

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DR. SQUATCH LLC

Petitioner

v.

The Procter & Gamble Company

Patent Owner

Patent No. 11,497,706

DECLARATION OF BOZENA B. MICHNIAK-KOHN, PHD

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I. ENGAGEMENT AND COMPENSATION

1. My name is Bozena B. Michniak-Kohn. I have been retained by counsel for Dr. Squatch for the purpose of providing my opinion with respect to the unpatentability of U.S. Patent No. 11,497,706 (“the ’706 Patent”). I am being compensated for my time in preparing this declaration at my standard hourly rate, and my compensation is not dependent upon my opinions or the outcome of the proceedings.

II. QUALIFICATIONS

2. My qualifications and credentials are fully set forth in my curriculum vitae, attached as Ex. 1048. I am an expert in the field of formulating compositions for topical application, including pharmaceutical and cosmetic compositions. Over the past 40 years, I have accumulated significant experience designing and testing novel formulations for topical and transdermal delivery systems, creams, gels, emulsions, and micro- and nano-carrier systems. Past work has also included formulation and investigations of mechanisms of action of antiperspirants and deodorants.

3. I received a B.S. in Pharmacy from DeMontfort University, Leicester, England, in 1977. I received my Ph.D. in Pharmacology from DeMontfort University in 1980. I held Postdoctoral Fellowships at the University of Florida’s College of Pharmacy from 1981-1983, and at the University of Bradford’s

Postgraduate School of Studies in Pharmacy from 1983-1986. I am a member of the Royal Pharmaceutical Society of Great Britain (license #73637.)

4. I was an Assistant Professor in the Department of Basic Pharmaceutical Sciences-Pharmaceutics (tenure-track) at the University of South Carolina's College of Pharmacy from 1987-1993, an Associate Professor from 1993-1998, and Full Professor with tenure from 1998-2000. From 2000-2005, I was an Associate Professor in the Department of Physiology and Pharmacology at the University of Medicine and Dentistry of New Jersey- NJ Medical School. I then moved to Rutgers-The State University of New Jersey (Busch Campus), where I am now a tenured Professor in Pharmaceutics.

5. Since 2000, I have acted as the Director of the Laboratory for Drug Delivery and in 2011, I founded the Center for Dermal Research (CDR) at Rutgers and continue to act as its Director. I am currently a member of the Editorial Boards of several peer-reviewed journals including Pharmaceutics (MDPI), the Clinical Dermatology Research Journal (SciTechnol), Research and Reports in Transdermal Drug Discovery (Dove Medical Press, Ltd.), Journal of Drug Research and Development (Sciforshen), and the Journal of Drug Discovery (Hindawi Publishing Company).

6. I have been elected Fellow at the American Association of Pharmaceutical Scientists (AAPS) and the Royal Society of Chemistry. I have also

been awarded the title of Doctor of Science (D.Sc.) by the Poznan University of Medical Sciences (PUMS) in Poznan, Poland for outstanding contributions to the field of pharmaceutical sciences in July 2023. I have also organized numerous industry events and conferences.

7. I have published hundreds of peer-reviewed articles, book chapters, and abstracts related to the field of field of formulating compositions for topical application, including publications on antiperspirants and deodorants. I have also been invited to speak about this field at numerous academic and industry conferences.

8. Since starting my academic career, I have undertaken numerous funded projects within the cosmetic and pharmaceutical industries. This includes work on antiperspirant and deodorant mechanisms of action, as well as, among other things, the creation of novel sweat gland models for antiperspirant formulation testing.

9. In view of my experiences and expertise outlined above and provided in my CV, I am an expert in the field of formulating compositions for topical application. For this reason, I am qualified to provide an opinion as to what a person of ordinary skill in the art (“POSA”) would have understood, known, or concluded as of June 30, 2017, March 23, 2018, and/or December 17, 2020.

III. SUMMARY OF OPINIONS

10. In my opinion, a POSA would have found:

(1) U.S. Patent No. 11,433,018 (“Lesniak”) anticipates and/or renders obvious claims 1-2, 5-7, 10-13, and 15;

(2) Lesniak renders obvious claims 3 and 14 in view of U.S. Patent No. 9,314,412 (“Phinney”);

(3) Lesniak renders obvious claim 4 in view of Phinney and John H. Lamb, *Sodium Bicarbonate: An Excellent Deodorant*, 7(3) J. INVESTIGATIVE DERMATOLOGY 131-33 (1946) (“Lamb”);

(4) Lesniak renders obvious claim 8 in view of U.S. Patent No. 6,048,518 (“Bianchi ’518”);

(5) Lesniak renders obvious claims 16-23 in view of Phinney, U.S. Patent App. Pub. No. 2007/166254 (“Bianchi ’254”), and U.S. Patent App. Pub. No. 2016/0089321 (“Anconi”);

(6) the Native deodorant website (“Native”) renders obvious claims 1, 5, 7-8, 10-12, and 15 in view of Bianchi ’254;

(7) Native renders obvious claims 2-4, 6, and 13-14 in view of Bianchi ’254 and the Easy Homemade deodorant website (“Easy Homemade”);

(8) Native renders obvious claims 16-23 in view of Bianchi ’254, Easy Homemade, Anconi, and Mihaela Stoia, et al., *Selected Evidence-Based*

Health Benefits of Topically Applied Sunflower Oil, 10(1) APPLIED SCI. REPS. 45-49 (2015) (“Stoia”); and

(9) the Dr. Squatch website (“Squatch”) renders obvious claims 16-23 in view of U.S. Patent Pub. App. Pub. No. 2019/0000734 (“Sturgis”).

IV. MATERIALS REVIEWED

11. In forming my opinions, I have relied on my knowledge of the field, and have specifically reviewed the following exhibits:

Exhibit No.	Description
1001	U.S. Patent No. 11,497,706 (“the ’706 Patent”)
1003	U.S. Patent No. 11,433,018 (“Lesniak”)
1004	U.S. Patent No. 9,314,412 (“Phinney”)
1005	John H. Lamb, <i>Sodium Bicarbonate: An Excellent Deodorant</i> , 7(3) J. INVESTIGATIVE DERMATOLOGY 131-33 (1946) (“Lamb”)
1006	U.S. Patent No. 6,048,518 (“Bianchi ’518”)
1007	Native Wayback Machine archives, captured May 26, 2016, November 23, 2016, November 1, 2015 respectively for: https://www.nativecos.com https://www.nativecos.com/product/deodorant/ https://www.nativecos.com (“Native”)
1008	U.S. Patent App. Pub. No. 2007/0166254 (“Bianchi ’254”)

1009	Wayback Machine archive, captured January 26, 2017, for http://soapdelinews.com/2016/11/easy-homemade-deodorant-recipe.html (“Easy Homemade”)
1010	Angelica Peebles, <i>P&G Has Acquired Native Natural Deodorant Brand</i> , CNBC (Nov. 15, 2017, 5:34 P.M.), https://www.cnbc.com/2017/11/15/pg-has-acquired-native-natural-deodorant-brand.html (last visited May 28, 2024)
1011	Rachel Lapidos, <i>P&G Has Acquired Cult-Fave Deodorant Brand Native</i> , WELL+GOOD (Nov. 17, 2017), https://www.wellandgood.com/pg-acquired-natural-deodorant-brand-native/ (last visited May 29, 2024)
1012	Alex Bitter, <i>P&G Buys Deodorant Brand Native for Undisclosed Sum</i> , S&P GLOBAL (Nov. 15, 2017, 5:31 PM) https://www.spglobal.com/marketintelligence/en/news-insights/trending/DWXgoreaSsTDRfJ0RDSMEg2 (last visited May 29, 2024)
1013	KARL LADEN ET AL., ANTIPERSPIRANTS AND DEODORANTS (Karl Laden ed., 2nd ed. 1999)
1014	U.S. Patent App. Pub. No. 2005/0142085
1015	English Translation of Int’l Patent App. Pub. No. WO 2012/098189
1016	SoapDeliNews Wayback Machine archive, captured April 17, 2013, for https://soapdelinews.com/2013/03/natural-handmade-lavender-patchouli-deodorant-recipe-with-printable-labels.html
1017	SoapDeliNews Wayback Machine archive, captured July 23, 2016, for http://soapdelinews.com/2016/07/natural-neem-oil-deodorant-recipe.html
1018	SoapDeliNews Wayback Machine archive, captured October 19, 2012, for http://soapdelinews.com/2012/10/diy-natural-homemade-deodorant-recipe.html
1019	LORRAINE WHITE, HOMEMADE DEODORANT 32 EASY TO MAKE ALL NATURAL & ORGANIC DEODORANT & BODY SPRAY RECIPES (2014)
1020	<i>Homemade Deodorant</i> , THE CRUNCHY URBANITE (Nov. 24, 2013) https://thecrunchyurbanite.com/2013/11/24/homemade-deodorant/ (last visited May 29, 2024)

1021	Piyatip Khuntayaporn & Jiraphong Suksiriworapong, <i>Efficacy of Essential Oil Formulations Against Malodor Causing Bacteria</i> , 44(4) PHARM. SCIS. ASIA 209-16 (2017)
1022	Laura G. Corral, et al., <i>A Research Note Antimicrobial Activity of Sodium Bicarbonate</i> , 53(3) J. FOOD SCI. 981-82 (1988)
1023	Pamela Emanoil, <i>Customers Itching for Personal Care Alternatives</i> , Apr. 2006 NAT. FOODS MERCHANDISER 40-42 (2006)
1024	Mohammed A. Shahtalebi et al., <i>Deodorant Effects of a Sage Extract Stick: Antibacterial Activity and Sensory Evaluation of Axillary Deodorancy</i> , 18(10) J. RSCH. MED. SCI. 833-39 (2013)
1025	U.S. Patent No. 5,585,092
1026	U.S. Patent No. 9,610,237
1027	U.S. Patent App. Pub. No. 2014/0199252
1028	James Lambert, <i>Silicone Safety and the Cosmetic Industry</i> , 126(11) <i>Cosms. & Toiletries</i> 810-15 (2011)
1029	Julia Pasquet et al., <i>The Contribution of Zinc Ions to the Antimicrobial Activity of Zinc Oxide</i> , 457 COLLOIDS & SURFACES: PHYSICOCHEMICAL & ENG'G ASPECTS 263-74 (2014)
1030	Rodrigo Carvalho, <i>Hydroxyisohexyl 3-Cyclohexene Carboxaldehyde (Lyrall®) as Allergen: Experience from a Contact Dermatitis Unit</i> , 30(3) CUTANEOUS & OCULAR TOXICOLOGY 249-50 (2011)
1031	Maria V. Heisterberg, et al., <i>Deodorants are the Leading Cause of Allergic Contact Dermatitis to Fragrance Ingredients</i> , 64 CONTACT DERMATITIS 258-64 (2011)
1032	J. Handley & D. Burrows, <i>Allergic Contact Dermatitis from the Synthetic Fragrances Lyrall and Acetyl Cedrene in Separate Underarm Deodorant Preparations</i> , 31 CONTACT DERMATITIS 288-90 (1994)
1033	Prosecution History Excerpts of U.S. Patent Application No. 17/124,565 ('706 file history)

1034	Prosecution History Excerpts of U.S. Patent Application No. 17/961,089
1035	Prosecution History Excerpts of U.S. Provisional Patent Application No. 62/527,180
1036	Schueller, R., & Romanowski, P., Multifunctional cosmetics (2003)
1037	Siquet, F., & Devleeschouwer, M. J., Antibacterial agents and preservatives, Handbook of Cosmetic Science and Technology (2009)
1038	Fed. Reg. Vol. 60, No. 176 (Sept. 12, 1995)
1039	Compendium of Food Additive Specifications, FNP 52 Add 13 (2005)
1040	Complaint For Patent Infringement (ECF No.1) from The Procter & Gamble Co. v. Dr. Squatch, LLC, Case No. 2:24-cv-04711 (C.D. Cal.)
1041	U.S. Patent No. 4,049,792
1042	JOHN A. DEAN, LANGE'S HANDBOOK OF CHEMISTRY (John A. Dean ed., 15th ed. 1999)
1043	U.S. Patent No. 4,919,934
1044	Reserved
1045	U.S. Patent No. 10,966,915
1046	21 C.F.R. § 720.4(d) (1992)
1047	U.S. Patent No. 6,123,932

1048	Curriculum Vitae of Bozena B. Michniak-Kohn, Ph.D.
1049	Int'l Patent App. Pub. No. WO 2012/098189
1050	Reserved
1051	Prosecution History Excerpts of U.S. Provisional Patent Application No. 62/647,104
1052	Reserved
1053	U.S. Patent No. 10,905,647
1054	U.S. Patent No. 5,976,514
1055	U.S. Patent No. 5,429,816
1056	U.S. Patent App. Pub. No. 2019/0000734 (“Sturgis”)
1057	U.S. Patent App. Pub. No. 2016/0089321 (“Anconi”)
1058	Mihaela Stoia, et al., <i>Selected Evidence-Based Health Benefits of Topically Applied Sunflower Oil</i> , 10(1) APPLIED SCI. REPS. 45-49 (2015) (“Stoia”)
1059	Declaration of Vinod Stephen Pinto (“Squatch”)
1060	U.S. Patent App. Pub. No. 2008/0287377
1061	Marcos Sánchez, et al., <i>Jojoba Oil: A State of the Art Review and Future Prospects</i> , 129 ENERGY CONVERSION & MGMT. 293-304 (2016)

1062	U.S. Patent No. RE38,141
1063	G.K. Sandha, et al., <i>Jojoba Oil as an Organic, Shelf Stable Standard Oil-Phase Base for Cosmetic Industry</i> , 2(2) RASAYAN J. CHEM. 300-306 (2009)
1064	Huaiqiong Chen, et al., <i>Impacts of Sample Preparation Methods on Solubility and Antilisterial Characteristics of Essential Oil Components in Milk</i> , 80(3) APPLIED & ENV'T MICROBIOLOGY 907-16 (2014)
1065	Natural Sourcing, <i>Material Safety Data Sheet, Jojoba Esters</i> , 70 (June 1, 2008)
1066	Amera M. Al-Rawi, et al., <i>Novel Natural Disinfectants for Contaminated Cosmetic Application Tools</i> , 1(1) INT'L J. MED. SCIS. 23-30 (2018)
1067	Reserved
1068	S.A. Navale, et al., <i>Effect of Flour Composition (Arrowroot, Lesser Yam and Potato) on its Nutritional and Functional Properties</i> , 42(1) J. ROOT CROPS 61-73 (2016)
1069	IFSCC Monograph Number 6, Antiperspirants and Deodorants: Principles of Underarm Technology (1998)
1070	M. Abendrot et al., <i>Zinc-containing Compounds for Personal Care Applications</i> , 40 INT'L J. COSMETIC SCI. 319-27 (2018)
1071	JANE ANISTON, <i>HOMEMADE DEODORANT, A COMPLETE BEGINNER'S GUIDE TO NATURAL DIY DEODORANTS YOU CAN MAKE TODAY</i> (2015)
1072	EP0471392

V. UNDERSTANDING OF THE RELEVANT LAW

12. I have the following understanding of the applicable law.

A. Anticipation

13. I understand that a claim in an issued patent can be unpatentable if it is anticipated. I understand that “anticipation” means that there is a single prior art reference that discloses every element of the claim of the asserted patent. While those elements must be arranged or combined in the same way as in the claim, I understand that the anticipatory reference need not disclose the elements in the very same terms used by the patent.

B. Obviousness

14. I understand that a claim in an issued patent can be unpatentable if it is obvious. Obviousness does not require that every element of the claim be in a single prior art reference. Instead, it is possible for claim elements to be described (or suggested) in different prior art references, so long as there is motivation or sufficient reasoning to combine the references, and a reasonable expectation of success in achieving what is set forth in the claims.

15. I understand that a claim is unpatentable for obviousness if the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time the alleged invention was made to a POSA to which said subject matter pertains.

16. I understand, therefore, that when evaluating obviousness, one must consider obviousness of the claim “as a whole.” This consideration must be from the

perspective of the person of ordinary skill in the relevant art, and that such perspective must be considered as of the time the alleged invention was made.

17. The level of ordinary skill in the art is discussed in ¶¶ 27-29 below.

18. The relevant time frame for obviousness, the time the alleged invention was made, is discussed in ¶¶ 30-33 below.

19. I understand that in considering the obviousness of a claim, one must consider four things. These include the scope and content of the prior art, the level of ordinary skill in the art at the relevant time, the differences between the prior art and the claim, and any “secondary considerations.”

20. I understand that “secondary considerations” include real-world evidence that can tend to make a conclusion of obviousness either more probable or less probable. For example, the commercial success of a product embodying a claim of the patent could provide evidence tending to show that the claimed invention is not obvious. In order to understand the strength of the evidence, one would want to know whether the commercial success is traceable to a certain aspect of the claim not disclosed in a single prior art reference (*i.e.*, whether there is a causal “nexus” to the claim language). One would also want to know how the market reacted to disclosure of the invention, and whether commercial success might be traceable to things other than innovation, for example, the market power of the seller, an advertising campaign, or the existence of a complex system having many features

beyond the claims that might be desirable to a consumer. One would also want to know how the product compared to similar products not embodying the claim. I understand that commercial success evidence should be reasonably commensurate with the scope of the claim, but that it is not necessary for a commercial product to embody the full scope of the claim.

21. Other kinds of secondary considerations are possible. For example, evidence that the relevant field had a long-established, unsolved problem or need that was later provided by the claimed invention could be indicative of non-obviousness. Evidence that others had tried, but failed to make an aspect of the claim might indicate that the art lacked the requisite skill to do so. Evidence of copying of the patent owner's products before the patent was published might also indicate that its approach to solving a particular problem was not obvious. Evidence that the art recognized the value of products embodying a claim, for example, by praising the named inventors' work, might tend to show that the claim was non-obvious.

22. I further understand that prior art references can be combined where there is an express or implied rationale to do so. Such a rationale might include an expected advantage to be obtained, or might be implied under the circumstances. For example, a claim is likely obvious if design needs or market pressures existing in the prior art make it natural for one or more known components to be combined,

where each component continues to function in the expected manner when combined (*i.e.*, when there are no unpredictable results).

23. I understand that when evaluating a motivation to combine, it is not necessary to show that a combination is the best option, only that it be a suitable option, and that a given course of action with simultaneous advantages and disadvantages does not necessarily obviate any motivation to combine.

24. I understand that when considering obviousness, one can refer to portions of the specification admitted to being prior art, including the “BACKGROUND” section. Furthermore, a lack of discussion in the patent specification concerning how to implement a disclosed technique can support an inference that the ability to implement the technique was within the ordinary skill in the prior art.

25. In addition, I understand that a reference need not state a feature’s absence in order to disclose a negative limitation.

26. Finally, I understand that when a claimed range overlaps with the range in the prior art, this may render the claim obvious, notwithstanding differences in the ranges, unless there was something unexpected or critical about the claimed range. I understand that such unexpected results must differ in kind and not merely in degree from the results in the prior art to render the claim patentable where the ranges overlap.

VI. LEVEL OF ORDINARY SKILL IN THE ART

27. In my opinion, the relevant art was that of formulating cosmetics.

28. In my opinion, the level of ordinary skill encompassed a person with at least a bachelor's degree in chemistry, pharmacy/pharmaceutical sciences, chemical engineering, materials science or a comparable field, with 2-3 years' experience in formulating cosmetics, pharmaceuticals, or other comparable products, or similarly relevant industry experience, with relevant experience substituting for education and vice versa.

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

VII. RELEVANT TIMEFRAME FOR DETERMINING OBVIOUSNESS

30. I understand that obviousness must be evaluated at the time right before the invention. From the cover pages of the '706 Patent, I can see that it claims priority to June, 30, 2017, the filing date of Provisional Application No. 62/527,180, and March 23, 2018, the filing date of Provisional Application No. 62/647,111. I have reviewed Provisional Application No. 62/527,180 and found no disclosure of a deodorant stick composition (i) comprising 25% by weight liquid triglyceride

(required in all claims) or (ii) having a hardness of from about 70 mm*10 to about 140 mm*10 as measured with an ASTM D-1321 needle. I understand that the application's failure to describe those features means that the '706 Patent cannot claim priority to a date earlier than March 23, 2018. Nevertheless, the references in Grounds 1-8 below are prior art regardless of which priority date is used.

31. In addition (concerning Ground 9), claims 16-23 are not entitled to a priority date before the December 17, 2020 filing date of the '706 Patent. Those claims require specific combinations of nine or ten ingredients. But the specification of U.S. Patent Application No. 16/021,931 ("the '931 Application") to which the '706 Patent claims priority does not provide written description support for those combinations, and instead discloses the ingredients separately in large lists of possible ingredients (e.g., structurants, antimicrobials, etc.). I understand that the '931 Application's failure to provide sufficient "blaze marks" that indicate or direct one to the claimed ingredient combinations of claims 16-23 over the vast number of alternative combinations means that those claims cannot have a priority date earlier than December 17, 2020, which I will use as the date of the invention for those claims for purposes of my analysis in Ground 9.

32. As set forth below, the art discussed herein came before the relevant priority dates.

33. In particular, Lesniak was filed on June 18, 2015 (PCT/US2015/036498); Phinney issued on April 19, 2016; Lamb published in 1946; Bianchi '518 issued on April 11, 2000; Native published by November 23, 2016; Bianchi '254 published on July 19, 2007; Easy Homemade published by January 26, 2017, Anconi published on March 31, 2016, Stoia published in 2015, Squatch published by November 13, 2020, and Sturgis published on January 3, 2019.

VIII. TECHNICAL INTRODUCTION

A. Background of the Technology

1. Deodorants vs. Antiperspirants

34. Deodorants form a category of cosmetic products that were developed to mask and/or counteract the buildup of unwanted human body odor. Ex. 1013, 169-83, 189-95. Deodorants typically contain antimicrobials and/or fragrances to inhibit the formation and perception of malodor. *Id.*, 201. As discussed further below, fragrances were known to mask or overpower malodor with a more pleasant aroma, while antimicrobials were known to limit the growth of bacteria responsible for production of malodorous compounds. *Id.*, 171-83, 194-201, 250-51.

35. Antiperspirants are generally considered a subcategory of deodorants. Like deodorants, they were known to contain fragrances and/or antimicrobials, but they also included additional active ingredients that may reversibly occlude sweat pores in the skin. Ex. 1006, 3:5-11; Ex. 1014, ¶¶ [0020]-[0026] (“[A]ntiperspirant

actives include astringent metallic salts, particularly inorganic and organic salts of aluminum, zirconium, and zinc, as well as mixtures thereof.”); Ex. 1003, 3:39-4:21, 8:46-48, 10:27 (describing zinc-based antiperspirant compositions); Ex. 1015, 5; Ex. 1049, 3-4; Ex. 1008, ¶ [0064] (“[A]ntiperspirant stick compositions of this invention further comprise one or more additional optional components selected from the group consisting of . . . fragrances [and] preservatives.”); Ex. 1013, 73, 215. The occlusion of sweat pores was known to reduce moisture and nutrients from glandular secretion, and ultimately curb the bacterial growth and metabolism responsible for malodorous compounds. Ex. 1013, 73.

2. Basics of Deodorants

a. Types of Deodorants

36. The first commercial deodorant product specifically for underarm use launched in 1888. Ex. 1013, 1-2, 170. Over the years, the deodorant category expanded into a wide range of new packaging forms and formulation types. *Id.*, 1-2. Examples of different deodorant products include, e.g., aerosols, pump sprays, creams, roll-ons, and sticks. *Id.* Deodorant sticks are a popular form introduced in the 1950s. *Id.*, 9. Early deodorant sticks were glycol gels (containing water) dispensed in an oval swivel-up container that allowed for easy application. *Id.* Anhydrous sticks, packaged in containers resembling those used for the original glycol gel sticks, were subsequently developed. *Id.*, 13; *see generally* Ex. 1014.

37. By the time of the purported invention, it was understood that anhydrous stick compositions were versatile and could be utilized in the development of either antiperspirants or deodorants products. Ex. 1014, ¶ [0008].

b. Components of Anhydrous Stick Compositions

38. While anhydrous stick compositions were known to contain a wide range of ingredients, they typically contained a few well-established components. The most common components are described below.

i. Carrier Oils

39. Liquid carriers were known components of stick deodorant and antiperspirant compositions prior to the purported invention. These materials could (1) function as emollients (skin conditioning agents that help maintain hydration); (2) help reduce undesirable visible residue (whitening) upon application of the composition to the skin; and/or (3) solubilize or disperse active ingredients such as the astringent metallic salts in antiperspirants. Ex. 1014, ¶¶ [0002], [0037], [0050]; Ex. 1008, ¶¶ [0046], [0050]; Ex. 1006, 4:22-26; Ex. 1013, 330-31. It was known that existing anhydrous liquids (used in personal care applications or suitable for topical application to the skin) could be used as carriers in stick compositions. Ex. 1014, ¶¶ [0037], [0044]. While volatile and/or non-volatile silicone oils (synthetic polymers) were often used as liquid carriers in traditional stick compositions (Ex. 1006, 4:9-15; Ex. 1014, ¶¶ [0038]-[0043], [0046]), non-volatile, non-silicone oils had also

been identified as useful. Ex. 1008, ¶¶ [0015], [0017], [0043]-[0054]. Glyceryl esters of fatty acids, or triglycerides such as capric/caprylic triglycerides, had specifically been recognized as suitable (non-silicone) carrier oils of natural origin. Ex. 1008, ¶ [0050]; Ex. 1003, 2:38-39, 9:45-46. As discussed in more detail below, since before the '706 Patent, a demand had arisen for “natural” formulations, which often included the exclusion or reduction of synthetic ingredients and ingredients otherwise believed to be harmful (even where naturally derived).

40. It was known that the carrier oil component of a stick deodorant could be a silicone oil, natural oil, and combinations thereof. Ex. 1008, ¶¶ [0013]-[0020], [0038]-[0054]; Ex. 1007, 11; Ex. 1016, 6-7; Ex. 1017, 5-7; Ex. 1018, 5-6. The total amount of carrier oil could be, for example, about 40-80% by weight of the stick composition and, where mixtures of silicone and natural oils, each could comprise, e.g., 20-40% by weight of the total stick composition. Ex. 1008, ¶¶ [0013]-[0020], [0038]-[0054]. A POSA would have understood that whether to use a silicone oil or natural oil (or a combination)—and what oil amount to use—was simply a design choice.

ii. Structurants

41. Typically, structurants were known to be materials solid at ambient conditions that were added to stick compositions to solidify the carrier oil. Ex. 1008, ¶ [0057] (“[F]orming a mobile liquid oil phase at an elevated temperature throughout

which the structurant is distributed, and in particular by dissolution, such that when the composition cools or is cooled below its setting temperature, a solid product is obtained.”); Ex. 1014, ¶¶ [0028]-[0029]; Ex. 1001, 15:20-41. Essentially, structurants were used to allow the composition to form a “stick.”

42. Structurants with different melting point temperatures were used, often in combination, to adjust certain properties of the stick including hardness. Ex. 1014, ¶ [0029]; Ex. 1015, 19-24; Ex. 1049; Ex. 1001, 15:20-41; Ex. 1013, 331. Known examples of structurants included waxes (waxy materials), organic solids, modified silicone solids, crystalline or other gellants, and combinations thereof. Ex. 1014, ¶ [0029]. Long chain fatty alcohols such as stearyl alcohol had been recognized and used as preferred structurants. *Id.* ¶ [0030]; Ex. 1007, 11; Ex. 1008, ¶¶ [0001], [0019], [0058]-[0059], [0071]; Ex. 1013, 247. Arrowroot powder was another known structurant that had been used to thicken stick compositions.¹ Ex. 1019, 5, 11-15, 17-19, 23 (“Arrowroot Powder is used as [a] thickening agent [in deodorants]”); Ex. 1020, 2-5 (“Arrowroot Powder is a very lightweight thickener

¹ From the Patent Owner’s complaint for patent infringement, I understand Patent Owner’s position to be that arrowroot powder, listed in Native’s ingredient list, does not count as a structurant. *See* Ex. 1040, 4 (identifying stearyl alcohol, but not arrowroot powder, as a structurant). I have been asked to proceed under Patent Owner’s position on this point, and I have not been asked to address the correctness of that position.

that helps give some heft.”). Structurants were known to comprise, for example, 3-35% by weight of the total stick composition. Ex. 1014, ¶ [0028].

43. For deodorant sticks, the structurant is what mixed with the carrier oil to cause the formulation to have the consistency (e.g., hardness) of a stick form. In addition to adjusting the balance between, e.g., waxes of different melting points to control hardness, a POSA would have appreciated that the amount of structurant controls the hardness of the stick.

iii. Fragrances

44. Fragrances were commonly incorporated into deodorants and antiperspirants to mask axillary malodors or odors from the product base. Ex. 1013, 194-201, 250-51. Fragrances, known for their effect on mood, were used to enhance the consumer experience and reassure consumers of continuing product efficacy. *Id.* Fragrances were typically comprised of many distinct compounds and were classified as either natural or synthetic. *Id.*, 195; Ex. 1001, 17:58-18:12. Natural or essential oil fragrances were obtained from natural sources (e.g., plants or animals) using physical separation techniques such as distillation and extraction. Ex. 1013, 195; Ex. 1001, 18:4-12. A wide range of essential oils including, e.g., lemongrass oil, clove oil, and cinnamon oil, had also been known to possess antimicrobial activity. Ex. 1013, 196; Ex. 1021, 209, 211-12.

iv. Antimicrobials

45. Antimicrobials were included as active ingredients in deodorants and antiperspirants to prevent axillary odor by eliminating the bacteria responsible for formation of odorous compounds. Ex. 1013, 171-83. Numerous antimicrobials were known. *Id.* Sodium bicarbonate (i.e., baking soda), in particular, had long been used in deodorants and antiperspirants and was thought to deodorize via chemical modification of odorous compounds, i.e., reacting with the acidic compounds responsible for malodor to form non-volatile salts. *Id.*, 190, 347; Ex. 1005, 133. It was also understood that baking soda had antimicrobial and/or adsorptive properties as well. Ex. 1013, 190; Ex. 1022, 981-82 (“Sodium bicarbonate (SB) inhibited the growth of bacteria and yeasts in agar media model systems under certain conditions.”); Ex. 1005, 133 (explaining that changes to the pH caused by sodium bicarbonate may inhibit the bacteria producing malodorous compounds). Some users reported that baking soda in deodorant sticks irritated their skin. Ex. 1017, 5-6; Ex. 1009, 6. Magnesium hydroxide, another antimicrobial, had been used as a substitute for baking soda and was not found to cause the same type of skin irritation. Ex. 1017, 5-8; Ex. 1009, 6, 9; Ex. 1004, 5:52-60, 6:9-12, 6:31-34, 8:40-44.

c. Hardness of Anhydrous Stick Compositions

46. Hardness was a known physical parameter affecting consumer acceptance that was measured and controlled during the development of stick

compositions. Ex. 1006, 6:23-25; Ex. 1014, ¶ [0003]. Hardness was known to be closely related to other product attributes such as strength against breakage, storage stability, and product aesthetics (e.g., smooth application/gliding on the skin, and drier skin feel after use). Ex. 1014, ¶ [0003]. Formulators endeavored to develop compositions that had “satisfactory strength and hardness while exhibiting aesthetically pleasing attributes.” *Id.*, ¶¶ [0003]-[0005]. Since long before the ’706 Patent, it was known that formulations that contained too large an amount of structurant(s) could result in overly hard structures that were “too brittle” and/or “cosmetically unacceptable.” *Id.*, ¶ [0003].

47. One type of test that was used to measure hardness of a stick composition was the needle penetration test. Ex. 1006, 2:56-58, 6:23-29; Ex. 1008, ¶ [0026]. For this type of test, a needle of specified dimensions/weight is affixed to a vertical rod and positioned directly above a prepared sample such that the point of the needle is touching the top of the surface of the sample. Ex. 1001, 21:60-66. The rod is released and allowed to travel downward. Penetration is measured as the tenths of a millimeter travelled following the release. *Id.*, 22:40-41 A higher value corresponds to a softer stick. Ex. 1008, ¶ [0026]. Well before the ’706 Patent, it was known that the hardness of “typical” stick compositions using an ASTM D-1321

needle penetration test ranged from about 7.0 mm to about 14.0 mm,² and that products with hardness that fell outside that range would “typically generate low consumer acceptance ratings.” Ex. 1006, 2:56-58, 6:23-29.

48. As discussed above, formulators (including a POSA) were aware that the hardness of a stick compositions could be controlled by adjusting the concentration or type of liquid carrier and/or structurant (e.g., more structurant, balancing waxes with high and low melting points, etc.). Ex. 1014, ¶ [0037] (“Such [liquid carrier] concentration will vary depending upon variables such as desired product hardness”); Ex. 1001, 15:20-25, 15:42-45, 14:55-57 (“The concentration and type of solid structurants selected for use in the deodorant compositions will vary depending upon the desired product hardness. . . .”). For example, U.S. Patent 4,049,792, which is assigned to Patent Owner and incorporated by reference in the ’706 Patent (Ex. 1001, 19:22-25), states:

The low melting point wax can be used as an adjunct to the high melting point wax to provide structure and as an emollient. The low melting point wax can also be used to adjust the feel of the stick. ***One skilled in the art will easily be able*** to make a product which feels more brittle, soft, slippery, sticky, rough, etc., by blending various suitable high melting point and low melting point waxes.

Ex. 1041, 4:37-44 (emphasis added). A greater amount of structurants was known

² This range is the same as from about 70 mm*10 to about 140 mm*10 per the conversion provided in the ’706 Patent. Ex. 1001, 23:57-59 (explaining that 80 mm*10 is the same as 8 mm).

to result in harder sticks, while a lesser amount was known to result in softer sticks. *See* Ex. 1014, ¶¶ [0003], [0028]-[0029] (“Using a large amount of waxy structurant may not be necessarily effective since it may result in an overly hard structure.”).

3. The Move to Natural Deodorants

a. Aluminum-Free

49. By the time of the purported invention, it was known that many consumers were seeking cosmetic products that were natural or otherwise free of potentially harmful ingredients. Ex. 1010, 2 (“[P]roducts that are free from certain ingredients or full of natural ones”); Ex. 1012, 1 (Patent Owner admitting in November 2017 that “consumers [] have preferences to avoid certain ingredients such as parabens and aluminum”). Natural cosmetic products were typically characterized and perceived as safer and/or healthier alternatives to traditional products. *See, e.g.*, Ex. 1023, 40-41. As a result of the connection with safety and health, the term “natural” in the deodorant category became associated not only with the inclusion of natural ingredients, but also the absence of aluminum, which some believed was correlated to an increased risk of Alzheimer’s disease, breast cancer, and/or prostate cancer. Ex. 1024, 833; Ex. 1013, 215; Ex. 1023, 40; Ex. 1007, 5, 8. For stick compositions, aluminum-free meant removal of aluminum salts that had traditionally been included in formulations for their anti-sweat and/or antimicrobial functionality. *Supra* § VIII.A.1; Ex. 1007, 11; Ex. 1013, 332.

50. Aluminum-free deodorant sticks were well documented before the filing of the '706 Patent. In fact, independent formulators had publicly shared recipes online for homemade deodorants that were natural and free of aluminum. *See generally* Ex. 1020; Ex. 1018; Ex. 1016; Ex. 1017. In response to the trend, cosmetic companies had also launched deodorant products addressing those consumer preferences. For example, the deodorant company Native had developed and marketed natural, aluminum-free deodorant sticks as early as 2016.³ Ex. 1007, 5, 11. A POSA would have appreciated that cosmetics companies endeavored to keep apprised of trends in consumer demand for particular product features and attributes.

b. Silicone-free

51. The move to natural deodorant formulations also involved the removal of certain synthetic ingredients, such as silicones, from stick compositions. Consumers preferred silicone-free formulations due to real or perceived health and environmental risks related to silicones. Ex. 1026, 1:41-57. For example, silicone and its degradants had potential links to autoimmune system deficiencies in women

³ Comparative Formula 1 in Patent Owner's related U.S. Patent No. 10,966,915, which is described in the specification as a "currently marked product," contains the same nine most predominant ingredients by weight as Native's 2016 natural, aluminum-free deodorant stick. Ex. 1007, 5, 11; Ex. 1045 at 3:1-45, Table 1; 5:18-19 (indicating "hydrogenated castor oil" and "castor wax" are interchangeable and refer to the same material). Patent Owner acquired Native after the commercial introduction of the Native deodorants but before filing date of the '706 Patent. *See* Ex. 1007, 11; Ex. 1010, 1-2.

with silicone breast implants as well as other disorders. *Id.* Some publications suggested that silicones could cause environmental harms, such as bioaccumulation and environmental toxicity. *Id.*; Ex. 1027, ¶¶ [0003]-[0004]; Ex. 1028, 814-15.

52. As discussed in Section VIII.A.2.b.i, the liquid carrier in traditional stick compositions could be comprised of both synthetic silicone oils and natural, non-silicone oils, like triglycerides. Natural deodorant stick formulations, including Native’s 2016 deodorant and others, were known to contain only natural oils. Ex. 1007, 11; Ex. 1017, 6; Ex. 1016, 6.

c. Natural Antimicrobials

53. Developing natural deodorant formulations also involved replacing synthetic antimicrobials, like triclosan, with natural alternatives. Natural antimicrobials such as sodium bicarbonate (i.e., baking soda) and zinc oxide were known to have been incorporated into deodorant compositions. Ex. 1018, 5-6; Ex. 1016, 6; Ex. 1007, 11; Ex. 1004, 5:52-60, 6:9-12, 6:31-34, 8:40-44; Ex. 1003, 3:50-4:21; Ex. 1029, 264; Ex. 1013, 2, 170, 373-74. As mentioned above, formulators (including even those making homemade sticks) were aware that using baking soda in natural deodorant stick formulations could result in unwanted skin irritation for some users. Ex. 1017, 5-7 (“[T]he absence of baking soda means no itchy, red pits . . . for those of us with sensitive skin.”); Ex. 1009, 6, 9 (discussing the “rash you get after using deodorant with baking soda”). Magnesium hydroxide had been used as a

natural antimicrobial alternative that did not cause the same type of skin irritation. Ex. 1009, 6; Ex. 1004, 5:52-60, 6:9-12, 6:31-34, 8:40-44.

d. Natural Fragrances

54. The push towards natural deodorant formulations also involved replacing synthetic fragrances with natural alternatives like essential oils. *See* Ex. 1007, 11. Synthetic fragrances in deodorants and other cosmetic products were known to play a role in allergic contact dermatitis. *See generally* Ex. 1030; Ex. 1031; Ex. 1032; Ex. 1023. Natural fragrances were desired by some consumers, over synthetic fragrances, based on their perceived relative safety and/or lower allergy incidence rates. *See* Ex. 1023, 40. In addition, many natural essential oils possessed antimicrobial activity, a property particularly well-suited for deodorants. Ex. 1013, 196; Ex. 1021, 209, 211-12.

B. The '706 Patent Disclosure

55. The '706 Patent is directed to deodorant formulations. The '706 Patent acknowledges a preexisting consumer preference for natural (e.g., essential oils), aluminum-free deodorant sticks that did not cause irritation associated with baking soda. Ex. 1001, 1:21-43. The '706 Patent describes its “invention” as compositions comprising a specific antimicrobial, piroctone olamine, “in combination with [other] appropriate antimicrobials” and “a chelating agent—“in particular ratios” and “at particular particle sizes.” *Id.*, 1:45-2:8 (attributing those features to “anti-fungal

activity”). None of the challenged claims, however, recites these purportedly inventive features. The claims do not even require piroctone olamine or any chelating agents, much less specify particle sizes and ratios of those ingredients. Nor do the challenged claims require any specific level of anti-fungal activity.

IX. GROUND 1: Claims 1-2, 5-7, 10-13, and 15 are Anticipated by and/or Obvious over Lesniak

A. Overview

56. In my opinion, claims 1-2, 5-7, 10-13, and 15 are anticipated by or rendered obvious over Lesniak. Lesniak describes natural anhydrous personal care compositions that could be, among other things, a deodorant stick in the form of an antiperspirant stick.⁴ Ex. 1003, 1:16-35, 4:22, 5:5-32, 10:27, 10:32-33. In particular, Lesniak is directed to “personal care compositions which are formed from natural ingredients” and improvements to such natural compositions that make them more palatable to consumers. *Id.*, 1:16-35, 4:61-67, 5:5-31, 10:31-33.

57. Lesniak explains that such compositions may comprise, e.g.:

- at least about 25 wt% of a liquid triglyceride, such as caprylic/capric triglyceride (*id.*, 2:38-39, 9:45-46);

⁴ See Ex. 1036, 2 (“[A]ll antiperspirants are deodorants”); Ex. 1037, 246 (“Antiperspirants are deodorants”).

- about 8 to 19 wt% of a primary structurant, such as beeswax (*id.*, 1:39-54, 2:5-7, 2:24-25); and
- at least one antimicrobial, such as zinc oxide (*id.*, 3:39-4:21, 8:31-9:59).

58. Lesniak's compositions do not contain aluminum salts, baking soda, or synthetic fragrances. *Id.*, 3:50-4:21, 8:37-42. And Lesniak describes how to make the compositions in stick form. *Id.*, 15:9-45.

59. Lesniak is in the same field as the '706 Patent, and both relate to personal care compositions, including deodorant and/or antiperspirant sticks.⁵ See, e.g., *id.*, Abstract, Title, 3:39, 4:22, 8:43-46, 9:45, 10:27; Ex. 1001, Abstract, 18:65-26:36.

B. Claim Mapping

60. In the claim mapping below, I have added numbering and lettering in brackets (e.g., [1]A), [1]B)) to certain claim limitations, to facilitate the discussion.

⁵ See n.4, above. Lesniak's discussion of other personal care compositions, such as sunscreens does not make it any less applicable to the formulation and/or antiperspirant sticks. A POSA would have understood that topical formulations could have multiple applications, including as sunscreens, antiperspirants, and/or deodorants. Indeed, Patent Owner has other patents directed to "wax based cosmetic stick compositions" with applications in "sun care, moisturizing or analgesic sticks and antiperspirants/ deodorant sticks." Ex. 1043, Abstract, 1:5-9.

CLAIM 1

“1[Pre]. A deodorant stick comprising:”

61. In my opinion, Lesniak describes this element. In particular, Lesniak describes a deodorant stick in the form of an antiperspirant stick. Ex. 1003, 4:22, 9:45, 10:27 (“Optionally, the composition is a stick The composition can also be an antiperspirant.”).

“[1a] at least about 25% by weight liquid triglyceride and”

62. In my opinion, Lesniak describes this element. In particular, Lesniak describes formulating a deodorant stick with at least about 25% of a liquid triglyceride, such as as caprylic/capric triglyceride, which the '706 Patent identifies as an exemplary liquid triglyceride, as a POSA would have known (Ex. 1001, 14:41-46). *See* Ex. 1003, 9:45-59 (“In certain embodiments, the stick comprises 46 to 56% by weight of the ester . . . In certain embodiments for the stick, the ester comprises caprylic/capric triglyceride.”); 1:39-63, 2:31-41, 3:43-4:21 (disclosing examples of points within the claimed range, e.g., 48% caprylic/capric triglyceride), 6:30-43, 8:57-9:44.

63. Lesniak’s ranges of liquid triglyceride overlap with the claimed range. *See id.* In my opinion, there was nothing critical or unexpected about the claimed range relative to Lesniak’s ranges. As a POSA would have understood, the minor deviations in the ranges yield predictable variations in degree and do not produce a

different kind of result. For example, using more liquid triglyceride generally yields a softer stick, merely changing the degree of hardness.

“[1b] a primary antimicrobial;”

64. In my opinion, Lesniak describes this element. In particular, Lesniak describes a deodorant stick with zinc oxide, which, as a POSA would have known, is an antimicrobial. See Ex. 1003, 3:39-4:21, 8:31-9:59.⁶ Zinc oxide is the “primary” antimicrobial because no antimicrobial is present in a greater amount. Ex. 1001, 10:52-54. A POSA would have been motivated to include an antimicrobial such as zinc oxide in Lesniak’s compositions to combat the bacteria that cause odor and/or product degradation. Ex. 1003, 1:16-35.

“said deodorant stick being free of an aluminum salt.”

65. In my opinion, Lesniak describes this element. In particular, Lesniak describes formulating a deodorant stick that is free of an aluminum salt. *See, e.g.*, Ex. 1003, 1:39-2:30, 3:43-4:21, 5:32-6:23, 8:31-9:59.

66. Moreover, in my opinion, a POSA would have understood Lesniak’s formulations to be complete deodorant sticks that did not require additional ingredients such as an aluminum salt. *See id.* Indeed, Lesniak’s formulations include

⁶ *See also* Ex. 1029, 264 (“Zinc oxide (ZnO) is an efficient antimicrobial agent that acts by means of several mechanisms involving different chemical species.”); Ex. 1069, 19 (In the US, zinc oxide and aluminum chloride were the first antibacterial agents used in deodorants. There was no doubt about the performance of these substances); Ex. 1070, 323-24, Ex. 1072, 2:1-3:5, 3:50-57.

zinc oxide, which was a known alternative to aluminum. *See id.*⁷ Moreover, a POSA would have understood Lesniak's preference for "natural" ingredients to militate against inclusion of ingredients such as aluminum that were thought to be unsafe. *See id.*, 1:16-31, 4:61-67, 5:5-32, 10:31-33.

CLAIM 2

"2. The deodorant stick of claim 1, wherein the primary antimicrobial has a water solubility of at most about 90 g/L at 25° C."

67. *See* my claim 1 analysis, above. Lesniak describes formulating a deodorant stick with an antimicrobial powder in the form of zinc oxide, which, as a POSA would have known, has a water solubility of at most about 90 g/L at 25° C. Ex. 1003, 8:46-48 ("[T]he zinc oxide is added to the compositions as a powder, not as a pre-formed dispersion of zinc oxide in a carrier.").⁸

⁷ *See* Ex. 1014, ¶ [0018] ("[A]ntiperspirant actives include astringent metallic salts, particularly inorganic and organic salts of aluminum, zirconium, and zinc, as well as mixtures thereof."); Ex. 1001, 16:40-47.

⁸ Ex. 1038, 47335 ("The reported water solubility of zinc oxide ranges from 1.6 milligrams per liter (mg/L) (29 deg.C) to 5 mg/L (25 deg.C).").

CLAIM 5

“5. The deodorant stick of claim 1, wherein the primary antimicrobial is a powder.”

68. In my opinion, Lesniak describes this element. In particular, Lesniak describes formulating a deodorant stick with a primary antimicrobial in the form zinc oxide “as a powder.” Ex. 1003, 8:46-48.

CLAIM 6

“6. The deodorant stick of claim 1, wherein the deodorant stick is substantially free of baking soda.”

69. In my opinion, Lesniak describes this element. Lesniak describes formulating a deodorant stick with zinc oxide, an antimicrobial, and without baking soda (another antimicrobial). *See* my claim 1 analysis, above; *see, e.g.*, Ex. 1003, 1:39-2:30, 3:43-4:21, 5:32-6:23, 8:31-9:59. A POSA would have understood Lesniak’s formulations to be complete deodorant sticks that did not require additional ingredients such as baking soda. *See id.*

CLAIM 7

“7. The deodorant stick of claim 1, wherein the deodorant stick is substantially free of a synthetic fragrance.”

70. In my opinion, Lesniak describes this element. In particular, Lesniak describes formulating a deodorant stick without synthetic fragrance and, in particular, describes the use of natural fragrances. *See* Ex. 1003, 8:31-41 (“Examples

of essential oils which may be used as natural fragrances include....”). A POSA would have understood Lesniak’s formulations to be complete deodorant sticks that did not require additional ingredients such as synthetic fragrance. *See, id.*, 1:39-2:30, 3:43-4:21, 5:32-6:23, 8:31-9:59. Moreover, a POSA would have understood Lesniak’s preference for “natural” ingredients to militate against inclusion of synthetic fragrance. *Id.*, 1:16-31, 4:61-67, 5:5-32, 10:31-33.

CLAIM 10

“10. The deodorant stick of claim 1, further comprising a structurant having a melting point from 50° C. to 80° C.”

71. In my opinion, Lesniak describes this element. In particular, Lesniak describes formulating a deodorant stick with a primary structurant (“first wax”), such as beeswax, having a melting point 50° C. to 80° C.⁹ Ex. 1003, 1:39-2:30, 3:43-4:21, 5:32-6:23, 8:57-9:59.

CLAIM 11

“11. The deodorant stick of claim 1, further comprising a primary structurant with a melting point of at least 50° C.”

72. *See* my claim 10 analysis, above.¹⁰ A POSA would have understood beeswax to be a suitable structurant for deodorant sticks and would have been

⁹ *See* Ex. 1039, 11 (reporting melting point of 62-65° C. for beeswax).

¹⁰ Beeswax is the “primary” structurant because it is the structurant in the greatest amount. Ex. 1001, 16:6-7.

motivated to use beeswax as a primary structurant based on the use of beeswax as the primary structurant throughout Lesniak. Ex. 1003, 1:39-2:30, 3:43-4:21, 5:32-6:23, 8:57-9:59.

CLAIM 12

“12. The deodorant stick of claim 1, comprising at least about 40% by weight liquid triglyceride.”

73. See my claim 1 analysis above, which applies equally to claim 8 at least because Lesniak’s range of caprylic/capric triglyceride exceeds 40%.

CLAIM 13

“13. The deodorant stick of claim 1, wherein the primary antimicrobial has a water solubility of at most about 50 g/L at 25° C.”

74. See my claim 2 analysis, above, which applies equally to claim 8 at least because zinc oxide’s water solubility was known to be at most about 50 g/L at 25° C.¹¹

CLAIM 15

“15. The deodorant stick of claim 1, further comprising a fragrance composition comprising at least about 50% by weight of natural oils, essential oils, or a combination thereof.”

75. In my opinion, Lesniak describes this element. In particular, Lesniak describes formulating a deodorant stick with a fragrance composition in the form of

¹¹ See n.8, above.

“essential oils,” which are natural oils. *See* Ex. 1003, 8:31-41. The fragrance compositions in Lesniak are essential oils and thus comprise at least about 50% (in particular, 100%) natural oils and essential oils. A POSA would have been motivated to include an essential oil in Lesniak’s compositions to provide a pleasant fragrance and to combat bacteria that cause odor and/or product degradation. *See* Ex. 1003, 1:16-35.

**X. GROUND 2: Claims 3 and 14 are Obvious Over Lesniak in view of
Phinney**

A. Overview of the Combination

76. In my opinion, the subject matter of claims 3 and 14 would have been obvious over Lesniak in view of Phinney. As explained above, Lesniak discloses and/or suggests all of the limitations of independent claim 1. *Supra* § IX. While Lesniak teaches deodorant stick compositions that may contain zinc oxide (a known antimicrobial), it does not expressly teach that magnesium hydroxide was also known to be a useful antimicrobial. A POSA would have understood that magnesium hydroxide was a known antimicrobial and that various antimicrobials could be used alone or in combination as a design choice. Phinney states that metal oxides, such as zinc oxide, are not particularly efficacious antimicrobials in deodorants when used alone. Ex. 1004, 2:33-37. Consequently, Phinney describes using, in a deodorant stick, magnesium hydroxide as an antimicrobial, in addition to

zinc oxide. *Id.*, 5:52-60, 6:9-12, 6:31-34, 8:40-44. Phinney acknowledges that prior publications described magnesium hydroxide as an “effective deodorant” and touts its enhanced effectiveness in preventing odor when used in combination with zinc oxide. Ex. 1004, 1:12-22, 2:33-37, 5:64-66. Thus, a POSA would have found it obvious to add magnesium hydroxide to the composition of Lesniak, as taught by Phinney.

B. Rationale (Motivation) Supporting Obviousness

77. In my opinion, a POSA would have been motivated to combine Lesniak with Phinney. Both Lesniak and Phinney are directed to deodorants with “natural ingredients” (Ex. 1004, 1:5-9; Ex. 1003, 4:61-5:31, 9:45, 10:27, 10:31-33), and describe the use of known antimicrobials (*see, e.g.*, Ex. 1004, 1:15-19, 5:52-67, 6:31-34, 8:40-44; Ex. 1003, 3:39-4:21, 8:31-9:59). Lesniak teaches using zinc oxide (a known antimicrobial), while Phinney teaches that combining magnesium hydroxide with zinc oxide improves antimicrobial properties. Thus, in my opinion, a POSA would have been motivated to incorporate magnesium hydroxide into Lesniak’s composition following Phinney’s guidance, as this combination would improve odor protection while maintaining the “natural” composition intended by Lesniak.

78. I have also provided a detailed explanation of the rationale (motivation) supporting obviousness in the claim mapping below.

C. Reasonable Expectation of Success

79. In my opinion, a POSA would have had a reasonable expectation of success in using magnesium hydroxide as an antimicrobial in Lesniak's composition because Phinney described it as an "effective antimicrobial" and showed it had been successfully formulated into deodorant compositions containing zinc oxide where it provided long lasting odor protection. Moreover, a POSA would have appreciated that deodorant compositions could be formed through various combinations of known ingredients, such as antimicrobials, as simple design choices.

D. Analogous Art

80. Lesniak and Phinney are in the same field as the '706 Patent, and all three relate to personal care compositions, including deodorant and/or antiperspirant sticks, that contain known antimicrobials.¹² See Ex. 1001, Abstract, 18:65-26:36; Ex. 1003, Abstract, Title, 3:39, 4:22, 8:43-46, 9:45, 10:27; Ex. 1004, Abstract, Title, 5:52-60, 6:9-12, 6:31-34, 8:40-44. They all describe and focus on the use of natural ingredients. See Ex. 1001, 1:26-44, 14:32-60, 17:58-12; Ex. 1003, 1:16-35, 4:61-67, 5:5-31, 10:31-33; Ex. 1004, Abstract, 1:5-9, 6:1-23.

E. Claim Mapping

CLAIM 3

¹² See n.4, 5, above.

“3. The deodorant stick of claim 1, wherein the primary antimicrobial is selected from the group consisting of beryllium carbonate, magnesium carbonate, calcium carbonate, magnesium hydroxide, magnesium carbonate hydroxide, magnesium hydroxide and magnesium carbonate hydroxide, partially carbonated magnesium hydroxide, and piroctone olamine.”

81. In my opinion, Lesniak and Phinney describe and/or suggest this element. Lesniak teaches deodorant stick compositions containing zinc oxide (a known antimicrobial), but it does not expressly teach including magnesium hydroxide as an antimicrobial. Phinney discloses a deodorant stick that comprises magnesium hydroxide as an antimicrobial, in addition to zinc oxide (which is converted to zinc hydroxide in Phinney’s formulations). Ex. 1004, 5:52-60, 6:9-12, 6:31-34, 8:40-44.

82. In my opinion, a POSA would have been motivated to add magnesium hydroxide to Lesniak’s stick compositions because it was known that “a mixture of the hydroxides of zinc and magnesium could provide long lasting protection against odour due to perspiration,” whereas zinc oxide alone was less effective “due to insolubility and low hydrolysis rate to a hydroxide form that could show some activity.” *Id.*, 1:12-22, 2:33-37, 5:64-66 (discussing the “previously recognized synergy between the zinc and magnesium compounds”), 5:48-49 (explaining that magnesium hydroxide “has low solubility and therefore does not ‘wash away’ under

heavy perspiration”).¹³ Phinney teaches that the “magnesium oxide and zinc oxide ratio has been found to be effective at 3:1 molar.”¹⁴ *Id.*, 8:43-44, 9:9-10. A POSA therefore would have used magnesium hydroxide as the primary antimicrobial (present in a greater amount than zinc oxide) when formulating a deodorant stick based on the teachings of Lesniak and Phinney.

83. Alternatively, 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. *See id.*

CLAIM 14

“14. The deodorant stick of claim 3, wherein all antimicrobials have a water solubility of at most about 90 g/L at 25° C.”

84. *See my claim 2 and claim 3 analyses, above.*¹⁵

¹³ *See also* Ex. 1072, 2:1-3:5, 3:50-57 (discussing zinc oxide and magnesium hydroxide as interchangeable options for salts that “are insoluble or only sparingly soluble in water” and “perform[] a deodorancy function,” including in stick compositions).

¹⁴ A 3:1 molar ratio means that magnesium hydroxide is approximately 1.76 times more prevalent by weight than zinc hydroxide. Three moles of magnesium hydroxide has a mass of 174.96 g (58.32 g/mol x 3 mol), while one mole of zinc hydroxide has a mass of 99.42 g (99.42 g/mol x 1 mol). The weight ratio of magnesium hydroxide to zinc hydroxide (174.96 g / 99.42 g) is therefore approximately 1.76. Phinney also claims a composition with 2.5% by weight magnesium hydroxide and 1.5% by weight zinc hydroxide. Ex. 1004, cl. 3.

¹⁵ *See also* Ex. 1042, 14, 39 (indicating the aqueous solubility of magnesium hydroxide is 0.00125 g/100 mL, which is equivalent to 0.0125 g/L).

XI. GROUND 3: Claim 4 is Obvious Over Lesniak in View of Phinney and Lamb

A. Overview of the Combination

85. In my opinion, the subject matter of claim 4 would have been obvious over Lesniak in view of Phinney and Lamb. As explained above, Lesniak and Phinney disclose and/or suggest all of the limitations of claim 3. *Supra* § X. While those references do not expressly teach baking soda as an antimicrobial, Lamb discloses a deodorant stick comprising baking soda as an effective antimicrobial. Ex. 1005, 132. Lamb concludes baking soda is an “excellent deodorant” and “a valuable underarm deodorant for common daily usage.” *Id.*, 132-33. Accordingly, it would have been obvious to add baking soda to the composition of Lesniak in view of Phinney to provide additional odor protection, as taught by Lamb.

B. Rationale (Motivation) Supporting Obviousness

86. Lamb is an article that was published in *The Journal of Investigative Dermatology* by Dr. John Henderson Lamb, M.D. The article describes a study which evaluated the effectiveness of baking soda as an underarm deodorant in more than 90 patients. Ex. 1005, 131-32. Lamb explains that baking soda may be used as an antimicrobial in a deodorant stick. *Id.*, 132-33. Lamb concludes that baking soda is an “excellent deodorant” that “lasts through the entire day.” In my opinion, a

POSA would have looked at scientific publications, like Lamb, in evaluating the efficacy and use of antimicrobials in deodorants.

87. In my opinion, it would have been obvious to use the teachings of Phinney and Lamb in Lesniak's deodorant stick compositions. A POSA would have been motivated to combine Lesniak and Phinney for the reasons stated in Section X, above. While Phinney teaches that zinc oxide and magnesium hydroxide had improved efficacy against malodor when used in combination, Lamb teaches that baking soda was another effective antimicrobial that could be used in deodorants. A POSA would have recognized that deodorant compositions often use multiple antimicrobials. While it was known baking soda could cause skin irritation for some users (*supra* § VIII.A.b.iv), a POSA would have found it obvious to use baking soda as an additional antimicrobial (including, e.g., at reduced concentrations) to enhance odor protection.

88. I have also provided a detailed explanation of the rationale (motivation) supporting obviousness in the claim mapping below.

C. Reasonable Expectation of Success

89. In my opinion, A POSA would have had a reasonable expectation of success in using baking soda as an antimicrobial because Lamb showed baking soda had been successfully formulated into deodorant stick compositions and was a “valuable underarm deodorant for common daily usage.” Ex. 1005, 131-33.

Moreover, a POSA would have appreciated that deodorant compositions could be formed through various combinations of known ingredients, such as antimicrobials, as simple design choices.

D. Analogous Art

90. Lesniak, Phinney, and Lamb are in the same field as the '706 Patent, and all relate to personal care compositions, including deodorant and/or antiperspirant sticks.¹⁶ *See, e.g.*, Ex. 1001, Abstract, 18:65-26:36; Ex. 1003, Abstract, Title, 3:39, 4:22, 8:43-46, 9:45, 10:27; Ex. 1004, Abstract, Title, 5:52-60, 6:9-12, 6:31-34, 8:40-44; Ex. 1005, 131-33.

¹⁶ *See* n.4, 5 above.

E. Claim Mapping

CLAIM 4

“4. The deodorant stick of claim 1, further comprising at least one additional antimicrobial different from the primary antimicrobial, selected from the group consisting of beryllium carbonate, magnesium carbonate, calcium carbonate, magnesium hydroxide, magnesium hydroxide and magnesium carbonate hydroxide, partially carbonated magnesium hydroxide, piroctone olamine, potassium carbonate, potassium bicarbonate, sodium carbonate, sodium sesquicarbonate, baking soda, hexamidine, zinc carbonate, thymol, polyvinyl formate, salicylic acid, niacinamide, magnesium carbonate hydroxide, cinnamon essential oil, cinnamon bark essential oil, cinnamic aldehyde, and combinations thereof.”

91. In my opinion, the combination of Lesniak in view of Phinney and Lamb renders claim 4 obvious. Lesniak in view of Phinney teaches deodorant stick compositions contain antimicrobials, but do not expressly teach deodorant stick compositions containing baking soda as an additional antimicrobial. Lamb describes a deodorant stick using baking soda as an antimicrobial. Ex. 1005, 132. In my opinion, while it was known that baking soda could cause skin irritation for some users (*supra* § VIII.A.b.iv), a POSA would have been motivated to add baking soda as a secondary antimicrobial to the deodorant sticks disclosed by Lesniak in view of Phinney because baking soda was known to react with the acidic compounds responsible for malodor to form non-volatile salts and could provide enhanced efficacy against axillary malodor. *Id.*, 133. And a POSA would have been motivated

to use less baking soda than magnesium hydroxide due to baking soda's known skin irritation issues.

XII. GROUND 4: Claim 8 is Obvious Over Lesniak in View of Bianchi '518

A. Overview of the Combination

92. In my opinion, the subject matter of claim 8 would have been obvious over Lesniak in view of Bianchi '518. As explained above, Lesniak discloses and/or suggests all of the limitations of independent claim 1. *Supra* § IX. Lesniak does not expressly teach hardness as measured by penetration with an ASTM-D 1321 needle. Bianchi '518 teaches that the claimed hardness range of about 7.0 mm to about 14.0 mm (equivalent to about 70 mm*10 to about 140 mm*10)¹⁷, as measured by penetration with an ASTM-D 1321 needle, was “typical[,]” and products outside of the range were known to generate low consumer acceptance ratings. Ex. 1006, 2:56-58, 6:23-29. Accordingly, it would be obvious to formulate Lesniak's deodorant stick to be within the claimed hardness range inasmuch as Bianchi '518 teaches that the range was long known to be needed for consumer acceptance of deodorant sticks.¹⁸

¹⁷ See n.2, above.

¹⁸ In addition, in a patent filed in 1995, Patent Owner described deodorant hardness ranges “of preferably from about 65-200, more preferably from about 70 to about 160, most preferably from about 75 to about 120,” as measured by a “penetration needle as specified in ASTM Method D 1321-DIN 51 579.” Ex. 1025, 12:41-55.

B. Rationale (Motivation) Supporting Obviousness

93. In my opinion, by the time of the filing of the '706 Patent, a POSA would have known that hardness was an “important physical parameter affecting consumer acceptance,” and would have looked to achieve hardness levels that were taught in the field to achieve consumer acceptance. Ex. 1006, 6:23-25. Bianchi '518 informs the knowledge in the field on this point.

94. Bianchi '518 is a patent in the field that generally discloses low residue “antiperspirant sticks, substantially free of water and long chain fatty alcohols” and methods related thereto. Ex. 1006, 1:8-14, 1:53-2:2. Bianchi '518 explains that a hardness from about 7.0 mm to about 14.0 mm (equivalent to about 70 mm*10 to about 140 mm*10)¹⁹ was “typical” for stick compositions, and that products falling outside that hardness range typically generated low consumer acceptance ratings. *Id.*, 2:57-58; 6:28-29. Moreover, because Lesniak is directed to formulating deodorant sticks with desirable “skin feel” for consumers (Ex. 1003, 1:16-35), a POSA would have consulted publications, like Bianchi '518, to determine acceptable hardness ranges and ensure the stick composition met consumer preferences.

¹⁹ See n.2, above.

95. I have also provided a detailed explanation of the rationale (motivation) supporting obviousness in the claim mapping below.

C. Reasonable Expectation of Success

96. In my opinion, A POSA would have had a reasonable expectation of success to formulate a deodorant stick such as the stick disclosed by Lesniak to have a hardness within the claimed range because others, such as the inventors in Bianchi '518, had successfully formulated antiperspirants and deodorants to have a hardness within that range. *See* Ex. 1006, 2:56-58, 6:23-29. A POSA would have readily understood that adjusting the amount of structurant in Lesniak's compositions (using less if the deodorant was too hard, and vice-versa) could achieve the target hardness.²⁰ For instance, Lesniak describes formulating a deodorant stick with 8% to 19% of a primary structurant, such as beeswax, and also optionally including 3% to 15% of a secondary structurant, such as sunflower seed wax and/or hydrogenated castor oil. Ex. 1003, 9:45-54; *see also id.*, 1:39-2:30, 3:43-4:21, 5:32-48. A POSA would have understood that the hardness could be adjusted by altering the amount of the primary structurant and/or by incorporating secondary structurants. For

²⁰ *See* Ex. 1014, ¶¶ [0028]-[0029] (defining structurant in the same manner as the '706 Patent and stating that the "structurant material contributes to the stick form with the desired . . . hardness"); *see also id.*, ¶ [0003] ("Using a large amount of waxy structurant may not be necessarily effective since it may result in an overly hard structure.").

instance, a POSA would know that a stick composition could be made less hard by reducing the relative amount of the structurant relative to, typically, the carrier oil component (i.e., less structurant and more carrier oil). Also, the ratio of the primary structurant to the secondary structurant could be used to control hardness, where one leads to a harder stick and the other leads to a softer stick. A structurant with a lower melting point tends to be softer than a structurant with a higher melting point.

D. Analogous Art

97. Lesniak and Bianchi '518 are in the same field as the '706 Patent, and both relate to personal care compositions, including deodorants and/or antiperspirants.²¹ See, e.g., Ex. 1001, Abstract, 18:65-26:36; Ex. 1003, Abstract, Title, 3:39, 4:22, 8:43-46, 9:45, 10:27; Ex. 1006, Abstract, Title, 1:8-35, 2:57-58, 6:23-29.

E. Claim Mapping

CLAIM 8

“8. The deodorant stick of claim 1, wherein the deodorant stick has a hardness from about 70 mm*10 to about 140 mm*10, as measured by penetration with ASTM D-1321 needle.”

98. In my opinion, Lesniak and Bianchi '518 describe and/or suggest this element. In particular, Bianchi '518 teaches a hardness range of about 7.0 mm to

²¹ See n.4,5, above.

about 14.0 mm (equivalent to about 70 mm*10 to about 140 mm*10)²², as measured by penetration with an ASTM-D 1321 needle, was “typical[,]” and products outside of this range were known to generate low consumer acceptance ratings. Ex. 1006, 2:56-58, 6:23-29. A POSA therefore would have been motivated to formulate Lesniak’s deodorant stick to have a hardness within the claimed range.²³

XIII. GROUND 5: Claims 16-23 are Obvious Over Lesniak in View of Phinney, Bianchi ’254, and Anconi

A. Overview of the Combination

99. In my opinion, the subject matter of claims 16-23 is obvious over Lesniak in view of Phinney, Bianchi ’254, and Anconi. While Lesniak describes formulating deodorant compositions with “fatty alcohols,” which a POSA would have understood to include stearyl alcohol, it does not expressly disclose using stearyl alcohol as the primary structurant. Ex. 1003, 8:31-32; Ex. 1001, 15:50-51; *see also* Ex. 1008, Tables 1, 5. Bianchi ’254 states stearyl alcohol is a “widely used” structurant “of particular interest” for deodorants. Ex. 1008, ¶¶[0001], [0018],

²² *See* n.2, above.

²³ While claim 8 refers to an ASTM-D 1321 needle, it does not expressly recite a particular hardness test. To the extent Patent Owner alleges that the claim requires a specific test, in my opinion, based on the references to ASTM D-1321 in the claims and specification of the ’706 Patent, a POSA would understand that test to be the ASTM D-1321 test known in the art and referred to in Bianchi ’518. Regardless of the test used, a POSA would have known how to adjust the hardness as needed to make a hardness level desirable to consumers and at least within the range set forth in Bianchi ’518.

[0019], [0058]. Therefore, a POSA would have found it obvious to use stearyl alcohol in the composition of Lesniak, as taught by Bianchi '254.

100. Moreover, while Lesniak describes formulating deodorant compositions with antimicrobials such as zinc oxide, it does not expressly teach the use of triethyl citrate, which a POSA would have recognized as another antimicrobial. Anconi discloses deodorant formulations that, like Lesniak's compositions, comprise zinc salts. Anconi states that the composition may also include "ingredients known to have antibacterial and deodorant properties," and identifies triethyl citrate as such an ingredient. Ex. 1057, ¶ [0027]. Therefore, a POSA would have found it obvious to use triethyl citrate as an antimicrobial in the composition of Lesniak, as taught by Anconi.

B. Rationale (Motivation) Supporting Obviousness

101. In my opinion, it would have been obvious to use the teachings of Phinney, Bianchi '254, and Anconi in Lesniak's deodorant stick composition. A POSA would have been motivated to combine Lesniak and Phinney for the reasons stated in Section X, above. Lesniak aims to formulate deodorant sticks that have a consumer-preferred "skin feel" (e.g., reduced tackiness and drag). Ex. 1003, 1:16-35, 5:51-53. While Lesniak describes using "fatty alcohols" in its deodorant compositions, it does not expressly state stearyl alcohol is useful as the primary structurant. *Id.*, 8:31-32. Bianchi '254 highlights stearyl alcohol as a "widely used"

structurant “of particular interest” for deodorants and provides example deodorants where it is successfully used as the primary structurant. Ex. 1008, ¶¶[0001], [0018], [0019], [0058]. Bianchi ’254 aims to provide stick compositions having a “‘clean’, non-sticky feeling.” *Id.*, ¶[0010]. Accordingly, a POSA would have been motivated to incorporate stearyl alcohol as the primary structurant in Lesniak’s deodorant compositions to achieve consumer-preferred “skin feel.”

102. In addition, Lesniak describes using zinc oxide in its deodorant compositions. As discussed above, zinc oxide was thought to have low efficacy as an antimicrobial in deodorants. And Anconi discloses triethyl citrate as an “ingredient[] known to have antibacterial and deodorant properties.” Ex. 1057, ¶[0027]. Accordingly, a POSA would have been motivated to incorporate triethyl citrate as an antimicrobial in Lesniak’s deodorant compositions to improve their ability to combat odor. A POSA further would have been motivated to include triethyl citrate in Lesniak’s deodorant compositions because, as discussed above, Lesniak’s compositions contained liquid triglycerides, and triethyl citrate was known to prevent the degradation of triglycerides in compositions for topical use.²⁴

103. I have also provided a detailed explanation of the rationale (motivation) supporting obviousness in the claim mapping below.

²⁴ See Ex. 1060, Abstract, ¶¶ [0022]-[0040].

C. Reasonable Expectation of Success

104. In my opinion, a POSA would have had a reasonable expectation of success in using stearyl alcohol as a structurant in Lesniak's composition because Bianchi '254 described it as a "widely used" structurant and showed it had been successfully formulated into deodorant compositions the primary structurant. A POSA would have had a reasonable expectation of success in using magnesium hydroxide in Lesniak's compositions for the reasons discussed above in Section X. And a POSA would have had a reasonable expectation of success in using triethyl citrate as an antimicrobial in Lesniak's compositions because Anconi describes its successful use as an antimicrobial in deodorants, and others had successfully formulated compositions for topical application using triethyl citrate to prevent the degradation of triglycerides.²⁵ Moreover, a POSA would have appreciated that deodorant compositions could be formed through various combinations of known ingredients, such as structurants and antimicrobials, as simple design choices.

D. Analogous Art

105. Lesniak, Phinney, Bianchi '254, and Anconi are in the same field as the '706 Patent, and all relate to personal care compositions, including deodorant and/or antiperspirant sticks.²⁶ *See, e.g.,* Ex. 1001, Abstract, 18:65-26:36; Ex. 1003,

²⁵ *See* n.24, above.

²⁶ *See* n.4,5, above.

Abstract, Title, 3:39, 4:22, 8:43-46, 9:45, 10:27; Ex. 1004, Abstract, Title, 5:52-60, 6:9-12, 6:31-34, 8:40-44; Ex. 1008, Abstract, Title, ¶¶[0010]-[0021]; Ex. 1057, Abstract, ¶¶[0049]-[0052].

E. Claim Mapping

CLAIM 16

“16[Pre]. A deodorant stick comprising:”

106. See my claim 1 analysis, above.

“[16] a. at least about 25% by weight liquid triglyceride;”

107. See my claim 1 analysis, above.

“[16] b. a starch;”

108. In my opinion, Lesniak describes this element. In particular, Lesniak describes formulating a deodorant stick with a starch. Ex. 1003, 8:31-34. A POSA would have been motivated to include starch in Lesniak’s deodorant sticks for its known absorbent and structurant properties. And a POSA would have had a reasonable expectation of success in doing so because starch (e.g., tapioca/arrowroot) had been successfully used in natural deodorants, even by people formulating deodorants at home with less skill than a POSA.²⁷

²⁷ Ex. 1009, 7-9; Ex. 1016, 5-6; Ex. 1017, 6-8.

“[16] c. stearyl alcohol;”

109. In my opinion, Lesniak and Bianchi '254 describe and/or suggest this element. In particular, Lesniak describes formulating deodorant compositions with “fatty alcohols,” which a POSA would have understood to include stearyl alcohol. Ex. 1003, 8:31-32. Bianchi '254 singles out stearyl alcohol as a “widely used” structurant “of particular interest” for deodorants. Ex. 1008, ¶¶[0001], [0058]. Bianchi '254 describes deodorant formulations comprising 12-25% of stearyl alcohol as the structurant present in the greatest amount. *Id.*, ¶¶[0018], [0019]. A POSA would have been motivated to use stearyl alcohol as a structurant in Lesniak’s deodorant formulations, and would have had a reasonable expectation of success in doing so, because stearyl alcohol was a preferred option that had already been used successfully as a structurant in deodorant sticks.

“[16] d. magnesium hydroxide;”

110. See my claim 3 analysis, above.

“[16] e. beeswax;”

111. See my claim 10 analysis, above.

“[16] f. shea butter;”

112. In my opinion, Lesniak describes this element. In particular, Lesniak describes formulating a deodorant stick with shea butter. Ex. 1003, 3:27-4:12, 8:1-14. A POSA would have been motivated to include shea butter in Lesniak’s

deodorant sticks for its known emollient and structurant properties. And a POSA would have had a reasonable expectation of success in doing so because shea butter had been successfully used in natural deodorants, even by people formulating deodorants at home with less skill than a POSA.²⁸

“[16] g. coconut oil;”

113. In my opinion, Lesniak describes this element. In particular, Lesniak describes formulating a deodorant stick with coconut oil. Ex. 1003, 2:51-67, 3:25-4:12, 7:66-67. A POSA would have been motivated to include coconut oil in Lesniak’s deodorant sticks for its known emollient and structurant properties. And a POSA would have had a reasonable expectation of success in doing so because coconut oil had been successfully used in natural deodorants, even by people formulating deodorants at home with less skill than a POSA.²⁹

“[16] h. triethyl citrate;”

114. In my opinion, Lesniak describes this element. In particular, Lesniak describes using zinc oxide in its deodorant compositions. As discussed above, zinc oxide was thought to have low efficacy as an antimicrobial in deodorants. Anconi discloses triethyl citrate as an “ingredient[] known to have antibacterial and deodorant properties.” Ex. 1057, ¶ [0027]. Accordingly, a POSA would have been

²⁸ See Ex. 1009, 7; Ex. 1016, 5-6.

²⁹ See Ex. 1020, 2-5; Ex. 1071, 15-16, 26-34, 42-48.

motivated to incorporate triethyl citrate as an antimicrobial in Lesniak’s deodorant compositions, and would have had a reasonable expectation of success in doing so, to improve their ability to combat odor. A POSA further would have been motivated to include triethyl citrate in Lesniak’s deodorant compositions because, as discussed above, those compositions contained liquid triglyceride, and triethyl citrate was known to prevent the degradation of triglycerides in compositions for topical use.³⁰

“[16] i. jojoba seed oil; and”

115. In my opinion, Lesniak describes this element. In particular, Lesniak describes formulating a deodorant stick with jojoba butter, which is made from and contains jojoba seed oil.³¹ Ex. 1003, 8:4-11. Lesniak also describes a personal care composition containing jojoba seed oil (*Id.*, 13:48-67), which a POSA would have recognized as a suitable option to include in Lesniak’s deodorant for its emollient properties and widespread use in cosmetic compositions.³²

“[16] j. sunflower seed oil;”

116. In my opinion, Lesniak describes this element. In particular, Lesniak describes formulating a deodorant stick with sunflower seed oil. Ex. 1003, 2:51-67, 3:25-4:22, 7:66-67, 9:52-59.

³⁰ See n.24, above.

³¹ Ex. 1061, 296.

³² See Ex. 1062, 2:23-30 (“[J]ojoba oil is used by the cosmetic industry as an emollient.”); Ex. 1063, 300-303.

“[16k] said deodorant stick being free of an aluminum salt.”

117. See my claim 1 analysis, above.

CLAIM 17

“17. The deodorant stick of claim 16, further comprising a fragrance.”

118. See my claim 15 analysis, above.

CLAIM 18

“18. The deodorant stick of claim 16, further comprising at least one essential oil.”

119. See my claim 15 analysis, above.

CLAIM 19

“19. The deodorant stick of claim 16, further comprising a natural fragrance.”

120. See my claim 15 analysis, above.

CLAIM 20

“20[Pre]. A deodorant stick comprising:”

121. See my claim 16 analysis, above.

“[20] a. at least about 25% by weight liquid triglyceride;”

122. See my claim 16 analysis, above.

“[20] b. stearyl alcohol;”

123. See my claim 16 analysis, above.

“[20] c. magnesium hydroxide;”

124. *See* my claim 16 analysis, above.

“[20] d. beeswax;”

125. *See* my claim 16 analysis, above.

“[20] e. shea butter;”

126. *See* my claim 16 analysis, above.

“[20] f. coconut oil;”

127. *See* my claim 16 analysis, above.

“[20] g. triethyl citrate;”

128. *See* my claim 16 analysis, above.

“[20] h. jojoba seed oil; and”

129. *See* my claim 16 analysis, above.

“[20] i. sunflower seed oil;”

130. *See* my claim 16 analysis, above.

“[20]j said deodorant stick being free of an aluminum salt.”

131. *See* my claim 16 analysis, above.

CLAIM 21

“21. The deodorant stick of claim 20, further comprising a fragrance.”

132. *See* my claim 17 analysis, above.

CLAIM 22

“22. The deodorant stick of claim 20, further comprising at least one essential oil.”

133. See my claim 18 analysis, above.

CLAIM 23

“23. The deodorant stick of claim 20, further comprising a natural fragrance.”

134. See my claim 19 analysis, above.

XIV. GROUND 6: Claims 1, 5, 7-8, 10-12, and 15 are Obvious Over Native in view of Bianchi '254

A. Overview of the Combination

135. In my opinion, the subject matter of claims 1, 5, 7-8, 10-12, and 15 is obvious over Native in view of Bianchi '254. Native is a printed publication from a website for the Native deodorant product, which sets forth the ingredients for a natural, aluminum-free deodorant stick, which was being marketed and sold in 2016. Ex. 1007, 5, 11. A POSA looking to formulate new deodorant compositions would have looked to existing formulations and would have understood that commercial natural deodorant brands typically provided ingredient lists of their products on their websites. Native, in particular, was a website that would have been well known to a POSA, inasmuch as Native was a well-known deodorant. Attesting to the fact that Native was a known leader in the field, Patent Owner acquired Native in 2017. See Ex. 1010, 3 (“Native reached internet fame”); Ex. 1011, 2-3, Ex. 1012, 1.

136. Native discloses features of deodorant stick compositions claimed in the '706 Patent; however, it does not expressly teach the percentage of each ingredient used, including the percentage of liquid triglyceride (carrier oil). Native also does not disclose the hardness of the deodorant stick. Bianchi '254 describes antiperspirant stick compositions, which establish that the claimed concentrations of ingredients were conventional and that the claimed hardness range was standard. Accordingly, it would be obvious to formulate a deodorant stick such as the stick disclosed by Native using ingredient concentrations and hardnesses as taught by Bianchi '254.

B. Rationale (Motivation) Supporting Obviousness

137. In making a natural, aluminum-free deodorant stick composition, a POSA would have looked to existing compositions, such as Native. Native's deodorant stick composition is comprised of caprylic/capric triglyceride, baking soda, stearyl alcohol, olyglycerol-3 beeswax, and jojoba esters. Ex. 1007, 11. Aluminum salts, and synthetic fragrances are not included in the composition. *See id.* As a POSA would have understood, Native lists its deodorant stick ingredients in order from greatest to least concentration;³³ however, it does not expressly teach

³³ *See* Ex. 1046, 164 ("Ingredients in the product should be listed as follows: (1) A list of each ingredient of the cosmetic product in descending order of predominance by weight (except that the fragrance and/or flavor may be designated as such without

the percentage of each ingredient used nor state the hardness of the deodorant stick. In the absence of express teachings on these points, a POSA would have looked to other publications in the field with suitable examples.

138. Bianchi '254 is a publication in the field which describes “fatty-alcohol containing antiperspirant stick compositions” and methods related thereto. Ex. 1008, Abstract, ¶¶[0010]-[0012], [0021]. Native’s primary structurant—stearyl alcohol—is a fatty alcohol. Thus, Bianchi '254 would have been of particular use for a POSA looking for percentages to use for Native’s formulation.

139. Bianchi '254 describes antiperspirant stick compositions including the percentages of liquid triglyceride (carrier oil), primary structurant with a melting point of at least about 50°C (e.g., stearyl alcohol), and secondary structurants with a melting point of at least about 60°C (e.g., castor wax, polyethylene). *Id.*, ¶¶[0015]-[0019], [0131], [0060]-[0061], Table 5. Bianchi also describes antiperspirant sticks having, e.g., “hardness values of from 8 to 15 mm, preferably 8 to 10 mm, measured pursuant to” a test with a DIN 51-579 needle (*id.*, ¶¶[0026], [0117]), which the '706 Patent admits is an ASTM-D 1321 needle (Ex. 1001, 22:55-56) and would have been understood by a POSA as such. When formulating a natural, aluminum-free deodorant stick based on the composition in Native, a POSA would have looked at

naming each individual ingredient when the manufacturer or supplier of the fragrance and/or flavor refuses to disclose ingredient data).”).

publications describing other stick compositions, like Bianchi '254, for information regarding preferred hardnesses and amount of ingredients.

140. I have also provided a detailed explanation of the rationale (motivation) supporting obviousness in the claim mapping below.

C. Reasonable Expectation of Success

141. In my opinion, a POSA would have had a reasonable expectation of success in formulating a deodorant stick such as the stick disclosed by Native with percentages of liquid triglyceride within the claimed ranges, because others, such as the inventors of Bianchi '254, had successfully formulated antiperspirant sticks within those claimed ranges. Ex. 1008, ¶¶[0001], [0015]-[0019], [0023], [0026], [0050], [0058], [0060]-[0061], [0117], [0131], Table 5. Moreover, Native identifies the specific ingredient to use, but lacks the weight percents, where Bianchi '254 teaches the conventional weight percentages to be used for the various components such that the combination would aid the POSA in making a deodorant similar to Native's. With respect to hardness, a POSA would have had a reasonable expectation of success in achieving the same for reasons already discussed above.³⁴

³⁴ See n.20, above.

D. Analogous Art

142. Native and Bianchi '254 are in the same field as the '706 Patent, and all relate to personal care compositions, including deodorants and/or antiperspirants.³⁵ See, e.g., Ex. 1001, Abstract, 18:65-26:36; Ex. 1007, 5-8, 11; Ex. 1008, Abstract, ¶¶ [0010]-[0021].

E. Claim Mapping

CLAIM 1

“1/[Pre]. A deodorant stick comprising:”

143. In my opinion, Native describes this element. In particular, Native describes and depicts a deodorant stick.



Ex. 1007, 11.

“[1a] at least about 25% by weight liquid triglyceride and”

144. In my opinion, Native and Bianchi '254 describe and/or suggest this element. In particular, Native describes a deodorant stick that comprised, as its first

³⁵ See n.4, above.

ingredient, caprylic/capric triglyceride, which the '706 Patent describes as an exemplary liquid triglyceride. Ex. 1001, 14:41-46 (“[T]he triglycerides of the present invention are liquid An example may be caprylic/capric triglyceride.”).

Ingredients	Caprylic/capric triglyceride (which is a fancy way of saying fractionated coconut oil), arrowroot powder, stearyl alcohol, baking soda, shea butter, coconut oil, hydrogenated castor oil, polyglycerol-3 beeswax (which is a fancy way of saying cera bellina wax), jojoba esters, tocopherol (which is a fancy way of saying Vitamin E), L. acidophilus (which is a natural bacteria found in your body already), dextrose, glyceryl caprylate, glyceryl undecylenate. Our scented deodorants include oils. Lavender & Rose is made with Lavender Oil and Geranium Oil. Eucalyptus & Mint is made with Eucalyptus Oil and Spearmint Oil. Due to FDA recommendations, we use the term “fragrance” to refer to these oils.
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Ex. 1007, 11.

145. In my opinion, a POSA would have known that Native listed each ingredient in descending order of amount.³⁶ Thus, in my opinion, a POSA would have understood the Native deodorant stick to comprise a substantial amount of liquid triglyceride, since caprylic/capric triglyceride is the most predominant ingredient. Indeed, Patent Owner’s related ’915 Patent acknowledges that a “currently marketed” product (Comparative Formula 1), which had the same nine most predominant ingredients by weight—in the same order—as the deodorant stick disclosed on the Native website, comprised 34.15% caprylic/capric triglyceride.

³⁶ See n.33, above.

	Comparative Formula 1
Hardness (Penetration mm * 10)	63
Caprylic/Capric Triglyceride	34.15
Arrowroot Powder	23
Stearyl Alcohol	12
Ozokerite	
Castor Wax	3
Baking Soda	12
Magnesium Hydroxide	
Shea Butter	6
Coconut Oil	4.75
Polyglycerol-3	2.5
Beeswax	
Jojoba Esters	1
70	
Glyceryl Caprylate (and) Glyceryl Undecylenate	1
Perfumes	0.6
Cyclodextrin	
Tapioca Starch	

Ex. 1045, 3:1-45.

146. Regardless of this acknowledgment that using the claimed amount was not inventive, it was well known that deodorants typically comprised more than 25% of a carrier oil component such as liquid triglyceride. Specifically, Bianchi '254 describes an antiperspirant stick with 40-80% oil. In Bianchi '254, part of the oil carrier (20-40% of the total) is a natural oil such as a liquid triglyceride. Ex. 1008, ¶¶ [0017], [0050]. Bianchi '254 also describes that the antiperspirant stick further comprised 20-40% of silicone oil. *Id.*, ¶ [0016]. In my opinion, a POSA would have understood that silicone oil and liquid triglyceride both functioned as “carrier oils” that, among other things, solubilize and disperse other ingredients (*id.*, ¶¶ [0015],

[0023], cl. 17, 18), and therefore would have been motivated to use even more liquid triglyceride when formulating a natural deodorant stick (like in Native) that did not include, e.g., silicone oil, to meet what the '706 Patent acknowledges was an existing consumer preference (Ex. 1001, 1:26-28, 1:42-44, 14:32-34, 14:48-60). A POSA would have appreciated that one would want to consider the total oil composition as a guide.

147. Thus, in my opinion, a POSA would have been motivated to use at least about 25% of a liquid triglyceride in a deodorant stick, and would have had a reasonable expectation of success in doing so, inasmuch as (i) Bianchi '254 already suggests the same with its 20-40% amount, (ii) a POSA would have, based on Bianchi '254's overall oil teachings, used even more of the liquid triglyceride when making a stick with only that oil carrier (as taught by Native).

148. Bianchi '254's ranges of liquid triglyceride overlap with the claimed range. Ex. 1008, ¶¶ [0017], [0050]. In my opinion, there was nothing critical or unexpected about the claimed range relative to Bianchi '254's ranges. As a POSA would have understood, the minor deviations in the ranges yield predictable variations in degree and do not produce a different kind of result. For example, using more liquid triglyceride generally yields a softer stick, merely changing the degree of hardness.

“[1b] a primary antimicrobial;”

149. In my opinion, Native describes this element. In particular, Native teaches a deodorant stick composition comprising a primary antimicrobial in the form of baking soda, which was a known antimicrobial³⁷ listed before, and thus present in greater amounts than, any other antimicrobial.³⁸

Ingredients

Caprylic/capric triglyceride (which is a fancy way of saying fractionated coconut oil), arrowroot powder, stearyl alcohol, baking soda, shea butter, coconut oil, hydrogenated castor oil, polyglycerol-3 beeswax (which is a fancy way of saying cera bellina wax), jojoba esters, tocopherol (which is a fancy way of saying Vitamin E), L. acidophilus (which is a natural bacteria found in your body already), dextrose, glyceryl caprylate, glyceryl undecylenate. Our scented deodorants include oils. Lavender & Rose is made with Lavender Oil and Geranium Oil. Eucalyptus & Mint is made with Eucalyptus Oil and Spearmint Oil. Due to FDA recommendations, we use the term “fragrance” to refer to these oils.

Ex. 1007, 11.

“said deodorant stick being free of an aluminum salt.”

150. In my opinion, Native describes this element. In particular, Native describes an “Aluminum Free” deodorant stick, which a POSA would have understood to mean that the formulation did not contain an aluminum salt. The listed ingredients, discussed above, confirm this.

³⁷ See Ex. 1005, 133; Ex. 1001, 10:30-43.

³⁸ See n.33, above.

NATIVE DEODORANT


Free Shipping


Aluminum Free


No Commitment

Ex. 1007, 11.

151. In addition, Native touted its “NATURAL INGREDIENTS”, which a POSA would have understood to militate against inclusion of ingredients such as aluminum that were thought to be unsafe. *Id.*, 5.

CLAIM 5

“5. The deodorant stick of claim 1, wherein the primary antimicrobial is a powder.”

152. In my opinion, Native describes this element. In particular, a POSA would have understood Native’s primary antimicrobial, baking soda, to be a powder.³⁹

CLAIM 7

“7. The deodorant stick of claim 1, wherein the deodorant stick is substantially free of a synthetic fragrance.”

153. In my opinion, Native describes and/or suggests this element. In particular, Native discloses a deodorant stick free from synthetic fragrance, as its “fragrance” referred to natural essential oils.

³⁹ See Ex. 1066, 24 (“Sodium bicarbonate is a white, odorless, crystalline powder.”).

Ingredients

Caprylic/capric triglyceride (which is a fancy way of saying fractionated coconut oil), arrowroot powder, stearyl alcohol, baking soda, shea butter, coconut oil, hydrogenated castor oil, polyglycerol-3 beeswax (which is a fancy way of saying cera bellina wax), jojoba esters, tocopherol (which is a fancy way of saying Vitamin E), L. acidophilus (which is a natural bacteria found in your body already), dextrose, glyceryl caprylate, glyceryl undecylenate.

Our scented deodorants include oils. Lavender & Rose is made with Lavender Oil and Geranium Oil. Eucalyptus & Mint is made with Eucalyptus Oil and Spearmint Oil. Due to FDA recommendations, we use the term “fragrance” to refer to these oils.

Ex. 1007, 11.

154. In addition, Native touted its “NATURAL INGREDIENTS”, which a POSA would have understood to exclude synthetic fragrances. *Id.*, 5.

CLAIM 8

“8. The deodorant stick of claim 1, wherein the deodorant stick has a hardness from about 70 mm*10 to about 140 mm*10, as measured by penetration with ASTM D-1321 needle.”

155. In my opinion, Native and Bianchi ’254 describe and/or suggest this element. In particular, while Native does not state the hardness of the deodorant stick, Bianchi ’254 describes that its antiperspirant sticks have “hardness values of from 8 to 15 mm, preferably 8 to 10 mm,⁴⁰ measured pursuant to” a test with a DIN 51-579 needle (Ex. 1008, ¶¶ [0026], [0117]), which is an ASTM-D 1321 needle according to the ’706 Patent (Ex. 1001, 22:55-56), and as would have been understood by a POSA.

⁴⁰ See n.2, above; Ex. 1047, 8:59-9:13 (discussing measuring the hardness of deodorant with a “penetration needle as specified in ASTM Method-D 1321-DIN 51 579”).

156. Bianchi '254's hardness ranges overlap with the claimed range. *See* Ex. 1008, ¶¶ [0026], [0117]. In my opinion, there was nothing critical or unexpected about the claimed range relative to Bianchi '254's ranges. As a POSA would have understood, the minor deviations in the ranges yield predictable variations in degree (softer vs. harder) and do not produce a different kind of result. Indeed, Patent Owner obtained another patent that contains many of the same limitations as the '706 Patent (and appears to claim the same priority date(s)), yet recites the about 80 mm*10 to about 140 mm*10 hardness range rather than the 70 mm*10 to about 140 mm*10. Ex. 1045, claim 15. This further suggests that there is nothing critical about the 70 mm*10 to about 140 mm*10 range.

157. In my opinion, a POSA would have been motivated to formulate a deodorant stick, such as Native's deodorant stick, to have a hardness within Bianchi '254's preferred ranges because a POSA would have (i) looked to other references for preferred hardness ranges in the absence of any explicit teaching on this point in Native and (ii) known that customer preferred hardness levels within the claimed range and the ranges stated in Bianchi '254.⁴¹ And, in my opinion, a POSA would have had a reasonable expectation of success in doing so for reasons addressed above.

⁴¹ *See* Ex. 1006, 2:56-58, 6:23-29.

158. In particular, a POSA would have understood that the stick could be made softer by, for instance, decreasing the relative amount of structurant, with the weight percent of the carrier oil likely being increased. Alternatively, the type of structurant or balance between multiple structurants could be adjusted to adjust hardness.

CLAIM 10

“10. The deodorant stick of claim 1, further comprising a structurant having a melting point from 50° C. to 80° C.”

159. In my opinion, Native describes this element. In particular, Native’s deodorant stick comprised stearyl alcohol, which is a structurant that melts between 50° C. and 70° C., as generally known in the field. Ex. 1008, Tables 1, 5.

Ingredients Caprylic/capric triglyceride (which is a fancy way of saying fractionated coconut oil), arrowroot powder, stearyl alcohol, baking soda, shea butter, coconut oil, hydrogenated castor oil, polyglycerol-3 beeswax (which is a fancy way of saying cera bellina wax), jojoba esters, tocopherol (which is a fancy way of saying Vitamin E), L. acidophilus (which is a natural bacteria found in your body already), dextrose, glyceryl caprylate, glyceryl undecylenate.
Our scented deodorants include oils. Lavender & Rose is made with Lavender Oil and Geranium Oil. Eucalyptus & Mint is made with Eucalyptus Oil and Spearmint Oil. Due to FDA recommendations, we use the term “fragrance” to refer to these oils.

Ex. 1007, 11.

CLAIM 11

“11. The deodorant stick of claim 1, further comprising a primary structurant with a melting point of at least 50° C.”

160. See my claim 10 analysis of ground 6, above. Stearyl alcohol is the “primary” structurant in Native’s deodorant stick because it is the first structurant listed in the ingredient list and, thus, the structurant in the greatest amount.⁴² Ex. 1001, 15:25-28.

161. Also, Bianchi ’254 singles out stearyl alcohol as a “widely used” structurant “of particular interest” for antiperspirants. Ex. 1008, ¶¶[0001], [0058]. Bianchi ’254 describes antiperspirant formulations comprising 12-25% of a fatty alcohol, such as stearyl alcohol, as the structurant present in the greatest amount. Ex. 1008, ¶¶[0018]-[0019], [0131] (showing formulations with 18% stearyl alcohol as primary structurant and 3.5% castor wax as secondary structurant).

162. Thus, a POSA would have been motivated to use a primary structurant with a melting point of at least about 50° Celsius, such as stearyl alcohol, in a deodorant stick, inasmuch as both Native and Bianchi ’254 describe doing so.

⁴² See n.1, above.

CLAIM 12

“12. The deodorant stick of claim 1, comprising at least about 40% by weight liquid triglyceride.”

163. See my claim 1 analysis of ground 6, above, which applies equally to claim 12 at least because Bianchi '254's range of caprylic/capric triglyceride extends to 40%, and a POSA would have been motivated to use more when omitting silicone oil.

CLAIM 15

“15. The deodorant stick of claim 1, further comprising a fragrance composition comprising at least about 50% by weight of natural oils, essential oils, or a combination thereof.”

164. In my opinion, Native describes this element. In particular, Native discloses a deodorant stick with a fragrance composition comprising at least about 50% by weight (in particular, 100%) of natural oils or essential oils, as its “fragrance” referred to natural essential oils such as eucalyptus oil and spearmint oil.

Ingredients

Caprylic/capric triglyceride (which is a fancy way of saying fractionated coconut oil), arrowroot powder, stearyl alcohol, baking soda, shea butter, coconut oil, hydrogenated castor oil, polyglycerol-3 beeswax (which is a fancy way of saying cera bellina wax), jojoba esters, tocopherol (which is a fancy way of saying Vitamin E), L. acidophilus (which is a natural bacteria found in your body already), dextrose, glyceryl caprylate, glyceryl undecylenate.

Our scented deodorants include oils. Lavender & Rose is made with Lavender Oil and Geranium Oil. Eucalyptus & Mint is made with Eucalyptus Oil and Spearmint Oil. Due to FDA recommendations, we use the term “fragrance” to refer to these oils.

Ex. 1007, 11.

XV. GROUND 7: Claims 2-4, 6, and 13-14 are Obvious Over Native in view of Bianchi '254 and Easy Homemade

A. Overview of the Combination

165. In my opinion, the subject matter of claims 2-4, 6, and 13-14 are obvious over Native in view of Bianchi '254 and Easy Homemade. As explained above, Native in view of Bianchi '254 renders obvious all of the limitations of independent claim 1. *Supra* § XIV. Neither Native nor Bianchi '254 expressly teach a deodorant composition (1) substantially free of baking soda (Native's antimicrobial); (2) comprising antimicrobials with a water solubility of at most about 50 or 90 g/L at 25°C; or (3) comprising magnesium hydroxide as the antimicrobial.

166. While 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 (or at the very least the alternative was a preference for some consumers). Ex. 1009, 6. Easy Homemade explains that magnesium hydroxide, which a POSA would have known has a water solubility below 50 g/L at 25°C,⁴³ could be used to replace baking soda as an antimicrobial in deodorant compositions, and it works just as well. *Id.*, 6, 9. Accordingly, it would be obvious to use magnesium hydroxide as a substitute to baking soda in the

⁴³ See n.15, above.

composition of Native, as taught by Easy Homemade, or to reduce the amount of baking soda in Native's composition.

167. Easy Homemade is a printed publication from a website dedicated to natural deodorant formulations. It describes a successful strategy that had been implemented by an independent formulator to avoid the possible skin irritation caused baking soda. In my opinion, a POSA seeking a solution to that problem would have known there were dedicated online resources in which independent formulators shared suitable ingredient for and methods of formulating natural deodorants, making Easy Homemade relevant. Furthermore, a POSA would have appreciated that such websites from independent formulators striving for more natural options presented an indication of consumer preferences, which a POSA would desire to meet in formulating new commercial products. Easy Homemade was widely accessible, being part of a series of related "Soap Deli News" articles dedicated to deodorant formulations with significant engagement from individuals globally. *See generally* Ex. 1009; Ex. 1016; Ex. 1017; Ex. 1018.

B. Rationale (Motivation) Supporting Obviousness

168. In my opinion, it would have been obvious to use the teachings of Bianchi '254 and Easy Homemade in Native's deodorant stick composition. A POSA would have been motivated to combine Native and Bianchi '254 for the reasons stated in Section XIV, above. While Native teaches a deodorant stick

composition comprising baking soda, neither Native nor Bianchi '254 expressly teach a deodorant stick composition wherein the antimicrobial is magnesium hydroxide and/or a powder with a water solubility of at most about 50 or 90 g/L at 25°C. As discussed above, a POSA would have known that deodorants containing baking soda could cause skin irritation for some users and Easy Homemade confirms what a POSA would have known—namely, that magnesium hydroxide was a known substitute for baking soda that avoided skin irritation. Ex. 1009, 6, 9. A POSA would have looked to publications in the field of deodorants describing known and, preferably, natural antimicrobials that were effective and which were not known to cause skin irritation. And a POSA would seek to understand consumer demands in the field (not being suitably met by existing offerings) for guidance on new products.

169. Easy Homemade is a publicly-available website page that sets forth the ingredients for and method of making a natural deodorant. Ex. 1009, 5-9. Easy Homemade confirms what a POSA would have known—namely, that magnesium hydroxide could be used to replace baking soda as an antimicrobial in deodorant compositions, and it works just as well. *Id.*, 6, 9.

170. I have also provided a detailed explanation of the rationale (motivation) supporting obviousness in the claim mapping below.

C. Reasonable Expectation of Success

171. In my opinion, a POSA would have also had a reasonable expectation of success in formulating Native's deodorant stick based on Bianchi '245 using Easy Homemade's magnesium hydroxide antimicrobial as an alternative, or in addition, to baking soda. In particular, Easy Homemade shows that the simple substitution was achievable even by people formulating deodorants at home (with less skill than a POSA). Ex. 1009, 6, 9.

172. A POSA would have appreciated that deodorant compositions could be formed through various combinations of known ingredients, such as antimicrobials, structurants, and carrier oils, as simple design choices.

D. Analogous Art

173. Native, Bianchi '254, and Easy Homemade are in the same field as the '706 Patent, and all relate to personal care compositions, including deodorants and/or antiperspirants.⁴⁴ *See* Ex. 1001, Abstract, 18:65-26:36; Ex. 1007, 5-8, 11; Ex. 1008, Abstract, ¶¶ [0010]-[0021]; Ex. 1009, 5-9.

⁴⁴ *See* n.4, above.

CLAIM 2

“2. The deodorant stick of claim 1, wherein the primary antimicrobial has a water solubility of at most about 90 g/L at 25° C.”

174. In my opinion, Native and Easy Homemade describe and/or suggest this element. In particular, Native teaches a deodorant stick composition comprising baking soda. A POSA would have known that deodorants containing baking soda could cause skin irritation for some users. Easy Homemade discloses the substitution of magnesium hydroxide powder as a non-skin irritating antimicrobial substitute for baking soda in deodorant sticks. Ex. 1009, 6 (“I fell victim to the . . . rash you get after using deodorant with baking soda. Eventually I discovered that I could swap the baking soda with magnesium hydroxide . . . and it worked just as well.”). With this substitution, magnesium hydroxide would be the primary antimicrobial in Native’s deodorant stick, present in a greater amount than any other antimicrobials.⁴⁵

CLAIM 3

“3. The deodorant stick of claim 1, wherein the primary antimicrobial is selected from the group consisting of beryllium carbonate, magnesium carbonate, calcium carbonate, magnesium hydroxide, magnesium carbonate hydroxide, magnesium hydroxide and magnesium carbonate hydroxide, partially carbonated magnesium hydroxide, and piroctone olamine.”

175. See my claim 2 analysis of ground 7, above.

⁴⁵ See n.15, above. Ex. 1001, 9:22-25, 10-31-35.

CLAIM 4

“4. The deodorant stick of claim 1, further comprising at least one additional antimicrobial different from the primary antimicrobial, selected from the group consisting of beryllium carbonate, magnesium carbonate, calcium carbonate, magnesium hydroxide, magnesium hydroxide and magnesium carbonate hydroxide, partially carbonated magnesium hydroxide, piroctone olamine, potassium carbonate, potassium bicarbonate, sodium carbonate, sodium sesquicarbonate, baking soda, hexamidine, zinc carbonate, thymol, polyvinyl formate, salicylic acid, niacinamide, magnesium carbonate hydroxide, cinnamon essential oil, cinnamon bark essential oil, cinnamic aldehyde, and combinations thereof.”

176. In my opinion, Native and Easy Homemade describe and/or suggest this element. In particular, Native’s deodorant stick comprised baking soda, which the ’706 Patent describes as (and was known to be) an exemplary antimicrobial. Ex. 1001, 1:26-30, 10:31-43.

Ingredients

Caprylic/capric triglyceride (which is a fancy way of saying fractionated coconut oil), arrowroot powder, stearyl alcohol, **baking soda**, shea butter, coconut oil, hydrogenated castor oil, polyglycerol-3 beeswax (which is a fancy way of saying cera bellina wax), jojoba esters, tocopherol (which is a fancy way of saying Vitamin E), L. acidophilus (which is a natural bacteria found in your body already), dextrose, glyceryl caprylate, glyceryl undecylenate. Our scented deodorants include oils. Lavender & Rose is made with Lavender Oil and Geranium Oil. Eucalyptus & Mint is made with Eucalyptus Oil and Spearmint Oil. Due to FDA recommendations, we use the term “fragrance” to refer to these oils.

Ex. 1007, 11.

177. A POSA would have known that deodorant compositions often use multiple antimicrobials. Because baking soda was known to cause skin irritation for

some users, 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 (*see* my claim 2 analysis of ground 7, above).

CLAIM 6

“6. The deodorant stick of claim 1, wherein the deodorant stick is substantially free of baking soda.”

178. *See* my claim 2 analysis of ground 7, above.

CLAIM 13

“13. The deodorant stick of claim 1, wherein the primary antimicrobial has a water solubility of at most about 50 g/L at 25° C.”

179. *See* my claim 2 analysis of ground 7, above.⁴⁶

CLAIM 14

“14. The deodorant stick of claim 3, wherein all antimicrobials have a water solubility of at most about 90 g/L at 25° C.”

180. *See* my claim 13 analysis of ground 7, above. To the extent the fragrance oils in Native were considered antimicrobials, a POSA would have known they too had a water solubility below 90 g/L at 25° C.⁴⁷

⁴⁶ *See* n.15, above.

⁴⁷ Ex. 1064, 907-08 (indicating that essential oil water solubilities are “mostly below 2 g/liter at around 20°C”).

XVI. GROUND 8: Claims 16-23 are Obvious Over Native in View of Bianchi '254, Easy Homemade, Anconi, and Stoia

A. Overview of the Combination

181. In my opinion, the subject matter of claims 16-23 is obvious over Native in view of Bianchi '254, Easy Homemade, Anconi, and Stoia. While Native teaches a deodorant stick composition comprising an antimicrobial and various plant compounds, it does not teach a deodorant stick comprising (1) triethyl citrate; or (2) sunflower seed oil. But a POSA would have found it obvious to use these compounds in Native's deodorant based on Anconi and Stoia.

B. Rationale (Motivation) Supporting Obviousness

182. In my opinion, it would have been obvious to use the teachings of Bianchi '254, Easy Homemade, Anconi, and Stoia in Native's deodorant stick composition. A POSA would have been motivated to combine Bianchi '254 and Easy Homemade for the reasons stated in Section XV, above.

183. Native discloses the use of baking soda as an antimicrobial in its deodorant compositions. As discussed above, baking soda was thought to cause skin irritation in some users. Anconi discloses triethyl citrate as an "ingredient[] known to have antibacterial and deodorant properties." Ex. 1057, ¶[0027]. Accordingly, a POSA would have been motivated to incorporate triethyl citrate as an antimicrobial in Native's deodorant compositions to improve their ability to combat odor after

reducing or eliminating the baking soda in the formulation to avoid skin irritation issues. A POSA further would have been motivated to include triethyl citrate in Native's deodorant compositions because, as discussed above, Native's compositions contained liquid triglycerides, and triethyl citrate was known to prevent the degradation of triglycerides in compositions for topical use.⁴⁸

184. Native also discloses the use of tocopherol (Vitamin E) and various plant oils or plant oil-derived compounds in a deodorant stick. Stoia teaches that tocopherols are "abundant in sunflower seeds" and have antioxidant properties. Ex. 1058, 45. Stoia further describes the use of sunflower seed oil as an emollient in cosmetic compositions, characterizing it as "an effective, low-cost, and natural alternative" with "proven certain positive skin effects." *Id.* A POSA therefore would have been motivated to include sunflower seed oil in Native's deodorant stick for its emollient properties and association with "positive skin effects." *Id.*

185. I have also provided a detailed explanation of the rationale (motivation) supporting obviousness in the claim mapping below.

C. Reasonable Expectation of Success

186. In my opinion, a POSA would have had a reasonable expectation of success in formulating Native's deodorant stick based on Bianchi '245 using Easy

⁴⁸ See n.24, above.

Homemade's magnesium hydroxide antimicrobial as an alternative, or in addition, to baking soda, for the reasons discussed above. And a POSA would have had a reasonable expectation of success in using triethyl citrate as an antimicrobial in Native's compositions because Anconi describes its successful use as an antimicrobial in deodorants, and others had successfully formulated compositions for topical application using triethyl citrate to prevent the degradation of triglycerides. Moreover, a POSA would have had a reasonable expectation of success in using sunflower seed oil as an emollient in Native's deodorant stick based on Stoia because Native's stick already contained plant oil or plant oil-derived emollients, such as coconut oil, which could simply be reduced if necessary to balance the desired structural characteristics of the stick while maintaining or enhancing its emollient effect.

187. Finally, a POSA would have appreciated that deodorant compositions could be formed through various combinations of known ingredients, such as antimicrobials and emollients, as simple design choices.

D. Analogous Art

188. Native, Bianchi '254, Easy Homemade, Anconi, and Stoia are in the same field as the '706 Patent, and all relate to personal care compositions, including

deodorants and/or antiperspirants.⁴⁹ See Ex. 1001, Abstract, 18:65-26:36; Ex. 1007, 5-8, 11; Ex. 1008, Abstract, ¶¶[0010]-[0021]; Ex. 1009, 5-9; Ex. 1057, Title, Abstract, [0001]-[0011], [0038], [0049]; Ex. 1058, 45-47.

E. Claim Mapping

CLAIM 16

“16[Pre]. A deodorant stick comprising:”

189. See my claim 1 analysis of ground 6, above.

“[16] a. at least about 25% by weight liquid triglyceride;”

190. See my claim 1 analysis of ground 6, above.

“[16] b. a starch;”

191. In my opinion, Native describes this element. In particular, Native discloses a deodorant stick that comprised arrowroot powder, which is a starch, as a POSA would have known.⁵⁰

Ingredients

Caprylic/capric triglyceride (which is a fancy way of saying fractionated coconut oil), arrowroot powder, stearyl alcohol, baking soda, shea butter, coconut oil, hydrogenated castor oil, polyglycerol-3 beeswax (which is a fancy way of saying cera bellina wax), jojoba esters, tocopherol (which is a fancy way of saying Vitamin E), L. acidophilus (which is a natural bacteria found in your body already), dextrose, glyceryl caprylate, glyceryl undecylenate. Our scented deodorants include oils. Lavender & Rose is made with Lavender Oil and Geranium Oil. Eucalyptus & Mint is made with Eucalyptus Oil and Spearmint Oil. Due to FDA recommendations, we use the term “fragrance” to refer to these oils.

⁴⁹ See n.4, above.

⁵⁰ See Ex. 1068, 62.

Ex. 1007, 11.

“[16] c. stearyl alcohol;”

192. In my opinion, Native describes this element. In particular, Native discloses a deodorant stick that comprised stearyl alcohol.

Ingredients Caprylic/capric triglyceride (which is a fancy way of saying fractionated coconut oil), arrowroot powder, stearyl alcohol, baking soda, shea butter, coconut oil, hydrogenated castor oil, polyglycerol-3 beeswax (which is a fancy way of saying cera bellina wax), jojoba esters, tocopherol (which is a fancy way of saying Vitamin E), L. acidophilus (which is a natural bacteria found in your body already), dextrose, glyceryl caprylate, glyceryl undecylenate. Our scented deodorants include oils. Lavender & Rose is made with Lavender Oil and Geranium Oil. Eucalyptus & Mint is made with Eucalyptus Oil and Spearmint Oil. Due to FDA recommendations, we use the term “fragrance” to refer to these oils.

Ex. 1007, 11.

“[16] d. magnesium hydroxide;”

193. See my claim 2 analysis of ground 7, above.

“[16] e. beeswax;”

194. In my opinion, Native describes this element. In particular, Native discloses a deodorant stick that comprised beeswax.

Ingredients Caprylic/capric triglyceride (which is a fancy way of saying fractionated coconut oil), arrowroot powder, stearyl alcohol, baking soda, shea butter, coconut oil, hydrogenated castor oil, polyglycerol-3 beeswax (which is a fancy way of saying cera bellina wax), jojoba esters, tocopherol (which is a fancy way of saying Vitamin E), L. acidophilus (which is a natural bacteria found in your body already), dextrose, glyceryl caprylate, glyceryl undecylenate. Our scented deodorants include oils. Lavender & Rose is made with Lavender Oil and Geranium Oil. Eucalyptus & Mint is made with Eucalyptus Oil and Spearmint Oil. Due to FDA recommendations, we use the term “fragrance” to refer to these oils.

Ex. 1007, 11.

“[16] f. shea butter;”

195. In my opinion, Native describes this element. In particular, Native discloses a deodorant stick that comprised shea butter.

Ingredients	Caprylic/capric triglyceride (which is a fancy way of saying fractionated coconut oil), arrowroot powder, stearyl alcohol, baking soda, shea butter, coconut oil, hydrogenated castor oil, polyglycerol-3 beeswax (which is a fancy way of saying cera bellina wax), jojoba esters, tocopherol (which is a fancy way of saying Vitamin E), L. acidophilus (which is a natural bacteria found in your body already), dextrose, glyceryl caprylate, glyceryl undecylenate. Our scented deodorants include oils. Lavender & Rose is made with Lavender Oil and Geranium Oil. Eucalyptus & Mint is made with Eucalyptus Oil and Spearmint Oil. Due to FDA recommendations, we use the term “fragrance” to refer to these oils.
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Ex. 1007, 11.

“[16] g. coconut oil;”

196. In my opinion, Native describes this element. In particular, Native discloses a deodorant stick that comprised coconut oil.

Ingredients	Caprylic/capric triglyceride (which is a fancy way of saying fractionated coconut oil), arrowroot powder, stearyl alcohol, baking soda, shea butter, coconut oil, hydrogenated castor oil, polyglycerol-3 beeswax (which is a fancy way of saying cera bellina wax), jojoba esters, tocopherol (which is a fancy way of saying Vitamin E), L. acidophilus (which is a natural bacteria found in your body already), dextrose, glyceryl caprylate, glyceryl undecylenate. Our scented deodorants include oils. Lavender & Rose is made with Lavender Oil and Geranium Oil. Eucalyptus & Mint is made with Eucalyptus Oil and Spearmint Oil. Due to FDA recommendations, we use the term “fragrance” to refer to these oils.
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Ex. 1007, 11.

“[16] h. triethyl citrate;”

197. In my opinion, Native and Anconi describe and/or suggest this element. In particular, Native describes using baking soda in its deodorant compositions. As

discussed above, baking soda was thought to cause skin irritation. Anconi discloses triethyl citrate as an “ingredient[] known to have antibacterial and deodorant properties.” Ex. 1057, ¶ [0027]. Accordingly, a POSA would have been motivated to incorporate triethyl citrate as an antimicrobial in Native’s deodorant compositions, and would have had a reasonable expectation of success in doing so, to improve their ability to combat odor, after replacing or reducing baking soda to avoid skin irritation. A POSA further would have been motivated to include triethyl citrate in Native’s deodorant compositions because, as discussed above, those compositions contained liquid triglyceride, and triethyl citrate was known to prevent the degradation of triglycerides in compositions for topical use.⁵¹

“[16] i. jojoba seed oil; and”

198. In my opinion, Native describes this element. In particular, Native discloses a deodorant stick that comprised jojoba esters, which, as a POSA understood, were derived from jojoba seed oil.⁵²

Ingredients

Caprylic/capric triglyceride (which is a fancy way of saying fractionated coconut oil), arrowroot powder, stearyl alcohol, baking soda, shea butter, coconut oil, hydrogenated castor oil, polyglycerol-3 beeswax (which is a fancy way of saying cera bellina wax), jojoba esters, tocopherol (which is a fancy way of saying Vitamin E), L. acidophilus (which is a natural bacteria found in your body already), dextrose, glyceryl caprylate, glyceryl undecylenate.

Our scented deodorants include oils. Lavender & Rose is made with Lavender Oil and Geranium Oil. Eucalyptus & Mint is made with Eucalyptus Oil and Spearmint Oil. Due to FDA recommendations, we use the term “fragrance” to refer to these oils.

⁵¹ See n.24, above.

⁵² See Ex. 1065, 1; Ex. 1061, 296.

Ex. 1007, 11.

199. A POSA also would have been motivated to use jojoba oil in Native's deodorant, and would have had a reasonable expectation of success in doing so, in view of its known emollient properties.⁵³

“[16]j. sunflower seed oil;”

200. In my opinion, Native and Stoia describe and/or suggest this element. In particular, Native describes a deodorant stick comprising various plant oils and tocopherol, which is abundant in sunflower seed oil. Ex. 1058, 45. Stoia discloses the “proven . . . positive skin effects” of sunflower seed oil in cosmetic compositions. *Id.* A POSA therefore 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.

“[16k] said deodorant stick being free of an aluminum salt.”

201. See my claim 1 analysis of ground 6, above.

CLAIM 17

“17. The deodorant stick of claim 16, further comprising a fragrance.”

202. See my claim 15 analysis of ground 6, above.

⁵³ See n.32, above.

CLAIM 18

“18. The deodorant stick of claim 16, further comprising at least one essential oil.”

203. See my claim 15 analysis of ground 6, above.

CLAIM 19

“19. The deodorant stick of claim 16, further comprising a natural fragrance.”

204. See my claim 15 analysis of ground 6, above.

CLAIM 20

“20[Pre]. A deodorant stick comprising:”

205. See my claim 16 analysis of ground 8, above.

“[20] a. at least about 25% by weight liquid triglyceride;”

206. See my claim 16 analysis of ground 8, above.

“[20] b. stearyl alcohol;”

207. See my claim 16 analysis of ground 8, above.

“[20] c. magnesium hydroxide;”

208. See my claim 16 analysis of ground 8, above.

“[20] d. beeswax;”

209. See my claim 16 analysis of ground 8, above.

“[20] e. shea butter;”

210. See my claim 16 analysis of ground 8, above.

“[20] f. coconut oil;”

211. See my claim 16 analysis of ground 8, above.

“[20] g. triethyl citrate;”

212. See my claim 16 analysis of ground 8, above.

“[20] h. jojoba seed oil; and”

213. See my claim 16 analysis of ground 8, above.

“[20] i. sunflower seed oil;”

214. See my claim 16 analysis of ground 8, above.

“[20j] said deodorant stick being free of an aluminum salt.”

215. See my claim 16 analysis of ground 8, above.

CLAIM 21

“21. The deodorant stick of claim 20, further comprising a fragrance.”

216. See my claim 17 analysis of ground 8, above.

CLAIM 22

“22. The deodorant stick of claim 20, further comprising at least one essential oil.”

217. See my claim 18 analysis of ground 8, above.

CLAIM 23

“23. The deodorant stick of claim 20, further comprising a natural fragrance.”

218. See my claim 19 analysis of ground 8, above.

XVII.GROUND 9: Claims 16-23 are Obvious Over Squatch in View of Sturgis

A. Overview of the Combination

219. Ground 9 relies on the priority date challenge set forth in Section VII above, namely, that claims 16-23 are not entitled to a priority date before the December 17, 2020 filing of the '706 Patent.

220. In my opinion, Squatch in view of Sturgis renders obvious claims 16-23. Squatch is a website excerpt disclosing known aluminum-free deodorant formulations that comprise caprylic/capric triglyceride, arrowroot powder, stearyl alcohol, and magnesium hydroxide. Squatch published on a well-known website, which received over 12.5 million views in November 2020. Ex. 1059, 2-5, 11, 13. A POSA looking to formulate new deodorant compositions would have looked to existing formulations and would have understood that commercial deodorant brands typically provided ingredient lists of their products on their websites. Squatch, in particular, was a website that would have been well known to a POSA, inasmuch as Dr. Squatch was a well-known personal care company. *Id.*

221. Sturgis is an application with the same disclosure as the '706 Patent. Because claims 16-23 are not entitled to a priority date before the December 17, 2020, filing date, Sturgis is prior art. *See Indivior UK Ltd. v. Dr. Reddy's Labs S.A.*, 18 F.4th 1323, 1325 (Fed. Cir. 2021) (invalidating claims of continuation patent

based on priority application's failure to provide written description support for those claims); *Purdue*, 767 F. App'x at 925.

222. While Squatch describes a deodorant stick comprising ingredients recited in claims 16-23, it does not disclose the quantitative amounts of those ingredients. A POSA therefore would have looked to Sturgis for guidance on the amounts of ingredients when formulating an aluminum-free deodorant stick such as Squatch's deodorant stick. And Sturgis discloses the same amount of liquid triglyceride recited in claims 16-23.

B. Rationale (Motivation) Supporting Obviousness

223. In my opinion, a POSA would have looked to Squatch for the same reasons a POSA would have looked to Native, as Squatch similarly provided ingredients in order of predominance for a known deodorant stick. And a 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.

224. I have also provided a detailed explanation of the rationale (motivation) supporting obviousness in the claim mapping below.

C. Reasonable Expectation of Success

225. In my opinion, a POSA would have had a reasonable expectation of success in formulating Squatch's deodorant stick based on Sturgis for the same reasons discussed above with respect to Native and Bianchi '254; Sturgis teaches the conventional weight percentages to be used the liquid triglyceride component of Squatch's deodorant stick such that the combination would aid the POSA in making a deodorant similar to Squatch's.

226. Moreover, a POSA would have appreciated that deodorant compositions could be formed through various combinations of known ingredients, such as antimicrobials and emollients, as simple design choices.

D. Analogous Art

227. Squatch and Sturgis are in the same field as the '706 Patent, and all relate to personal care compositions, including deodorants and/or antiperspirants.⁵⁴ See Ex. 1001, Abstract, 18:65-26:36; Ex. 1059, 2-4, 7-9; Ex. 1058, 45-47.

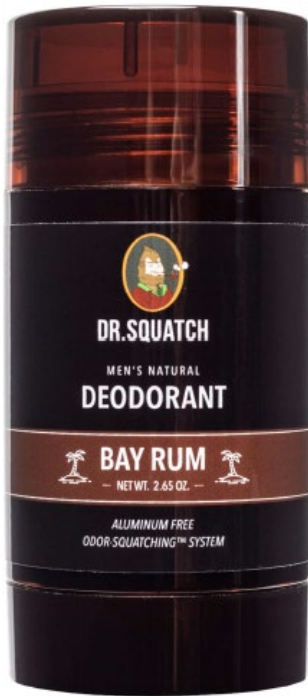
E. Claim Mapping

CLAIM 16

"16[Pre]. A deodorant stick comprising:"

228. In my opinion, Squatch describes this element. In particular, Squatch describes and depicts a deodorant stick.

⁵⁴ See n.4, above.



Ex. 1059, 8.

“[16] a. at least about 25% by weight liquid triglyceride;”

229. In my opinion, Squatch and Sturgis describe and/or suggest this element. In particular, Squatch describes a deodorant stick that comprised, as its first and thus most predominant ingredient, caprylic/capric triglyceride, which the '706 Patent describes as an exemplary liquid triglyceride. Ex. 1001, 14:41-46.

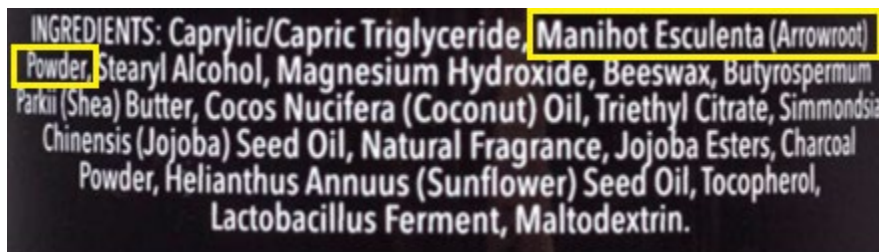
INGREDIENTS: Caprylic/Capric Triglyceride, Manihot Esculenta (Arrowroot) Powder, Stearyl Alcohol, Magnesium Hydroxide, Beeswax, Butyrospermum Parkii (Shea) Butter, Cocos Nucifera (Coconut) Oil, Triethyl Citrate, Simmondsia Chinensis (Jojoba) Seed Oil, Natural Fragrance, Jojoba Esters, Charcoal Powder, Helianthus Annuus (Sunflower) Seed Oil, Tocopherol, Lactobacillus Ferment, Maltodextrin.

Ex. 1059, 8.

230. Because Squatch describes the use of liquid triglyceride but does not specifically state what percentage to use, a POSA would have looked to guidance in the field. Sturgis provides such guidance and establishes that using at least about 25% was a known option that a POSA would have understood could be relied upon to supplement the information from Squatch. Ex. 1056, ¶¶ [0010], [0082]-[0085].

“[16] b. a starch;”

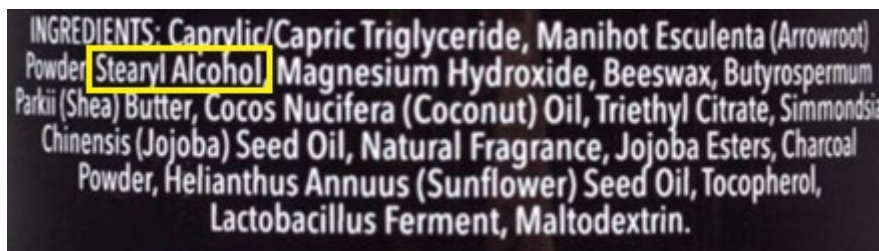
231. In my opinion, Squatch describes this element. In particular, Squatch discloses a deodorant stick that comprised arrowroot powder, which is a starch, as a POSA would have known.



Ex. 1059, 8.

“[16] c. stearyl alcohol;”

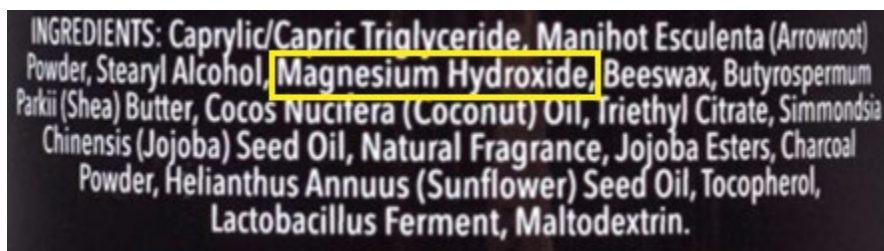
232. In my opinion, Squatch describes this element. In particular, Squatch discloses a deodorant stick that comprised stearyl alcohol.



Ex. 1059, 8.

“[16] d. magnesium hydroxide;”

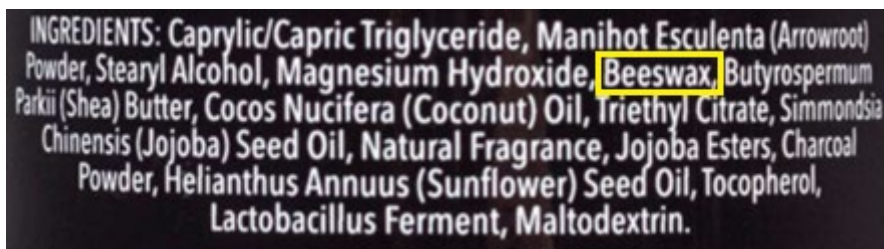
233. In my opinion, Squatch describes this element. In particular, Squatch discloses a deodorant stick that comprised magnesium hydroxide.



Ex. 1059, 8.

“[16] e. beeswax;”

234. In my opinion, Squatch describes this element. In particular, Squatch discloses a deodorant stick that comprised beeswax.



Ex. 1059, 8.

“[16] f. shea butter;”

235. In my opinion, Squatch describes this element. In particular, Squatch discloses a deodorant stick that comprised shea butter.

INGREDIENTS: Caprylic/Capric Triglyceride, Manihot Esculenta (Arrowroot) Powder, Stearyl Alcohol, Magnesium Hydroxide, Beeswax, Butyrospermum Parkii (Shea) Butter, Cocos Nucifera (Coconut) Oil, Triethyl Citrate, Simmondsia Chinensis (Jojoba) Seed Oil, Natural Fragrance, Jojoba Esters, Charcoal Powder, Helianthus Annuus (Sunflower) Seed Oil, Tocopherol, Lactobacillus Ferment, Maltodextrin.

Ex. 1059, 8.

“[16] g. coconut oil;”

236. In my opinion, Squatch describes this element. In particular, Squatch discloses a deodorant stick that comprised coconut oil.

INGREDIENTS: Caprylic/Capric Triglyceride, Manihot Esculenta (Arrowroot) Powder, Stearyl Alcohol, Magnesium Hydroxide, Beeswax, Butyrospermum Parkii (Shea) Butter, Cocos Nucifera (Coconut) Oil, Triethyl Citrate, Simmondsia Chinensis (Jojoba) Seed Oil, Natural Fragrance, Jojoba Esters, Charcoal Powder, Helianthus Annuus (Sunflower) Seed Oil, Tocopherol, Lactobacillus Ferment, Maltodextrin.

Ex. 1059, 8.

“[16] h. triethyl citrate;”

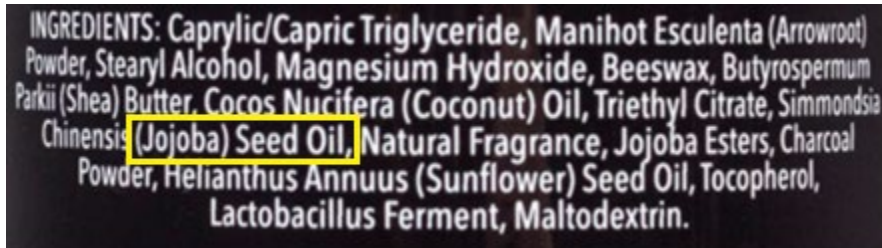
237. In my opinion, Squatch describes this element. In particular, Squatch discloses a deodorant stick that comprised triethyl citrate.

INGREDIENTS: Caprylic/Capric Triglyceride, Manihot Esculenta (Arrowroot) Powder, Stearyl Alcohol, Magnesium Hydroxide, Beeswax, Butyrospermum Parkii (Shea) Butter, Cocos Nucifera (Coconut) Oil, Triethyl Citrate, Simmondsia Chinensis (Jojoba) Seed Oil, Natural Fragrance, Jojoba Esters, Charcoal Powder, Helianthus Annuus (Sunflower) Seed Oil, Tocopherol, Lactobacillus Ferment, Maltodextrin.

Ex. 1059, 8.

“[16] i. jojoba seed oil; and”

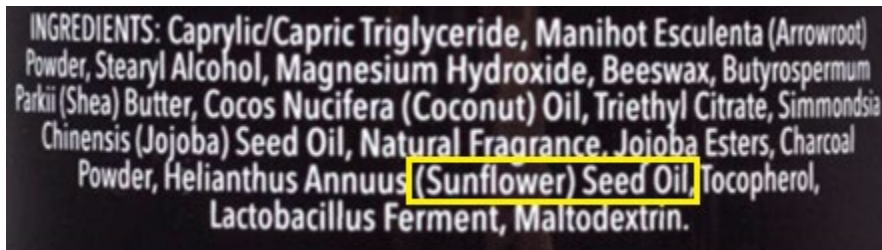
238. In my opinion, Squatch describes this element. In particular, Squatch discloses a deodorant stick that comprised jojoba seed oil.



Ex. 1059, 8.

“[16] j. sunflower seed oil;”

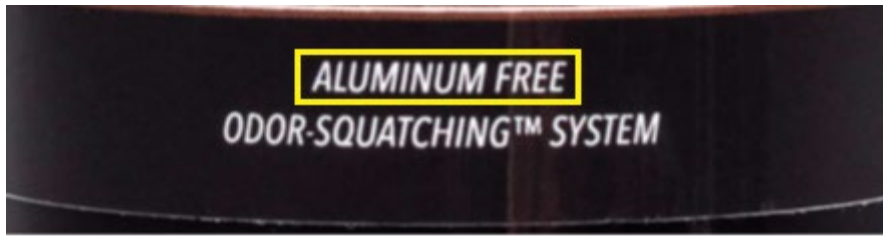
239. In my opinion, Squatch describes this element. In particular, Squatch describes a deodorant stick that comprised sunflower seed oil.



Ex. 1059, 8.

“[16k] said deodorant stick being free of an aluminum salt.”

240. In my opinion, Squatch describes this element. In particular, Squatch discloses a deodorant stick that is free of an aluminum salt.

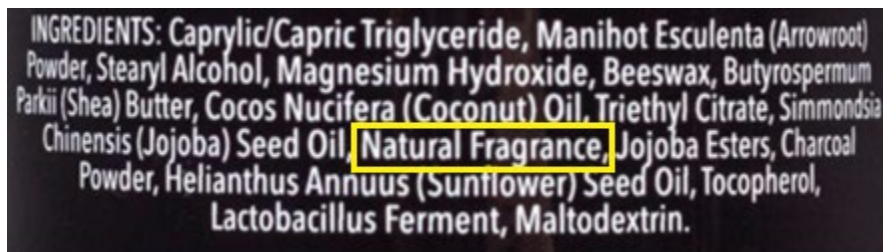


Ex. 1059, 8.

CLAIM 17

“17. The deodorant stick of claim 16, further comprising a fragrance.”

241. In my opinion, Squatch describes this element. In particular, Squatch discloses a deodorant stick that comprised a natural fragrance.



Ex. 1059, 8.

CLAIM 18

“18. The deodorant stick of claim 16, further comprising at least one essential oil.”

242. In my opinion, Squatch and Sturgis describe and/or suggest this element. In particular, Squatch discloses a deodorant stick that comprised a natural fragrance.

INGREDIENTS: Caprylic/Capric Triglyceride, Manihot Esculenta (Arrowroot) Powder, Stearyl Alcohol, Magnesium Hydroxide, Beeswax, Butyrospermum Parkii (Shea) Butter, Cocos Nucifera (Coconut) Oil, Triethyl Citrate, Simmondsia Chinensis (Jojoba) Seed Oil, **Natural Fragrance**, Jojoba Esters, Charcoal Powder, Helianthus Annuus (Sunflower) Seed Oil, Tocopherol, Lactobacillus Ferment, Maltodextrin.

Ex. 1059, 8.

243. A POSA would have understood the natural fragrance to include essential oil.⁵⁵ A POSA also would have been motivated to include essential oil in the Squatch deodorant, and would have had a reasonable expectation of success in doing so, in view of Sturgis's disclosure of compositions comprising essential oils along with other ingredients in Squatch's deodorant, e.g., caprylic/capric triglyceride and magnesium hydroxide, as well as Sturgis's guidance that consumers desired essential oils in deodorant sticks. Ex. 1056, ¶¶[0004], [0117]-[0118].

CLAIM 19

“19. The deodorant stick of claim 16, further comprising a natural fragrance.”

244. In my opinion, Squatch describes this element. In particular, Squatch discloses a deodorant stick that comprised a natural fragrance.

⁵⁵ See Ex. 1007, 11.

INGREDIENTS: Caprylic/Capric Triglyceride, Manihot Esculenta (Arrowroot) Powder, Stearyl Alcohol, Magnesium Hydroxide, Beeswax, Butyrospermum Parkii (Shea) Butter, Cocos Nucifera (Coconut) Oil, Triethyl Citrate, Simmondsia Chinensis (Jojoba) Seed Oil, **Natural Fragrance**, Jojoba Esters, Charcoal Powder, Helianthus Annuus (Sunflower) Seed Oil, Tocopherol, Lactobacillus Ferment, Maltodextrin.

Ex. 1059, 8.

CLAIM 20

“20[Pre]. A deodorant stick comprising:”

245. See my claim 16 analysis of ground 9, above.

“[20] a. at least about 25% by weight liquid triglyceride;”

246. See my claim 16 analysis of ground 9, above.

“[20] b. stearyl alcohol;”

247. See my claim 16 analysis of ground 9, above.

“[20] c. magnesium hydroxide;”

248. See my claim 16 analysis of ground 9, above.

“[20] d. beeswax;”

249. See my claim 16 analysis of ground 9, above.

“[20] e. shea butter;”

250. See my claim 16 analysis of ground 9, above.

“[20] f. coconut oil;”

251. See my claim 16 analysis of ground 9, above.

“[20] g. triethyl citrate;”

252. See my claim 16 analysis of ground 9, above.

“[20] h. jojoba seed oil; and”

253. See my claim 16 analysis of ground 9, above.

“[20] i. sunflower seed oil;”

254. See my claim 16 analysis of ground 9, above.

“[20j] said deodorant stick being free of an aluminum salt.”

255. See my claim 16 analysis of ground 9, above.

CLAIM 21

“21. The deodorant stick of claim 20, further comprising a fragrance.”

256. See my claim 17 analysis of ground 9, above.

CLAIM 22

“22. The deodorant stick of claim 20, further comprising at least one essential oil.”

257. See my claim 18 analysis of ground 9, above.

CLAIM 23

“23. The deodorant stick of claim 20, further comprising a natural fragrance.”

258. See my claim 19 analysis of ground 9, above.

XVIII. SECONDARY CONSIDERATIONS

259. I am not aware of any secondary considerations that would affect my positions set forth above.

XIX. OATH

260. This declaration and my opinions herein are made to the best of my knowledge and understanding, and based on the material available to me, at the time of signing this declaration. I declare under penalty of perjury under the laws of the United States of America that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I understand that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001).

Date: July 17, 2024

/ *Bozena B. Michniak-Kohn* /
Bozena B. Michniak-Kohn, PhD