

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Dr. Squatch LLC

Petitioner

v.

The Procter & Gamble Company

Patent Owner

Case IPR2024-01174

U.S. Patent No. 11,497,706

EXPERT DECLARATION OF ROBERT LOCHHEAD, PH.D.

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I, Robert Lochhead, declare as follows:

1. I have been asked to provide my opinions in the matter of the Inter Partes Review of U.S. Patent No. 11,497,706 (the “’706 Patent”).

I. PROFESSIONAL BACKGROUND

2. Exhibit 2020 is a copy of my current curriculum vitae (“CV”). Exhibit 2020 also includes a list of my publications and the cases in which I have testified at deposition, hearing, or trial.

3. I hold a Bachelor of Science degree in Pure Chemistry from the University of Strathclyde in Scotland. I hold a PhD in Molecular Rheology and Dielectric Relaxation of Polymer Solutions from the Department of Pure and Applied Chemistry at the University of Strathclyde in Scotland. I was a Fulbright Scholar at the Department of Chemical Engineering at Carnegie-Mellon University where I did my Post-doctorate work.

4. I have more than 55 years of experience in the field of polymer science, and more than 50 years of experience in the field of cosmetics. I am currently Director and Professor Emeritus at the School of Polymer Science and Engineering at the University of Southern Mississippi, where I previously served as the Director/Chairperson of the School of Polymers for about two decades. I have been an active member of the Society of Cosmetic Chemists since 1983, and served as President of that organization in 1994 and again in 2010. For more than a decade, I

have served on the editorial board of the Journal of Cosmetic Science, and the International Journal of Cosmetic Science. I have peer-reviewed many cosmetic science articles. For more than a decade, I have served on the Committee for the International Nomenclature of Cosmetic Ingredients. This is the committee that is responsible for ingredient label names.

5. Prior to joining academia, I spent the first 22 years of my career conducting industrial research that ranged from polymer and silicone synthesis to colloid and surface science and to the management of hydrophilic polymers' research group for rheology applications that encompassed an array of industries that included cosmetics and personal care. From 1961-66, I worked as a laboratory assistant then Experimental Office at I.C.I. Nobel division. As a laboratory assistant, my work included analysis and testing of explosives and cellulosic polymers, and development of nitrocellulose coatings. As an experimental officer, I synthesized novel silicone polymers. From 1970 to 1979, I worked as a Scientist/Manager at Unilever Research in their personal care/cosmetics department in Isleworth, Middlesex. As a scientist/manager my work involved providing support to formulators. Specifically, I provided support in the areas of physical chemistry, polymers, colloids, and surface science. From 1979 to 1990, I worked as a research and development associate and ascended to R&D Fellow/manager in the Hydrophilic Polymers Group at BF Goodrich. At BF Goodrich, my work involved

polymer synthesis, process scale-up and plant start-up support, applications research and formulation science for cosmetics, pharmaceuticals, detergents, and textile print-pastes.

6. I have worked on the development of polymers, surface and colloid science, and emulsions-related compositions for the cosmetic, industrial and drug markets for many years. I am a listed inventor on at least twenty-two utility patents worldwide relating to polymers and polymerizable compositions and emulsions including U.S. Patent Nos. 12,187,874; 9,271,907; 6,124,037; 6,046,292; 6,007,769; 5,905,127; 5,858,345; 5,820,695; 5,004,598; 4,686,254; 4,668,731; 4,536,628; and 4,420,596. The polymers I have invented have enabled new and better technologies with beneficial societal and environmental impact. These include polymeric rheology structurants for textile printing that essentially replaced kerosene emulsions, polymeric emulsifiers which enabled skin lotions for sensitive skin and sports sunscreens, and bioadhesive polymers for the lubrication of mucous membranes and controlled drug delivery.

7. Since joining academia in 1990, I have consulted regularly, nationally and internationally, and have conducted research for companies operating in the cosmetics sector.

8. I have co-edited three textbooks regarding cosmetic science, particularly cosmetic compositions, delivery systems and nanotechnology. I have

also authored or co-authored over 85 articles and book chapters regarding emulsions and polymers, many in the field of cosmetics.

9. I have given over three hundred lectures and presentations on cosmetic formulations, emulsions, and polymers. I have spoken at over a dozen universities, company courses and seminars, cosmetic societies, and more than fifty different conferences in the United States and overseas, including in Canada, the UK, Sweden, the Netherlands, Belgium, Germany, Japan, China, Indonesia, Thailand, France, Argentina, Brazil, and Australia.

10. I have received numerous professional recognitions and awards for my contributions to the fields of polymer science and cosmetics. Those awards include the Maison G. DeNavarre Medal (which is the highest award in the Arts and Sciences of cosmetics) and the Merit Award from the Society of Cosmetic Chemists, The Alan B. Black award for the best paper on makeup technology, The Chemical Pioneer Award from the American Institute of Chemists, and The Education Award from the Society of Plastics Engineers. I have also served as the key note and invited speaker at the International Federation of Societies of Cosmetic Chemists Congress several times.

11. I have reviewed the '706 Patent, and I am familiar with the subject matter of this patent, which is within the scope of my education and professional experience.

II. INFORMATION CONSIDERED

12. In preparing my opinions, I considered all materials listed on Appendix A to this declaration.

III. RELEVANT LEGAL STANDARDS

13. I have been asked to provide my opinion as to whether the claims of the '706 Patent would have been obvious to a person of ordinary skill ("POSA") in the art at the time of the invention, in view of the prior art.

14. The opinions I am expressing in this report involve the application of my knowledge and experience to the evaluation of certain prior art with respect to the '706 Patent. I am not a lawyer and I have no formal education or training in the law or in patent law. Therefore, I have requested the attorneys from Jones Day, who represent P&G, to provide me with guidance as to the applicable patent law in this matter. The paragraphs below express my understanding of how I must apply current principles related to patent validity to my analysis.

15. It is my understanding that in determining whether a patent claim is anticipated or obvious in view of the prior art, the Patent Office must construe the claim by giving the claim its plain and ordinary meaning, consistent with the specification and prosecution history. For the purposes of this review, I have construed each claim term in accordance with its plain and ordinary meaning except where particular constructions are discussed.

16. It is my understanding that a claim is anticipated under 35 U.S.C. § 102 if each and every element and limitation of the claim is found either expressly or inherently in a single prior art reference.

17. It is my understanding that a claim is unpatentable under 35 U.S.C. § 103 if the claimed subject matter as a whole would have been obvious to a person of ordinary skill in the art at the time of the invention. I also understand that an obviousness analysis takes into account the scope and content of the prior art, the differences between the claimed subject matter and the prior art, and the level of ordinary skill in the art at the time of the invention.

18. In determining the scope and content of the prior art, it is my understanding that a reference is considered analogous prior art if it falls within the field of the inventor's endeavor. In addition, a reference is analogous prior art if it is reasonably pertinent to the particular problem with which the inventor was involved. A reference is reasonably pertinent if it logically would have commended itself to an inventor's attention in considering his problem. If a reference relates to the same problem as the claimed invention, that supports use of the reference as prior art in an obviousness analysis.

19. To assess the differences between prior art and the claimed subject matter, it is my understanding that 35 U.S.C. § 103 requires the claimed invention to be considered as a whole. This "as a whole" assessment requires showing that

one of ordinary skill in the art at the time of invention, confronted by the same problems as the inventor and with no knowledge of the claimed invention, would have selected the elements from the prior art and combined them in the claimed manner.

20. It is my further understanding that the Supreme Court has recognized several rationales for combining references or modifying a reference to show obviousness of claimed subject matter. Some of these rationales include: combining prior art elements according to known methods to yield predictable results; simple substitution of one known element for another to obtain predictable results; a predictable use of prior art elements according to their established functions; applying a known technique to a known device (method or product) ready for improvement to yield predictable results; choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; and some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill in the art to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

IV. THE '706 PATENT

21. I have reviewed the '706 Patent (Ex. 1001) in detail and understand its contents.

22. The '706 Patent describes and claims novel and inventive “antiperspirant and deodorant compositions and methods relating thereto.” ('706 at 1:15-17.) The inventors discovered that then-available aluminum-free, natural deodorant sticks had significant drawbacks, namely that they were too hard, too greasy, and did not provide the desired consistency and feel sought by consumers. The patent notes that “[m]any antiperspirant and deodorants use actives that are astringent metallic salts, or in particular, aluminum salts.” ('706 at 1:21-22.) And while aluminum “is highly effective as an active,” consumers have been increasingly interested in more natural formulations “that do not contain aluminum.” ('706 at 1:22-25.) Some products use baking soda as an alternative to aluminum, but the '706 patent explains consumers may seek “products with lower irritation than they have experienced with baking soda based products.” ('706 at 1:26-30.) The move to more natural ingredients extends to fragrances as well, with the '706 patent acknowledging consumers are also looking for “more natural products complete with fragrances that are mostly natural or essential oil based.” ('706 at 1:26-28.)

23. The '706 Patent explains that formulating a product with these consumer preferences is difficult because “natural and essential oil fragrances... can be less stable in the presence of heat and extreme pH.” ('706 at 1:30-32.) And products utilizing highly water-soluble alkaline powders instead of aluminum as actives “contribute negatively towards natural or essential oil stability as well,

especially in a hot process needed to melt waxes” into sticks. (’706 at 1:36-38.) “[H]igh water solubility powders can also lead to gritty products, as the water soluble powders can agglomerate when exposed to moisture released from powders during the hot batch process.” (’706 at 1:38-41.) Accordingly, “there is a continuing challenge to formulate a non-aluminum, natural fragrance deodorant that provides low irritation while maintaining sufficient odor protection.” (’706 at 1:42-44.)

24. Certain deodorant compositions described and claimed in the ’706 Patent have a stick hardness “from about 70 mm*10 to about 140 mm*10, as measured by penetration with ASTM D-1321 needle.” (’706 at cl. 8.) The specification explains that “[b]ecause achieving a sufficient softness in a deodorant stick with natural ingredients can be a challenge, it can be beneficial to formulate with higher amounts of liquids such as liquid triglyceride.” (’706 at 14:57-60.) So “[r]ather than using waxes or other high melting structurants,” the claimed compositions of the ’706 Patent “comprise [certain] levels of liquid triglycerides,” e.g., “at least about 25% by weight” or more. (’706 at 14:61-15:10 & cls. 1, 12, 15, 16, 18.)

25. The patent further outlines the process for testing the hardness of the stick, explaining “[t]he penetration test is a physical test method that provides a measure of the firmness of waxy solids and extremely thick creams and pastes with penetration values not greater than 250 when using a needle for D1321.” (’706 at

21:51-55.) The patent's hardness test is "based on"—but not identical to—the American Society for Testing and Materials Methods D-5, D1321 and D217 and DIN 51 579. ('706 at 21:54-58.)

26. Specifically, the '706 Patent states:

A needle or polished cone of precisely specified dimensions and weight is mounted on the bottom of a vertical rod in the test apparatus. The sample is prepared as specified in the method and positioned under the rod. The apparatus is adjusted so that the point of the needle or cone is just touching the top surface of the sample. Consistent positioning of the rod is critical to the measured penetration value. The rod is then released and allowed to travel downward, driven only by the weight of the needle (or cone) and the rod. Penetration is the tenths of a millimeter travelled following release.

('706 at 21:59-67). The '706 Patent instructs the tester to "[e]nsure[s] the total weight of the shaft and needle is 50 ± 0.2 grams when the shaft is in free fall." ('706 at 23:1-2) This is important, because a POSA would have needed to understand the testing methodology used in order to understand the hardness teachings of the patent. Any hardness measure can only be understood with a reference to the test method used to obtain it.

27. With regard to hardness, the '706 Patent explains that its inventors discovered "[p]roviding a deodorant stick having at least 25% of a liquid triglyceride

and structurants having a melting point greater than about 50 degrees C. can result in a deodorant stick with a hardness from about 70 mm*10 to about 140 mm*10.” (’706 at 14:48-51.) With these specific features along with others described and claimed in the ’706 Patent, “[s]uch a deodorant stick is able to comprise consumer-perceived natural ingredients, while offering a pleasant consumer experience in terms of its hardness.” (’706 at 14:51-54.)

V. PERSON OF ORDINARY SKILL IN THE ART

28. It is my understanding that when evaluating the claims of the ’706 Patent, I must do so based on the perspective of the person having ordinary skill in the art (“POSA”) at the relevant priority date. I understand that the ’706 Patent claims priority to Provisional Patent Application No. 62/527,180, filed on June 30, 2017, and also to Provisional Patent Application No. 62/647,104, filed on March 23, 2018, and that Petitioner contends March 23, 2018, is the relevant priority date. (Petition at 12.) My analysis applies equally if the priority date is June 30, 2017, or in the alternative, March 23, 2018.

29. Petitioner states that a POSA as of the claimed priority date “would have (1) at least a B.S. or equivalent degree; and (2) at least two years of experience in cosmetics formulations.” (Petition at 17.) I am comfortable using this definition of a POSA for the purposes of this IPR proceeding.

30. Given my knowledge and experience, as described above, I am familiar with the knowledge that such a POSA would have had at the relevant time, and the manner in which the POSA would have viewed the available information at that time. My testimony in this declaration is offered from this perspective, even if it does not specifically refer to the perspective of a POSA in every instance.

VI. CLAIM CONSTRUCTION

31. It is my understanding that the claims of the '706 Patent should be given their plain meaning, which is the meaning understood by the POSA at the time of the invention in view of the patent and file history. I understand it is P&G's position that, as a legal matter, the preamble of independent claims 1, 16, and 20 for a "deodorant stick" is limiting. I agree that this is the way a POSA would have read the claims—the body of each claim references a "stick" and a POSA would have recognized that this refers back to the "deodorant stick" of the preamble. I have applied that construction in my analysis, but even if the preamble is not found to be limiting, it is my opinion that Petitioner's arguments still do not invalidate the claims.

VII. THE ALLEGED GROUNDS OF UNPATENTABILITY & PRIOR ART

32. The alleged grounds of unpatentability asserted in the Petition are:

- **Ground 1:** U.S. Patent No. 11,433,018 (“Lesniak”) (Ex. 1003) allegedly anticipates or renders obvious claims 1-2, 5-7, 10-13, and 15;
- **Ground 2:** Lesniak allegedly renders obvious claims 3 and 14 in view of U.S. Patent No. 9,314,412 (“Phinney”) (Ex. 1004);
- **Ground 3:** Lesniak allegedly renders obvious claim 4 in view of Phinney and Lamb (Ex. 1005);
- **Ground 4:** Lesniak allegedly renders obvious claim 8 in view of U.S. Patent No. 6,048,518 (Bianchi-518) (Ex. 1006);
- **Ground 5:** Lesniak allegedly renders obvious claims 16-23 in view of Phinney, U.S. Patent Pub. No. 2007/166254 (“Bianchi-254”) (Ex. 1008), and Anconi (Ex. 1057);
- **Ground 6:** The Native deodorant website (“Native”) (Ex. 1007) allegedly renders obvious claims 1, 5, 7-8, 10-12, and 15 in view of U.S. Patent Pub. No. 2007/166254 (“Bianchi-254”) (Ex. 1008);
- **Ground 7:** Native allegedly renders obvious claims 2-4, 6, and 13-14 in view of Bianchi-254 and the Easy Homemade hobbyist blogpost (“Easy Homemade”) (Ex. 1009);

- **Ground 8:** Native allegedly renders obvious claims 16-23 in view of Bianchi-254, Easy Homemade, Anconi, and Stoia (Ex. 1058); and
- **Ground 9:** Squatch (Ex. 1059) allegedly renders obvious claims 16-23 in view of U.S. Patent App. Pub. No. 2019/0000734 (“Sturgis”) (Ex. 1056).

33. I will refer to Grounds 1-5 as the “Lesniak-based grounds,” Grounds 6-8 as the “Native-based grounds,” and Ground 9 as the “Squatch-Based Ground.” A brief overview of each of the cited references is below.

34. **Lesniak.** Lesniak describes and claims compositions relating to “a sunscreen or a diaper cream” with high zinc oxide content (11-20% or higher). (Ex. 1003 at cl. 1.) A POSA would have understood that the compositions disclosed in Lesniak are anhydrous, structured semisolids comprising a network of crystals which physically trap liquid in their interstices. A POSA would have further understood that the liquid carrier system in Lesniak is primarily triglyceride-based. Lesniak does not disclose deodorant sticks, and mentions antiperspirants only in passing. The reference contains just one example of a cosmetic stick (Example 6), and it is a sunscreen stick. (Ex. 1003 at 15:7-45, Table 7.) Nearly all of the compositions disclosed and formulated in Lesniak failed stability testing, and

Lesniak is wholly silent as to the stability of its single stick example. (Ex. 1003 at Table 2, Example 6.)

35. **Phinney.** Phinney describes deodorant formulations that include, together, zinc hydroxide, magnesium hydroxide, and potassium chloride and/or potassium sulfate. (Ex. 1004 at 4:45-54.) A POSA would have understood that Phinney's stick differs from Lesniak's not only because Phinney is a deodorant whereas Lesniak's is a sunscreen, but also because it employs a different stick technology and different active ingredients: whereas Lesniak's active ingredients comprise zinc oxide, Phinney's active ingredients comprise zinc hydroxide and magnesium hydroxide. (Ex. 1004 at 4:48-51, cl.1, cl.7.) Phinney is not an anhydrous semisolid with a liquid triglyceride carrier, but rather is a polyol-based sodium stearate gel stick comprising up to 20% water. (Ex. 1004 at 4:11-41.) It is my opinion that Phinney offers no guidance to a POSA on how to adapt any of its teachings to an anhydrous stick with a triglyceride-carrier system, nor how to adapt Lesniak's zinc oxide compositions to Phinney's zinc hydroxide and magnesium hydroxide compositions.

36. **Bianchi-518.** Bianchi-518 describes and claims aluminum-based antiperspirant compositions with about 30-50% volatile silicones and about 5-30% of an antiperspirant active comprising aluminum salts or complexes. (Ex. 1006 at Tables 2-3, Examples A through U [5:11-6:14], cl. 1., 2:59-4:7) The stick

technology employed by Bianchi-518 is a third type, different from both Lesniak and Phinney. It is an anhydrous, silicone-based semisolid that is substantially free of long chain fatty alcohols. (Ex. 1006 at Abstract, 1;9, 1:26, 1:54-55, 2:12-14, 4:8-15, 4:24, 5:15-6:14, 7:50-64, cl.1, cl. 7.) Bianchi-518 discloses a hardness range specific to its particular stick of “7.0 to about 14.0 mm,” based on penetration results as measured using an ASTM D-1321 needle driven by a total weight of 100g, in accordance with the ASTM D-1321 standard test method (Ex. 1005 at 2:58), which is different than the ASTM D-1321 needle penetration driven only by the 50g weight of the needle (or cone) assembly and the rod method defined in the ’706 Patent. As I explain in more detail below, the use of different driving weight forces for the needle penetration (100g v. 50g) means that the Bianchi-518 compositions are significantly harder than the hardness range claimed in the ’706 Patent. Bianchi-518 is silent as to any hardness range appropriate for aluminum-free deodorants, particularly those with other carrier systems and structurants like Lesniak and Phinney.

37. **Lamb.** Lamb is an article titled “Sodium Bicarbonate: An Excellent Deodorant” from The Journal of Investigative Dermatology in 1946. (Ex. 1005 at 131.) It describes a survey and study of medical students, the author’s family and friends, and the author’s patients where the participants used plain sodium bicarbonate as a single-ingredient deodorant. (Ex. 1005 at 131.) From this small

group study, Lamb concludes that “the possible mechanism of the deodorant action of bicarbonate of soda is mentioned as requiring further study.” (Ex. 1005 at 133.)

38. **Bianchi-254.** Similar to Bianchi-518, Bianchi-254 describes antiperspirant compositions including from about 20% to about 40% volatile silicone and from 15% to 30% of various aluminum compounds and complexes. (Ex. 1008 at [0028], cl. 1.) The stick technology is therefore the same as that of Bianchi-518: It is an anhydrous, silicone- and aluminum-containing semisolid that is substantially free of fatty alcohols; it is chemically and structurally different from the systems of Lesniak and Phinney. Like Bianchi-518, Bianchi-254 discloses hardness values for its compositions as measured using the DIN 51-579 needle penetration testing method driven by a total weight of 100g, rendering its compositions significantly harder than the claimed compositions of the '706 Patent.. (Ex. 1008 at [0117], Table 6.)

39. **Native.** Native is a Wayback Machine printout of the former website for the Native company, which appears to describe a list of ingredients contained in the Native deodorant formula from 2016. (Ex. 1007.) A POSA would have appreciated that Native shows many positive reviews, and no negative reviews, of the Native deodorant product as it existed at that time. (Ex. 1007 at 8, 17.)

40. **Easy Homemade.** Easy Homemade is a printout of a blog post from the Wayback Machine, with no indicia of reliability or significance to a POSA. (Ex.

1009.) The blogger purports to melt premade, baking-soda-free deodorants and then add arrowroot powder and magnesium hydroxide. The blog post does not disclose the base deodorant composition ingredients.

41. **Anconi.** Anconi describes and claims antiperspirant compositions comprising zinc salts. (Ex. 1057 at Abstract.) Anconi provides a list of optional ingredients that can be included in its compositions to purportedly provide “antibacterial and deodorant properties,” including “1,6-di-(4-chlorophenylbiguanido) hexane (Chlorhexidin), 3,4,4'-trichlorocarbanilide, quaternary ammonium compounds, oil of cloves, mint oil, thyme oil, triethyl citrate, farnesol (3,7,11-trimethyl-2,6,10-decatrien-1-ol), ethylhexyl glycerol ether, or polyglyceryl-3 caprylate.” (Ex. 1057 at [0027].) Out of that list, Anconi highlights “[i]n particular, polyglyceryl 3 caprylate” as having “been used to reduce odor-causing bacteria on the skin at very low concentration.” (Ex. 1057 at [0027]) Anconi warns that “[s]ticks and solids are really complex chemical systems requiring a balance of ingredients designed to make the most of several performance factors including payout, slip or lubricity, chemical stability, softening temperature, and of course, efficacy.” (Ex. 1057 at [0052].) **Stoia.** Stoia is a report titled “Selected Evidence-Based Health Benefits of Topically Applied Sunflower Oil,” that does not address the use of sunflower seed oil in a deodorant stick.

VIII. PETITIONER’S LESNIAK-BASED GROUNDS DO NOT SHOW UNPATENTABILITY OF THE CHALLENGED CLAIMS

A. Lesniak Does Not Disclose or Enable a “Deodorant Stick” – Grounds 1-5 (All Claims)

42. It is my opinion that Lesniak does not disclose a “deodorant stick,” as required by the preamble of independent claims 1, 16, and 20, for the reasons I explain below.

1. Lesniak Discloses Sunscreens and Diaper Creams, Not Deodorant Sticks

43. Lesniak discloses numerous and varied combinations and concentrations of ingredients for “natural” sunscreen and diaper cream compositions. As I show below, Lesniak describes twelve different compositions of sunscreens (Compositions 1–12), ten of which Lesniak treats as comparative examples:

TABLE 2											
Sunscreens.											
	Composition#										
	1*	2*	3*	4*	5*	6*	7*	8	9*	10*	11
Weight %											
Zinc Oxide	20	20	20	20	20	20	20	20	20	20	20
Sunflower oil	57	30	10	10	10	10	10	10	10	10	12.5
Caprylic/Capric Triglyceride	5	35	55	53	53	54	54	53	53	50	52
Beeswax	13	15	15	17	17	15	15	15	15	15	13.5
Shea butter	5	0	0	0	0	0	0	0	0	0	0
CastorWax MP80 hydrogenated castor oil	0	0	0	0	0	0	0	2	0	0	2
Tapioca starch	0	0	0	0	0	0	1	0	0	0	0
Cetyl Alcohol	0	0	0	0	0	0	0	0	2	0	0
Thickener silica	0	0	0	0	0	1	0	0	0	0	0
Natural jelly SP511	0	0	0	0	0	0	0	0	0	5	0
Total	100	100	100	100	100	100	100	100	100	100	100
Freeze/thaw stability	F/T 3	F/T 3	F/T 3	F/T 3	F/T 3	F/T 3	F/T 3	F/T 3	F/T 3	F/T 3	F/T 3
	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
High temp. stability (49° C.)	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Pass	Fail	Fail	Pass
"Whitening" acceptability	No	No	Yes	Yes	Yes	No	No	Yes	No	No	Yes
Dispensing acceptability	No	No	No	No	No	No	No	Yes	No	No	Yes
Greasiness/after-feel acceptability	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

*denotes comparative composition.

TABLE 3		
Water activity of sunscreen compositions		
	Composition#	
	11 (weight %)	12 (weight %)
Zinc Oxide	20	20
Sunflower oil	12.5	12.1
Caprylic/Capric Triglyceride	52	52
Beeswax	13.5	13.5
TABLE 3-continued		
Water activity of sunscreen compositions		
	Composition#	
	11 (weight %)	12 (weight %)
CastorWax MP80 hydrogenated castor oil	2	2
Fragrance (natural lavender vanilla fragrance)	0	0.40
Total	100	100
Water activity		
Sample #1	0.262	0.306
Sample #2	0.265	0.309
Sample #3	0.268	0.304

(Ex. 1003 at Tables 2, 3.) Among other things, Lesniak analyzes the Sun Protective Factor (SPF) of its inventive Composition 12, and compares its water resistance to five different commercially-available sunscreens. (Ex. 1003 at 13:23-45, Tables 4, 6.)

44. As for diaper creams, Lesniak discloses and analyzes six different diaper cream formulations (Compositions A–F):

TABLE 5						
Diaper cream formulations						
Composition#	A	B	C	D	E	F
	Weight %					
Zinc Oxide	12	12	12	12	12	12
Sunflower oil	12.5	12.5	12.5	12.5	12.49	20.49
Caprylic/Capric Triglyceride	60	55	55	52	52	52
Coconut oil	0	0	5	5	5	0
Beeswax	13.5	13.5	13.5	13.5	13.5	13.5
Shea butter	0	5	0	3	3	0
CastorWax MP80 hydrogenated castor oil	2	2	2	2	2	2
Vitamin E	0	0	0	0	0.01	0.01
Total	100	100	100	100	100	100

(Ex. 1003 at Table 5.) Lesniak's claims recite a "personal care composition selected from a sunscreen or a diaper cream," with later claims also limiting the invention to sunscreens and diaper creams. (Ex. 1003 at cls. 1, 12, 14, 19.)

45. Each of the compositions disclosed and claimed in Lesniak contain large amounts of zinc oxide (up to 20%), which, in my opinion, a POSA would have understood serves as a protective barrier to protect the skin from the sun or other irritants. (Ex. 1003 at Tables 2-3, cl. 13 ("[W]herein the composition comprises a sun-protective level of zinc oxide particles").) As both a POSA and the common consumer would have understood, zinc oxide is an active ingredient commonly found in sunscreens to prevent sun damage. (Ex. 1003 at cl. 13; Ex. 2013; 21 C.F.R. 352 (FDA's Over-the-Counter sunscreen monograph, shown at, e.g., <https://www.govinfo.gov/content/pkg/CFR-2011-title21-vol5/xml/CFR-2011->

title21-vol5-part352.xml).) And in the case of diaper cream, any POSA, parent, babysitter, or caregiver would have understood and appreciated that zinc oxide is present in those products to prevent diaper rash. (Ex. 2003 (“Zinc oxide topical cream is used to treat and prevent diaper rash. It is also used to protect skin from being irritated and wet caused by diaper use.”); Ex. 2004.)

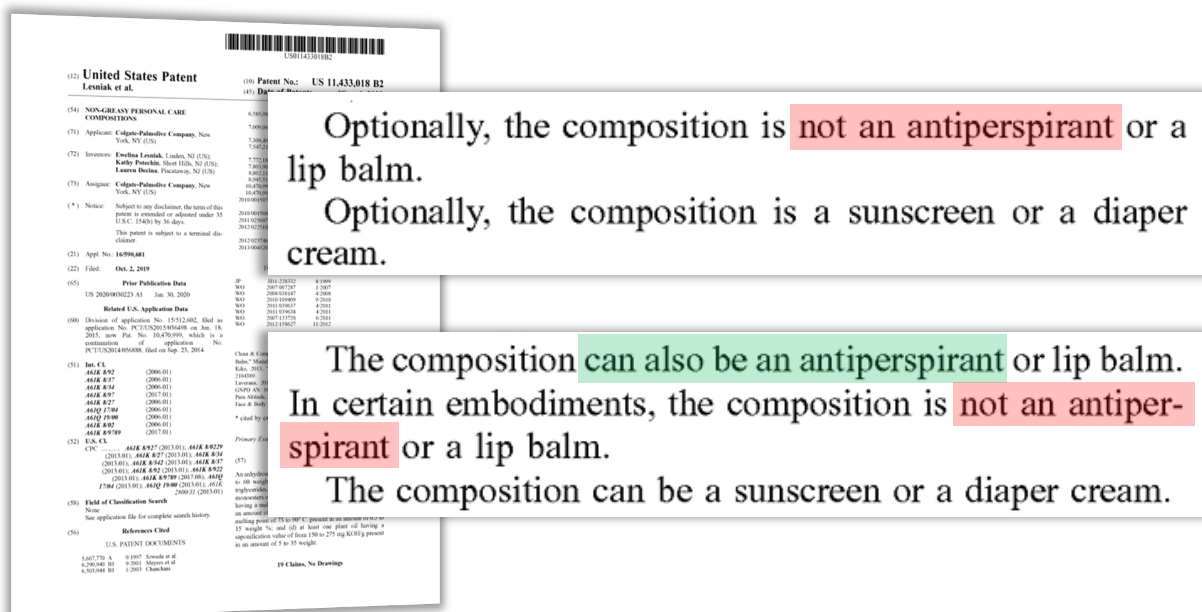
46. It is my opinion that a POSA would have understood and appreciated that zinc oxide, particularly in the high amounts present in Lesniak, is not commonly used or useful in deodorants. The Phinney reference confirms this, explaining “zinc oxide... [is] very unreactive against perspiration odour.” (Ex. 1004 at 2:33-36, 3:20-21 (noting “the low activity of zinc oxide as a deodorant agent”).) And Petitioner’s expert Dr. Michniak-Kohn could not identify a deodorant that contains the 20% zinc oxide that Lesniak discloses, either. (Ex. 2012 at 66:21-67:1.)

47. It is my opinion that Lesniak’s stated goals, specification, ingredients, and claims all show that a POSA would have viewed Lesniak as relevant to high zinc oxide concentration sunscreens or diaper cream compositions, not to deodorant sticks as required by the ’706 Patent claims. Lesniak does not mention a “deodorant stick” or “deodorant” even once. Petitioner’s Lesniak-based grounds do not invalidate claims 1-23.

2. Any Alleged Disclosure of an “Antiperspirant” Creates Significant Problems For Petitioner’s Argument

48. Given the lack of an express “deodorant stick” disclosure in Lesniak, Petitioner argues that Lesniak’s throwaway sentence regarding an “antiperspirant” teaches the claim limitation. I disagree.

49. Lesniak uses the word “antiperspirant” in just three instances, and in two of those three instances, Lesniak explicitly states that the composition is “not an antiperspirant”:



(Ex. 1003 at 4:23-26, 10:27-30.) In my opinion, these passing references to “antiperspirant” fail to convert Lesniak into something other than a reference about sunscreens and diaper creams.

50. Should a POSA have considered these words at all, it is my opinion that the POSA would have understood any such “antiperspirant” to contain aluminum.

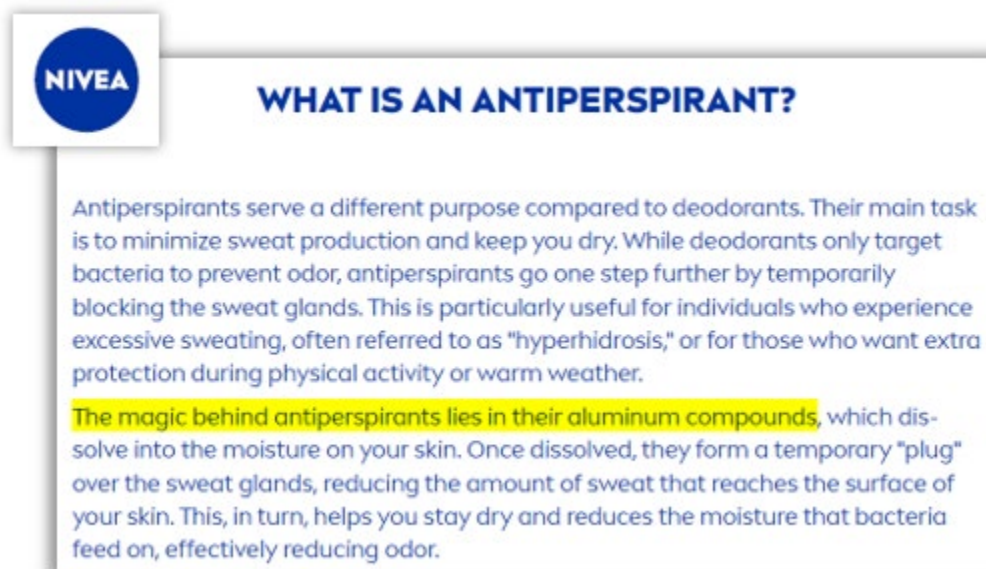
To a POSA, the term “antiperspirant” would have referenced a composition containing aluminum salts or aluminum salt complexes—the only antiperspirant actives approved by the FDA at the relevant time. A POSA would have understood that the U.S. Food and Drug Administration regulates antiperspirants as drugs and regards deodorants as cosmetics. A POSA would have understood Lesniak’s disclosure of “antiperspirant” as requiring the use of an antiperspirant active, and the only antiperspirant actives approved by the FDA at the time of the invention all contained aluminum. (37 C.F.R. 350, shown at, *e.g.*, <https://ecfr.io/Title-21/Section-350.10>.) As I show below, the FDA lists the 18 approved antiperspirant actives in its “Over-the-Counter (OTC) Monograph M019: Antiperspirant Drug Products for Over-the-Counter Human Use,” and every single one comprises an aluminum compound or complex:

- (a) Aluminum chloride up to 15 percent, calculated on the hexahydrate form, in an aqueous solution nonaerosol dosage form.
- (b) Aluminum chlorohydrate up to 25 percent.
- (c) Aluminum chlorohydrate polyethylene glycol up to 25 percent.
- (d) Aluminum chlorohydrate propylene glycol up to 25 percent.
- (e) Aluminum dichlorohydrate up to 25 percent.
- (f) Aluminum dichlorohydrate polyethylene glycol up to 25 percent.
- (g) Aluminum dichlorohydrate propylene glycol up to 25 percent.
- (h) Aluminum sesquichlorohydrate up to 25 percent.
- (i) Aluminum sesquichlorohydrate polyethylene glycol up to 25 percent.
- (j) Aluminum sesquichlorohydrate propylene glycol up to 25 percent.
- (k) Aluminum zirconium octachlorohydrate up to 20 percent.
- (l) Aluminum zirconium octachlorohydrate gly up to 20 percent.
- (m) Aluminum zirconium pentachlorohydrate up to 20 percent.
- (n) Aluminum zirconium pentachlorohydrate gly up to 20 percent.
- (o) Aluminum zirconium tetrachlorohydrate up to 20 percent.
- (p) Aluminum zirconium tetrachlorohydrate gly up to 20 percent.
- (q) Aluminum zirconium trichlorohydrate up to 20 percent.
- (r) Aluminum zirconium trichlorohydrate gly up to 20 percent.

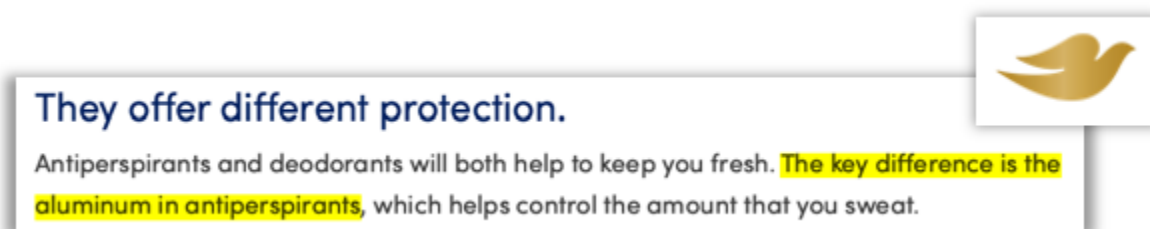
(37 C.F.R. 350.10, at, *e.g.*, <https://ecfr.io/Title-21/Section-350.10>.) At both the time of Lesniak and the invention of the '706 Patent, a POSA would have understood that the FDA's only approved antiperspirant actives contained aluminum.

51. I understand that Petitioner argues that Lesniak precludes the use of aluminum. (Petition at 20.) This is untrue. A POSA would have recognized that Lesniak itself defines the terms “natural composition” and “natural ingredients,” as used in its patent, to refer to the use of “ingredients which are extracted from the earth or sea, derived from plants, or synthesized by other organisms.” (Ex. 1003 at 4:61-67.) A POSA, and likely any lay person, would have understood that aluminum is necessarily included in this definition, as aluminum is “extracted from the earth.” In fact, aluminum is one of the most abundant elements in the earth's crust.

52. In my opinion, the FDA-approved antiperspirant actives would have informed the POSA's knowledge about the scope of Lesniak's disclosure. A POSA would have understood, based on both FDA requirements and as a matter of common knowledge in the field, that Lesniak's "antiperspirant" contains aluminum. This was standard across the industry at the time of the invention of Lesniak and it is still true today. For example, leading antiperspirant and deodorant brands all highlight the presence of aluminum in antiperspirants:



(Ex. 2014 (Nivea).)



(Ex. 2015 (Dove).)

Secret.

What is the difference between an antiperspirant and a deodorant?

The short answer is the aluminum active ingredient.* Simply put, antiperspirants have it, and deodorants don't. That's the difference...and if that's all you wanted to know—then you have your answer. But if you'd like to learn more, let's dive a little deeper so you can find the protection that's right for you.

(Ex. 2016 (Secret).)

Furthermore, the most important difference between antiperspirant is actually one specific ingredient, aluminum. If that stick contains aluminum, the product is an antiperspirant. Aluminum is the sweat blocking active ingredient in antiperspirant products, which aims to control or prevent sweat entirely. Metallic salts and aluminum chloride are the active ingredients in antiperspirants. The aluminum in your antiperspirant is activated when you start to sweat. It then gets absorbed into your sweat glands, and forms a plug that blocks sweat from leaving your body. So even though your body is producing sweat it isn't able to reach the surface of the skin.



(Ex. 2017 (Petitioner Dr. Squatch's website).)

53. In my opinion, the POSA's understanding of "antiperspirant" to include aluminum is fatal to Petitioner's obviousness argument. If Lesniak sufficiently discloses "a deodorant stick in the form of an antiperspirant stick" (and again, it is my opinion that it does not for the reasons already discussed above), then that Lesniak stick contains aluminum, and therefore does not meet the aluminum-free requirement of the claims. (Petition at 19.) Either way, Petitioner does not establish the Lesniak-based grounds disclose each and every element of the challenged claims.

3. Lesniak's Purported Disclosure of a Deodorant Stick is Non-Enabling to a POSA

54. It is my opinion that Lesniak also does not render obvious the “deodorant stick” limitation because its disclosure is non-enabling. I understand that Petitioner contends that “Lesniak discloses a deodorant stick in the form of an antiperspirant stick.” (Petition at 19.) However, in my opinion, Lesniak does not enable an antiperspirant stick, and also surely does not enable a deodorant stick.

55. Lesniak never mentions an antiperspirant *stick*, and of course never discloses a *deodorant stick*. At the time of Lesniak, antiperspirants and deodorants were available in different forms, including creams, liquids, and gels.

56. The only “stick” formulation Lesniak expressly teaches is a sunscreen stick:

TABLE 7	
Sunscreen Stick Formulation	
Material	Weight %
Caprylic/capric triglyceride	51
Zinc oxide	20
Beeswax	13.5
Sunflower seed oil	7.4
Sunflower seed wax	5
Hydrogenated castor oil (Castor Wax MP80)	3
Vitamin E Acetate	0.1

(Ex. 1003 at Table 7; Ex. 2012 at 75:5-10 (Dr. Michniak-Kohn confirming that Table 7 “is the only one that contains the ingredients that Lesniak discloses as creating [a] stick,” namely sunflower seed wax).

57. In my opinion, Lesniak's single *sunscreen* stick example does not rise to the level of an enabling disclosure of a deodorant stick. I understand that to render an invention unpatentable for obviousness, the prior art must enable a POSA to make and use the claimed invention. In my opinion, Lesniak fails to satisfy this standard because its compositions are riddled with instability problems, and there is no indication that a POSA could have derived from Lesniak *any* stable cosmetic stick (including a sunscreen stick); there is no indication that Lesniak's stick was stable against separation. Consequently, a POSA would not have the expectation that a stable deodorant stick could be derived from Lesniak's disclosure.

58. Lesniak describes a test to assess "[t]he physical stability of each composition," and presents the results of that testing in Table 2. (Ex. 1003 at 11:8-26.) As shown below, Lesniak explains that out of the eleven (non-stick) sunscreen compositions evaluated, only two were physically stable when stored at 49°C and did not exhibit "separation." There were only slight compositional differences between the stable and unstable compositions:

TABLE 2											
Sunscreens.											
	Composition#										
	1*	2*	3*	4*	5*	6*	7*	8	9*	10*	11
	Weight %										
Zinc Oxide	20	20	20	20	20	20	20	20	20	20	20
Sunflower oil	57	30	10	10	10	10	10	10	10	10	12.5
Caprylic/Capric Triglyceride	5	35	55	53	53	54	54	53	53	50	52
Beeswax	13	15	15	17	17	15	15	15	15	15	13.5
Shea butter	5	0	0	0	0	0	0	0	0	0	0
CastorWax MP80 hydrogenated castor oil	0	0	0	0	0	0	0	2	0	0	2
Tapioca starch	0	0	0	0	0	0	1	0	0	0	0
Cetyl Alcohol	0	0	0	0	0	0	0	0	2	0	0
Thickener silica	0	0	0	0	0	1	0	0	0	0	0
Natural jelly SP511	0	0	0	0	0	0	0	0	0	5	0
Total	100	100	100	100	100	100	100	100	100	100	100
Freeze/thaw stability	F/T	F/T	F/T	F/T	F/T	F/T	F/T	F/T	F/T	F/T	F/T
	3	3	3	3	3	3	3	3	3	3	3
	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
High temp. stability (49° C.)	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Pass	Fail	Fail	Pass
“Whitening” acceptability	No	No	Yes	Yes	Yes	No	No	Yes	No	No	Yes
Dispensing acceptability	No	No	No	No	No	No	No	Yes	No	No	Yes
Greasiness/after-feel acceptability	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

*denotes comparative composition.

(Ex. 1003 at Table 2, 11:17-19.) Lesniak explains a “fail” in physical stability “indicat[es] separation into two bulk phases.” (Ex. 1003 at 11:17-19.)

59. Lesniak is silent as to the stability of its only stick formulation—the sunscreen stick taught in Table 7. (Ex. 1003 at Table 7.)

60. The instability of Lesniak’s formulas is consistent with a POSA’s understanding of the complex interactions involved in crystalline semisolids, like Lesniak. A POSA would have understood that Lesniak’s compositions are structured semisolids comprising a network of crystals that physically trap liquid in

their interstices. The texture, stability, and bulk properties of these semisolids depend upon their microcrystal morphology—the size, shape, and strength of interaction between the crystals in the fractal network—which varies with the amount and type of liquid component(s) used as the carrier system. In the examples shown by Lesniak, the liquid carrier system is triglyceride-based. (*E.g.*, Ex. 1003 at Table 2, Table 7)

61. A POSA would have appreciated and been aware of the morphological crystal changes that could result from any alteration in the composition of structured semisolids, such that even the slightest variation in ingredients as to the carrier system or structurants could yield an unstable composition, and if in the form of a stick, an unusable stick. This is demonstrated by Lesniak itself, as its disclosure evidences the inventors' struggle to find inventive compositions that pass stability tests. (*E.g.*, Ex. 1003 at Table 2.) As any POSA would have known and appreciated, physical stability upon storage is a widely-recognized requirement for cosmetic products, including deodorant and antiperspirant sticks.

62. Notably, Lesniak shows that only *slight differences* in a composition can cause it to go from stable to unstable, exemplifying the fragility of these crystal-network-structured semisolids and supporting what a POSA would have already understood about these types of compositions. (Ex. 1003 at Table 2, 12:1-5.) Comparing a few of Lesniak's Table 2 compositions is instructive:

Ingredient	Unstable Comp. 4	Unstable Comp. 5	Unstable Comp. 7	Stable Comp. 8	Stable Comp. 11
Zinc Oxide	20	20	20	20	20
Sunflower Oil	10	10	10	10	12.5
Caprylic / Capric Triglyceride	53	53	54	53	52
Beeswax	17	17	15	15	13.5
Castor wax	0	0	0	2	2
Tapioca Starch	0	0	1	0	0
Total	100	100	100	100	100

(Ex. 1003 at Table 2.)

63. As I show above, only Compositions 8 and 11 passed Lesniak's stability tests, though their formulations contain only slight deviations from comparative non-stable compositions. (Ex. 1003 at 12:1-5.) For example, the only difference between unstable Compositions 4 and 5, and stable Composition 8, is that 2 percent of the beeswax was replaced by the same weight percent of castor wax. Unstable Composition 7 also has nearly identical ingredients, except it includes an extra percent by weight of the triglyceride and 1% tapioca starch. A POSA would have understood Lesniak to be teaching that very small changes in any of its compositions could yield an unstable and separated composition.

64. Further, Lesniak shows the POSA that in some cases, compositions with a higher liquid component and lower amount of structurant can be stable over

compositions with less liquid and more wax. Unstable Compositions 4 and 5 both have a total liquid component concentration of 63% (consisting of sunflower oil and caprylic/capric triglyceride), and a total structurant concentration of 17% consisting of beeswax. (Ex. 1003 at Table 2.) Stable Composition 8 has the same liquid component concentration as the unstable Compositions 4 and 5 and the same concentration of total structurant (15% beeswax + 2% castor wax). Meanwhile, stable Composition 11 has a higher liquid component concentration of 64.5%, consisting of sunflower oil and caprylic/capric triglyceride, but a lower overall concentration of structurant at 15.5% (13.5% beeswax + 2% castor wax). Thus, with Composition 11, stability was achieved by decreasing the total concentration of wax structurant, and increasing the liquid component concentration.

65. Again, a POSA would have understood that the structure of the composition is conferred by the flocculated network of wax microcrystals that pervade and trap the liquid carrier within the voids of the network. Differences in crystal size and shape, and in the nature and strength of the flocculated structure interacting with the liquid carriers, dictates the physical properties (like hardness) and the physical stability of the composition. For example, a POSA would have known that beeswax—an ingredient used in all of Lesniak's complete sunscreen and diaper cream formulations—forms large spherulite crystals in some oil carriers, but needle-like crystals in others.

66. In light of Lesniak's conceded stability issues and failure to disclose a stable "stick" composition, it is my opinion that a POSA reading Lesniak would not have been enabled to create an operative, solid deodorant stick with the ingredients Lesniak discloses, without undue experimentation.

67. In summary, Lesniak provides no teaching of a stable "deodorant stick," no teaching of a stable "antiperspirant stick," at least nine different sunscreen formulas with slight variations that are all unstable, and one example *sunscreen* "stick" as to which stability is unknown. In my opinion, a POSA with knowledge of Lesniak's disclosure on the fragility of its crystal-network-structured semisolids—which lacks any guidance as to how to formulate a stable deodorant or antiperspirant stick—would not have been enabled to make and use the claimed "deodorant stick." None of Petitioner's other cited references remedy this deficiency; Petitioner does not argue that they do.

68. It is therefore my opinion that Petitioner's Lesniak-based grounds do not invalidate claims 1-23 for this additional reason.

B. Petitioner Admits A POSA Would Have Had No Reasons to Modify Lesniak – Grounds 1-5 (All Claims)

69. I will next discuss Petitioner's proposed combinations with Lesniak. First, Petitioner does not identify any deficiencies of the (few) stable compositions of Lesniak that would have provided a POSA motivation to modify it. In fact, in numerous places throughout the Petition, Petitioner and its expert argue *against* any

modification of Lesniak, asserting a POSA “would have understood Lesniak’s formulations *to be complete deodorant sticks that did not require additional ingredients.*” (Petition at 20; Ex. 1002 at ¶ 76 (Dr. Michniak-Kohn stating in her declaration: “[I]n my opinion, a POSA would have understood Lesniak’s formulations to be complete deodorant sticks that did not require additional ingredients....”).) I understand Petitioner’s expert also testified about the standalone sufficiency of Lesniak at her deposition. When asked whether “the formulations in Lesniak require a modification in order to be turned into a deodorant,” she answered: “No. They are deodorants.” (Ex. 2012 at 59:4-7.)

70. But Petitioner also contends that a POSA *would* have sought to modify Lesniak by adding and changing many different ingredients, from replacing or supplementing its primary antimicrobial to using a totally new primary structurant as a base. (Petition at 36-40.) In my opinion, a POSA would not have been motivated to completely reformulate Lesniak. Petitioner does not explain why a POSA would have been motivated to reformulate Lesniak in any of the ways I address below, and does not explain how a POSA could have had a reasonable expectation of success of making the deodorant stick of the ’706 Patent claims through these modifications. Given the POSA’s understanding of Lesniak’s high-concentration zinc oxide sunscreen and diaper cream actives and instability challenges—with only two of twelve compositions passing stability testing—it is

my opinion that the POSA would have been dissuaded from even attempting to use Lesniak as a starting point or modifying any of Lesniak's formulations.

71. I address Petitioner's specific motivation to combine arguments as to Phinney, Lamb, Bianchi-518, Bianchi-254, and Anconi in more detail below, but each combination also suffers from this threshold deficiency that a POSA would not have been motivated to modify Lesniak to begin with.

C. A POSA Would Not Have Added Phinney's Magnesium Hydroxide to Lesniak and Would Not Have Had a Reasonable Expectation of Success in Doing So – Ground 2 (claims 3, 14), Ground 3 (claim 4)

72. It is my opinion that Petitioner has not shown that a POSA would have been motivated to look to Phinney to completely reformulate Lesniak to include magnesium hydroxide as an antimicrobial. Petitioner contends "Lesniak teaches using zinc oxide (a known antimicrobial) and Phinney teaches using magnesium hydroxide in combination with zinc oxide improves antimicrobial properties," and thus "[a] POSA would have been motivated to incorporate" the two. (Petition at 24.) I understand that Petitioner argues alternatively that "a POSA would have been motivated to replace the zinc oxide in Lesniak's deodorant stick with magnesium hydroxide, as both were known to have been used as antimicrobials in natural deodorant sticks, but zinc oxide was thought to have lower efficacy in combatting odor." (Petition at 36.)

73. **First**, Lesniak and Phinney describe entirely different uses for their metal oxides/hydroxides and a POSA would not have looked to combine their teachings on this topic. Lesniak explains that zinc oxide is included in its sunscreen and diaper cream products as a protective barrier, *i.e.*, to protect the skin from sun and other irritants, and in the case of the diaper cream, to help prevent diaper rash. (Ex. 1003 at cl. 13; Ex. 2003.) Lesniak does not use zinc oxide for odor control at all. As explained above, it is my opinion that a POSA would have understood Lesniak's formulas with high concentrations of zinc oxide to be unsuitable for use as an underarm deodorant or antiperspirant. (Ex. 1004 at 2:33-36 (“[Z]inc oxide... [is] very unreactive against perspiration odour.”), 3:20-21.). Thus, it is also my opinion that a POSA would not have been motivated to look at Phinney to modify Lesniak or incorporate any additional antimicrobial into Lesniak “to improve odor protection,” as odor protection was not a goal of Lesniak's use of zinc oxide.

74. **Second**, Petitioner picks the single ingredient magnesium hydroxide from Phinney's disclosure of a three- or four-ingredient combination to combat odor. Phinney explains that to combat odor, its compositions contain a combination of (1) magnesium hydroxide, and (2) zinc *hydroxide*, and (3) potassium chloride and/or potassium sulfate. (Ex. 1004 at 8:7-31, cl. 1.) In my opinion, there are two significant aspects to this multi-part odor fighting combination: the requirement of zinc hydroxide, not zinc oxide; and the requirement of potassium chloride/sulfate.

Phinney emphasizes the need for zinc hydroxide, not zinc oxide, stating that “[t]he zinc hydroxide typically lowers the pH of the magnesium hydroxide-perspiration odour-controlling formulation of the invention,” which “avoid[s] skin irritation.” (Ex. 1004 at 5:31-33, 52-60.) Phinney further requires the “disinfection capacity” of a potassium and/or sulfate potassium chloride, and makes clear at least one of these ingredients is responsible “for destroying microorganisms associated with odour.” (Ex. 1004 at 3:66-4:4, 5:1-5, 5:64-67.) Thus, a POSA would not have understood Phinney to teach a combination of zinc oxide and magnesium hydroxide at all. Phinney utilizes an odor-fighting mixture of zinc *hydroxide*, magnesium hydroxide, in combination with potassium sulfate and/or chloride: “In respect of greater detail regarding the formulation, *magnesium oxide* and *zinc oxide* must have high reactivity and are *added to water along with potassium sulfate* and mixed until the magnesium oxide and zinc oxide are converted to their hydroxides....” (Ex. 1004 at 8:22-41.) Petitioner’s cherry picking of magnesium hydroxide alone is unsupported by Phinney’s disclosure and is further evidence of Petitioner’s hindsight bias. I understand that Dr. Michniak-Kohn acknowledges that the Phinney reference does not disclose any deodorant composition containing magnesium hydroxide without zinc hydroxide and the separate ingredient(s)—potassium sulfate and/or chloride—as the disinfecting agent. (Ex. 2012 at 89:4-10 (Q: “And so none of these compositions that are disclosed in Phinney contain magnesium hydroxide alone

without the other two elements that we've discussed, right?" A: "No, because I guess his invention was the -- the actual combination that he was looking at.")

75. **Third**, Petitioner does not address Phinney's required conversion of zinc oxide to zinc hydroxide. Phinney teaches a POSA that its metal oxides must be converted to their hydroxides by mixing with water, or "skin irritation will occur." (Ex. 1004 at 8:40-41, 4:48-51.) Phinney's compositions are, on average, 20% by weight water, whereas Lesniak's zinc oxide compositions are anhydrous. A POSA would have needed to add a significant amount of water to the Lesniak compositions to convert Lesniak's zinc oxide into zinc hydroxide, as required by Phinney's teachings, which would have fundamentally altered the Lesniak-combination composition to the point that it might not even form a stick at all. Phinney suggests combining zinc oxide and magnesium oxide, which are then both hydrated in a slurry to form zinc hydroxide and magnesium hydroxide. (Ex. 1004 at 8:22-26.) Were a POSA to add Phinney's magnesium oxide to the zinc oxide in Lesniak, neither would be converted to hydroxide in Lesniak's anhydrous composition.

76. **Fourth**, a POSA would have understood that there are vast difference in the amounts of the metal oxides/hydroxides in Lesniak and Phinney. A POSA would have understood Lesniak's upwards of 11-20% zinc oxide compositions to be far from the 0.5-1.5% of zinc hydroxide used in Phinney. (Ex. 2012 at 84:14-16 (Petitioner's expert testifying in agreement that Phinney's zinc oxide is "much

lower” than Lesniak’s).) Dr. Michniak-Kohn confirmed this understanding: “Phinney teaches [a POSA] that you should have more magnesium hydroxide than zinc hydroxide,” and in fact, “it should be a ratio of 3 to 1.” (Ex. 2012 at 84:3-8; Ex. 1004 at 8:42-43.) Petitioner’s alleged motivations to combine do not consider the incompatibility of the disclosures in Lesniak and Phinney.

77. Because Lesniak and Phinney have such disparate teachings with two very different types of cosmetic systems (Lesniak triglyceride-base; Phinney water/polyol based), it is my opinion that a POSA would not have looked to Phinney to modify Lesniak, and would not have been motivated to pluck magnesium hydroxide out of the Phinney multi-ingredient teachings to add it to the high zinc oxide concentration Lesniak compositions.

78. Nor would a POSA have had a reasonable expectation of success in any such modification. Indeed, as explained above, Lesniak teaches that its triglyceride-carried formulations are delicate, with even the slightest changes yielding unstable results. A POSA would have understood and appreciated the potential instability of the formulations disclosed in Lesniak, and thus would not have had a reasonable expectation of success in reformulating Lesniak to add magnesium hydroxide, at either the amount specified in Phinney or the scaled-up amount required to maintain Phinney’s “effective” 3:1 ratio of magnesium hydroxide to zinc hydroxide. And a POSA would not have had a reasonable expectation of success in a reformulation

comprising not just magnesium hydroxide, but also the requisite amount of water to turn Lesniak's up to 22% zinc oxide into zinc hydroxide, as required by Phinney.

79. Further, a POSA would have understood that the deodorant formulations disclosed in Phinney comprise water/propylene glycol carrier systems structured by sodium stearate, which a POSA would have appreciated is wholly different than the anhydrous, triglyceride-based carrier systems utilized in Lesniak. A POSA would have known and appreciated the fundamental differences between Lesniak's and Phinney's technologies, in terms of their carriers, structurant(s), and crystal network, and as such, would not have had a reasonable expectation of success in combining the references' teachings.

80. The above are additional reasons why, in my opinion, the Lesniak-based grounds do not render obvious the challenged claims.

D. The POSA Would Not Have Combined Lesniak and the Bianchi References – Grounds 4-5 (All Claims)

81. In my opinion, a POSA would not have been motivated to combine Lesniak with either Bianchi-518 or Bianchi-254. Lesniak discloses anhydrous, natural compositions with a desire "to formulate such compositions from all-natural ingredients (i.e. '100% natural' compositions)," "which are extracted from the earth or sea, derived from plants, or synthesized by other organisms." (Ex. 1003 at 4:61-64, 5:29-31.) The antiperspirant compositions of Bianchi-518 require 30-50% of volatile silicone, which is not a natural ingredient. (Ex. 1006 at 1:56, 2:14, 4:9-12.)

Bianchi-254 requires similar amounts of volatile silicone. (Ex. 1008 at [0042].) The POSA would not have been motivated to consider the teachings of Bianchi-518 and Bianchi-254 in combination with Lesniak, because the Bianchi references' use of non-natural ingredients like volatile silicones is against the primary objective of Lesniak.

E. The Claimed Hardness Limitation Is Not Obvious Over the References – Ground 4 (claim 8)

82. It is also my opinion that Petitioner does not show that its proposed Lesniak combination discloses the '706 Patent's claim 8 hardness range "from about 70 mm*10 to about 140 mm*10, as measured by penetration with [a 50 g] ASTM D-1321 needle."

1. Neither Lesniak Nor Bianchi-518 Disclose a Stick of the '706 Patent's Claimed Hardness Range

83. Petitioner does not identify any reference that discloses or even suggests the '706 Patent's claimed hardness range. Petitioner admits its key reference Lesniak "does not expressly teach" the hardness limitations. (Petition at 30.) Lesniak states its stick embodiments "can have a hardness from 300 to 550 g," as measured using a texture analyzer, with its only formulated stick having a desired hardness of 432 g. (Ex. 1003 at 9:60-61, 15:41-42.) I do not believe it is possible to convert this hardness to the metric disclosed in the '706 Patent. I understand that

Petitioner's expert was unable to say whether Lesniak's range is too soft, too hard, or overlapping at all with the '706 Patent. (Ex. 2012 at 76:21-78:6.)

84. I understand Petitioner relies on Bianchi-518 for a disclosure of the hardness range of the '706 Patent, and then argues a POSA would have been motivated to combine Lesniak with Bianchi-518. (Petition at 29-32.) I disagree for multiple reasons.

85. First and foremost, a POSA would have understood that Bianchi-518 does not disclose the hardness range of the '706 Patent claims.

86. Petitioner's argument is premised on a false equivalency between the hardness measurements disclosed in Bianchi-518 and that claimed in the '706 Patent. In fact, the Bianchi hardness test uses a needle and shaft with double the weight of the needle and shaft used in the '706 Patent, and thus its so-called same or similar hardness ranges reflect that the Bianchi compositions are significantly harder than that claimed in the '706 Patent (i.e., the '706 method would require twice the weight of the penetration needle assembly to yield similar penetration depths as disclosed by Bianchi). Petitioner's failure to understand this difference in testing methodology is fatal to its case on the hardness claims.

87. As noted above, a POSA would have readily appreciated that any disclosed hardness range must be understood with reference to the test used to obtain it. Thus, a POSA reading Bianchi-518 would have understood its disclosed hardness

range of “7.0 to about 14.0 mm” with reference to the testing method it describes, i.e., the ASTM D-1321 testing method, which utilizes 100 grams of total weight. (Ex. 1006 at 2:58, 6:25-28; Ex. 2018 at 5-6 (“Place a 50-g weight above the penetrometer needle, making a total load of 100 ± 0.015 g for the needle and all attachments.”)) This ASTM D-1321 hardness penetration method using 100 grams of total load was readily known to a POSA.

88. As Bianchi-518 states: “One important physical parameter affecting consumer acceptance of suspensoid antiperspirant sticks of the invention is hardness as measured by needle penetration. Typical compositions of the invention will range in hardness from about 7.0 to about 14.0 mm as shown by the above mentioned needle penetration test.” (Ex. 1006 at 6:23-29.)

89. A POSA reading Bianchi-518 would have referred specifically to the inventors’ definition of the needle penetration in Column 2, line 58, when discussing the specifications of a paraffin wax material that can be used in the compositions. There, Bianchi-518 defines the method as “Penetration – ASTM D-1321 @ 100/77/5.” A POSA would have understood this to be the standard ASTM D-1321 needle penetration test method, that is employed using a 100-g total load, at 77°F (or 25°C), where the needle is applied to the sample for a duration of 5 seconds. (Ex. 2018 at 4 (“Penetration is measured with a penetrometer which applies a standard needle to the sample for 5 s under a load of 100 g.”), 5 (“Test Room or Cabinet,

capable of being maintained at $23.9 \pm 2.2^{\circ}\text{C}$ ($77 \pm 4^{\circ}\text{F}$)”), 5 (“Allow the container and contents to cool in the room at $23.9 \pm 2.2^{\circ}\text{C}$...”), 5 (“The test may be performed at any temperature in the range from 25 to 55°C (77 to 130°F). Temperatures 25, 35, 45, or 50 (of 77, 95, 113, or 122°F) normally are used.”).) The method requires the “[p]lac[ing of] a 50-g weight above the penetrometer needle, making a total load of 100 ± 0.015 g for the needle and all attachments.” (Ex. 2018 at 5-6.) This ASTM D-1321 hardness penetration method using 100 grams of total load was readily known to a POSA.

90. The '706 Patent uses a different testing method. The '706 Patent explains that its invention exhibits a hardness in the range of “70 mm*10 to about 140 mm*10,” as measured using an ASTM D-1321 penetration needle in a test similar to ASTM D-1321, but with one significant difference: “the total weight of the shaft and needle is 50 ± 0.2 grams when the shaft is in free fall.” ('706 Patent at 23:1-2.). The '706 Patent's method does not include the “50-g weight” added to the needle assembly as an additional load, which is used in the standard ASTM D-1321 test utilized by Bianchi-518.

91. In other words, as a POSA would have readily appreciated, the hardness values in Bianchi-518 reflect its antiperspirant stick's response to 100 grams of shaft and needle weight, whereas the hardness values in the '706 Patent reflect the response of the claimed deodorant stick to 50 grams of shaft and needle weight.

Thus, a POSA would have understood the hardness values disclosed in Bianchi-518 are based on the penetration depth of a needle assembly having two times the weight of the needle assembly utilized in the '706 Patent. If the Bianchi compositions were tested using the method of the '706 Patent (i.e., with a 50-g total needle assembly, as opposed to a 100-g one), the 50-g assembly would have a much shorter penetration distance than an assembly twice its weight. This means that the Bianchi compositions are significantly harder than those of the '706 Patent claims. It is my opinion that this would have been readily apparent to a POSA.

92. Thus, while Petitioner says that the Bianchi-518 harness range overlaps with the '706 Patent hardness range, the two ranges are not overlapping at all. It is my opinion that they are significantly different—they reflect similar penetration values for very different load weights. A POSA would have understood that Bianchi-518 required a 100-g weight needle assembly, which would penetrate to a greater distance than a 50-g needle assembly would penetrate in the '706 claimed compositions. While there are no formulas to convert the results of one of these methods to the other, a POSA would have understood that the hardness range disclosed in Bianchi-518 indicates significantly harder sticks than that claimed in the '706 Patent.

93. It is my opinion that Petitioner has not cited any reference disclosing the hardness range as measured by the test defined in the '706 Patent, and thus no reference with the hardness range specified in claim 8.

2. Even If the Claimed Hardness Range Is Disclosed (It Is Not), the Claim is Still Not Obvious

94. Even if the hardness range of Bianchi-518's and the challenged claims were overlapping—which is not the case—in my opinion, Petitioner's argument has additional issues below.

95. **First**, Bianchi-518 expressly ties its hardness disclosure to the specific inventive antiperspirant compositions described in the reference, which contain aluminum salts or complexes—ingredients the claims of the '706 Patent expressly forbid. ('706 at cls. 1, 16, 20.) As I show below, Bianchi-518 discloses Compositions A–U, with their ingredients expressed in weight percentages in the tables. As I have highlighted, each of Bianchi-518's compositions contain one or more aluminum salts or aluminum complexes:

Ingredient	A	B	C	D	E	F	G	H
Cyclomethicone DC245	40.3	38.0	37	41.32	41.57	36.49	39	36
Phenyl Trimethicone DC556			4			2.0		2
Paraffin wax SF1642	16.92	9.25	18	16.05	16.05	9.37	17	12.08
Silicone wax		7.75		1		3.22		
Castorwax	6.85	10.0	3	5.98	5.98	10.13	7	10.98
PEG-8 Distearate	2.85			4.5	4.2	4.63		4.94
Hydrogenated Vegetable oil							1	
Finsolv TN	1.55				1		2	
PPG-14 Butyl ether	10.03	12.5	12.5	10.4	10.4	12.66	10	12.5
AZG-370	20.00	22.0	22.0	20.0	20	20	22	20
Talc			1.5					
Fragrance	1.50	0.5	2.0	0.75	0.8	1.5	2	1.5

Ingredient	I	J	K	L	M	N
Cyclomethicone DC245	41.05	41.32	38.85	36.8	39.10	37.07
Paraffin wax	16.92	16.05	16.01	16.92	15.19	16.05
Castorwax	6.85	5.98	6.48	6.85	5.66	5.98
PPG-14 Butyl ether	10.03	10.40	9.49	10.03	9.84	10.40
Finsolv TN	1.55	—	1.47	1.55	—	—
PEG-8 Distearate	2.85	4.50	2.70	2.85	4.26	4.50
SF 1642	—	1.00	—	—	0.95	1.00
AZG-370	20.00	20.0	—	—	—	—
Q 5-7167	—	—	24.00	24.00	24.00	24.00
Fragrance	0.75	0.75	1.00	1.00	1.00	1.00

Ingredient	O	P	Q	R
DC 345	38.85	36.80	39.10	37.07
Paraffin wax	16.01	16.92	15.19	16.05
Castorwax	6.48	6.85	5.66	5.98
Fluid AP	9.49	10.03	9.84	10.40
Finsolv TN	1.47	1.55	—	—
Estol EO4DS3724	2.70	2.85	4.26	4.50
SF 1642	—	—	0.95	1.00
AZG-370	—	—	—	—
Q 5-7167	12.00	12.00	12.00	12.00
AZG 6313-15	12.00	12.00	12.00	12.00
Fragrance	1.00	1.00	1.00	1.00

Ingredient	S	T	U
CYCLOMETHICONE DC 245	34.8	37.8	36.7
PHENYL TRIMETHICONE DC556	—	—	—
Paraffin wax	8.5	9.25	9.05
SF 1642 Silicone Wax	1.5	1.5	1
Castor wax	10.5	6.85	8
PEG-8 Distearate	5.5	9.25	5
Hydrogenated Vegetable Oil	—	—	—
Finsolv TN	—	—	—
PPG-14 Butyl Ether	18.5	16	16.5
AZG-370	20	20	—
W ZR3OB DM CP5**	—	—	23
Talc	—	—	—
Fragrance	0.7	0.7	0.75

**Aluminum Zirconium Trichlorohydrate-Gly

(Ex. 1006 at 3:45-67, 5:15-6:14; Ex. 2007 at 1:17-18, 7:15, 9:18-21.) Petitioner's expert Dr. Michniak-Kohn also agrees with me that all of these compositions contain aluminum. (Ex. 2012 at 99:6-101:17.) The Petition does not mention Bianchi-518's use of aluminum salts or aluminum complexes, and Petitioner does not explain how a POSA could have achieved the hardness of Bianchi-518 (which, again, is different from the claimed range for the reasons I have already discussed) in an aluminum-free deodorant composition.

96. **Second**, Petitioner does not explain why a POSA would have been motivated to modify the hardness of Lesniak in the first place, given that it is Petitioner's position that Lesniak is a "complete deodorant stick[]" that did not

require additional ingredients or modifications. (*See* Petition at 20). Petitioner's expert concedes Lesniak does not identify any deficiencies with the hardness of its compositions such that a POSA would have sought to modify it. (*See* Ex. 2012 at 76:2-7 (Q: "And Lesniak doesn't indicate anywhere that this hardness is insufficient, right?" A: "I believe he doesn't." Q: "He doesn't say that the sticks are too soft or too hard?" A: "I believe not...."); *see also* Ex. 1002 ¶ 76.) And Lesniak's known stability issues would have further dissuaded a POSA from modifying it.

97. **Third**, given the POSA's understanding of the potential instability of Lesniak's compositions, a POSA would not have been able to arrive at the claimed hardness through routine optimization of Lesniak, nor would the POSA have had a reasonable expectation of success in modifying Lesniak to achieve the purported hardness of Bianchi-518 (which, again, has not even been shown to overlap with the '706 Patent's claimed range in the first place for the reasons I already discussed regarding their different testing methodologies).

98. Even if the false comparison between Petitioner's hardness range comparisons between Bianchi-518 and the '706 claimed invention were ignored, it is my opinion that achievement of the claimed hardness range would not have been obvious to a POSA. Petitioner does not and cannot provide a starting point for the POSA as to Lesniak's hardness, because neither Petitioner nor its expert tried to convert the hardness range disclosed in Lesniak to the claimed hardness metric,

99. Moreover, as I discuss above, even the slightest change in Lesniak's ingredients could yield unstable and unusable compositions. In view of Lesniak's Table 2, it is my opinion that a POSA would have understood that an increase in structurant content, for example, would not predictably provide physical stability to the formulation, and as such would not have affected Lesniak's overall hardness in the easy and expected way Petitioner contends. (Ex. 1003 at Table 2 (showing, for example, with Composition 11 how stability was achieved by decreasing the total concentration of wax structurant, and increasing the liquid component concentration); *see also* Ex. 1008 at Tables 1, 6 (showing even small changes in ingredients can yield different hardnesses).) It is therefore my opinion that a POSA would not have had a reasonable expectation of success in modifying Lesniak to achieve the claimed hardness in a stable composition.

100. The above are additional reasons why, in my opinion, the Lesniak-based grounds do not render obvious the challenged claims as to the hardness limitations.

F. A POSA Would Not Have Added Baking Soda as an Antimicrobial to Lesniak's Combinations

101. It is my opinion that a POSA would not have added baking soda as an antimicrobial to Petitioner's Lesniak combinations. '706 Patent claim 4 lists "baking soda" as one of numerous possible "additional antimicrobial[s]" that must be "different from the primary antimicrobial" of claim 1. I understand that Petitioner

contends this limitation is disclosed by the Ground-3 combination of Lesniak with Phinney and Lamb, claiming that a POSA would have utilized Lamb's baking soda as an antimicrobial in Lesniak, despite it being known "baking soda could cause skin irritation for some users." (Petition at 27-29.)

102. Petitioner's rationale for combining Lesniak and Phinney with Lamb for claim 4 is directly contrary to the knowledge and motivations Petitioner claims the POSA would have had elsewhere, namely that baking soda is a known irritant and a POSA would have been motivated to remove it from deodorants. (E.g., Petition at 50-52 (arguing in support of its Ground 7 Native combination that a POSA "would have known that deodorants containing baking soda... could cause skin irritation for some users" and would thus have been motivated to replace it in Native's formulation).)

103. Petitioner and its expert claim that a POSA would have both been motivated to add baking soda to Lesniak because it creates an "excellent" and "valuable" deodorant, yet remove baking soda because of the "associated skin irritation." (Petition at 27-28.) A POSA would not have been motivated by these contradictory objectives.

104. Petitioner also states that "A POSA would have understood Lesniak's formulations to be complete deodorant sticks that did not require additional ingredients such as baking soda." (Petition at 21.) If that was the POSA's

understanding, then the POSA would not have been motivated to add baking soda as an additional microbial to Lesniak. A POSA would not have been motivated or successful in adding baking soda to Lesniak due to the same instability issues identified above.

105. Thus, it is my opinion that Petitioner's Lesniak-based grounds do not render obvious claim 4.

G. Petitioner's Ground 5 Combination for Stearyl Alcohol, Triethyl Citrate, and A Starch Do Not Render Obvious the Claims – Ground 5 (claims 16-23)

106. It is my opinion that Petitioner's Ground-5 combination has defects in addition to those I describe above relating to all Lesniak-based grounds.

1. A POSA Would Not Have Reformulated Lesniak to Include Bianchi-254's Primary Structurant

107. Claims 16-23 each require a deodorant stick with "stearyl alcohol" as the "primary structurant," which I understand Petitioner contends is disclosed by Bianchi-254 in a combination of Lesniak, Phinney, Bianchi-254, and Anconi. (Petition at 33-37.) Petitioner claims that "[w]hile Lesniak describes using 'fatty alcohols' in its deodorant compositions, it does not expressly state stearyl alcohol is useful as the primary structurant." (Petition at 34.) Petitioner adds Bianchi-254, arguing that Bianchi-254 "highlights stearyl alcohol as a 'widely used' structurant 'of particular interest' for deodorants, and provides examples where it is successfully used as the primary structurant." (Petition at 34)

108. But as I discuss above, Petitioner admits a POSA would not have been motivated to reformulate Lesniak, and instead understood Lesniak as “a complete deodorant stick” without the need for additional ingredients or modification. (Petition at 20-21.) Moreover, it is my opinion that a POSA would not have had a reasonable expectation of success in a complete reformulation of Lesniak to make stearyl alcohol “the primary structurant” that is “present in the greatest amount” of the stick. (Petition at 37.) Lesniak describes fragile compositions that can become unstable with even the smallest changes in ingredients, especially considering a change in a key ingredient like the “primary” structurant. It is my opinion that Petitioner has not shown a POSA would have had a reasonable expectation of success in making such a change for the same reasons discussed above regarding Lesniak’s stability and the fundamental differences between the compositions described in Lesniak and that of the Bianchi references.

2. A POSA Would Not Have Been Motivated to Combine Anconi and Lesniak, and Would Not Have Had a Reasonable Expectation of Success in Doing So

109. Claims 16-23 also require that the deodorant stick include “triethyl citrate,” which I understand Petitioner contends is disclosed by Anconi. (Petition at 33-37.) Lesniak and Anconi are directed to different stick technologies; Lesniak employs an anhydrous, wax-structured, triglyceride-based system, while Anconi discloses an aqueous propylene glycol- and/or alcohol-based mixture solidified, for

example, by sodium stearate. (Ex. 1057 at [0049].) In my opinion, a POSA would not have been motivated to reformulate Lesniak at all, given that Petitioner admits it “did not require additional ingredients” (Petition at 20), and would also not have been motivated to reformulate Lesniak in accordance with the teachings of an entirely different stick technology.

110. It is my opinion that a POSA would not have been motivated to modify Lesniak given its known stability issues I discuss above. Anconi warns that “[s]ticks and solids are really complex chemical systems requiring a balance of ingredients designed to make the most of several performance factors including payout, slip or lubricity, chemical stability, softening temperature, and of course, efficacy.” (Ex. 1057 at [0052].) With this knowledge, a POSA would have been dissuaded from seeking to modify the few stable compositions of Lesniak, and would not have had a reasonable expectation of success in any such modification.

3. Lesniak Does Not Disclose a Stable Stick Including a Starch.

111. Claims 16-19 also require that the deodorant stick include “a starch.” I understand Petitioner contends that the starch is disclosed by Lesniak, which purportedly “describes formulating a deodorant stick with a starch.” (Petition at 37.) But Lesniak teaches in Table 2 that there are significant stability issues in the compositions. The only composition Lesniak discloses containing a starch (tapioca starch) is sunscreen Composition 7, which failed across the board as to stability,

“whitening” acceptability, and dispensing acceptability, which a POSA would have understood:

TABLE 2											
Sunscreens.											
	Composition#										
	1*	2*	3*	4*	5*	6*	7*	8	9*	10*	11
	Weight %										
Zinc Oxide	20	20	20	20	20	20	20	20	20	20	20
Sunflower oil	57	30	10	10	10	10	10	10	10	10	12.5
Caprylic/Capric Triglyceride	5	35	55	53	53	54	54	53	53	50	52
Beeswax	13	15	15	17	17	15	15	15	15	15	13.5
Shea butter	5	0	0	0	0	0	0	0	0	0	0
CastorWax MP80 hydrogenated castor oil	0	0	0	0	0	0	0	2	0	0	2
Tapioca starch	0	0	0	0	0	0	1	0	0	0	0
Cetyl Alcohol	0	0	0	0	0	0	0	0	2	0	0
Thickener silica	0	0	0	0	0	1	0	0	0	0	0
Natural jelly SP511	0	0	0	0	0	0	0	0	0	5	0
Total	100	100	100	100	100	100	100	100	100	100	100
Freeze/thaw stability	F/T 3 Pass	F/T 3 Pass	F/T 3 Pass	F/T 3 Pass	F/T 3 Pass	F/T 3 Pass	F/T 3 Pass	F/T 3 Pass	F/T 3 Pass	F/T 3 Pass	F/T 3 Pass
High temp. stability (49° C.)	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Pass	Fail	Fail	Pass
“Whitening” acceptability	No	No	Yes	Yes	Yes	No	No	Yes	No	No	Yes
Dispensing acceptability	No	No	No	No	No	No	No	Yes	No	No	Yes
Greasiness/after-feel acceptability	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

*denotes comparative composition.

(Ex. 1003 at Table 2.) Petitioner and its expert do not mention the instability of Lesniak’s only composition containing tapioca starch. (Petition at 36; Ex. 1002 at ¶ 94.) A POSA reading Lesniak would have understood that it does not disclose or enable stable deodorant sticks containing tapioca starch, including for the reasons I discuss above. Petitioner also mentions arrowroot powder, but none of the references

disclosed in Petitioner's proposed Lesniak combination mention arrowroot powder.
(Petition at 37.)

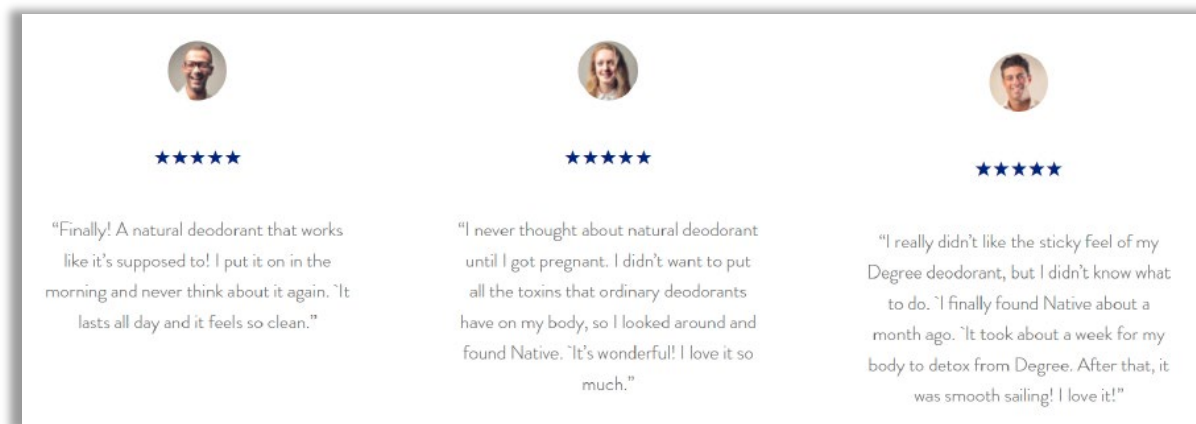
112. It is therefore my opinion that Petitioner's Lesniak-based grounds for claims 16-23 do not render those claims obvious.

IX. PETITIONER'S NATIVE-BASED GROUNDS DO NOT SHOW UNPATENTABILITY OF THE CHALLENGED CLAIMS

A. A POSA Would Have Had No Reason to Modify Native – Grounds 6-8 (All Claims)

113. As a threshold matter regarding all of Petitioner's Native combinations, in my opinion, a POSA would not have had a motivation to modify Native in the first place.

114. Native lists the ingredients of a commercially available deodorant stick that, as Petitioner claims, was "a known leader in the field" and that had "reached internet fame" by 2017. (Petition at 43; Ex. 1010.) The Native exhibit contains uniformly positive reviews from customers, which a POSA would have appreciated:



(Ex. 1010 at 8.) Dr. Michniak-Kohn agrees that there is nothing in the Native reference that indicates a problem with the Native stick. (Ex. 2012 at 117:15-118:14.). It is my opinion that with this level of consumer acceptance and praise, and no identified issues or concerns, there was simply no reason for a POSA to have sought to modify Native.

115. This foundational defect is present in all of Petitioner's Native combinations. I address additional deficiencies below.

B. The POSA Would Not Have Combined Native and Bianchi-254 – Grounds 6-8 (All Claims)

116. In my opinion, the POSA would not have been motivated to combine Native and Bianchi-254 for the same reasons I describe above in reference to Lesniak and the Bianchi references. The Native reference advertises and markets to consumers an aluminum-free deodorant product containing natural ingredients. (Ex. 1007.) Bianchi-254 discloses compositions comprising, together, up to 50% or more of a volatile silicone and aluminum-containing antiperspirant active. (*See* Ex. 1008 at [0042], Tables 1, 5; Ex. 2012 at 108:10-14.) The POSA would not have been motivated to consider the teachings of Bianchi-254 in combination with Native, as Bianchi-254's prominent use of non-natural ingredients and aluminum would defeat the core objective of Native to provide aluminum-free, natural deodorant products.

C. A POSA Would Not Have Implemented Bianchi-254's Weight Percentages With Any Success – Grounds 6-8 (All Claims)

117. It is also my opinion that a POSA would not have been motivated to look at Bianchi-254 or implement its weight percentages when formulating Native. I understand that Petitioner admits Native “does not expressly teach the percentage of each ingredient used” and claimed in the '706 Patent, but contends that Bianchi-254 “establish[es] that the claimed concentrations of ingredients were conventional.” (Petition at 46.) But a POSA who was seeking to develop a natural deodorant stick would not have been motivated to implement the weight percentages disclosed in Bianchi-254, which describes and claims antiperspirant formulations containing about 50% by weight of aluminum and silicone.

118. In my opinion POSA seeking to develop a natural deodorant stick would not have been motivated to implement the weight percentages disclosed in Bianchi-254. Bianchi-254 describes and claims antiperspirant formulations containing about 50% or more by weight of aluminum and silicone. For example, the antiperspirant compositions disclosed in Bianchi-254 contain, e.g., “from 20 to 40 wt. %” of a volatile silicone, and silicone is the ingredient often present in the greatest amount across Bianchi-254's compositions. (Ex. 1008 at [0042], Tables 1, 5; Ex. 2012 at 108:10-14.) The Bianchi-254 compositions further include from 20 to 30 wt. % of the aluminum-containing antiperspirant active. (Ex. 1008 at Tables 1, 5; Ex. 2012 at 108:10-14.)

119. Bianchi-254 does not disclose a “natural, aluminum-free deodorant stick.” The Petition does not explain what would have motivated a POSA to have implemented the weight percentages from a non-natural antiperspirant stick into the natural, aluminum-free stick of Native (which, in my opinion, may not even be possible), or what a POSA would have substituted for aluminum in order to preserve the same weight percentages without the presence of the aluminum salt or complexes. The Petition does not explain how a POSA would have had a reasonable expectation of success in implementing Bianchi-254’s teachings while maintaining a stable composition, and in my opinion they would not have a reasonable expectation of success in doing so.

120. It is my opinion that Petitioner has not shown that the Native-based grounds disclose or render obvious the limitations of any of the challenged claims.

D. Petitioner Does Not Show That Its Native Combination Renders the ’706 Patent’s Hardness Claim Obvious – Ground 6 (Claim 8)

121. In my opinion, similar to the Lesniak-based grounds, Petitioner has not shown its Native combination discloses the hardness range required by claim 8 of the ’706 Patent.

1. No Reference Discloses a Stick of the Claimed Hardness

122. None of the references cited in Petitioner’s Native-based grounds disclose a deodorant stick with the claimed hardness. I understand that Petitioner admits Native “does not disclose the hardness of the deodorant stick,” as required

by claim 8 of the '706 Patent. (Petition at 41.) I further understand that Dr. Michniak-Kohn agrees. (Ex. 2012 at 114:1-3.) Petitioner claims that Bianchi-254 provides the claimed hardness, stating that “it would be obvious to formulate a deodorant stick such as the stick disclosed by Native using ingredients concentrations and hardnesses taught by Bianchi-254,” which allegedly “establish[es]... that the claimed hardness range was standard.” (Petition at 41.)

123. In my opinion, the mistake Petitioner made with Bianchi-518's hardness above is the same mistake it makes here with Bianchi-254. Bianchi-254 discloses hardness values “from 5 to 15 mm, more particularly 5 to 10,” and “from 8 to 15 mm, preferably 8 to 10 mm,” measured pursuant to the standard DIN 51-579 hardness method. (Ex. 1008 at [0026], [0117].) As a POSA would have understood, like the ASTM D-1321 test, the DIN 51-579 method utilizes a 100-g total load for the needle assembly; instead of 100-g total load, the '706 Patent test requires a total needle assembly load of 50 g. (*Compare* Ex. 2019 at 2 (“The weight of the test needle should be $2.5\text{ g} \pm 0.05\text{ g}$ and that of the guide rod $97.5\text{ g} \pm 0.1\text{ g}$.”), *with* '706 Patent at 23:25-26.) For the same reasons I explained above, if the Bianchi compositions were tested using the method of the '706 Patent (i.e., with a 50-g total needle assembly, as opposed to a 100-g one), a POSA would have appreciated that its hardness values would be much lower than the values as disclosed by the '706 Patent. Bianchi-254's desired range indicates significantly harder sticks than that

claimed in the '706 Patent. Petitioner has not cited any reference disclosing the hardness range as measured by the test defined in the '706 Patent, and thus no reference with the hardness range specified in claim 8. In my opinion, then, Petitioner has not shown that claim 8 is obvious.

2. Even if the Claimed Hardness Range Is Disclosed (It Is Not), the Claim is Still Not Obvious.

124. Even if the hardness ranges of Bianchi-254 and the '706 Patent overlapped (which, as I explain above, is not the case), it is my opinion that Petitioner's arguments as to the hardness limitation have several additional defects.

125. **First**, it is my opinion that given Native's silence as to hardness, and because Native is nothing more than an ingredient list providing no amounts of those ingredients, a POSA looking at the Native reference would have had no indication of Native's hardness as compared to the challenged claims. As a result, a POSA would not have had any indication of what to alter, if anything, or by how much to alter it.

126. **Second**, a POSA would have understood that Bianchi-254 expressly ties its hardness disclosure to the inventive formulations it discloses, stating that in "embodiment[s] of interest," it is "desirable" that the antiperspirant stick compositions have that particular hardness. (Ex. 1008 at [0026].) As Bianchi-254 makes clear, and as a POSA would have recognized, all of Bianchi-254's antiperspirant formulations contain aluminum:

TABLE 1											
<u>Antiperspirant Formulations</u>											
COMPONENT (wt. %)	FORMULATION NO.										
	1	2	3	4	5	6	7	8	9	10	11
Castor Wax (mp 80° C.)	3.5	4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4	4
Stearyl Alcohol (mp 60°)	18	18	20	18	18	18	18	18	18	18	18
Polyethylene (400 mw; mp 82–84° C.)	0.3	0.5	0.5	0.5	0.5	1	1	1	1	1	1
Silica	0.3			0.3	0.3			0.5	0.5	0.75	1
PPG-14 Butyl Ether	20	5	5	20	20	9.5	15	15	25	31.25	8
C12–C15 Alkyl Benzoate (Finsolv TN)	5	20	18	5	5	15	23.5	23	13	8	31
Dimethicone, 50 cst; (Dow Corning 200)	1	1	1	1	1	1	1	1	1	1	1
Sunflower Oil	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Talc				3.5	2						2.5
AAZG (17.8%)	24	20	20	20	20	20	24	24	24	24	24
Fragrance	1	1	1	1	1	1	1	1	1	1	1
BHT (butylated hydroxytoluene)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Cyclomethicone; (Silicone 245; Dow Corning)	26.35	29.95	30.45	26.65	28.15	30.45	12.45	12.45	12.45	10.45	7.95

TABLE 5									
<u>Antiperspirant Stick Formulations</u>									
COMPONENT (wt. %)	FORMULATION NO.								
	12	13	14	15	16	17	18	19	
Castor Wax (mp 80° C.)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
Stearyl Alcohol (mp 60°)	18	18	18	18	18	18	18	18	
Polyethylene (400 mw; mp 82–84° C.)	1	1	1	1	1	1	1	1	
Stearth 100	0.5	0.5	0.5	0.5	—	—	0.5	—	
PPG-14 Butyl Ether	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	
C12–C15 Alkyl Benzoate (Finsolv TN)	15	15	15	15	15	15	15	15	
Dimethicone, 50 cst (Dow Corning 200)	1	1	1	1	1	1	1	1	
Sunflower Oil	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
AAZG (17.8%)	20	20	20	20	30	24	20	24	
Fragrance	1.25	1.25	1.25	1.25	1	1	1.25	1	
Fragrance Encapsulate							1.5	1.5	
BHT (butylated hydroxytoluene)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Cyclomethicone (Silicone 245; Dow Corning)	28.7	27.7	28.2	29.7	20.45	26.45	28.2	24.95	
Cyclodextrin	1	2	1.5						

(Ex. 1008 at Tables 1, 5, [0033] (defining AAZG as “an aluminum zirconium tetrachlorohydrate complex with glycine”).) Dr. Michniak-Kohn agrees that each of these formulations contain aluminum. (Ex. 2012 at 108:10-14.) The Petition does not mention Bianchi-254’s use of aluminum salts, and Petitioner does not explain

how a POSA could have achieved the hardness of Bianchi-254 (which, again, is different from the claimed range for the reasons I have already discussed) in an aluminum-free deodorant composition.

127. **Third**, in my opinion a POSA would not have had a reasonable expectation of success in formulating Native to achieve the purported hardness of Bianchi-254 (which, again, is significantly harder than the '706 Patent's claimed range). A POSA would have appreciated that Native's ingredient list suggests it is an anhydrous, wax-structured semisolid with a triglyceride-based carrier system, similar to Lesniak's examples, where even the slightest change in ingredients could yield unstable and unusable compositions. (Ex. 1003 at Table 2.) I discuss this in detail above throughout my discussions of Lesniak's Table 2.

128. The above are additional reasons why, in my opinion, the Native-based grounds do not render obvious the challenged claims as to the hardness limitations.

E. A POSA Would Not Have Added Easy Homemade's Magnesium Hydroxide to Native or Had a Reasonable Expectation of Success in Doing So – Ground 7 (Claims 2-4, 6, & 13-14); Ground 8 (Claims 16-23)

129. It is my opinion that a POSA would not have been motivated to completely reformulate Native to include magnesium hydroxide as an antimicrobial, and that the POSA would not have had a reasonable expectation of success in doing so. I understand it is Petitioner's position that "[w]hile Native teaches a deodorant stick composition comprising an antimicrobial, a POSA would have known that

deodorants containing baking soda could cause skin irritation for some users.” (Petition at 61.) Petitioner claims “[a] POSA would have looked to publications in the field of deodorants describing natural antimicrobials that were not known to cause skin irritation,” like the Easy Homemade hobbyist blog.

130. Petitioner contends that the Easy Homemade blog “confirms ... that magnesium hydroxide could be used to replace baking soda as an antimicrobial in deodorant compositions, and it works just as well.” (Petition at 63-64.) But in my opinion, Easy Homemade does not teach the removal and substitution of baking soda. (Petition at 63.) The Easy Homemade hobbyist says to purchase a pre-made baking soda-free deodorant base—a base of undisclosed ingredients that I understand Petitioner’s expert could not identify—and add some magnesium hydroxide powder to it. (Ex. 1009 at 7; see Ex. 2012 at 120:6-8 (Q: “Do you know what natural deodorant base she’s starting with?” A: “At this stage I’m not sure.”) As Dr. Michniak-Kohn confirms, Easy Homemade “doesn’t talk about removing any ingredients from these sticks; she’s talking about adding ingredients.” (Ex. 2012 at 121:1-9.)

131. Petitioner also does not show why a POSA would have been motivated to look at the Easy Homemade soap blog in the first place, or why a POSA would have found it necessary to modify the already-commercialized Native product. While baking soda can be a skin irritant to some, the Native webpage also shows

that its formulation includes shea butter and coconut oil, which a POSA would have understood to have anti-inflammatory and healing properties for skin. (Ex. 1007 at 15.) The Native reference also contains positive reviews from its users, none of which discuss experiencing any skin irritation. (Ex. 1007 at 17.) Because of this, it is my opinion that a POSA would not have been motivated to modify Native in view of the teachings of Easy Homemade.

132. Even if a POSA would have sought to replace baking soda in Native, a POSA would have understood that there were numerous different antimicrobial options available at the time. It is my opinion that the Petition does not explain why a POSA would have selected magnesium hydroxide, specifically, to replace Native's baking soda, from the POSA's then-available options.

133. Finally, even if a POSA would have been motivated to modify Native and replace baking soda with magnesium hydroxide, it is my opinion that a POSA would not have had a reasonable expectation of success in any such modification. As I explain above, a POSA would have understood and appreciated that compositions like Native are delicate. (Ex. 1003 at Table 2.) For example, as Lesniak explains, even the slightest changes in these types of formulas, to the degree of a single weight percent, can yield unstable results. (Ex. 1003 at Table 2.) A POSA would have understood the instability that could result from a reformulation

of Native, and would not have had a reasonable expectation of success in modifying Native to incorporate any teachings of Easy Homemade on magnesium hydroxide.

134. It is therefore my opinion that Petitioner's Native-based grounds do not render obvious claims 2-4, 6, or 13-14 (Ground 7) or claims 16-23 (Ground 8).

F. The Petition Does Not Adequately Explain Why a POSA Would Be Motivated to Both Add and Remove Baking Soda – Ground 7 (Claims 2-4, 6, & 13-14)

135. In my opinion, Petitioner's arguments on baking soda present contradictory motives for a POSA.

136. '706 Patent claim 4 requires the deodorant stick to include "at least one additional antimicrobial different from the primary antimicrobial, selected from the group consisting of ... baking soda." I understand that Petitioner contends this is disclosed by the combination of Native, Easy Homemade and Bianchi-254 "[b]ecause baking soda was known to cause skin irritation for some users, [so] a POSA would have been motivated to use a lower amount of baking soda as an additional antimicrobial, while substituting magnesium hydroxide as the primary antimicrobial to enhance odor protection." (Petition at 54-55.)

137. I understand that Petitioner also argues that a POSA would have been motivated to remove baking soda from Native because Easy Homemade allegedly discloses "the substitution of magnesium hydroxide powder as a non-skin irritating antimicrobial substitute for baking soda in deodorant sticks." (Petition at 53.) In

one claim, Petitioner's motivation-to-combine rationale centers on the "substitution" of magnesium hydroxide for baking soda, as a POSA would have understood the latter to be a skin irritant. (Petition at 53) For another claim, Petitioner and its expert argue the POSA actually would have been motivated to include baking soda in the Native stick "as an additional antimicrobial," in addition to Easy Homemade's magnesium hydroxide, despite its potential for irritation and despite the fact that Petitioner has argued that Easy Homemade teaches away from using baking soda. (Petition at 54-55; Ex. 1009 at 6.) In my opinion, these contradictory reasons could not motivate a POSA to both add and remove baking soda.

138. Petitioner also has not explained a deficiency in Native, or in its Native-Easy Homemade creation, that would motivate a POSA to add a second antimicrobial to Native's stick, whether it be baking soda, magnesium hydroxide, or one of the many other potential antimicrobial options.

139. Petitioner does not argue the POSA would have had a reasonable expectation of success in formulating a deodorant with both magnesium hydroxide and baking soda. (Petition at 56-57.) There is no reference in the Petition containing both of these antimicrobials within the same stick, and Petitioner does not explain how a POSA would have achieved multiple antimicrobials with a reasonable expectation of success. Indeed, as I explain above, a POSA would have appreciated that even slight changes in ingredients can yield unstable sticks.

140. In my opinion, Petitioner's Native-based grounds do not render obvious claims 2-4, 6, or 13-14.

G. A POSA Would Not Make Petitioner's Ground-8 Combination – Ground 8 (Claims 16-23)

141. Petitioner's Ground-8 challenge relies on a combination of five d references: Native, Bianchi-254, Easy Homemade, Anconi, and Stoia. (Petition at 55.) In my opinion, this combination has numerous issues, including the problems I explained above that apply to all of the Native-based grounds and the specific deficiencies presented with respect to the combinations of Native with Bianchi-254 and Easy Homemade. It is also my opinion that this combination has additional problems.

142. **First**, Claims 16-23 require that the deodorant stick include "triethyl citrate," which Petitioner again contends is disclosed by Anconi. (Petition at 60.) Just like the fundamental differences a POSA would have recognized between the stick technologies of Lesniak and Anconi, a POSA would have readily recognized that Native and Anconi are different. In my opinion, a POSA would have understood that, based on Native's ingredient list, it is an anhydrous, wax-structured semisolid with a triglyceride-based carrier system, like Lesniak, whereas Anconi is an aqueous propylene glycol- and/or alcohol-based mixture solidified, for example, by sodium stearate. (Ex. 1057 at [0049].) A POSA would not have been motivated to reformulate Native, or to reformulate Native in accordance with the teachings of a

different stick technology. Also, a POSA would not have been motivated to modify Native given the POSA's knowledge of potential stability issues I discuss above. In addition to those issues, Anconi warns that "[s]ticks and solids are really complex chemical systems requiring a balance of ingredients designed to make the most of several performance factors including payout, slip or lubricity, chemical stability, softening temperature, and of course, efficacy." (Ex. 1057 at [0052].) With this knowledge, a POSA would have been dissuaded from seeking to modify Native, and also would not have had a reasonable expectation of success in modifying Native accordingly.

143. **Second**, claims 16-23 further require "sunflower seed oil," which Petitioner contends is disclosed by Stoia. I understand that Petitioner contends that a POSA would have been motivated to combine Native with Stoia because "Native describes a deodorant stick comprising various plant oils and tocopherol, which is abundant in sunflower seed oil," and "Stoia discloses the 'proven . . . positive skin effects' of sunflower seed oil in cosmetic compositions." Petitioner argues the POSA "would have been motivated to include sunflower oil in Native's deodorant sticks, and would have had a reasonable expectation of success in doing so, in view of its known emollient properties and association with proven positive skin effects." (Petition at 61.)

144. I understand that Dr. Michniak-Kohn, however, confirmed Stoia does not include any disclosure of sunflower seed oil being used in a deodorant stick. (Ex. 2012 at 128:20-129:2.) I understand also that Petitioner admits that Native already “discloses the use of tocopherol (Vitamin E) ... in [its] deodorant stick.” (Petition at 57.) A POSA thus would not have been motivated to include a sunflower seed oil in Native due to the purported antioxidant properties of tocopherols. I understand further that Petitioner admits Native “already contained plant oil or plant oil-derived emollients, such as coconut oil,” and so a POSA would not have been motivated to include “sunflower seed oil as an [additional] emollient.” (Petition at 57.) In the additional light of a Petitioner’s knowledge of the instability of these compositions, in my opinion, a POSA would not have been motivated to make unnecessary changes at all.

145. It is my opinion that Petitioner’s Native-based grounds directed to claims 16-23 do not invalidate those claims, for these additional reasons.

X. PETITIONER’S SQUATCH-BASED GROUND DOES NOT INVALIDATE ANY CLAIM OF THE ’706 PATENT – GROUND 9 (CLAIMS 16-23)

A. Squatch Is Not a “Printed Publication” Accessible to a POSA

146. Squatch is an employee declaration that includes alleged images of Dr. Squatch-branded deodorant products at their launch date in November 2020. Exhibit A to the declaration includes photos of three different deodorants, which the Dr.

Squatch employee says each apparently “appeared on Dr. Squatch’s publicly-accessible website, <https://www.drsquatch.com/collections/deodorant>, upon their launch in November 2020.” (Ex. 1059 at ¶ 4.) The Squatch declaration does not include any screenshots of the webpage at the product launch date, and does not show that these Exhibit A images were available to a POSA and on the webpage at the relevant time.

147. I understand that the Squatch employee relies on an internal marketing document, a Shopify timestamp in source code, and an internal quality assurance feedback document allegedly prepared in advance of the website launch. (Ex. 1059 at ¶ 5.) The Squatch employee takes the position that these sources “confirm that the images in Exhibit A appeared on Dr. Squatch’s website in November 2020.” (Ex. 1059 at ¶ 5.) In my opinion, none of these sources actually show the images in Exhibit A published on the website and thus do not show their accessibility to a POSA.

B. A POSA Would Find Written Description Support for Claims 16-23 of the ’706 Patent in Its Priority Application.

148. Further, it is my opinion that Petitioner’s Sturgis reference is not prior art to claims 16-23 because those claims have proper written description support in U.S. Application No. 16/021,931 (the ’931 Application) to which it claims priority. I understand Petitioner cites to Exhibit 1053, which is P&G’s issued ’647 Patent, when citing to the ’931 Application. I will do the same.

149. I understand that Petitioner challenges the priority of '706 Patent claims 16-23 to the '931 Application, arguing that the application provides no “blaze marks” for a POSA to find support for the claimed ingredients of “shea butter, sunflower seed oil, triethyl citrate, beeswax, stearyl alcohol, and the other ingredients claimed.” (Petition at 14.) But in my opinion, the '931 Application sufficiently describes the ingredients in the '706 Patent’s claimed formula to a POSA. It explicitly discloses each of them in the specification, and explains several reasons for choosing many of them. (*E.g.*, Ex. 1053 at 18:44-46, 9:24, 9:33, 10:43, Table 2 at 12:7, 16:13, 16:38, 16:10, 16:36). In my opinion, these disclosures would have conveyed to a POSA that the inventor was in possession of the claims.

C. A POSA Would Not Have Been Motivated to Combine Squatch With Sturgis

150. Even if Squatch and Sturgis are prior art—and in my opinion, as I discuss above, they are not—Ground 9 would still fail because a POSA would not have been motivated to combine the references. I understand that Petitioner argues Squatch discloses a deodorant stick that contains all of the ingredients required by claims 16-23, except that “it does not disclose the quantitative amounts of those ingredients.” (Petition at 63.) According to Petitioner, “[a] POSA therefore would have looked to Sturgis for guidance on the amounts of ingredients” when formulating a deodorant stick. (Petition at 63.) Petitioner provides only two sentences in its “Motivation Supporting the Combination,” claiming the “POSA

would have combined Squatch with Sturgis for the same reasons the POSA would have combined Native with Bianchi '254; Sturgis, unlike Squatch, teaches the quantitative concentrations of ingredients such as the caprylic/capric triglyceride included in Squatch's deodorant at undisclosed concentrations." (Petition at 64.) In my opinion, Petitioner's short explanation does not show that a POSA would have been motivated to combine those references.

151. It is my opinion that Petitioner's Squatch-based grounds do not render obvious the challenged claims.

XI. DECLARATION

I declare that all statements made herein on my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: May 1, 2025

By: Robert J. Lochhead

Robert Lochhead, Ph.D.

Appendix A

Materials Considered

- Petition and cited exhibits
- Declaration of Dr. Michniak-Kohn and cited exhibits
- Ex. 2001 - Full File History of the '706 Patent
- Ex. 2003 - Mayo Clinic, Zinc Oxide (Topical Application Route), <https://www.mayoclinic.org/drugs-supplements/zinc-oxide-topical-application-route/description/drg-20075525>
- Ex. 2004 - Wayback Machine, Mayo Clinic, Zinc Oxide (Topical Application Route), <https://web.archive.org/web/20150102193922/https://www.mayoclinic.org/drugs-supplements/zinc-oxide-topical-application-route/side-effects/drg-20075525?p=1> (archived Jan. 2, 2015)
- Ex. 2007 - International Publ. No. WO 99/21528
- Ex. 2008 - Notice of Allowance for the '647 Patent
- Ex. 2012 - Deposition Transcript of Dr. Michniak-Kohn (April 17, 2025)
- Ex. 2013 - CeraVe, Products Formulated with Zinc Oxide, available at <https://www.cerave.com/skincare/zinc-oxide#:~:text=Zinc%20oxide%20sunscreen%20works%20by,active%20ingredients%20in%20chemical%20sunscreens> (last accessed May 1, 2025).
- Ex. 2014 - Nivea, Deodorants vs. Antiperspirant: What's the Difference?, available at <https://www.nivea.in/advice/deodorant-vs-antiperspirant> (last accessed May 1, 2025).
- Ex. 2015 - Dove, What's The Difference Between Deodorant & Antiperspirant?, available at <https://www.dove.com/us/en/stories/tips-and-how-to/sweating-tips/antiperspirant-vs-deodorant-what-is-the-difference.html#:~:text=The%20key%20difference%20is%20the,you%20fresh%20throughout%20the%20day> (last accessed May 1, 2025).
- Ex. 2016 - Secret, What is the difference between an antiperspirant and a deodorant?, available at <https://secret.com/en-us/articles/antiperspirants-vs-deodorants-whats-the-difference> (last accessed May 1, 2025).
- Ex. 2017 - Dr. Squatch, WTF Is The Difference Between Antiperspirant and Deodorant?, available at <https://www.drsquatch.com/blogs/all-blog-posts/antiperspirant-and-deodorant> (last accessed May 1, 2025).
- Ex. 2018 - ASTM D-1321 Needle Penetration Test Standard (1996)
- Ex. 2019 - DIN 51 579 Needle Penetration Test Standard (1965)