Q The Second full paragraph says: At this 2 juncture there is a need to review the 3 state-of-the-art to mentor the next generation of 4 cosmetic scientists and to establish a starting 5 point for the forthcoming era of cosmetic science. 6 The purpose of this book is to address that need, 7 constitutes a comprehensive review with 8 contributions from some of the world's leading 9 cosmetic scientists. 10 Do you see that? 11 A Yes. 12 Q Is that accurate characterization of this 13 book? 14 A Yes, that's why I wrote it. That's what 15 we were trying to do. 16 Q Okay. And this book was published in 17 2017, right? 18 A I think it was 2017, yes. I need to look 19 at the copyright to be sure. In 2016. 20 Q And turn, please, to page 33 on my screen. 21 It's in Chapter 2, I believe, Section 2.4.3.3.1? 22 MS. JEFFRIES: So 33 of the PDF or 33 of 23 the -- 24 MR. CALABRO: It's 53 of 857 in the PDF. 25 A 2.4.3.1?
90 1 shouldn't be in the book. Recruited people that 2 could possibly write chapters, and people, 3 sometimes they selected or deselected themselves 4 because they didn't want to write. Then we put 5 the chapters together. And we had -- Elsevier 6 already asked us to do this. So once we put it 7 together, it went to Elsevier to say this is the 8 book. They sent the chapters to us, and each of 9 us edited the appropriate parts. 10 Q And have you -- you've read this book? 11 A Oh, yes. 12 Q And you wrote a foreword to this book, 13 right? 14 A I think so. 15 Q It's on page -- let me find it. Page xi 16 or if you type xii into the PDF, it's page 13 of 17 857. Actually, that's your bio. Let me find your 18 foreword. 19 A Foreword, yeah. Okay. I'm there. 20 Q You've got it? 21 A My foreword? 22 Q Yeah, your foreword. Or preface, I should 23 say. And it's xvii. Are you there, page 19 of 24 857 in the PDF? 25 A I'm there, xvii.	92 1 Q Have you got it? 2 A Studies and Emulsification -- 3 Q 2.4.3.3.1? 4 A 2.4.3.1, it's not coming up. Yes, I've 5 got it. 6 Q So in Adobe is 34 or 53 of 857? 7 A It's page 30 of 857. 49 of 857. 8 Q If you search Deodorant That Works in an 9 Instant, it comes up. Let me know. 10 A Search? 11 Q Deodorant That Works in an Instant. Have 12 you got it? 13 A Who wrote this chapter? I can't remember. 14 Q You can scroll up, if you want. Let me 15 know when you're ready for ... 16 A Okay. 17 Q Ready? 18 A Now I'll go back to 2.4.3 -- it works -- 19 Q There you go, okay. 20 A I'm not there yet. Okay. 21 Q All right. So this section entitled 22 A Deodorant That Works in an Instant, begins: In 23 the 1980s, the main mechanism through which 24 deodorant products intended to combat body odor 25 were the usage of antiperspirants that prevent

93 1 perspiration from the sweat glands. And I'll 2 pause there. 3 And what does it mean, again, for a 4 deodorant product to combat odors through the 5 usage of antiperspirants? 6 A The perspiration, what this says it is 7 prevents perspiration from the sweat glands. And 8 what that means is that basically the 9 antiperspirants block the sweat glands, and these 10 are aluminum salts. And as far as we know, they 11 interact with the proteins that are in the sweat 12 and they block sweat glands and stop the sweat 13 from coming out. 14 Q Okay. And then it also -- the sentence 15 continues to discuss other mechanisms: 16 Antimicrobials that inhibit the activities of 17 residential bacteria from degrading odorless sweat 18 and sebum-derived substances into odorous 19 compounds and masking offensive body odors using 20 citrus and floral fragrances, right? Those are 21 three mechanisms identified here, correct? 22 A Well, it distinguishes antiperspirants 23 block sweat glands. Antimicrobials -- and so 24 antimicrobials inhibit residual bacteria and odor 25 of sweat, and then you can fragrance it. So	95 1 Q I'm not sure how the pagination works on 2 your PDF, but we're on the same page we were just 3 looking at. 4 A Let me do the search again. 2.4. 5 Q A Deodorant That Works in an Instant. 6 A Oh -- okay. And where are we now? 7 Q All right. We just looked at the first 8 paragraph in that section. Now we're moving on to 9 the second paragraph. And my question was -- 10 well, why don't you read that paragraph so you 11 know what I'm asking about? 12 A After pinpointing, yeah? 13 Q Yeah, that's where we are. Please read 14 that one. 15 A After pinpointing short chain -- 16 Q You don't have to read it out loud. You 17 can just familiarize yourself with it. 18 A I've read it. 19 Q So this is discussing zinc oxide 20 deodorants, correct? 21 A Yes. 22 Q And it concludes with: This gave birth to 23 a consumer-friendly formulation with exceptionally 24 high deodorizing capabilities, right? 25 A Yes.
94 1 you're talking about two different types of 2 products. One, an antiperspirant would be the one 3 that blocks the sweat glands and may do other 4 things. A deodorant would not block the sweat 5 glands. 6 Q Well, the sentence says the main mechanism 7 through which deodorant products intended to 8 combat body odors were, and then it lists the 9 three things we just discussed, right? 10 A Yeah, it's talking about a broad range of 11 products, include antiperspirants and deodorants. 12 Q Right. 13 A I didn't write this. 14 Q You edited it, though, right? 15 A I edited it. I rely on the experts on the 16 writing itself, yes. 17 Q And are you not an expert in deodorants? 18 A I -- yes, I'm an expert in deodorants. 19 Q All right. And then the next paragraph 20 talks about a zinc oxide deodorant, right? 21 A The next sentence? 22 Q Next paragraph. 23 A Next paragraph. My thing is not 24 scrolling. Oh. What page are we on? My thing 25 just jumped.	96 1 Q Now, of the three mechanisms through which 2 deodorant products combat body odors that we 3 looked at in the preceding paragraph, do you know 4 which one the zinc oxide deodorant would be 5 practicing or using? 6 A No. They propose if it's interacting by 7 stopping the short-chain -- by reacting with the 8 short-chain fatty acids. 9 Q And what does that mean? What kind of 10 reaction is that? 11 A Making it zinc salts of fatty acids from 12 the sweat. 13 Q Is that a fourth type of mechanism, or is 14 it one of the three that we just looked at? 15 A That's a good question because it could 16 be -- right at this moment, even today, we're not 17 sure where the fatty acids come from that cause 18 odor. And they may be because of bacterial 19 degradation, but they may not. 20 Q Okay. 21 A It could be it's just making that zinc 22 salts of the fatty acids. 23 Q Let's jump to -- it's page 227 of the book 24 itself, of the PDF -- 25 A Can I say something else? Because I know

97 1 that this was something that was presented at 2 IFSCC, which is people presenting their research. 3 As far as I'm aware, this technology was never 4 ever practiced. It had problems, so that's what 5 the author told me later on. 6 Q Okay. But the book that published with 7 you as an editor said it gave birth to a 8 consumer-friendly formulation with exceptionally 9 high deodorizing capabilities, just to be clear? 10 A I was the editor, and he was the author. 11 I think he may have been the inventor, but I 12 remember in a subsequent meeting he told me no, it 13 never had been -- it had problems. I don't know 14 what the problems are. Sorry, where did you want 15 me to go? 16 Q 227 of the book itself. It's -- 17 A I can search 227, can I? 18 Q 227, see if that works, yeah, that will 19 bring you to the first page, the result. 20 A Reference 227. 21 Q Should be above that, I think. At least 22 it's -- well, actually, it's not the first. If 23 you search -- just keep scrolling down until you 24 hit page 227. The page number is in the upper 25 right-hand side. Like the fifth result --	99 1 MS. JEFFRIES: Which is -- I think I'll 2 have the right page. We'll see once you ask 3 questions, but I think I have it. 4 Q All right. First sentence on 227 on my 5 screen is: Zinc oxide is also known to have skin 6 care effects. 7 Do you see that, Dr. Lochhead? 8 A Yes, yes. 9 Q And, for example, zinc oxide is reported 10 to have convergent effects that tighten the skin 11 to make pores less visible, antibacterial effects 12 that kill skin irritation and infection causing, 13 and it lists bacteria, and anti-acne effects. 14 Do you see that? 15 A Uh-huh. 16 Q Is that sentence accurate? 17 A I'm sorry? 18 Q Is that sentence accurate? 19 A Well, I didn't write it. I just edited 20 it. But I presume that will kill staph and 21 pseudomonas. That's what it says. 22 (Deposition Exhibit Number 7 marked 23 for identification.) 24 Q I'm going to mark as Exhibit 7, Patent 25 No. EP 0471392.
98 1 A It's not -- okay. 2 Q Fifth result for 227 in my search. 3 A I don't see page numbers. Where's the 4 page numbers? 5 Q In the upper right or upper left. 6 A Okay. 7 MS. JEFFRIES: And not all the pages have 8 the numbers. Oh, I see they move around. It's so 9 long. 10 MR. CALABRO: Yeah, there's not a good way 11 to navigate, but we're almost done with this. 12 A 231, okay. I'm backing up to 227. 13 Q Let me know when you -- 14 A It just keeps jumping past the numbers. 15 It says I'm in 227 of 246. There's -- I think in 16 zinc oxide and a white powder, is that what you're 17 looking for, 4.3.1.2, zinc oxide? 18 Q Go to the next page. 19 A Okay. Yes. 20 Q 227, okay. 21 MR. CALABRO: Andrea, let me know when 22 you're -- 23 MS. JEFFRIES: I think I have it. We're 24 talking about 227 of the book, right. 25 MR. CALABRO: Of the book itself.	100 1 MS. JEFFRIES: So hang on one second. 2 We're done with the book for now? 3 MR. CALABRO: We can set the book aside. 4 Are you good? Anyone need a break? 5 MS. JEFFRIES: Maybe we should break for 6 lunch in the next 15 or 20 minutes or something. 7 MR CALABRO: Yeah, I think I can do this 8 one in 15 minutes, and then we'll break. 9 MS. JEFFRIES: Sure. 10 MR. CALABRO: If that works. 11 MS. JEFFRIES: I need to figure out where 12 the heck we are because I was struggling with the 13 book there. I got lost. 14 MR CALABRO: It's Exhibit 1072 from at 15 least two of the IPRs. 16 MS. JEFFRIES: 1072. Sorry for the 17 interruption. 18 MR. CALABRO: You've got your copies, 19 right? 20 A I'm there. 21 Q Okay. So you see this is a patent that's 22 assigned to Unilever, right? 23 A I do. 24 Q And do you recognize any of the inventors 25 from your time at Unilever?

101 1 A Yes. 2 Q Did you work with any of them? 3 A Yes, Andy Park. 4 Q Did you work with Andy Park on deodorants? 5 A I may have. I can't remember. I may 6 have. 7 Q Okay. And then you see in the little 8 abstract at the bottom on the first page, this 9 relates to deodorant composition, right? 10 A Yes. 11 Q And it has three ingredients. The first 12 one is an effective amount of a deodorant chosen 13 from salts or oxides of zinc or magnesium, right? 14 A Yes. 15 Q And if we scroll down to page 2, on the 16 bottom it says: Disclosure of the Invention, The 17 Deodorant. It says essentially the same thing we 18 just read: The composition according to the 19 invention comprises a deodorant which is chosen 20 from salts or oxides of zinc or magnesium, which 21 are insoluble or only sparingly soluble in water, 22 and then it provides some examples of those 23 deodorants, right? 24 A Yes. 25 Q One is, if you jump to -- yeah, no, it's	103 1 this one because I know this one well. In actual 2 fact, what we have here is when you look at the 3 stick, it's an aqueous core polyol stick, and that 4 zinc oxide in the stick would not be zinc oxide in 5 the zinc hydroxide because it would react with the 6 water in the aqueous polyol to form a zinc 7 oxide -- a zinc hydroxide, rather. 8 Q And would the same be true of magnesium 9 oxide? 10 A Yes. Magnesium oxide, yes. 11 Q And yet the suitable deodorants that are 12 listed are magnesium oxide or magnesium hydroxide, 13 right? 14 A Yes. 15 Q So we can set that one aside. 16 A In the formulation, these wouldn't be 17 present as oxides. They would be present as 18 hydroxides in that particular stick formulation 19 because it contains a lot of water. 20 Q Right. And the patent doesn't teach the 21 POSA that, thought, right? The patent doesn't say 22 that? 23 A The POSA would understand that, I think. 24 Q And can you show me where the conversion 25 would take place?
102 1 on the first page, magnesium hydroxide, line 52. 2 Right? 3 A I just lost it. Sorry. Yeah, I got it, 4 magnesium hydroxide. 5 Q And another one is zinc oxide, right? 6 That's the first one? 7 A Another one is zinc oxide, yes. 8 Q So magnesium hydroxide and zinc oxide are 9 both disclosed in this Unilever patent as suitable 10 deodorants, right? 11 A They say you can use these salts as a 12 deodorant, meaning a deodorant active, yes. 13 Q And then on the next page, first paragraph 14 talks about the amount of deodorant. Are you with 15 me? And it says -- 16 A I can't find it -- yeah, amount of 17 deodorant. 18 Q Present at -- 19 A 1 to 15 percent composition, yes. 20 Q So the amount of the deodorant, which 21 could be, for example, magnesium hydroxide or zinc 22 oxide, could go up to 20 percent by weight, right? 23 A That's what you would add, yes. 24 Q That's all I have on this one. 25 A There's something else I'd like to say for	104 1 A Oh, if you look at the stick, look at this 2 so -- sorry, this isn't a stick. This is a 3 roll-on. I apologize, I'm thinking of another -- 4 Q Right. This is -- 5 A This is a roll-on. This isn't a stick at 6 all. 7 Q Right. So it has zinc oxide as an active, 8 correct? 9 MS. JEFFRIES: Objection. 10 Mischaracterizes the document and the testimony. 11 A I think it says that you could chose, a 12 POSA could chose a zinc oxide from this list. 13 Q Right. But what you said about this being 14 an aqueous stick that would convert the zinc oxide 15 to zinc hydroxide, I just want to be clear, that 16 was not accurate? 17 A It's not a stick. It's a roll-on. 18 Q An aqueous stick. But it's not an aqueous 19 stick that converts the zinc oxide to zinc 20 hydroxide, correct? 21 MS. JEFFRIES: Objection. Compound. 22 A It's not a stick and it's not an aqueous 23 stick. It's a roll-on. 24 Q Well, if you look at the field of the 25 invention, it says it's, line 5, very first page

105 1 of the patent, it's suitable for use as a cosmetic 2 stick? 3 A But it doesn't tell you how to make the 4 stick. It doesn't say how to make the stick, 5 whether a stick -- the roll-on, the only thing 6 they show you are roll-ons. So they didn't -- 7 there's no instructions here how to make a stick. 8 Q What about example 1, that's a stick? 9 A Is it? Sorry. 10 Q Page 4 of the patent. 11 A Oh. Oh, yeah, it's a stick with a 12 volatile silicon, yeah. And I knew there was 13 something -- I'm sorry. I got this mixed up with 14 another one. I'm not sure what I was thinking. 15 It has a volatile silicon. And 61 percent of 16 volatile silicon, which the major component is 17 volatile silicon, which changes all the 18 characteristics of the stick. 19 Q Right. But I'm just focused on the zinc 20 oxide. That's not going to be converted to zinc 21 hydroxide? 22 A The zinc carbonate in here. 23 Q Right. But you said these sticks were 24 aqueous and would convert the zinc oxide to zinc 25 hydroxide?	107 1 Q Got it. How did you prepare your reports 2 in this case? 3 A Well, lots of reading and discussion, and 4 then assembled the reports. And I worked with 5 counsel to finalize it, type the report, to get it 6 done. 7 Q Did you write it up yourself? 8 A Some of the things had my hand, I was 9 typing. But yeah, all the opinions and all the 10 concept is mine. 11 Q Who did the first pass? 12 A They did the legal construct, of course. 13 Sorry? 14 Q Yeah, I'm sorry. Who did the first draft? 15 A I did. 16 Q You wrote up a first draft yourself? 17 A Well, after lots of discussion, I put bits 18 and pieces together, yeah, and then we worked on 19 it. 20 Q You were the one who physically typed up 21 the first draft? 22 A I can't remember because, you know, it 23 came together like a jigsaw puzzle, if you like. 24 I typed a lot of it, yeah. 25 Q Okay. Let's talk about hardness. The
106 1 A What I said is in the presence of water, 2 zinc oxide is converted to zinc hydroxide. 3 Q And there's not water in this formulation, 4 right? 5 A No. 6 Q So you were mistaken about that, and 7 that's the last question? 8 A Yes. 9 Q All right. Why don't we take a break. 10 A I'm getting it mixed up with another 11 patent, sorry. 12 Q Okay. 13 A The thing here is there's lots of volatile 14 silicon. So that stick is -- again, what I 15 remembered the stick was a different technology, 16 and it's a different technology. 17 Q Thanks for the clarification. 18 MR CALABRO: Why don't we break now for 19 lunch, if that works for everyone. 20 (A lunch break was taken.) 21 Q Welcome back, Dr. Lochhead. 22 A Thank you. 23 Q Did you talk to anyone about your 24 testimony on the break? 25 A No, had lunch.	108 1 only hardness test that's mentioned in the claims 2 of the four P&G patents is ASTM D1321, correct? 3 MS. JEFFRIES: Objection. Vague. 4 A It's a modification of D1321. 5 Q Well, let's talk about the claims 6 themselves. And I can direct you to one, if you 7 need to. Why don't we look at claim 15 of the 8 '915 patent, which we marked as Exhibit 1. And 9 just focusing on the language of claim 15 -- 10 MS. JEFFRIES: Make sure we're there. 11 Bob, do you have that one? 12 THE WITNESS: I've got it. I've got it. 13 MS. JEFFRIES: Okay. Great. 14 Q So it gives the hardness range of 8 to 15 14 millimeters, as we discussed. And then it 16 says: As measured by penetration with ASTM-D1321 17 needle. 18 Do you see that? 19 A Yes. 20 Q Okay. So the only test that's expressly 21 mentioned in the claim itself is ASTM D1321? 22 MS. JEFFRIES: Objection. 23 Mischaracterizes the document. 24 A The claim has to be read in the context of 25 the patent, as you know. And having read the

109 1 patent, someone would realize that the ASTM D1321 2 standard was modified, and that's common. It's 3 common for materials to modify a method to measure 4 what you're trying to measure, but you also -- 5 it's also important that you tell people what 6 you've done, and they did that in here. They told 7 people exactly how it was measured. 8 Q Uh-huh. And if we -- 9 A Again, in the written description, it 10 tells me how to do it. 11 Q If we set aside the specification for a 12 moment and talk about the length of the claims, 13 can you point me to anywhere in the claims that 14 discloses a hardness test? 15 MS. JEFFRIES: Objection. Vague. It 16 mischaracterizes the record. 17 A I don't understand you because I read the 18 claim in the context of the patent. 19 Q What word in the claim -- what word or 20 words in the claim are you relying on for the 21 hardness test? 22 A All of them. It tells you the hardness 23 range, the penetration, and what to do to get the 24 penetration. It tells you in a lot of detail in 25 the written description --	111 1 weight to be used in connection with their tests, 2 right? 3 A Can I look at where I say that, and can I 4 look at the Bianchi reference, please? 5 (Deposition Exhibit Number 8 marked 6 for identification.) 7 MR CALABRO: I'm going to mark Bianchi 8 now. Bianchi '254, which is Exhibit 1008 in the 9 IPR, will be marked as Exhibit 8 in the 10 deposition. 11 MS. JEFFRIES: Dr. Lochhead asked for what 12 you were referencing when you said he said that. 13 Is there a particular one of his reports that 14 you're referencing? 15 A Well -- 16 Q Dr. Lochhead, do you have that, or do you 17 want me to point you to something? 18 A Yes, tell me what report you're 19 referencing. 20 Q Let's see. The '706 report. 21 A '706 report? Okay. Yes. 22 Q So in paragraph -- let's go to 23 paragraph 38. Let me know when you're there. 24 A Okay. 25 Q It says in the last sentence: Like
110 1 Q No, my -- I'm sorry. My question was 2 about the claim. 3 So point me to the language, please, in 4 the claim itself that you're relying on for the 5 hardness testing methodology. What words in the 6 claims themselves relate to or disclose that 7 method? 8 A All of them. You know, and as far as I 9 understand, the claim has to be written in the 10 context of the written description. You can't 11 just take this claim by itself. I look at all the 12 words of that claim, it tells me the range, it 13 tells me the penetration, it tells me the stick, 14 it tells me measure with ASTM-D1321 needle, and I 15 go to the context and it tells me exactly how to 16 do that. 17 Q And for context, you're referring not to 18 the claim itself, right? 19 MS. JEFFRIES: Objection. 20 A I was taking the words of the claim and 21 telling you, use the words of the claim in the 22 context of the patent. Yeah, no, I was using the 23 words of the claim. 24 Q And you think -- you opine that the 25 Bianchi references require an additional 50-gram	112 1 Bianchi '518, Bianchi '254 -- 2 A I'm not there yet. Where is it? 38? 3 Q 38. 4 A Of my report? 5 Q Of your report for the '706 patent. 6 A Which -- just 38? 7 Q 38, last sentence. 8 A I've got 38, paragraph 122. 9 Q It's page 17. 10 A Yes, I'm there. 11 Q It says like Bianchi '518, Bianchi '254 12 discloses hardness values for its compositions as 13 measured using the DIN 51579 driven by a total 14 weight of 100 grams, rendering its composition 15 significantly harder than the claimed compositions 16 of the '706 patent. 17 Are you with me? 18 A Yes. 19 Q I marked as Exhibit 8 and dropped in the 20 chat, Bianchi '254 reference. You should have a 21 copy as well. It's Exhibit 1008 in the IPR. 22 A 100 -- '254, I've got it. 23 Q And my question is: What in Bianchi '254 24 are you relying on for the testing methodology 25 that includes a total weight of 100 grams?

113 1 A Well, it says here this stick hardness is 2 measured using a penetrometer Model HPT 7138 from 3 Precision. It comes with a 2.5-gram brass/steel 4 tapered needle, which is DIN 51-579. And we 5 already looked at 51-579 and found it's the same 6 as the ASTM 2139. And it tells you how the sticks 7 are equilibrated. 8 Then you take it as six different 9 locations, which is a slight deviation from the 10 method, which says measure in only four places, 11 and tells you where to take the measurements. And 12 the depth of needle penetration is recorded to the 13 nearest tenth of a millimeter. 14 Now, I then go to the DIN method, and the 15 method actually says that you have a 2.5-gram 16 needle and you add another 97.5 grams. 17 Can I have the method? The method, did I 18 give it to you? 19 Q The method would be in your exhibits to 20 your report. 21 A Yes, a method here... okay. On the method 22 I'm looking at EX 2019, page 2, and it tells me in 23 the method there, the weight of the test needle 24 should be 2.5 grams, minus .05 gram, and that's 25 the guide rod should be 97.5 grams plus or minus	115 1 is the temperature. 5 is for how long you allow 2 the needle to penetrate, so that's 5 seconds. So 3 that would be using ASTM D1321 with a 100-gram 4 weight. But that 77 degrees Celsius for 5 5 seconds. That tells someone how to do the 6 measurement. 7 Q And you don't know for sure whether the 8 ranges disclosed in either of the Bianchi 9 references overlapped with the hardness ranges 10 claimed in P&G's patents, correct? 11 A I know they can't be correlated because 12 they're two different methods. But what I do know 13 is that if you take the hardness ranges in the 14 Bianchi, the sticks are certainly much harder than 15 the P&G patent sticks. 16 Q And there's no formulas for converting the 17 results from -- 18 A No, there's no formula. 19 Q Okay. So -- and you haven't done any 20 testing to see whether the Bianchi and P&G 21 hardness results overlap, right? 22 A No, I haven't done any testing, but -- 23 Q You can't say -- 24 A -- I relied on the ASTM method. 25 Q So without any formulas and without any
114 1 0.1 grams. And it actually says the guide rod 2 adjustable attachable weights of 50 grams, if you 3 want, another 50 grams. So it instructs me there 4 that the method is a guide rod of 97.5 grams, 5 penetration needle of 2.5 grams. So that's 6 100 grams. 7 (Deposition Exhibit Number 9 marked 8 for identification.) 9 Q And now I'm going to mark Bianchi '518, 10 which is Exhibit 1006 in the IPR, I'm going to 11 mark that as Exhibit 9 for the deposition. Let me 12 know when you've got that. 13 A I've got it. 14 Q And it's the same question as I was asking 15 for the Bianchi '254 reference. Here I'd like you 16 to direct me to the disclosures that you're 17 relying on for your conclusion that Bianchi '518 18 hardness testing was done with a 100-gram total. 19 A Okay. Yeah. This is what I was looking 20 for. Bianchi column 2, it's line 56 and 21 following, it tells you that you use penetration 22 according to ASTM D1321 at 177.5 for -- and what 23 that means to someone who's -- someone who's 24 skilled in doing penetration measurements, we 25 often report them as 100. That's the weight. 77	116 1 testing, you can't say for sure whether those 2 ranges overlap, right? 3 MS. JEFFRIES: Objection. Asked and 4 answered and vague. Go ahead, Bob -- 5 Dr. Lochhead, you can answer, if you can. 6 A I can look at the results and I see the 7 hardness testing, and that's what I looked at. 8 Q Well, I mean, you agree Bianchi discloses 9 a hardness range of 7 to 14 and that -- those 10 numbers appeared in some of P&G's claims, right? 11 A Yeah, it was a different method. 12 Q Different method. 13 A 70/14 with a 50-gram needle versus 70/14 14 with a 100-gram needle. 70/14 with a 100-gram 15 needle would be a much harder stick. If you look 16 at the results, which I can't find at the moment, 17 you'll see that the ones measured in the Bianchi 18 references are all -- they're right on the cusp, 19 which tells me you're using a heavier stick and 20 you still haven't penetrated all the way you 21 expect to. 22 Q So my question is -- 23 A I can deduce that they're harder sticks. 24 Q Fair enough. 25 My question is: Given the two ranges, 7

117 1 to 14 using whatever you believe Bianchi to have 2 used and 7 to 14 using whatever you believe P&G to 3 have used, you don't know for sure whether those 4 ranges overlap? 5 MS. JEFFRIES: Objection. Asked and 6 answered and also vague. Mischaracterizing the 7 record. 8 A I do know that if you measure with a 9 100-gram stick, the way Bianchi does, that if you 10 get the same material, it will penetrate much 11 further. I do know that the Bianchi reference 12 shows me much harder sticks. And if I look -- if 13 I look at where the measurements are, the 100-gram 14 penetrometer would drive it much further. 15 Q And do you know whether the -- 16 A I can't give you the exact method, but I 17 do know I can deduce the Bianchi sticks are harder 18 sticks. 19 Q Do you know whether the ranges overlap, 20 the 7 to 14 ranges? 21 MS. JEFFRIES: Objection. Asked and 22 answered. Mischaracterizing the documents. 23 A There's two different methods, and I don't 24 know what the correlation is between those 25 methods. But I do know that the 50-gram needle	119 1 Q By this hardness method, were you using 2 the D1321 method? 3 A I was using the penetrometer method. I 4 can't say for sure it was D1321. 5 Q And what were you remembering? 6 A I can't remember. As I told you, I can 7 remember looking at the needle. I've done it on 8 occasion. I haven't done it routinely, but I've 9 done it occasionally. 10 Q Have you done it on cosmetic sticks? 11 A Yes. 12 Q Okay. And so back when you were testing 13 this, hardness had been recognized as a property 14 that was important for cosmetic sticks? 15 MS. JEFFRIES: Objection. Vague. 16 A Hardness and softness, yes. 17 Q And someone skilled in the art like you 18 would have the desire to optimize the hardness, 19 right? 20 A I don't know -- 21 MS. JEFFRIES: Objection. Broad. Vague. 22 Incomplete hypothetical. 23 A Somebody like me would be trying to 24 formulate something that was acceptable and trying 25 to figure out how to measure that, how it was
118 1 wouldn't penetrate nearly as far as the 100-gram 2 needle. In the patent, of course, the 100-gram 3 needle goes almost the same height. So the 4 100-gram needle would be expected to go much 5 further if it was the Procter & Gamble sticks. 6 Q Did you ask Procter & Gamble for any 7 results from hardness testing it had done? 8 A No. 9 Q Did you speak with any of the inventors 10 about how they performed the testing in their 11 patents? 12 A No. 13 Q And there's no conversion you know of to 14 convert between the Bianchi and P&G tests as you 15 see them, correct? 16 A No. 17 Q Okay. Before P&G's patents were filed, 18 had you personally conducted any hardness tests? 19 A Yes, a long time ago. 20 Q When was that? 21 A Oh, I can't remember for sure. I can 22 remember peering at the needle quite a while ago. 23 Looking at a stick, the hardness method. This 24 hardness method is used for waxes, greases, all 25 sorts of things. I can remember looking at it.	120 1 acceptable. 2 Q And you had certain tools like a 3 penetrometer that would help you accomplish that, 4 right? 5 A I don't have the penetrometer in my lab. 6 Q No, I'm talking at the time when you were 7 doing this testing, you had certain tools at your 8 disposal like a penetrometer that you could use to 9 test the hardness and adjust it, right? 10 A I used someone else's penetrometer. 11 Q Fair enough. But there were tools in 12 existence that someone skilled in the art such as 13 yourself could adjust and test the hardness, 14 right? 15 MS. JEFFRIES: Objection. Incomplete 16 hypothetical. 17 A They could measure. The tools are used to 18 measure the hardness. The formulator has to 19 adjust the hardness. 20 Q Right. And a formulator like yourself 21 would have -- do you consider yourself a 22 formulator? 23 A I'm somebody who stands behind -- I've 24 formulated before, but that's not my primary 25 function. My primary function is to be able to

121 1 explain the science and the technologies to the 2 formulators and guide them. 3 Q Okay. Let's use the term "POSA." You 4 consider yourself a POSA, right, for these 5 patents? 6 A I think I'm more than a POSA. I think I 7 understand what a POSA would do. I've worked with 8 enough POSAs. 9 Q So anyway, a POSA would have certain 10 know-how on how to adjust the hardness once it had 11 been tested to develop an acceptable cosmetic 12 stick? 13 MS. JEFFRIES: Objection. Incomplete 14 hypothetical. 15 A Yeah, that's a very -- a very open 16 question you've asked me. Some individual had to 17 adjust the hardness. I don't know what they're 18 adjusting the hardness of. 19 Q Sure. Well, maybe we can narrow it to 20 your testing. This is back before P&G patents. 21 You tested a stick for hardness, right? 22 A Yes. 23 Q With a penetrometer, right? 24 A Yes, yes. 25 Q What did you do with those results?	123 1 didn't want it too hard or too soft. 2 Q And if the stick came back as too hard or 3 too soft, would the formulators have been able to 4 do anything about that? 5 MS. JEFFRIES: Objection. Incomplete 6 hypothetical. 7 A Well, remember, it's part of a variety of 8 tests. So all of these tests are helping to guide 9 the formulator to make a product, in this case, to 10 make a better product. 11 Q Have you ever had a penetrometer in your 12 own lab? 13 A No. 14 Q How many times approximately have you 15 measured hardness with a penetrometer? 16 A I don't know. Over 50-something years, I 17 don't know. Somewhere between 20 and a hundred 18 times, I guess. 19 MS. JEFFRIES: Dr. Lochhead, I'll remind 20 you not to guess. I don't think counsel is 21 interested in your guesses. If you have an 22 estimate, that's great. But if you don't, you 23 don't need to guess. And you shouldn't. 24 A I was guessing. 25 Q You can give me your guess. I'm entitled
122 1 A I used them in combination with other 2 results to guide formulators towards something 3 that they wanted to make. 4 Q Okay. Was there a hardness target for 5 these -- that these formulators gave you or you 6 gave to the formulators? 7 MS. JEFFRIES: Objection. Vague. 8 Irrelevant. 9 Q Sorry. I missed the answer. 10 A I can't remember if there was a hardness 11 target. I just know we were measuring hardness. 12 Q Was there a hardness acceptability 13 criteria? 14 MS. JEFFRIES: Same objections. 15 A I can't remember if there was a hardness 16 acceptability. 17 Q Was there a reason you tested hardness? 18 A It was one of a variety of rheology tests 19 trying to understand what the composition would 20 do. 21 Q Do you know how the formulators used the 22 hardness results that you gave them? 23 A Part of the test, part of a routine number 24 of tests. Clear they were measuring -- they were 25 measuring the hardness of a stick because they	124 1 to your -- 2 MR. CALABRO: Stop coaching the witness, 3 Andrea. 4 MS. JEFFRIES: You're entitled to an 5 estimate, but you're not entitled to a wild guess. 6 So I don't think this matters. It doesn't matter 7 to me, but I'm just reminding the witness not to 8 be guessing. 9 MR. CALABRO: Oh, no, it matters. 10 Q Dr. Lochhead, for this case, you didn't do 11 any testing to confirm whether for a given stick, 12 it could fall both within the Bianchi range as you 13 interpret it and the P&G range as you interpret 14 it, correct? 15 MS. JEFFRIES: Objection. Compound. 16 Asked and answered. 17 Q Answer it again, please, Dr. Lochhead. 18 A I didn't conduct any penetrometer tests in 19 this case. 20 Q Before P&G's patents were filed, were you 21 generally aware if you add an ingredient like 22 beeswax to a deodorant stick, using more beeswax 23 would make the stick harder and using less beeswax 24 would make the stick softer? 25 MS. JEFFRIES: Objection. Incomplete

125 1 hypothetical. 2 A No, I was not. As I explained before, it 3 depends on the detail of the crystal structure and 4 how it's flocculated. 5 Q So you didn't know that? 6 A No, that's something you learn from the 7 methods. If I followed the methods that I knew 8 of, then I could get -- I could reproduce the 9 stick. But in the abstract, could I predict? No, 10 I probably couldn't predict. 11 MS. JEFFRIES: Dr. Lochhead, I think you 12 do need to speak up a little bit louder. I'm not 13 hearing you. I'm not sure if the court reporter 14 can hear you. 15 THE WITNESS: Okay. 16 MS. JEFFRIES: And if you're getting a 17 little bit -- if you want to take a break, get 18 water, that's also fine. 19 THE WITNESS: In a few minutes, I'll need 20 to go to the bathroom. 21 MS. JEFFRIES: We can take a break in a 22 few minutes, that's no problem. 23 MR. CALABRO: Why don't we take a quick 24 break now. 25 MS. JEFFRIES: Okay.	127 1 MR. CALABRO: Yeah, we'll do the same, I 2 think, 2 days. I don't remember what I put down 3 but ... 4 THE COURT REPORTER: I can't remember 5 either. But 2 days will be Monday, if that's 6 acceptable with both of you. 7 MS. JEFFRIES: That's okay for me. 8 MR. CALABRO: That works for me. 9 (Witness excused, 2:21 p.m. Eastern.) 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
126 1 (A short break was taken.) 2 Q Dr. Lochhead, when were you first engaged 3 by P&G in connection with these patents? 4 A I can't remember for sure, but I think it 5 was about 6 months ago. 6 Q And what were you engaged for? What was 7 the scope of the engagement? 8 A Again, I'd like to -- it's just not here. 9 I can't remember whether I was engaged to be a 10 consult at the time or just an expert. But I was 11 engaged to review and comment on the patent. 12 Q And was it just in connection with these 13 IPRs? 14 A Yes. 15 MR. CALABRO: That's all I have for right 16 now. No further questions. 17 THE WITNESS: Okay. 18 MS. JEFFRIES: Okay. 19 (Discussion between the court reporter and 20 counsel regarding transcript orders.) 21 MS. JEFFRIES: So we'll do expedited. I 22 don't want to burden you. But tomorrow or the 23 next day. If you're doing expedited for the other 24 side, the same timing is fine for us. If you're 25 not, we'll just take it in, let's say, 2 days.	128 1 ACKNOWLEDGMENT OF DEPONENT 2 3 I, DR. ROBERT LOCHHEAD, do hereby 4 acknowledge that I have read and examined the 5 foregoing testimony and the same is a true, 6 correct, and complete transcription of the 7 testimony given by me and any corrections appear 8 on the attached errata sheet signed by me. 9 10 11 _____ 12 (SIGNATURE) (DATE) 13 14 15 16 17 18 19 20 21 22 23 24 25

Transcript of Dr. Robert Lochhead
Conducted on July 10, 2025

33 (129 to 132)

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CERTIFICATE OF SHORTHAND REPORTER - NOTARY PUBLIC

I, RACHEL F. GARD, Certified Reporter and
Notary Public within and for the States of
Illinois, Michigan, Indiana, and Nevada,
do hereby certify:

That DR. ROBERT LOCHHEAD, the witness whose
deposition is hereinbefore set forth,
was duly sworn by me before the commencement of
such deposition and that such deposition was taken
before me and is a true record of the testimony
given by such witness.

I further certify that the adverse party,
PROCTER & GAMBLE COMPANY, was represented by
counsel at the deposition.

I further certify that the deposition of
DR. ROBERT LOCHHEAD occurred remotely via Zoom,
on Wednesday, July 10, 2025, commencing at
9:32 a.m. to 2:21 p.m.

I further certify that I am not related to any of
the parties to this action by blood or marriage, I
am not employed by or an attorney to any of the
parties to this action, and that I am in no way
interested, financially or otherwise, in the
outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my
hand this 14th day of July, 2025.



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