

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DR. SQUATCH, LLC
Petitioner

v.

THE PROCTER & GAMBLE COMPANY
Patent Owner

IPR2024-01105
Patent No. 10,966,915

**PETITION FOR INTER PARTES REVIEW
OF U.S. PATENT NO. 10,966,915**

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PETITIONER’S EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 10,966,915 (“the ’915 Patent”)
1002	Declaration of Bozena B. Michniak-Kohn, Ph.D.
1003	U.S. Patent No. 11,433,018 (“Lesniak”)
1004	U.S. Patent No. 9,314,412 (“Phinney”)
1005	John H. Lamb, Sodium Bicarbonate: An Excellent Deodorant, 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)
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1023	Pamela Emanoil, <i>Customers Itching for Personal Care Alternatives</i> , Apr. 2006 NAT. FOODS MERCHANDISER 40-42 (2006)
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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. 16/716,542 ('915 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

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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. 11,497,706
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	SAMUEL P. SADTLER ET AL., A TEXT-BOOK OF CHEMISTRY INTENDED FOR THE USE OF PHARMACEUTICAL AND MEDICAL STUDENTS (5th ed. 1918)
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CLAIM LISTING

1. A deodorant stick comprising:
 - a. at least about 25% of a liquid triglyceride;
 - b. at least one antimicrobial; and
 - c. a primary structurant with a melting point of at least about 50° Celsius;and
wherein said stick is free of an aluminum salt.
2. The deodorant stick of claim 1, wherein the antimicrobial is selected from the group consisting of baking soda, magnesium hydroxide, hexamidine, magnesium carbonate, zinc carbonate, thymol, magnesium hydroxide & magnesium carbonate hydroxide, sodium carbonate, magnesium carbonate hydroxide, partially carbonated magnesium hydroxide, calcium carbonate, polyvinyl formate, salicylic acid, niacinamide, cinnamon essential oil, cinnamon bark essential oil, cinnamic aldehyde and combinations thereof.
3. The deodorant stick of claim 1, wherein the antimicrobial is a powder with a water solubility of at most about 90 g/L at 25° C.

4. The deodorant stick of claim 1, wherein the deodorant stick is substantially free of baking soda.
5. The deodorant stick of claim 1, wherein the deodorant stick is substantially free of a synthetic fragrance.
6. The deodorant stick of any claim 1, wherein the deodorant stick is substantially free of silicones.
7. The deodorant stick of claim 1, wherein the deodorant stick comprises from 0% to 5% silicones.
8. The deodorant stick of claim 1, comprising at least about 35% of a liquid triglyceride.
9. The deodorant stick of claim 1, wherein the antimicrobial comprises baking soda.
10. The deodorant stick of claim 1, wherein the antimicrobial comprises magnesium hydroxide.

11. The deodorant stick of claim 1, wherein the stick comprises from about 8% to about 20% of the primary structurant.
12. The deodorant stick of claim 1, wherein the primary structurant has a melting point from about 50° C. to 75° C.
13. The deodorant stick of claim 1, comprising less than 5% of secondary structurants having a melting point above 60° C.
14. The deodorant stick of claim 1, wherein said stick comprises less than 8% of secondary structurants having a melting point of at least about 60° Celsius.
15. The deodorant stick of claim 1, wherein said stick has a hardness from about 80 mm*10 to about 140 mm*10, as measured by penetration with ASTM-D 1321 needle.

Pursuant to 35 U.S.C. §§ 311-19 and 37 C.F.R. § 42.1 *et seq.*, Dr. Squatch, LLC (“Dr. Squatch”) requests *inter partes* review (“IPR”) of claims 1-15 of U.S. Patent No. 10,966,915 (“the ’915 Patent”) (Ex. 1001) pursuant to 35 U.S.C. §§ 311-19 and 37 C.F.R. § 42.1 *et seq.* The ’915 Patent is subject to AIA 35 U.S.C. §§ 102 and 103.

MANDATORY NOTICES

A. Real Party-In-Interest (37 C.F.R. § 42.8 (b)(1))

Petitioner certifies that Dr. Squatch, LLC is the real party-in-interest.

B. Related Matters (37 C.F.R. § (b)(2))

The ’915 Patent is currently involved in the following proceeding: *The Procter & Gamble Co. v. Dr. Squatch, LLC*, Case No. 2:24-cv-04711 (C.D. Cal.).

C. Counsel and Service Information (37 C.F.R. § 42.8(b)(3) and (4))

Lead Counsel	Backup Counsel
Justin J. Oliver (Reg. No. 44,986) JOliver@Venable.com VENABLE LLP 600 Massachusetts Ave., NW Washington, DC 20001 T 202-721-5423 F 202-344-8300	Sarah S. Brooks (Reg. No. 57,071) SSBrooks@Venable.com VENABLE LLP 2049 Century Park East, Suite 2300 Los Angeles, CA 90067 T 310-229-0408 F 310-229-9901

Petitioner consents to electronic service of documents by email at:

DrSquatch-IPRs@Venable.com.

D. Payment of Fees Under 37 C.F.R. §§ 42.15(a) & 42.103

The required fees are submitted herewith in accordance with 37 C.F.R. §§ 42.103(a) and 42.15(a). If any additional fees are due during this proceeding, the Office is authorized to charge such fees to Deposit Account No. 22-0261. Any overpayment or refund of fees may also be deposited in this Deposit Account.

I. INTRODUCTION

The '915 Patent simply claims known deodorant stick compositions to capture the basic concepts used in known “natural” deodorants. The '915 Patent's sole independent claim recites a deodorant stick with: (1) “at least about 25% of a liquid triglyceride”; (2) “at least one antimicrobial”; and (3) “a primary structurant with a melting point of at least about 50° Celsius.” The Patent Owner expressly acknowledged the pre-existence of such deodorant sticks in the '915 Patent. In fact, the '915 Patent admits that a then-“currently marketed” aluminum-free deodorant stick (described as a “comparative” example in the specification) met all the limitations recited in claim 1. This comparative example substantially matches the prior art published ingredient list for the Native deodorant applied below.

Claim 1 also recites that the composition is free of an aluminum salt. Dependent claims also recite components excluded from the composition, such as exclusions of synthetic fragrance and silicones. As was appreciated by a person of ordinary skill in the art (“POSA”), the concept of more health-conscious ingredient lists (e.g., excluding aluminum salts, silicone, etc.) had been known and disclosed in the field (and preferred by many consumers) before the critical date of the '915 Patent.

The '915 Patent alleges that its inventive feature is a softer stick relative to the previously-marketed product provided as a comparative example. However,

independent claim 1 lacks the supposed inventive concept—it makes no mention of hardness. Indeed, the concept of the hardness does not appear until the '915 Patent's final dependent claim (i.e., claim 15). But even there, the hardness range claimed is the range known since at least the 1990's to be the “typical” hardness used for stick deodorants to achieve “consumer acceptance.” Ex. 1006, 2:56-58, 6:23-29. Moreover, as a POSA long understood, the “typical” hardness range for a stick deodorant could be obtained simply by adjusting the amount of structurant used in the composition, making a stick's hardness a mere issue of routine optimization.

The prior art applied below exposes the claimed subject matter's lack of inventiveness. U.S. Patent No. 11,433,018 (“Lesniak”) teaches and/or suggests all the elements of the '915 Patent's claims. Indeed, in a later application in the same patent family, the examiner applied Lesniak as an anticipatory reference against claims that recite the same features recited in independent claim 1 of the '915 Patent (as well as against features recited across the dependent claims).

This Petition also relies on an ingredient list for a stick deodorant, which published before the critical date. That deodorant is from a company—Native—that Patent Owner acquired after the publication of the ingredient list, but before the critical date. *See* Ex. 1007, 11; Ex. 1010, 1-2. Patent Owner stated that the reason for the acquisition was, in part, to reach customers who are “deliberate about what they put on their bodies.” Ex. 1011, 2-3; Ex. 1012, 1 (“[C]onsumers who have

preferences to avoid certain ingredients such as parabens and aluminum.”). The published ingredient list substantially matches a comparative example that the ’915 Patent admits to be “currently marketed” at the time of the filing. The published Native ingredient list renders obvious all claims of the ’915 Patent when combined with U.S. Patent App. Pub. No. 2007/0166254 (“Bianchi ’254”). Specifically, while the Native ingredient list lists the ingredients in order of relative concentration, without quantitative amounts thereof, Bianchi ’254 (1) sets forth preferred quantified amounts of those ingredients to be used for the ingredients in typical deodorant sticks and (2) teaches the claimed hardness range was known and preferred.

Thus, as established in more detail below, the ’915 Patent claims nothing more than well-known characteristics of deodorant sticks.

II. GROUNDS FOR STANDING UNDER 37 C.F.R. § 42.104(a)

Petitioner certifies that the ’915 Patent is available for IPR and that Petitioner is not barred or estopped from requesting IPR. This petition is being filed within one year of Petitioner being served with a the above-identified infringement complaint.

III. IDENTIFICATION OF CHALLENGES UNDER 37 C.F.R. § 42.104(b) AND RELIEF REQUESTED

A. Grounds for the Challenged Claims

Petitioner requests (i) review of claims 1-15 of the ’915 Patent on the grounds set forth below and (ii) that those claims be found unpatentable.

Ground	Claim(s)	Basis for Unpatentability
1	1, 3-8, 11-14	Anticipated and/or Obvious over U.S. Patent No. 11,433,018 (“Lesniak”) (Ex. 1003)
2	2, 10	Obvious over Lesniak in view of U.S. Patent No. 9,314,412 (“Phinney”) (Ex. 1004)
3	9	Obvious over Lesniak in view of John H. Lamb, <i>Sodium Bicarbonate: An Excellent Deodorant</i> , 7(3) J. INVESTIGATIVE DERMATOLOGY 131-33 (1946) (“Lamb”) (Ex. 1005)
4	15	Obvious over Lesniak in view of U.S. Patent No. 6,048,518 (“Bianchi ’518”) (Ex. 1006)
5	1-2, 5-9, 11-15	Obvious over 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”) (Ex. 1007) in view of U.S. Patent App. Pub. No. 2007/0166254 (“Bianchi ’254”) (Ex. 1008)
6	3, 4, 10	Obvious over Native in view of Bianchi ’254 and Wayback Machine archive, captured January 26, 2017, for http://soapdelinews.com/2016/11/easy-homemade-deodorant-recipe.html (“Easy Homemade”) (Ex. 1009)

B. The Challenges Presented Are Not Cumulative

The grounds for unpatentability presented in this petition are neither cumulative nor redundant to prosecution of the ’915 Patent. Lesniak was of record

during prosecution of the underlying application,¹ but not applied by the examiner or otherwise addressed during prosecution. As discussed in more detail below, Lesniak was subsequently applied by the same examiner in prosecution of a later application in the family in a manner consistent with the application in this Petition. All other applied references were not considered during prosecution.

IV. BACKGROUND OF THE TECHNOLOGY

A. Deodorants vs. Antiperspirants

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.

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 block sweat pores in the skin. Ex. 1006, 3:5-11; Ex. 1014, ¶¶[0020]-[0026] (“[A]ntiperspirant actives include

¹ Lesniak’s specification also published as U.S. Patent Pub. No. 2017/0252288 and WO 2016/048425. References to Lesniak encompass the application of the specification published in other forms.

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 blocking 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; Ex. 1002, ¶¶32-33.

B. Basics of Deodorants

i. Types of Deodorants

Examples of different deodorant products include, e.g., aerosols, pump sprays, creams, roll-ons, and sticks. Ex. 1013, 1-2, 170. Deodorant sticks are a popular form introduced in the 1950s. *Id.*, 9. Early deodorant sticks were, e.g., 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* Ex. 1014.

By the time of the purported invention, it was understood that anhydrous stick compositions were versatile and could be utilized in the development of deodorants. Ex. 1014, ¶[0008]; Ex. 1002, ¶¶34-35.

ii. Components of Anhydrous Stick Compositions

While anhydrous stick compositions were known to contain a wide range of ingredients, they typically contained a few well-established components, described below. Ex. 1002, ¶36.

a) Carrier Oils

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) could be used as carriers in stick compositions. Ex. 1014, ¶¶[0037], [0044]. While 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-silicone oils had also been identified as useful. Ex. 1008, ¶¶[0015], [0017], [0043]-[0054]. 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 '915 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).

It was known that the carrier oil component of a stick deodorant could be a silicone oil, natural oil, and combinations thereof. *E.g.*, 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]. Whether to use a silicone oil or natural oil (or a combination)—and what oil amount to use—was simply a design choice. Ex. 1002, ¶¶37-38.

b) Structurants

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, 5:1-5. Essentially, structurants were used to allow the composition to form a “stick.”

Structurants with different melting point temperatures were used, often in combination, to adjust hardness. Ex. 1014, ¶[0029]; Ex. 1015, 19-24; Ex. 1049; Ex. 1001, 3:62-67, 5:45-48; 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 as preferred structurants. *Id.* ¶[0030]; Ex. 1007, 11; Ex. 1008, ¶¶[0001], [0019], [0058]-[0059], [0071]; Ex. 1013, 247. Arrowroot powder also known to thicken stick compositions.² Ex. 1019, 5, 11-15, 17-19, 23 (“Arrowroot Powder is used as [a] thickening agent [in deodorants].”); Ex. 1020, 2-5 (“helps give some heft.”). Structurants were known to comprise, for example, 3-35% by weight of the total stick composition. Ex. 1014, ¶[0028]; Ex. 1002, ¶¶39-41.

c) Fragrances

Fragrances were commonly incorporated into deodorants and antiperspirants to mask axillary malodors or odors from the product base. Ex. 1013, 194-201, 250-

² From its infringement complaint, Petitioner understands 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). Thus, Petitioner relies upon Patent Owner’s position in this regard for purposes of the IPR only. Petitioner reserves the right to present positions in any related litigation on this point that may differ from Patent Owner’s position on the “primary structurant” (i.e., Petitioner may argue in the alternative, in litigation, that arrowroot powder does not count as a structurant).

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, 9:44-60. 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, 9:54-60. 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. Ex. 1002, ¶42.

d) Antimicrobials

Numerous 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. 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; Ex. 1002, ¶43.

iii. Hardness of Anhydrous Stick Compositions

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 ’915 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].

One 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, 11:55-61. The rod is released and allowed to travel downward, with penetration measured as the tenths of a millimeter travelled following the release. *Id.*, 11:65-66. A higher value corresponds to a softer stick. Ex. 1008, ¶[0026]. Well before the '915 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,³ 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.

Formulators were aware that the hardness of a stick composition could be controlled by adjusting the concentration or type of liquid carrier and/or structurant. Ex. 1014, ¶[0037] (“Such [liquid carrier] concentration will vary depending upon variables such as desired product hardness”); Ex. 1001, 3:62-67, 5:45-48, 6:39-40, 7:50-53 (“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, a patent assigned to Patent Owner which is incorporated by reference in the '915 Patent (Ex. 1001, 10:60-64) states:

³ This range is the same as from about 70 mm*10 to about 140 mm*10 stated in the '915 Patent. Ex. 1001, 13:1-3 (explaining that 80 mm*10 is the same as 8 mm).

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 to result in harder sticks, while a lesser amount was known to result in softer sticks.

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.”). Ex. 1002, ¶¶44-46.

C. The Move to Natural Deodorants

i. Aluminum-Free

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. 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* § IV.A; Ex. 1007, 5, 8, 11; Ex. 1013, 332.

Aluminum-free deodorant sticks were well documented before the filing of the ’915 Patent. In fact, independent formulators had publicly shared recipes online for homemade deodorants that were natural and free of aluminum. *See* 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 2016.⁴ Ex. 1007, 5, 11; Ex. 1002, ¶¶47-48.

ii. Silicone-free

The move to natural deodorant formulations also involved the removal of certain synthetic ingredients, such as silicones, from stick compositions. Consumers

⁴ Comparative Formula 1 in the ’915 Patent, 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, 11; Ex. 1001, 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 the effective filing date of the ’915 Patent. *See* Ex. 1007, 11; Ex. 1010, 1-2.

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 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.

As discussed in Section IV.B.ii.a, 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; Ex. 1002, ¶¶49-50.

iii. Natural Antimicrobials

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; Ex. 1002, ¶51.

iv. Natural Fragrances

The push towards natural deodorant formulations also involved replacing synthetic fragrances with natural alternatives like essential oils. Ex. 1007, 11. Synthetic fragrances in deodorants and other cosmetic products were known to play a role in allergic contact dermatitis. *See* 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. 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; Ex. 1002, ¶52.

V. SUMMARY OF THE '915 PATENT

The '915 Patent relates to “deodorant compositions and methods relating thereto.” Ex. 1001, 1:14-15. The patent admits there was a known consumer preference for natural (e.g., silicone-free), aluminum-free deodorant sticks that were not too hard. *Id.*, 1:19-45, 3:4-14, Table 1. The '915 Patent purports to provide

compositions to address those consumer demands. The patent discloses, for example:

A deodorant stick comprising: at least about 25% of a liquid triglyceride; at least one antimicrobial; a primary structurant with a melting point at least about 50°C.; and less than 8% of secondary structurants having a melting point of at least about 60°C.; said stick being free of an aluminum salt; and said stick having a hardness from about 80 mm*10 to about 140 mm*10, as measured by penetration with ASTM D-1321 needle.

Id., 1:37-44. Table 1 provides compositions of two known “currently marketed” deodorant sticks, Comparative Example 1 and Comparative Example 2.⁵ *Id.*, 3:4-45, Table 1. Notably, Comparative Example 1 and Comparative Example 2 contain all the above-listed features/elements of the ’915 Patent disclosed deodorant stick compositions, except that the hardness of the comparative formulas (i.e., hardness of 63 mm*10 and 56 mm*10, respectively) fell outside of the ’915 Patent’s stated range (i.e., “about 80 mm*10 to about 140 mm*10”). *Id.*, 1:37-44, 3:4-45, Table 1. Notably, (i) the broad hardness range stated in the ’915 Patent mimics the range known in the field, since at least 1998, to represent consumer preference (Ex. 1006, 6:23-29) and (ii) the independent claim does not require any particular hardness, as addressed in more detail below.

⁵ See n.4, above, indicating Comparative Example 1 and Comparative Example 2 contain substantially the same ingredient list as the Native prior art formula.

Also, the '915 Patent's general formulation calls for structurants typically having a melting point above 50° C in order to provide a stable structure to the stick. Ex. 1001, 3:46-48. The '915 Patent acknowledges that there were many known structurants from the field that met this requirement, including, e.g., beeswax and stearyl alcohol. *Id.*, 5:6-27, 5:53-61; Ex. 1002, ¶¶53-56.

A. The Claimed Subject Matter

The '915 Patent contains fifteen claims. Claim 1, the only independent claim, is directed to a deodorant stick comprising:

- at least about 25% of a liquid triglyceride;
- at least one antimicrobial; and
- a primary structurant with a melting point of at least about 50 Celsius;
- wherein said stick is free of an aluminum salt.

Claim 1 covers the comparative formulas listed in the '915 Patent, which the patent admits were commercially available in the market before the critical date. Ex. 1001, 3:4-45, Table 1.

Dependent claims 2-3 and 9-10 limit the antimicrobial to specific materials, or those having certain properties (e.g., powder form, water solubility). Dependent claims 4-6 contain negative limitations providing that the deodorant stick is substantially free of certain materials, such as baking soda, synthetic fragrance, or silicones. Dependent claims 7, 8, 11, provide further limitations regarding the

amount of silicone (including 0%), liquid triglyceride and primary structurant, respectively. Dependent claim 12 further limits the melting point of the primary structurant. Dependent claims 13-14 limit the amount and properties (e.g., melting point) of secondary structurants. Finally, dependent claim 15 limits the deodorant stick to the hardness range known in the field to be the consumers' preferred range.

B. Prosecution History

U.S. Patent Application No. 16/716,542 (“the ’542 Application”), which issued as the ’915 Patent, is a continuation of U.S. Patent Application No. 16/021,965 (now U.S. Patent No. 10,543,164), filed on June 28, 2018, which claims priority to Provisional Application No. 62/647,104, filed on March 23, 2018, and Provisional Application No. 62/527,180, filed on June 30, 2017.⁶

In an Office Action dated August 4, 2020, the Examiner rejected claims 1-15 on the basis of nonstatutory double patenting. Ex. 1033, 1-7. The Applicant filed a terminal disclaimer to obviate the rejection and the application was allowed. *Id.*, 8-20.

Although a version of Lesniak was of record during prosecution of the ’542 Application, the examiner did not address the reference. However, during the

⁶ The 2017 provisional does not disclose the hardness range measured with an ASTM D-1321 needle contained in the specification of the ’915 Patent. The hardness information was added in the 2018 provisional application, which was filed after Patent Owner’s acquisition of Native.

prosecution of a subsequent application in the patent family, pending U.S. Patent Application No. 17/961,089 (“the ’089 Application”), *the same examiner later recognized the applicability of Lesniak*. Specifically, in an Office Action dated July 3, 2023, the examiner rejected claims of the ’089 Application over Lesniak on both anticipation and obviousness grounds. Ex. 1034, 5-15. In doing so, the examiner concluded that Lesniak disclosed each feature that appears in independent claim 1 of the ’915 Patent, as well as other features found in the dependent claims of the ’915 Patent. *Id.*, 1-15 (*see* claims 1 and 4). For example, the Examiner found Lesniak disclosed a deodorant stick composition not containing baking soda (claim 4 of the ’915 Patent) or synthetic fragrance (claim 5 of the ’915 Patent). *Id.*

Notably, in view of the ’089 Application specification, the examiner concluded that because Lesniak compositions were comprised of (i) at least 25% liquid triglyceride, and (ii) a structurant having a melting point greater than about 50°C, it would be expected that Lesniak’s compositions would have a similar hardness range as disclosed. *Id.*

In response to the rejection, the Applicant amended the claims of the ’089 Application to recite that the deodorant stick (i) is substantially free of synthetic fragrance, (ii) is anhydrous, (iii) is substantially free of silicones, (iv) and has a hardness from about 70 mm*10 to about 140 mm*10 as measured by penetration with ASTM D-1321 needle. *Id.*, 20-23. Despite the amendments—including,

notably, a limitation requiring a hardness range that is similar to '915 Patent's stated range—the examiner still found the claims to be unpatentable in view of Lesniak. *Id.*, 20-33.

Also, in the '089 Application, in response to a double-patenting rejection based on the '915 Patent, the Applicant filed a terminal disclaimer. *Id.*, 16-19.⁷

VI. PRIOR ART

A. Effective Prior Art Dates

The '915 Patent is not entitled to a priority date of June, 30, 2017, the filing date of Provisional Application No. 62/527,180. Specifically, the 2017 provisional application fails to disclose a deodorant stick composition (i) comprising 25% liquid triglyceride (required in all claims) or (ii) having a hardness of from about 80 mm*10 to about 140 mm*10 as measured with an ASTM D-1321 needle. Ex. 1035, 1-54. The earliest date the '915 Patent can claim priority is therefore March 23, 2018, the filing date of Provisional Application No. 62/647,104. Nevertheless, the references addressed below are prior art regardless of which priority date is used.

U.S. Patent No. 11,433,018 (“Lesniak”) (Ex. 1003), a patent issued under Section 151 and which names another inventor, was effectively filed on June 18,

⁷ For the reasons discussed in this section, the application of Lesniak does not implicate 35 U.S.C. § 325(d).

2015 (PCT/US2015/036498). It is therefore prior art under AIA 35 U.S.C. § 102(a)(2). As discussed in Section V.B, Lesniak was not applied during prosecution.

U.S. Patent No. 9,314,412 (“Phinney”) (Ex. 1004) issued on April 19, 2016, making it prior art under AIA 35 U.S.C. § 102(a)(1). Phinney was not of record during prosecution.

Lamb (Ex. 1005) is an article published in *The Journal of Investigative Dermatology* in 1946, making it prior art under AIA 35 U.S.C. § 102(a)(1). Lamb was not of record during prosecution.

U.S. Patent No. 6,048,518 (“Bianchi ’518”) (Ex. 1006) issued on April 11, 2000, making it prior art under AIA 35 U.S.C. § 102(a)(1). Bianchi ’518 was not of record during prosecution.

Native (Ex. 1007) is a website page that was published and available to the public on at least November 23, 2016, making it prior art under AIA 35 U.S.C. § 102(a)(1). Native was not of record during prosecution.

U.S. Patent App. Pub. No. 2007/0166254 (“Bianchi ’254”) (Ex. 1008) was published on July 19, 2007, making it prior art under AIA 35 U.S.C. § 102(a)(1). Bianchi ’254 was not of record during prosecution.

Easy Homemade (Ex. 1009) is a website page that was published and available to the public on at least January 26, 2017, making it prior art under AIA 35 U.S.C. § 102(a)(1). Easy Homemade was not of record during prosecution.

VII. ARGUMENTS

A. Statement of the Law

“To anticipate a claim, a prior art reference must disclose each and every element of the claim, either explicitly or inherently.” *Adasa Inc. v. Avery Dennison Corp.*, 55 F.4th 900, 910 (Fed. Cir. 2022) (citation omitted). “While those elements must be arranged or combined in the same way as in the claim, the reference need not disclose the elements in the very same terms used by the patent.” *Id.* (“[T]he reference need not satisfy an *ipsissimis verbis* test.”).

“When a patent claims a range . . . that range is anticipated by a prior art reference if the reference discloses a point within the range.” *Ineos USA LLC v. Berry Plastics Corp.*, 783 F.3d 865, 869 (Fed. Cir. 2015). When the prior art reference discloses its own range, “patentee [must] establish[] that the claimed range is critical to the operability of the claimed invention” to avoid anticipation. *Id.*, 871; *Genentech, Inc. v. Hospira, Inc.*, 946 F.3d 1333, 1337-38 (Fed. Cir. 2020)

A claim is obvious when “the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.” 35 U.S.C. § 103; *see KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007).

“[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *EI DuPont de Nemours & Co. v. Synvina CV*, 904 F.3d 996, 1006 (Fed. Cir. 2018). Thus, “[n]ormally, it is to be expected that a change in temperature, or in concentration, or in both, would be an unpatentable modification.” *Id.* “A more specific application of this general principle is that ‘[a] prima facie case of obviousness typically exists when the ranges of a claimed composition overlap the ranges disclosed in the prior art.’” *Id.* “[S]uch overlap creates a presumption of obviousness.” *Id.* Patentees can rebut that presumption by showing the claimed range “produce[s] a new and unexpected result which is ***different in kind and not merely in degree*** from the results of the prior art.” *Id.* (emphasis added). “A claimed range that demonstrates such unexpected results is referred to as a ‘critical’ range, and the patentee has the burden of proving criticality.” *Id.*; *see also Almirall, LLC v. Amneal Pharms. LLC*, 28 F.4th 265, 268-73 (Fed. Cir. 2022) (affirming the Board’s determination of obviousness where one reference disclosed a concentration of a thickening agent that overlapped with the claimed concentration and another reference disclosed a concentration of a solvent that overlapped with the claimed concentration).

In addition, “[w]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field,

the combination must do more than yield a predictable result.” *Id.*, 274-75 (citation omitted) (affirming Board’s reliance on known “interchangeability” of gelling agents in finding substitution obvious).

Finally, a “reference need not state a feature’s absence in order to disclose a negative limitation.” *Id.*, 273.

B. Level of Ordinary Skill in the Art

A person of ordinary skill in the art would have (1) at least a B.S. or equivalent degree; and (2) at least two years of experience in cosmetics formulations. Ex. 1002, ¶¶26-28.

C. Grounds of Unpatentability

i. Ground 1 – Claims 1, 3-8, 11-14 are Anticipated by and/or Obvious over Lesniak

Claims 1, 3-8, and 11-14 are anticipated by or rendered obvious over Lesniak. Lesniak describes natural anhydrous personal care compositions including, *inter alia*, a deodorant stick in the form of an antiperspirant stick.⁸ Ex. 1003, 1:16-35, 4:22, 5:5-32, 10:27, 10:32-33. In particular, Lesniak is explicitly directed to “personal care compositions which are formed from natural ingredients” and, in particular, 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.

⁸ See Ex. 1036, 2 (“[A]ll antiperspirants are deodorants...”); Ex. 1037, 246 (“Antiperspirants are deodorants...”).

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

- at least about 35 wt% of a liquid triglyceride, such as caprylic/capric triglyceride (*id.*, 2:38-39, 9:45-46);
- about 8 to 19 wt% of a primary structurant, such as beeswax (*id.*, 1:39-54, 2:5-7, 2:24-25);
- about 3% to 15 wt% of a secondary structurant (*id.*, 9:45-54); and
- at least one antimicrobial, such as zinc oxide (*id.*, 3:39-4:21, 8:31-9:59).

Lesniak's compositions do not contain aluminum salts, baking soda, or synthetic fragrances. *Id.*, 3:50-4:21, 8:37-42.⁹

Lesniak is in the same field as the '915 Patent, and both relate to personal care compositions, including deodorant and/or antiperspirant sticks. *Id.*, Abstract, 3:39, 4:22, 8:43-46, 9:45, 10:27; Ex. 1001, Abstract, 6:59-9:20.

As discussed above, Lesniak has been applied in the prosecution of a later application in the patent family of the '915 Patent to teach features relied upon below. Lesniak specifically applies as shown in the chart below. Ex. 1002, ¶¶57-60.

'915 Patent Claims	Anticipation / Obviousness Based on Lesniak
1. A deodorant stick comprising:	To the extent the preamble is limiting, Lesniak discloses a deodorant stick in the form of an antiperspirant stick. Ex. 1003, 4:22, 9:45, 10:27 ("Optionally, the composition is a

⁹ Lesniak also describes how to make the compositions in stick form. *Id.*, 15:9-45.

	stick The composition can also be an antiperspirant.”). ¹⁰ Ex. 1002, ¶62.
a. at least about 25% of a liquid triglyceride;	Lesniak describes formulating a deodorant stick with at least about 25% of a liquid triglyceride, such as as caprylic/capric triglyceride, which the '915 Patent identifies as an exemplary liquid triglyceride, as a POSA would have known (Ex. 1001, 6:22-25). 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. At a minimum, the overlap between the claimed liquid triglyceride range and the ranges in Lesniak renders the claim presumptively anticipated and/or obvious. The '915 Patent discloses nothing critical or unexpected regarding the claimed range relative to the prior art ranges, as would

¹⁰ Patent Owner may argue, due to FDA regulations for antiperspirant active ingredients, Lesniak’s compositions must include an aluminum salt to be considered antiperspirants. But the standards for anticipation and obviousness are distinct from FDA regulatory requirements. See *Persion Pharms. LLC v. Alvogen Malta Operations Ltd.*, 945 F.3d 1184, 1193 (Fed. Cir. 2019) (affirming “conclusion that the FDA’s approval requirements do not undermine the force of the evidence as to obviousness”). Moreover, Patent Owner’s U.S. Patent No. 11,497,706, which is related to the '999 Patent and similarly claims a “deodorant stick being free of an aluminum salt,” expressly identifies “antiperspirant actives” that do not include aluminum, such as zinc salts and “any of the antimicrobial[s] discussed above”—a list of more than twenty-five non-aluminum compounds. Ex. 1045, 10:31-43, 16:40-62, 26:56-60. Thus, even assuming a POSA were interpreting Lesniak in connection with FDA Regulations (which, again, is unnecessary), a POSA would nevertheless understand Lesniak’s antiperspirants to be antiperspirants based on the use of zinc salt (notwithstanding the absence of aluminum). In any event, a POSA would understand those compositions to be deodorants that do not include aluminum, regardless of whether they would be considered an antiperspirant.

	be required to overcome this presumption. Ex. 1002, ¶¶63-64.
b. at least one antimicrobial; and	Lesniak describes formulating a deodorant stick with zinc oxide, which, as a POSA would have known, is an antimicrobial. Ex. 1003, 3:39-4:21, 8:31-9:59. ¹¹ Ex. 1002, ¶65.
c. a primary structurant with a melting point of at least about 50° Celsius; and	Lesniak describes formulating a deodorant stick with a primary structurant (“first wax”), such as beeswax, having a melting point of at least about 50° Celsius.¹² Ex. 1003, 1:39-2:30, 3:43-4:21, 5:32-6:23, 8:57-9:59; <i>see</i> Ex. 1001, 5:6-7 (admitting that beeswax melts between 50° C. and 70° C.). In addition, the ’915 Patent admits that “[i]t is known that to formulate a solid antiperspirant or deodorant stick, the structurants generally have a melting point above 50° C.” Ex. 1001, 3:45-46. At a minimum, the overlap between the claimed melting point range and the ranges in Lesniak renders the claim presumptively anticipated and/or obvious. Ex. 1003, 2:20-21 (“In certain embodiments, the first wax has a melting point of 38° C. to 65° C., optionally 45° C. to 65° C. or 60° C. to 65° C.”). The ’915 Patent discloses nothing critical or unexpected regarding the claimed range relative to the prior art ranges, as would be required to overcome this presumption.¹³ Ex. 1002, ¶¶66-67.

¹¹ *See also* Ex. 1029, 264 (“Zinc oxide (ZnO) is an efficient antimicrobial agent that acts by means of several mechanisms involving different chemical species.”).

¹² Beeswax is the “primary” structurant because it is the structurant in the greatest amount. Ex. 1001, 4:5-13; *see also* Ex. 1039, 11 (reporting melting point of 62 - 65° C. for beeswax).

¹³ While prior art that discloses a range that overlaps with a claimed range raises presumptions of both anticipation and obviousness, which can be overcome only with evidence of “criticality” of the claimed range, the threshold for criticality may differ under § 102 and § 103. *UCB, Inc. v. Actavis Labs. UT, Inc.*, 65 F.4th 679, 688 (Fed. Cir. 2023); *Ineos*, 783 F.3d, 871. At the very least, the overlapping ranges discussed herein render the claims obvious because the claimed ranges produce no “unexpected result which is different in kind and not merely in degree from the

Wherein said stick is free of an aluminum salt.	Lesniak describes formulating a deodorant stick that is free of an aluminum salt. Ex. 1003, 1:39-2:30, 3:43-4:21, 5:32-6:23, 8:31-9:59. To the extent that Patent Owner argues that Lesniak does not explicitly articulate the negative limitation, a POSA would have understood Lesniak's formulations to be complete deodorant sticks that did not require additional ingredients such as an aluminum salt. <i>Id.</i> Indeed, Lesniak's formulations include zinc oxide, which was a known alternative to aluminum. <i>Id.</i>¹⁴ 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. <i>Id.</i>, 1:16-31, 4:61-67, 5:5-32, 10:31-33; Ex. 1002, ¶¶68-69.
3. The deodorant stick of claim 1, wherein the antimicrobial is a powder with a water solubility of at most about 90 g/L at 25° C.	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.").¹⁵ Ex. 1002, ¶70.
4. The deodorant stick of claim 1, wherein the deodorant stick is substantially free of baking soda.	Lesniak describes formulating a deodorant stick with zinc oxide, an antimicrobial, and without baking soda (another antimicrobial). <i>See</i> claim 1 analysis, above; <i>see</i> 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. <i>Id.</i> Moreover, a POSA

results of the prior art." *DuPont*, 904 F.3d, 1006; Ex. 1002, ¶¶25, 64, 67, 77, 80, 104, 118, 137, 142, 146.

¹⁴ *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.").

¹⁵ 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).").

	would have understood that baking soda could be an irritant for some individuals and that magnesium hydroxide was often used as an alternative to baking soda for that reason. Ex. 1002, ¶71 (citing Ex. 1009, 6, 9).
5. The deodorant stick of claim 1, wherein the deodorant stick is substantially free of a synthetic fragrance.	Lesniak describes formulating a deodorant stick without synthetic fragrance and, in particular, describes the use of natural fragrances. Ex. 1003, 8:31-41 (“Examples of essential oils which may be used as natural fragrances include lavender oil, apricot oil, bay oil, calendula oil, Aztec marigold oil, lemongrass oil, rose oil, lime oil, white grapefruit oil.”). A POSA would have understood Lesniak’s formulations to be complete deodorant sticks that did not require additional ingredients such as synthetic fragrance. <i>Id.</i> , 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. <i>Id.</i> , 1:16-31, 4:61-67, 5:5-32, 10:31-33; Ex. 1002, ¶72.
6. The deodorant stick of any claim 1, wherein the deodorant stick is substantially free of silicones.	Lesniak describes formulating a deodorant stick without silicones. 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 silicones. <i>Id.</i> Moreover, a POSA would have understood Lesniak’s preference for “natural” ingredients to militate against inclusion of synthetic ingredients such as silicones. <i>Id.</i> , 1:16-31, 4:61-67, 5:5-32, 10:31-33; Ex. 1002, ¶73.
7. The deodorant stick of claim 1, wherein the deodorant stick comprises from 0% to 5% silicones.	<i>See</i> claim 6. Ex. 1002, ¶74.
8. The deodorant stick of claim 1, comprising at least	<i>See</i> claim 1 analysis, above, which applies equally to claim 8 at least because Lesniak’s range of caprylic/capric triglyceride exceeds 35%. Ex. 1002, ¶75.

about 35% of a liquid triglyceride.	
11. The deodorant stick of claim 1, wherein the stick comprises from about 8% to about 20% of the primary structurant.	Lesniak describes formulating a deodorant stick with 8% to 19% of a primary structurant (“first wax”), such as beeswax. Ex. 1003, 9:45-51, 1:39-2:30, 3:43-4:21 (disclosing examples of points within the claimed range, e.g., 13.5% beeswax), 5:32-48. At a minimum, the overlap between the claimed primary structurant range and the ranges in Lesniak renders the claim presumptively anticipated and/or obvious. The ’915 Patent discloses nothing critical or unexpected regarding the claimed range relative to the prior art ranges. Ex. 1002, ¶¶76-77.
12. The deodorant stick of claim 1, wherein the primary structurant has a melting point from about 50° C. to 75° C.	<i>See</i> claim 1(c). Ex. 1002, ¶78.
13. The deodorant stick of claim 1, comprising less than 5% of secondary structurants having a melting point above 60° C.	Lesniak describes formulating a deodorant stick with 3% to 15% of a secondary structurant (“second wax”), such as sunflower seed wax and/or hydrogenated castor oil, having a melting point above 60° C. Ex. 1003, 9:45-54, 1:39-2:30, 3:43-4:21, 5:32-48. Lesniak also describes formulating a deodorant stick with 2% of a secondary structurant such as hydrogenated castor oil, having a melting point above 60° C, and thus discloses a point within the claimed range. <i>Id.</i>, 8:66-9:34. At a minimum, the overlap between the claimed range of secondary structurants and the range in the prior art renders the claim presumptively anticipated and/or obvious. The ’915 Patent discloses nothing critical or unexpected regarding the claimed range. To the contrary, it admits that limiting secondary structurants merely reduces the hardness of the stick (Ex. 1001, 3:5-57), which

	a POSA would have expected based on the definition of structurant. ¹⁶ Ex. 1002, ¶¶79-80.
14. The deodorant stick of claim 1, wherein said stick comprises less than 8% of secondary structurants having a melting point of at least about 60° Celsius.	See claim 13. Ex. 1002, ¶81.

ii. Ground 2 – Claims 2 and 10 are Obvious Over Lesniak in view of Phinney

Overview of the Combination

The combination of Lesniak in view of Phinney renders claims 2 and 10 obvious. As explained above, Lesniak discloses and/or suggests all of the limitations of independent claim 1. *Supra* § VII.C.i. While Lesniak teaches deodorant stick compositions may contain zinc oxide (a known antimicrobial), it does not expressly teach the use of magnesium hydroxide. However, in view of Phinney, a POSA would have found it obvious to add magnesium hydroxide to the composition of Lesniak. Phinney states that metal oxides, such as zinc oxide, are not particularly

¹⁶ See Ex. 1014, ¶¶[0028]-[0029] (defining structurant in the same manner as the '915 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.").

efficacious antimicrobials in deodorants when used alone. Ex. 1004, 2:33-37. Consequently, Phinney describes using magnesium hydroxide as an antimicrobial in a deodorant stick, 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; Ex. 1002, ¶82.

Petitioner is not aware of any secondary considerations that would rebut obviousness.

Motivation Supporting the Combination

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. Both describe using known antimicrobials. Ex. 1004, 1:15-19, 5:52-67, 6:31-34, 8:40-44; Ex. 1003, 3:39-4:21, 8:31-9:59. Because Lesniak teaches using zinc oxide (a known antimicrobial) and Phinney teaches that using magnesium hydroxide in combination with zinc oxide improves antimicrobial properties, a POSA would have had a reason to follow Phinney’s teaching and add magnesium hydroxide to Lesniak’s composition. A POSA would have been motivated to incorporate known improvements to odor protection, particularly where the known improvement also

was known to maintain the “natural” composition intended by Lesniak. Ex. 1002, ¶¶83-84.

Reasonable Expectation of Success

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. Ex. 1002, ¶85.

Analogous Art

Lesniak and Phinney are in the same field as the ’915 Patent, and all three relate to personal care compositions, including deodorant and/or antiperspirant sticks, that contain known antimicrobials.¹⁷ See Ex. 1001, Abstract, Title, 6:59-9:20; 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

¹⁷ Lesniak’s discussion of other personal care compositions, such as sunscreens, does not make it any less applicable to the formulation of deodorant 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.

ingredients. *See* Ex. 1001, 1:19-34, 2:59-3:60; Ex. 1003, 1:16-35, 4:61-67, 5:5-31, 10:31-33; Ex. 1004, Abstract, 1:5-9, 6:1-23; Ex. 1002, ¶86.

- a) **[2] The deodorant stick of claim 1, wherein the antimicrobial is selected from the group consisting of baking soda, magnesium hydroxide, hexamidine, magnesium carbonate, zinc carbonate, thymol, magnesium hydroxide & magnesium carbonate hydroxide, sodium carbonate, magnesium carbonate hydroxide, partially carbonated magnesium hydroxide, calcium carbonate, polyvinyl formate, salicylic acid, niacinamide, cinnamon essential oil, cinnamon bark essential oil, cinnamic aldehyde and combinations thereof.**

Lesniak teaches deodorant stick compositions containing zinc oxide (a known antimicrobial), but it does not expressly teach adding magnesium hydroxide. 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.

A POSA would have been motivated to add magnesium hydroxide to the Lesniak's deodorant 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”). 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. *Id.*; Ex. 1002, ¶¶87-88.

b) [10] The deodorant stick of claim 1, wherein the antimicrobial comprises magnesium hydroxide.

See claim [2] analysis, above. Ex. 1002, ¶89.

iii. Ground 3 – Claim 9 is Obvious Over Lesniak in View of Lamb

Overview of the Combination

The combination of Lesniak in view of Lamb renders claim 9 obvious. As explained above, Lesniak discloses and/or suggests all of the limitations of independent claim 1. *Supra* § VII.C.i. While Lesniak teaches deodorant stick compositions may contain zinc oxide (a known antimicrobial), it does not expressly teach deodorant stick compositions containing baking soda as an antimicrobial. As discussed above, it was known that zinc oxide was not a strong antimicrobial in deodorant formulations when used alone. Lamb discloses a deodorant stick that comprises baking soda as an 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 be obvious to use baking soda in

the composition of Lesniak, in addition to or in place of Lesniak's zinc oxide, as taught by Lamb. Ex. 1002, ¶90.

Petitioner is not aware of any secondary considerations that would rebut obviousness.

Motivation Supporting the Combination

It would have been obvious to use Lamb's teaching of baking soda as an antimicrobial in Lesniak's deodorant stick compositions. While Lesniak discloses natural deodorant compositions comprising zinc oxide (a known antimicrobial), it does not disclose the use of baking soda as an antimicrobial. By the time of the filing of the '915 Patent, a POSA would have known that zinc oxide was not a strong antimicrobial when used alone in deodorant formulations. Also, a POSA would have understood that deodorant compositions often use multiple antimicrobials. A POSA would have found it obvious to use additional or alternative antimicrobials in Lesniak's deodorant compositions to enhance odor protection.

Lamb is an article that was published in *The Journal of Investigative Dermatology*. The article describes a study which evaluated the effectiveness of baking soda as an underarm deodorant in more than 90 patients and explains that baking soda may be used as an antimicrobial in a deodorant stick. Ex. 1005, 131-33. Lamb concludes that baking soda is an "excellent deodorant" that "lasts through

the entire day.” A POSA would have looked at scientific publications, like Lamb, in evaluating options for antimicrobials in deodorants. Ex. 1002, ¶¶91-93.

Reasonable Expectation of Success

A POSA would have had a reasonable expectation of success in using baking soda as an antimicrobial in Lesniak’s composition because Lamb showed baking soda had been successfully formulated into deodorant stick compositions. 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. Ex. 1002, ¶94.

Analogous Art

Lesniak and Lamb are in the same field as the ’915 Patent, and all three relate to personal care compositions, including deodorant and/or antiperspirant sticks, that contain known antimicrobials.¹⁸ See Ex. 1001, Abstract, Title, 6:59-9:20; Ex. 1003, Abstract, Title, 3:39, 4:22, 8:43-46, 9:45, 10:27; Ex. 1005, 131-33. Further, Lamb’s baking soda was known to be an ingredient suitable for natural products, like that described in Lesniak. Ex. 1002, ¶95.

- a) **[9] The deodorant stick of claim 1, wherein the antimicrobial comprises baking soda.**

¹⁸ See n.8,17, above.

Lesniak teaches deodorant stick compositions containing zinc oxide (a known antimicrobial), but it does not expressly teach deodorant stick compositions containing baking soda as an antimicrobial. Lamb describes a deodorant stick using baking soda as an antimicrobial. Ex. 1005, 132. A POSA would have been motivated to add baking soda to the deodorant sticks disclosed by Lesniak because baking soda was known to react with the acidic compounds responsible for malodor to form non-volatile salts, whereas zinc oxide alone was thought to be less effective, as discussed above. *Id.*, 133; Ex. 1002, ¶96.

iv. Ground 4 – Claim 15 is Obvious Over Lesniak in view of Bianchi '518

Overview of the Combination

The combination of Lesniak in view of Bianchi '518 renders claim 15 obvious. As explained above, Lesniak discloses and/or suggests all of the limitations of independent claim 1. *Supra* § VII.C.i. Lesniak does not expressly teach hardness as measured by penetration with an ASTM-D 1321 needle. However, 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)¹⁹, 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-

¹⁹ See n.3, above.

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.²⁰ Ex. 1002, ¶97.

Petitioner is not aware of any secondary considerations that would rebut obviousness.

Motivation Supporting the Combination

By the time of the filing of the '915 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. Bianchi '518 informs the knowledge in the field on this point. Ex. 1006, 6:23-25.

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)²¹ was "typical" for stick compositions, and that products falling

²⁰ 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.

²¹ See n.3, above.

outside that hardness range typically generated low consumer acceptance ratings. *Id.*, 2:57-58; 6:28-29. Moreover, Lesniak is directed to formulating deodorant sticks that have the “skin feel” desired by consumers. Ex. 1003, 1:16-35. Thus, a POSA would have naturally looked at publications, like Bianchi ’518, to find consumer acceptable hardness ranges in formulating a stick composition acceptable to consumers. Ex. 1002, ¶¶98-100.

Reasonable Expectation of Success

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 to have a hardness within that range. Ex. 1006, 2:56-58, 6:23-29. A POSA would have readily understood how to adjust the hardness of the stick, using Lesniak’s ingredients, inasmuch as a POSA would have known that adjusting the amount of structurant (using less if the deodorant was too hard, and vice-versa) could achieve the target hardness.²² 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, 1:39-2:30,

²² See n.16, above.

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. Ex. 1002, ¶101.

Analogous Art

Lesniak and Bianchi '518 are in the same field as the '915 Patent, and all three relate to personal care compositions, including deodorant and antiperspirant sticks.²³ *See* Ex. 1001, Abstract, 6:59-9:20; Ex. 1003, Abstract, 3:39, 4:22, 8:43-46, 9:45, 10:27; Ex. 1006, Abstract, 1:8-35. They all discuss hardness as a relevant and measurable parameter for stick compositions. *See* Ex. 1001, Abstract, 1:25-45, 3:1-67, 7:50-53, 11:43-13:5; Ex 1003, 9:60-62, 10:17-26, 15:41-42; Ex 1006, 2:56-58, 6:23-29. Ex. 1002, ¶102.

- a) **[15] The deodorant stick of claim 1, wherein said stick has a hardness from about 80 mm*10 to about 140 mm*10, as measured by penetration with ASTM-D 1321 needle.**

The hardness range of about 7.0 mm to about 14.0 mm (equivalent to about 70 mm*10 to about 140 mm*10)²⁴, 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

²³ *See* n.8,17, above.

²⁴ *See* n.3, above.

therefore would have been motivated to formulate Lesniak's deodorant stick to have a hardness within the claimed range.

At a minimum, the overlap between the claimed hardness range and the range in the prior art renders the claim presumptively obvious. Also, a POSA would have understood that the adjustment of the hardness of the stick was an issue of routine optimization (even without Bianchi '518, as an examiner found in applying Lesniak in a related application discussed above in the prosecution history section). The '915 Patent discloses nothing critical or unexpected regarding the claimed range. Ex. 1002, ¶¶103-104.

v. Ground 5 – Claims 1-2, 5-9, 11-15 are Obvious Over Native in view of Bianchi '254

Overview of the Combination

The combination of Native in view of Bianchi '254 renders claims 1-2, 5-9, and 11-15 of the '915 Patent obvious. Native is a printed publication from a website for the Native deodorant product, which publication 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 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 well-known deodorant. Attesting to the fact that

Native was a known leader in the field, Patent Owner acquired Native in 2017. Ex. 1010, 3 (“Native reached internet fame”).

Native discloses features of deodorant stick compositions claimed in the ’915 Patent; however, it does not expressly teach the percentage of each ingredient used, including the percentage of liquid triglyceride (carrier oil), primary structurant with a melting point of at least about 50°C, and secondary structurants having a melting point of at least about 60°C. Also, with respect to claim 15, Native 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. Ex. 1002, ¶¶105-106.

Petitioner is not aware of any secondary considerations that would rebut obviousness.

Motivation Supporting the Combination

In making a natural, aluminum-free deodorant stick composition, a POSA would have looked to existing compositions, such as Native. Native sets forth the ingredients in a natural, aluminum-free deodorant stick that was being marketed and sold in at least 2016. Ex. 1007, 5, 11. The deodorant stick composition is comprised

of caprylic/capric triglyceride, baking soda, stearyl alcohol, hydrogenated castor oil, polyglycerol-3 beeswax, and jojoba esters. *Id.* Silicones, aluminum salts, and synthetic fragrances are not included in the composition. *Id.* As a POSA would have understood, Native lists its deodorant stick ingredients in order from greatest to least concentration (Ex. 1002, ¶107 (citing Ex. 1046, 164); however, it does not expressly teach the percentage of each ingredient used, including the percentage of liquid triglyceride (i.e., carrier oil), stearyl alcohol (i.e., the primary structurant), or hydrogenated castor oil (castor wax) (i.e., secondary structurants). Ex. 1007, 11. Nor does Native 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 containing examples of weight percentages for those known components of deodorant sticks.

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.

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 ’915 Patent admits is an ASTM-D 1321 needle (Ex. 1001, 11:45-12:15) 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 publications describing other stick compositions, like Bianchi ’254, for information regarding preferred hardnesses and amount of ingredients. Ex. 1002, ¶¶107-109.

Reasonable Expectation of Success

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, primary structurant, and secondary structurants 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. A POSA would have further appreciated

that deodorant compositions could be formed through various combinations of known ingredients, such as structurants and carrier oils, as simple design choices.

With respect to hardness, a POSA would have had a reasonable expectation of success in achieving the same for reasons already discussed above.²⁵ Ex. 1002, ¶¶110-111.

Analogous Art

Native and Bianchi '254 are in the same field as the '915 Patent, and all three relate to personal care compositions, including deodorants and/or antiperspirants.²⁶ See Ex. 1001, Abstract, 6:59-9:20; Ex. 1007, 5-8, 11; Ex. 1008, Abstract, ¶¶[0010]-[0021]; Ex. 1002, ¶112.

'915 Patent Claims	Obviousness Based on Native in View of Bianchi '254
1. A deodorant stick comprising:	To the extent the preamble is limiting, Native teaches a deodorant stick.  Ex. 1007, 11; Ex. 1002, ¶113.

²⁵ See n.16, above.

²⁶ See n.8, above.

a. at least about 25% of a liquid triglyceride;	Native describes a deodorant stick that comprised, as its first ingredient, caprylic/capric triglyceride, which the '915 Patent describes as an exemplary liquid triglyceride. Ex. 1001, 6:22-25 (“[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. Ex. 1007, 11. A POSA would have known that Native listed each ingredient in descending order of amount. Ex. 1002, ¶107, 115 (citing Ex. 1046, 164 (1992) (“in descending order of predominance by weight”). Thus, 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, the '915 Patent admits 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.
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	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	
Jobba Esters	1
70 Glyceryl	1
Caprylate (and) Glyceryl	
Undecylenate	
Perfumes	0.6
Cyclodextrin	
Tapioca Starch	

Ex. 1001, 3:1-45.

Regardless of the admission 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]. 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 '915 Patent admits was an existing consumer preference (Ex. 1001, 1:19-33).

	Thus, 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). The overlap between the claimed liquid triglyceride range and the ranges in the prior art renders the claim presumptively obvious. The '915 Patent discloses nothing critical or unexpected regarding the claimed range relative to the prior art ranges. Ex. 1002, ¶¶114-118.
b. at least one antimicrobial; and	Native's deodorant stick comprised baking soda, which the '915 Patent describes as (and was known to be) an exemplary antimicrobial. Ex. 1001, 6:59-61 ("The present invention may include one or more antimicrobial compositions. For example, antimicrobials may include . . . baking soda . . ."). 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; Ex. 1002, ¶119.
c. a primary structurant with a melting point of at least about 50° Celsius; and	Native's deodorant stick comprised stearyl alcohol, which is a structurant that melts between 50° C. and 70° C. according to the '915 Patent (and as generally known in the field). Ex. 1001, 5:6-10, 53-54; <i>see</i> 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 undecylate. 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. Stearyl alcohol is the “primary” structurant because it is the first structurant listed in the ingredient list and, thus, the structurant in the greatest amount.²⁷ Ex. 1001, 4:5-13. 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). 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. Ex. 1002, ¶¶120-123.
wherein said stick is free of an aluminum salt.	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.

²⁷ See n.2, above.

	NATIVE DEODORANT  Free Shipping  Aluminum Free  No Commitment Ex. 1007, 11. 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. <i>Id.</i>, 5; Ex. 1002, ¶¶124-125.
2. The deodorant stick of claim 1, wherein the antimicrobial is selected from the group consisting of baking soda, magnesium hydroxide, hexamidine, magnesium carbonate, zinc carbonate, thymol, magnesium hydroxide & magnesium carbonate hydroxide, sodium carbonate, magnesium carbonate hydroxide, partially carbonated magnesium hydroxide, calcium carbonate,	<i>See</i> claim 1 analysis, above, where Native’s antimicrobial is baking soda. Ex. 1002, ¶126.

polyvinyl formate, salicylic acid, niacinamide, cinnamon essential oil, cinnamon bark essential oil, cinnamic aldehyde and combinations thereof.	
5. The deodorant stick of claim 1, wherein the deodorant stick is substantially free of a synthetic fragrance.	The Native website discloses and/or suggests a deodorant stick free from synthetic fragrance, as its “fragrance” referred to natural essential oils. 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. In addition, Native touted its “NATURAL INGREDIENTS”, which a POSA would have understood to exclude synthetic fragrances. <i>Id.</i>, 5; Ex. 1002, ¶¶127-128.
6. The deodorant stick of any claim 1, wherein the deodorant stick is substantially free of silicones.	Native discloses and/or suggests a deodorant stick that did not contain silicones, as no silicones are listed in the 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. In addition, Native touted its “NATURAL INGREDIENTS”, which a POSA would have understood to exclude synthetic ingredients such as silicones. <i>Id.</i>, 5; Ex. 1002, ¶¶129-130.
7. The deodorant stick of claim 1, wherein the deodorant stick comprises from 0% to 5% silicones.	<i>See</i> claim 6. Ex. 1002, ¶131.
8. The deodorant stick of claim 1, comprising at least about 35% of a liquid triglyceride.	<i>See</i> claim 1 analysis, above, which applies equally to claim 8 at least because the range of liquid triglyceride in Bianchi ’254 exceeds 35%. Ex. 1002, ¶132.
9. The deodorant stick of claim 1, wherein the antimicrobial comprises baking soda.	<i>See</i> claim 1. Ex. 1002, ¶133.
11. The deodorant stick of claim 1, wherein the stick comprises from about 8% to about	The Native website discloses a deodorant stick that comprised stearyl alcohol, which is a structurant according to the ’915 Patent (Ex. 1001, 5:6-10, 53-54).

20% of the primary structurant.	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. Bianchi ’254 singles out stearyl alcohol as a “widely used” structurant “of particular interest” for antiperspirants. Ex. 1008, ¶¶[0001], [0058]. While Native does not state the amount of stearyl alcohol to use, Bianchi ’254 teaches making antiperspirant formulations comprising 12-25% of a fatty alcohol, such as stearyl alcohol, as the structurant present in the greatest amount. <i>Id.</i>, ¶¶[0018]-[0019], [0131] (showing formulations with 18% stearyl alcohol as primary structurant and 3.5% castor wax as secondary structurant). Thus, a POSA would have been motivated to use from about 8% to about 20% of a primary structurant such as stearyl alcohol in a deodorant stick, and would have had a reasonable expectation of success in doing so, because that amount of stearyl alcohol had already been used successfully as a structurant in deodorant and antiperspirant sticks. At a minimum, the overlap between the claimed primary structurant range and the ranges in the prior art renders the claim presumptively obvious. The ’915 Patent discloses nothing critical or unexpected regarding the claimed range relative to the prior art ranges. Also, of note, the ’915 Patent admits that a “currently marketed” product (Comparative Formula 1), which had the same nine most predominant ingredients by weight—in
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	the same order—as the deodorant stick disclosed on the Native website, comprised 12% stearyl alcohol. <table> <tr> <th></th><th>Comparative Formula 1</th></tr> <tr> <td>Hardness (Penetration mm*10)</td><td>63</td></tr> <tr> <td>Caprylic/Capric Triglyceride</td><td>34.15</td></tr> <tr> <td>Arrowroot Powder</td><td>23</td></tr> <tr> <td>Stearyl Alcohol</td><td>12</td></tr> <tr> <td>Ozokerite</td><td></td></tr> <tr> <td>Castor Wax</td><td>3</td></tr> <tr> <td>Baking Soda</td><td>12</td></tr> <tr> <td>Magnesium Hydroxide</td><td></td></tr> <tr> <td>Shea Butter</td><td>6</td></tr> <tr> <td>Coconut Oil</td><td>4.75</td></tr> <tr> <td>Polyglycerol-3</td><td>2.5</td></tr> <tr> <td>Beeswax</td><td></td></tr> <tr> <td>Jejoba Esters</td><td>1</td></tr> <tr> <td>70 Glycerol</td><td>1</td></tr> <tr> <td>Caprylate (and) Glycerol</td><td></td></tr> <tr> <td>Undecylenate</td><td></td></tr> <tr> <td>Perfumes</td><td>0.6</td></tr> <tr> <td>Cyclodextrin</td><td></td></tr> <tr> <td>Tapioca Starch</td><td></td></tr> </table> Ex. 1001, 3:1-45 At the very least, this is an admission that the claimed amount of stearyl alcohol was not inventive. Ex. 1002, ¶¶134-138.		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		Jejoba Esters	1	70 Glycerol	1	Caprylate (and) Glycerol		Undecylenate		Perfumes	0.6	Cyclodextrin		Tapioca Starch	
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12. The deodorant stick of claim 1, wherein the primary structurant has a melting point from about 50° C. to 75° C.	See claim 1(c). Ex. 1002, ¶139.																																								
13. The deodorant stick of claim 1, comprising less than 5% of secondary	Native describes a deodorant stick that comprised secondary structurants (i.e., structurants provided in lesser amounts than the primary structurant), such as hydrogenated castor oil (castor wax), which a POSA would have understood (and the '915 Patent admits) have a																																								

structurants having a melting point above 60° C.	melting point of at least about 60° Celsius. Ex. 1001, 5:6-19; <i>see</i> 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. Because Native describes the use of secondary structurants but does not specifically state what percentages of secondary structurants to use, a POSA would have looked to guidance in the field. Bianchi ’254 provides such guidance and establishes that using less than 5% was a known option that a POSA would have understood he or she could rely upon to supplement the information from Native. In particular, Bianchi ’254 discloses antiperspirant sticks comprising 3-8% “co-structurant[s] having a melting point of 75 to 95° C.” Ex. 1008, ¶¶[0060]-[0061]. Bianchi specifically discloses embodiments of such sticks comprising co-structurants 3.5% castor wax and 1% polyethylene (in addition to stearyl alcohol, the primary structurant), for a total of 4.5% of secondary structurants having a melting point above 60° C. <i>Id.</i>, ¶[0131]. Thus, Bianchi ’254 describes specific examples within the claimed range and a range that substantially overlaps the claimed range. A POSA therefore would have been motivated to use less than 5% of the secondary structurants in Native, and would have had a reasonable expectation of doing so, based on the use of that range of structurants in the prior art such as Bianchi ’254. At a minimum, the overlap between the claimed range of secondary structurants having a melting
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	point above 60° C. and the ranges in the prior art renders the claim presumptively obvious. The '915 Patent discloses nothing critical or unexpected regarding the claimed range relative to the prior art ranges. To the contrary, it admits that limiting secondary structurants merely reduces the hardness of the stick (Ex. 1001, 3:5-57), which a POSA would have expected based on the definition of structurant. ²⁸ Ex. 1002, ¶¶140-143.
14. The deodorant stick of claim 1, wherein said stick comprises less than 8% of secondary structurants having a melting point of at least about 60° Celsius.	See claim 13. Ex. 1002, ¶144.
15. The deodorant stick of claim 1, wherein said stick has a hardness from about 80 mm*10 to about 140 mm*10, as measured by penetration with ASTM-D 1321 needle.	Native does not state the hardness of the deodorant stick. Bianchi '254, however, describes that its antiperspirant sticks have “hardness values of from 8 to 15 mm, preferably 8 to 10 mm, 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 '915 Patent (Ex. 1001, 11:45-12:15), and as would have been understood by a POSA. Ex.1002, ¶ 145 (citing Ex. 1047, 8:59-9:13) 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

²⁸ See Ex. 1014, ¶¶[0028]-[0029] (defining structurant in the same manner as the '915 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.”).

	customer preferred hardness levels within the claimed range and the ranges stated in Bianchi '254. Ex. 1002, ¶147 (citing Ex. 1006, 2:56-58, 6:23-29)). And a POSA would have had a reasonable expectation of success in doing so for reasons addressed above. At a minimum, the overlap between the claimed hardness range and the ranges in the prior art renders the claim presumptively obvious (even without Bianchi '254, as an examiner found in related prosecution discussed above that the hardness would have been obvious to achieve). The '915 Patent discloses nothing critical or unexpected regarding the claimed range relative to the prior art ranges. Ex. 1002, ¶¶145-148.
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i. Ground 6 – Claims 3, 4, 10 are Obvious Over Native in view of Bianchi '254 and Easy Homemade

Overview of the Combination

The combination of Native in view of Bianchi '254 and Easy Homemade renders claims 3, 4, and 10 obvious. As explained above, Native in view of Bianchi '254 renders obvious all of the limitations of independent claim 1. *Supra* § VII.C.v. Neither Native nor Bianchi '254 expressly teach a deodorant stick composition (1) substantially free of baking soda; (2) comprising an antimicrobial a powder with a water solubility of at most about 90 g/L at 25°C; or (3) comprising magnesium hydroxide as the antimicrobial.

While Native teaches a deodorant stick composition comprising an antimicrobial, a POSA would have known that deodorants containing baking soda (Native's antimicrobial) could cause skin irritation for some users. Ex. 1009, 6. Easy

Homemade explains that magnesium hydroxide, which the '915 Patent indicates is a powder with a water solubility below 90 g/L at 25°C,²⁹ 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 composition of Native, as taught by Bianchi '254 and Easy Homemade.

Easy Homemade is a printed publication from a website dedicated to natural deodorant formulations. It describes a formulation strategy that had been successfully implemented by an independent formulator to avoid baking soda and the associated skin irritation. A POSA looking to address the potential irritation caused by baking soda would have known that many natural formulations, with alternative ingredients, were published online by independent formulators, and that such existing ingredient lists for natural formulations would be a resource in formulating new compositions, making Easy Homemade relevant to a POSA. Further, a POSA would have appreciated that such websites from independent formulators striving for more natural options present 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

²⁹ 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). Ex. 1002, ¶ 158 (citing Ex. 1050, 395).

“Soap Deli News” articles dedicated to deodorant formulations with significant engagement from individuals globally. Ex. 1002, ¶¶149-151; *see* Ex. 1009; Ex. 1016; Ex. 1017; Ex. 1018.

Petitioner is not aware of any secondary considerations that would rebut obviousness.

Motivation Supporting the Combination

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 VII.C.v, above. While Native teaches a deodorant stick composition comprising an antimicrobial (baking soda), neither Native nor Bianchi '254 expressly teach a deodorant stick composition wherein the antimicrobial is a powder with a water solubility of at most about 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.

Easy Homemade is a website page that sets forth the ingredients for and method of making a natural deodorant. *Id.*, 5-9. Easy Homemade explains 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; Ex. 1002, ¶¶152-154.

Reasonable Expectation of Success

A POSA would have had a reasonable expectation of success in formulating a deodorant stick, using the teachings of Native and Bianchi '254, and further adopting Easy Homemade's baking soda alternative. Specifically, 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. 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. Ex. 1002, ¶155.

Analogous Art

Native, Bianchi '254, and Easy Homemade are in the same field as the '915 Patent, and all four relate to personal care compositions, including deodorants and/or

antiperspirants.³⁰ See Ex. 1001, Abstract, 6:59-9:20; Ex. 1007, 5-8, 11; Ex. 1008, Abstract, ¶¶[0010]-[0021]; Ex. 1009, 5-9; Ex. 1002, ¶156.

- a) **[3] The deodorant stick of claim 1, wherein the antimicrobial is a powder with a water solubility of at most about 90 g/L at 25° C.**

Native teaches a deodorant stick composition comprising baking soda. Easy Homemade discloses the substitution of magnesium hydroxide powder 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.”). The ’915 Patent indicates magnesium hydroxide was an antimicrobial that meets this claim limitation. Ex. 1001, 6:59-63, 7:20-21, 8:19-22.

A POSA would have been motivated to substitute magnesium hydroxide powder for baking soda in the deodorant disclosed in Native for the reasons addressed above. With that simple substitution of one known option for another, Native’s composition would match the claim requirement. Ex. 1002, ¶¶157-158.

- b) **[4] The deodorant stick of claim 1, wherein the deodorant stick is substantially free of baking soda.**

See claim [3] analysis, above. Ex. 1002, ¶159.

- c) **[10] The deodorant stick of claim 1, wherein the antimicrobial comprises magnesium hydroxide.**

³⁰ See n.8, above.

See claim [3] analysis, above. Ex. 1002, ¶160.

VIII. CONCLUSION

Petitioner submits that claims 1-15 of the '915 Patent are unpatentable and requests institution of *Inter Partes* Review.

DATED: June 28, 2024

Respectfully submitted,

By: /Justin J. Oliver/
Justin J. Oliver
Reg. No. 44,986
VENABLE LLP
600 Massachusetts Ave., NW
Washington, DC 20001
T 202-721-5423
F 202-344-8300

CERTIFICATE OF COMPLIANCE WITH 37 C.F.R. § 42.24

I hereby certify that this petition complies with the word count limitation of 37 C.F.R. § 42.24(a)(1)(i) because the petition contains a total of 13,989 words. This total excludes the cover page, signature block, and the parts of the petition exempted by 37 C.F.R. § 42.24(a)(1).

DATED: June 28, 2024

/Justin J. Oliver/
Justin J. Oliver
Reg. No. 44,986
VENABLE LLP
600 Massachusetts Ave., NW
Washington, DC 20001
T 202-721-5423
F 202-344-8300

CERTIFICATE OF SERVICE

The undersigned certifies that a complete copy of this Petition for *Inter Partes* Review of U.S. Patent No. 10,966,915 and all Exhibits and other documents filed together with this Petition were served on the official correspondence address for the patent shown in PAIR via FEDERAL EXPRESS next business day delivery, on this date:

GLOBAL IP SERVICES
CENTRAL BUILDING, C9
ONE PROCTER AND GAMBLE PLAZA
CINCINNATI, OH 45202

DATED: June 28, 2024

/Justin J. Oliver/_____
Justin J. Oliver
Reg. No. 44,986
VENABLE LLP
600 Massachusetts Ave., NW
Washington, DC 20001
T 202-721-5423
F 202-344-8300