

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Dr. Squatch LLC

Petitioner

v.

The Procter & Gamble Company

Patent Owner

Case IPR2024-01105

U.S. Patent No. 10,966,915

PATENT OWNER'S RESPONSE

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EXHIBIT LIST

Exhibit No.	Description
Ex. 2001	Full File History of the '915 Patent
Ex. 2002	<i>Reserved</i>
Ex. 2003	Mayo Clinic, <i>Zinc Oxide (Topical Application Route)</i> , https://www.mayoclinic.org/drugs-supplements/zinc-oxide-topical-application-route/description/drg-20075525
Ex. 2004	Wayback Machine, Mayo Clinic, <i>Zinc Oxide (Topical Application Route)</i> , https://web.archive.org/web/20150102193922/https://www.mayoclinic.org/drugs-supplements/zinc-oxide-topical-application-route/side-effects/drg-20075525?p=1 (archived Jan. 2, 2015)
Ex. 2005	<i>Reserved</i>
Ex. 2006	U.S. Patent No. 10,543,164
Ex. 2007	International Publ. No. WO 99/21528
Ex. 2008	<i>Reserved</i>
Ex. 2009	<i>Reserved</i>
Ex. 2010	<i>Reserved</i>
Ex. 2011	Declaration of Robert Lochhead, Ph.D.
Ex. 2012	Deposition Transcript of Dr. Michniak-Kohn (April 17, 2025)
Ex. 2013	CeraVe, <i>Products Formulated with Zinc Oxide</i> , available at https://www.cerave.com/skincare/zinc-oxide#:~:text=Zinc%20oxide%20sunscreen%20works%20by,active%20ingredients%20in%20chemical%20sunscreens (last accessed May 1, 2025).

Ex. 2014	Nivea, <i>Deodorants vs. Antiperspirant: What's the Difference?</i> , available at https://www.nivea.in/advice/deodorant-vs-antiperspirant (last accessed May 1, 2025).
Ex. 2015	Dove, <i>What's The Difference Between Deodorant & Antiperspirant?</i> , available at https://www.dove.com/us/en/stories/tips-and-how-to/sweating-tips/antiperspirant-vs-deodorant-what-is-the-difference.html#:~:text=The%20key%20difference%20is%20the,you%20fresh%20throughout%20the%20day (last accessed May 1, 2025).
Ex. 2016	Secret, <i>What is the difference between an antiperspirant and a deodorant?</i> , available at https://secret.com/en-us/articles/antiperspirants-vs-deodorants-whats-the-difference (last accessed May 1, 2025).
Ex. 2017	Dr. Squatch, <i>WTF Is The Difference Between Antiperspirant and Deodorant?</i> , available at https://www.drsquatch.com/blogs/all-blog-posts/antiperspirant-and-deodorant (last accessed May 1, 2025).
Ex. 2018	ASTM D-1321 Needle Penetration Test Standard (1996)
Ex. 2019	DIN 51 579 Needle Penetration Test Standard (1965)
Ex. 2020	<i>Curriculum vitae</i> of Dr. Robert Lochhead

All emphasis has been added and all internal citations have been omitted unless otherwise indicated.

I. INTRODUCTION

P&G identified a gap in the market: Modern consumers sought natural, aluminum-free, silicone-free deodorants with an underarm-friendly feel. However, then-available, natural deodorants were too hard, too brittle, and/or too greasy, leading to consumer discomfort and frustration. P&G spent years carefully developing its aluminum-free formulations to meet consumer-desired properties as to drag, glide, hardness, skin-feel, and irritation, ultimately inventing and creating the deodorant stick described and claimed in U.S. Patent No. 10,966,915 (“the ’915 Patent”).

Petitioner Dr. Squatch seeks to cash in on P&G’s success at meeting consumer needs in the natural aluminum-free deodorant space, advancing two tracks of invalidity challenges centered around deficient and non-enabling primary references Lesniak and Native.

Petitioner’s Lesniak-based grounds suffer from numerous defects:

- *First*, Lesniak does not disclose the “deodorant stick” required by the limiting preamble of all claims because the reference is explicitly tailored to high zinc-oxide concentration sunscreens and diaper creams; its passing reference to an “antiperspirant” would have been of no moment to a POSA.

- *Second*, to the extent Lesniak’s “antiperspirant” is considered, it dooms Petitioner’s Lesniak-based challenges because a POSA would have understood an “antiperspirant” to contain aluminum and aluminum is explicitly excluded from the compositions of the ’915 Patent.
- *Third*, Lesniak does not enable *any* purported deodorant stick due to its conceded stability issues.
- *Fourth*, Petitioner fails to provide a sufficient motivation to pluck magnesium hydroxide out of Phinney’s multi-ingredient invention and combine it with Lesniak, because Petitioner fails to (i) sufficiently explain *why* a POSA would have been motivated to reformulate Lesniak in the first place; (ii) justify its hindsight-based magnesium hydroxide plucking; and (iii) provide any support for *how* a POSA would have made this proffered combination with any reasonable expectation of success.
- *Fifth*, Petitioner does not provide sufficient reasoning as to why a POSA would have been motivated to combine the teachings of Lesniak regarding natural compositions with the teachings of Bianchi-518 relating to non-natural compositions containing up to

50% volatile silicones (such as cyclomethicone or siloxanes), which are not natural ingredients.

- *Sixth*, as to the dependent claim reciting the hardness limitation, Petitioner fails to provide *any reference whatsoever* that discloses any cosmetic stick—sunscreen, antiperspirant, deodorant, or otherwise—within the hardness range claimed by the '915 Patent. Petitioner's attempt to rely on Bianchi-518 for this limitation is based on a fundamental misapprehension of the different hardness test used in Bianchi-518 (using a 100-g needle penetration weight) as compared to that used in the '915 Patent (using a 50-g needle penetration weight); in fact, Bianchi-518's disclosed hardness range is *significantly harder* than the claimed hardness range of the '915 Patent dependent claim. This utter failing is compounded because Petitioner does not provide any reason why a POSA would have reformulated Lesniak's compositions to incorporate Bianchi-518's (wholly inapt) hardness values to reach the limitations of the claims, in view of the fact that Bianchi-518's much harder stick is specific to aluminum- and silicone-based sticks.
- And, *seventh*, as to other dependent claims, Petitioner fails to explain why a POSA would have been motivated to completely

reformulate Lesniak to include/remove certain ingredients with any reasonable expectation of success, specifically as it relates to baking soda.

Petitioner's Native-based grounds fare no better:

- Petitioner admits that Native is a list of ingredients for a natural, aluminum-free deodorant stick that received rave reviews and offers no reason a POSA would seek to modify Native at all, let alone combine Native with any of the secondary references upon which Petitioner relies. As one example, Petitioner fails to meet its burden to show that a POSA seeking to modify Native's natural ingredients (for some reason that has not been shown) would look to Bianchi-254's aluminum-containing and volatile silicone-based antiperspirant compositions in the first place, nor would the POSA have been motivated to implement Bianchi-254's purported teachings, when seeking to formulate a natural, aluminum-free deodorant.
- Petitioner again does not provide *any reference* that discloses the claimed hardness range: Native does not mention hardness, and Petitioner's combination with Bianchi-254 suffers from the same deficiencies as its Bianchi counterpart used in Petitioner's Lesniak-

based combinations, including that Bianchi-254's hardness values are *significantly harder* than those of the '915 Patent's claim, given the use of a 100-g needle assembly testing method in Bianchi-254, versus the '915 Patent's 50-g needle assembly testing method.

- Petitioner also does not provide sufficient motivation to combine Native with the teachings of the Easy Homemade blog, failing to explain *why* a POSA would have looked to, or even found, the informal blogpost in the first instance to completely reformulate Native's successful commercial deodorant product, or *how* a POSA would have actually done so with any reasonable expectation of success.
- And as for additional limitations of the dependent claims, Petitioner's challenges evidence the same cherry-picking and hindsight bias as its Lesniak-based challenges.

For all of these reasons, explained in greater detail below, P&G respectfully requests a determination that the claims of the '915 Patent are not unpatentable.

II. THE '915 PATENT

A. Overview of the '915 Patent

The '915 Patent describes and claims “deodorant compositions and methods relating thereto.” ('915 at 1:14-15.) The inventors discovered that then-available

aluminum-free, natural deodorant sticks had significant drawbacks, namely that they were too hard, too greasy, and did not provide the desired consistency and feel sought by consumers. Thus, while these products incorporated “consumer preferred natural ingredients” they did not provide the desired “good glide, non-sticky, and non-greasy application.” (*Id.* at 1:19-23, 3:14-16.) The inventors posit this was because these natural deodorant sticks typically used “natural oils, such as coconut oil, [that] bring a large portion of wax with them, often making the resulting deodorant sticks too hard to meet a more preferable product application for both shaven and unshaven underarms.” (*Id.* at 1:23-29, 2:59-3:60). And, these natural oils “are also often undesirably greasy due to the non-volatile nature.” (*Id.* at 1:30-31). Looking at then-available natural deodorant stick products, the inventors conclude “there remains a challenge to formulate an aluminum-free, mostly silicone-free deodorant stick that is not too hard.” (*Id.* at 1:31-33.)

To illustrate this challenge, the specification provides two comparative aluminum-free deodorant stick formulas. Comparative Formula 1 “has 34.15% liquid triglyceride, along with a number of structurants, resulting in a very hard stick” that “does not necessarily provide a good consumer experience when used”; Comparative Formula 2 used even higher amounts of structurants, “resulting in a harder stick with an even lower hardness score.” (*Id.* at 3:5-14.)

By contrast, the novel and inventive deodorant examples of the '915 Patent were able to address the challenge presented: they employ “consumer-preferred natural ingredients” while maintaining “higher hardness scores, meaning they are softer products.” (*Id.* at 3:14-16.) Specifically, the '915 Patent inventors “discovered that a deodorant stick having at least about 25% of a liquid triglyceride, and that uses a primary structurant that has a melting point of at least about 50° C..., while limiting the amount of secondary structurants having a melting point of at least about 60° C. to 8% or less, can result in a deodorant stick with a hardness from about 80 mm*10 to about 140 mm*10,” where this hardness range is determined by the disclosed test method “based on”—but not identical to—the American Society for Testing and Materials Methods D-5, D1321 and D217 and DIN 51 579. (*Id.* at 9:35-41; 11:47-13:5.) Specifically, a test method that “[e]nsure[s] the total weight of the shaft and needle is 50 ± 0.2 grams when the shaft is in free fall.” (*Id.* at 12:25-26.) With the above-mentioned specific features, the formulas described and claimed in the '915 Patent are thus, for the first time, “able to comprise consumer-perceived natural ingredients, while offering a pleasant consumer experience in terms of its hardness.” (*Id.* at 3:57-60.)

B. Person of Ordinary Skill in The Art

Petitioner states that a person having ordinary skill in the art (“POSA”) as of the claimed priority date “would have (1) at least a B.S. or equivalent degree; and

(2) at least two years of experience in cosmetics formulations.” (Petition at 27.) For purposes of this IPR proceeding only, P&G does not dispute this definition.

III. CLAIM CONSTRUCTION

Claim terms are to be construed in accordance with the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). But “[o]nly terms which are in controversy need to be construed, and then only to the extent necessary to resolve the controversy and material to the decision.” *Facebook, Inc. v. Sound View Innovations, LLC*, IPR2017-01005, Paper No. 13 at 6 (PTAB Sept. 1, 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Here, the preamble reciting “a deodorant stick” is limiting. While each of Petitioner’s challenges fall short for other independent reasons, Petitioner’s Lesniak-based challenges also fail on the preamble issue alone, because Lesniak does not adequately disclose a “deodorant stick” for the reasons discussed in more detail below.

A preamble limits the invention if “it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim.” *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002). A preamble may “act as a necessary component of the claimed invention” where, as here, “limitations in the body of the claim rely upon and derive antecedent basis from the preamble.”

Eaton Corp. v. Rockwell Int’l Corp., 323 F.3d 1332, 1339 (Fed. Cir. 2003); *see also Bio-Rad Labys., Inc. v. 10X Genomics Inc.*, 967 F.3d 1353, 1371 (Fed. Cir. 2020). The Federal Circuit “ha[s] repeatedly held a preamble limiting when it serves as antecedent basis for a term appearing in the body of a claim.” *In re Fought*, 941 F.3d 1175, 1178 (Fed. Cir. 2019) (citing cases).

The preamble of the ’915 Patent’s independent claim recites “A deodorant stick comprising.” A later limitation in claim 1 relies on the preamble’s recitation of “a deodorant stick” for antecedent basis, claiming “wherein said stick is free of an aluminum salt.” (’915 at cl. 1.) Dependent claims also rely on claim 1’s preamble to define the invention and provide antecedent basis, reciting in claims 4-7 limitations for “the deodorant stick,” in claim 11, reciting a limitation for “the stick,” and in claims 14-15, limitations for “said stick.”

The Board and the Federal Circuit have found the preamble limiting in similar situations. *See, e.g., Shoes by Firebug LLC v. Stride Rite Children’s Group, LLC*, 962 F.3d 1362, 1365 (Fed. Cir. 2020) (finding the preamble, “[a]n internally illuminated textile footwear comprises,” limited the invention to “textile footwear” where the claim later relied on the preamble’s use of “footwear” for antecedent basis, reciting “the illumination system being housed within the footwear”); *C.W. Zumbiel Co. v. Kappos*, 702 F.3d 1371, 1385 (Fed. Cir. 2012) (“containers” are a limitation where claim body relied on preamble’s recitation of “a plurality of containers,”

stating “the preamble constitutes a limitation when the claim(s) depend on it for antecedent basis”); *Palo Alto Networks, Inc. v. BT Americas Inc.*, 2024 WL 4709942, at *8-9 (P.T.A.B. 2024) (preamble reciting “a probe” was limiting because claim limitation recited “the probe”). So too here. Accordingly, each claim’s preamble “deodorant stick” should be construed as a limitation of the claim.

IV. BRIEF OVERVIEW OF THE ASSERTED PRIOR ART

A. Lesniak-Based Grounds (Grounds 1-4)

In Ground 1, Petitioner contends Lesniak (Ex. 1003) alone anticipates or renders obvious the challenged claims of the '915 Patent. In Ground 2, Petitioner combines Phinney (Ex. 1004) and Lesniak. In Ground 3, Petitioner combines Lamb (Ex. 1005) and Lesniak. And in Ground 4, Petitioner combines Bianchi-518 (Ex. 1006) and Lesniak. None of these references, together or apart, disclose the claims of the '915 Patent. Further, there is no motivation to combine the cited references as suggested by Petitioner

Lesniak. Lesniak describes and claims “natural” compositions relating to “a sunscreen or a diaper cream” with high zinc oxide content (up to 20% or higher). (See, e.g., Ex. 1003 at 4:61-67, cl. 1, Table 2.) As a POSA would have appreciated, the compositions disclosed in Lesniak are anhydrous, structured, natural compositions comprising a network of crystals which physically trap liquid in their interstices. (Ex. 2011 at ¶¶ 33, 58-59.) A POSA would have understood that the

liquid carrier system in Lesniak, as relied on by the Petitioner, is primarily triglyceride-based. (*Id.*) Lesniak does not disclose deodorant sticks, and mentions antiperspirants only in passing without specifying any form. The reference contains just one example of a composition in the form of a stick (Example 6), and it is a sunscreen stick. (*See* Ex. 1003 at 15:7-45, Table 7.) Notably, nearly all of the compositions disclosed and formulated in Lesniak failed stability testing. (*See id.* at Table 2.)

Phinney. Phinney describes deodorant formulations comprising zinc hydroxide, magnesium hydroxide, and potassium chloride and/or potassium sulfate. (*E.g.*, Ex. 1004 at 4:45-51.) Phinney's stick differs from Lesniak's not only because Phinney is a deodorant whereas Lesniak's is a sunscreen, but also because it employs a different stick technology and different active ingredients than Lesniak's. Additionally, whereas Lesniak's active ingredients comprise zinc oxide, Phinney's active ingredients comprise zinc hydroxide and magnesium hydroxide. (Ex. 1004 at 4:48-51, cl.1, cl. 7.) Phinney is not an anhydrous semisolid with a liquid triglyceride carrier, but rather is a polyol-based sodium stearate gel stick comprising up to 20% water. (*See* Ex. 2011 at ¶ 34.) Additionally, whereas Lesniak's active ingredients comprise zinc oxide, Phinney's active ingredients comprise zinc hydroxide and magnesium hydroxide. (Ex. 1004 at 4:48-51, cl. 1, cl. 7.) Phinney offers no guidance to a POSA on how the POSA could have adapted any of its teachings to an anhydrous

stick with a triglyceride-carrier system, nor how to adapt Lesniak's zinc oxide compositions to Phinney's zinc hydroxide and magnesium hydroxide compositions.

Bianchi-518. Bianchi-518 describes and claims aluminum-based antiperspirant compositions with about 30-50% volatile silicones and about 5-30% of an antiperspirant active comprising aluminum salts or complexes. (Ex. 1006 at 5:10-6:15 (Examples A-U), cl. 1., 2:59-4:7) Hence, the stick technology employed by Bianchi-518 is yet a third type, different from both Lesniak and Phinney. It is an anhydrous, aluminum-containing, silicone-based composition, substantially free of long chain fatty alcohols and including primarily non-natural ingredients. (*Id.* at 1:9-13; Ex. 2011 at ¶ 35.) Bianchi-518 discloses a hardness range specific to its particular stick of "7.0 to about 14.0 mm," based on penetration results as measured using a 100-g weight penetration needle assembly in accordance with the ASTM D-1321 standard test method. (Ex. 1006 at 2:58, 6:23-28; Ex. 2011 at ¶ 35.) This method is significantly different than the method defined in the '999 Patent, where the ASTM D-1321 needle penetration is driven only by the 50-g total weight of the needle (or cone) and the rod. (Ex. 2011 at ¶ 35.) As explained below, the use of different weight needle assemblies (100 g v. 50 g) means that the Bianchi-518 compositions are significantly harder than the hardness range claimed in the '915 Patent. Additionally, Bianchi-518 is silent as to any hardness range appropriate for

aluminum-free, natural deodorants, particularly those with different carrier systems and structurants like Lesniak and Phinney. (Ex. 2011 at ¶ 35.)

Lamb. Lamb is an article titled “Sodium Bicarbonate: An Excellent Deodorant” from The Journal of Investigative Dermatology in 1946. (Ex. 1005 at 131.) It describes a survey and study of medical students, the author’s family and friends, and the author’s patients where the participants used plain sodium bicarbonate as a single-ingredient deodorant. (*Id.* at 131.) From this small group study, Lamb concludes that “the possible mechanism of the deodorant action of bicarbonate of soda is mentioned as requiring further study.” (*Id.* at 133.)

B. Native-Based Grounds (Grounds 5-6)

Petitioner’s Ground 5 is based on Native (Ex. 1007) in view of Bianchi-254 (Ex. 1008). Ground 6 adds to this combination Easy Homemade (Ex. 1009). Alone or in combination, these references do not disclose the claims of the ’915 Patent.

Native. Petitioner’s Native exhibit is a Wayback Machine printout of the former website for the Native company, purporting to describe a list of ingredients contained in the Native deodorant formula from 2016. (Ex. 1007.) Native shows several positive reviews, and no negative reviews, of the Native deodorant product as it existed at that time. (*Id.* at 8, 17; Ex. 2011 at ¶ 38.)

Bianchi-254. Similar to Bianchi-518, Bianchi-254 describes antiperspirant compositions including from about 20% to about 40% volatile silicone and from 15%

to 30% aluminum salts or complexes. (See Ex. 1008 at cl. 1.) The stick technology is thus the same as that of Bianchi-518: It is an anhydrous, silicone- and aluminum-containing semisolid that is substantially free of long-chain fatty alcohols, chemically and structurally different from the systems of Lesniak and Phinney. Like its Bianchi-518 counterpart, Bianchi-254 discloses hardness values for its compositions as measured using a 100-g weight needle penetration testing method, rendering its compositions significantly harder than the claimed compositions of the '915 Patent. (Ex. 1008 at [0117], Table 6; Ex. 2011 at ¶ 37.)

Easy Homemade. Petitioner's Easy Homemade exhibit is a printout of a blog post by an apparent deodorant amateur/hobbyist from the Wayback Machine, with no indicia of reliability or significance to a POSA. (See Ex. 1009.) The blogger purports to melt premade, baking-soda-free deodorants and then add arrowroot powder and magnesium hydroxide. The blogpost provides no disclosure of the base deodorant composition ingredients. (Ex. 2011 at ¶ 39.)

V. PETITIONER'S LESNIAK-BASED GROUNDS ARE UNCONVINCING

Petitioner's Lesniak-based grounds do not anticipate or render obvious the challenged claims, for the below independent reasons.

A. Lesniak Does Not Disclose a “Deodorant Stick.” ***(Grounds 1-4: All Claims 1-15)***

Lesniak does not disclose a “deodorant stick,” as required by the preamble of the sole independent claim. Lesniak embodies sunscreen and diaper cream compositions containing high concentrations of zinc oxide. Petitioner attempts to bridge this gap by focusing on a single fleeting reference to “antiperspirant” in Lesniak, contending that the mere mention of an “antiperspirant” amounts to a disclosure of the ’915 Patent’s claimed “deodorant stick.” Not so. A POSA would not have credited Lesniak as an “antiperspirant” reference with this limited disclosure that is entirely out of place—and contradicted (“antiperspirant”; “not an antiperspirant”)—in the reference as a whole. And in any event, Lesniak fails to enable any purported deodorant stick in view of the instability of the sunscreen and diaper cream compositions it does disclose.

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

Lesniak is a laundry-list reference disclosing numerous and varied combinations and concentrations of ingredients for “natural” sunscreen and diaper cream compositions.

Lesniak describes twelve different compositions of sunscreens (Compositions 1–12), ten of which Lesniak treats as comparative examples:

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

*denotes comparative composition.

TABLE 3		
Water activity of sunscreen compositions		
	Composition#	
	11 (weight %)	12 (weight %)
Zinc Oxide	20	20
Sunflower oil	12.5	12.1
Caprylic/Capric Triglyceride	52	52
Beeswax	13.5	13.5

TABLE 3-continued		
Water activity of sunscreen compositions		
	Composition#	
	11 (weight %)	12 (weight %)
CastorWax MP80 hydrogenated castor oil	2	2
Fragrance (natural lavender vanilla fragrance)	0	0.40
Total	100	100
Water activity		
Sample #1	0.262	0.306
Sample #2	0.265	0.309
Sample #3	0.268	0.304

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

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

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

(*Id.* at Table 5.) And Lesniak’s claims recite a “personal care composition selected from a sunscreen or a diaper cream,” with later claims also limiting the invention to sunscreens and diaper creams. (*Id.* at cls. 1, 12, 14, 19.)

Each of the Lesniak compositions contain large amounts of zinc oxide (up to 20%), which serves as a protective barrier to protect the skin from the sun or other irritants. (*See, e.g.*, Ex. 1003 at Tables 2-3, cl. 13 (“[W]herein the composition comprises *a sun-protective level of zinc oxide particles*”).) As both a POSA and the common consumer would have understood, zinc oxide is an active ingredient commonly found in sunscreens to prevent sun damage. (*Id.*; *see also* Ex. 2011 at ¶ 43; Ex. 2013; 21 C.F.R. 352 (FDA Sunscreen Monograph).) And in the case of diaper cream, any POSA, parent, babysitter, or caregiver would have understood and appreciated that zinc oxide is present in those products to prevent diaper rash. (*See*

Ex. 2011 at ¶ 43; Ex. 2003 (“Zinc oxide topical cream is used to treat and prevent diaper rash. It is also used to protect skin from being irritated and wet caused by diaper use.”); Ex. 2004.)

A POSA would have known that zinc oxide, particularly in the high amounts present in Lesniak, is not commonly used or useful in deodorants. (Ex. 2011 at ¶ 44.) Petitioner’s own Phinney reference confirms this, explaining “zinc oxide... [is] *very unreactive against perspiration odour.*” (Ex. 1004 at 2:33-36; *see also id.* at 3:20-21 (noting “the low activity of zinc oxide as a deodorant agent”).) And Petitioner’s expert could not identify a single deodorant that contains the 20% zinc oxide that Lesniak discloses. (Ex. 2012 at 66:21-67:1.)

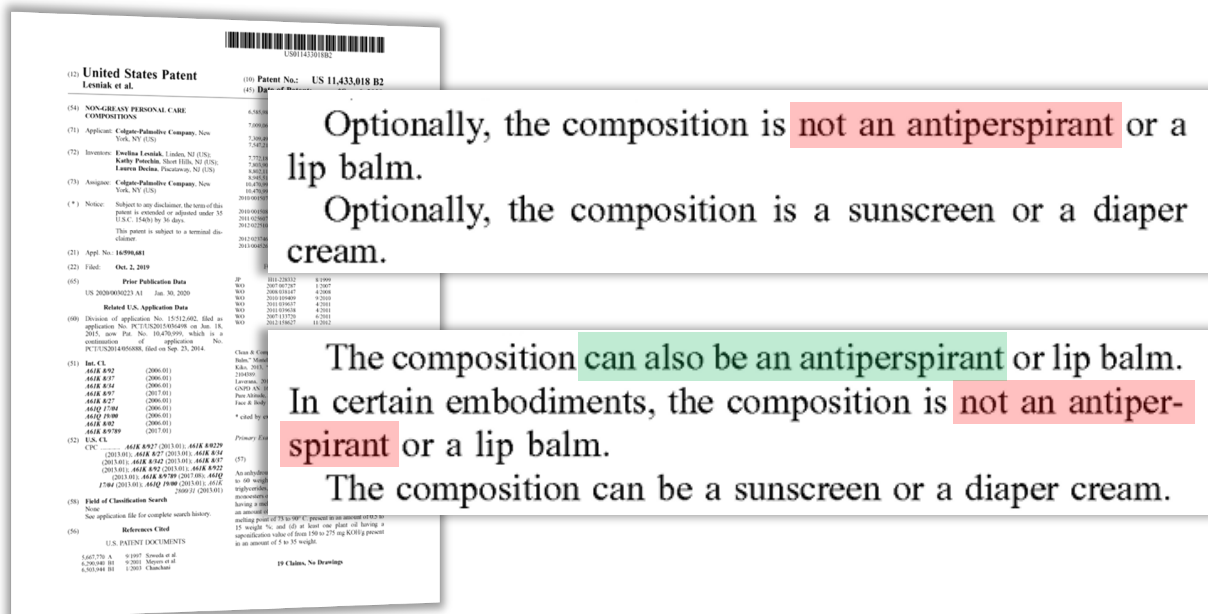
Lesniak’s stated goals, specification, ingredients, and claims all show that a POSA would have viewed Lesniak as relevant to natural, high zinc oxide concentration sunscreens or diaper cream compositions, not to deodorant sticks as required by the ’915 Patent claims. Lesniak does not mention a “deodorant stick” or “deodorant” even once. Petitioner’s Lesniak-based grounds thus fail to invalidate claims 1-15. (Ex. 2011 at ¶¶ 41-45.)

2. *Any Alleged Disclosure of an “Antiperspirant” Dooms Petitioner’s Argument.*

Acknowledging the lack of an express “deodorant stick” disclosure in Lesniak, Petitioner jumps through hoops to argue that Lesniak’s throwaway sentence

regarding an “antiperspirant” teaches the claim limitation. This argument lacks merit.

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



(Ex. 1003 at 4:23-26, 10:27-29.) Lesniak further does not specify any form of antiperspirant, which can come in a variety of forms, including aerosol sprays, creams, liquids, and gels. These passing references to “antiperspirant” do not convert Lesniak into something other than a reference about the embodied sunscreens and diaper creams.

Moreover, to the extent a POSA would have considered these words at all, they would understand any such “antiperspirant” to contain aluminum. To a POSA,

the term “antiperspirant” means a composition containing an aluminum salt or complex—the only antiperspirant actives approved by the FDA.¹ *See* 37 C.F.R. 350. As Dr. Lochhead explains, a POSA would have understood that the U.S. Food and Drug Administration regulates antiperspirants as drugs and regards deodorants as cosmetics. (Ex. 2011 at ¶ 48.) A POSA would have further understood Lesniak’s disclosure of “antiperspirant” as requiring the use of an antiperspirant active, and the only antiperspirant actives approved by the FDA all contain aluminum. (*Id.* at ¶ 48.) Indeed, the FDA lists the 18 approved antiperspirant actives in its monograph “Antiperspirant Drug Products for Over-the-Counter Human Use,” and every single one comprises an aluminum compound or complex:

¹ Sensitive to this reality, Petitioner attempts to argue that Lesniak precludes the use of aluminum. (Petition at 31.) This is simply untrue. Lesniak itself defines the terms “natural composition” and “natural ingredients” as used in its patent to refer to the use of “ingredients which are extracted from the earth or sea, derived from plants, or synthesized by other organisms.” (Ex. 1003 at 4:61-67.) Aluminum is necessarily included in this definition, as aluminum is “extracted from the earth,” and, in fact, is one of the most abundant elements in the earth’s crust. (Ex. 2011 at ¶ 49.)

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

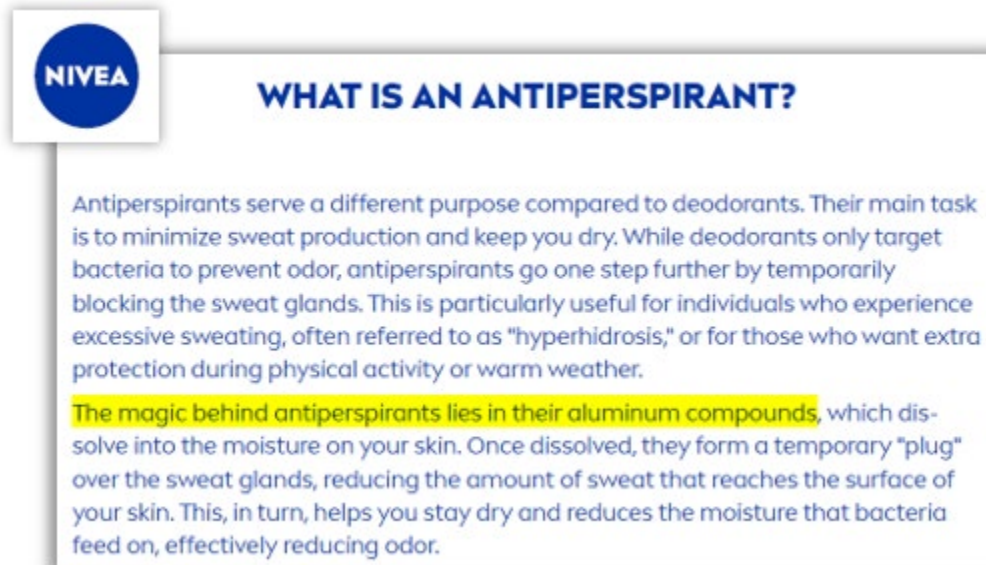
21 C.F.R. 350.10.

Petitioner urges the Board in a footnote to disregard this fact, citing the Federal Circuit’s *Persion* decision and arguing “the standards for anticipation and obviousness are distinct from FDA regulatory requirements.” (Petition at 29 (quoting *Persion Pharms. LLC v. Alvogen Malta Ops. Ltd.* 945 F.3d 1184, 1193 (Fed. Cir. 2019).) But *Persion* does not support Petitioner. The issue there was whether it was proper for the district court to consider FDA safety data and other statements when evaluating a POSA’s motivation to combine, and the Federal Circuit ultimately declined to find error with the district court’s analysis. *Id.* at 1192-94.

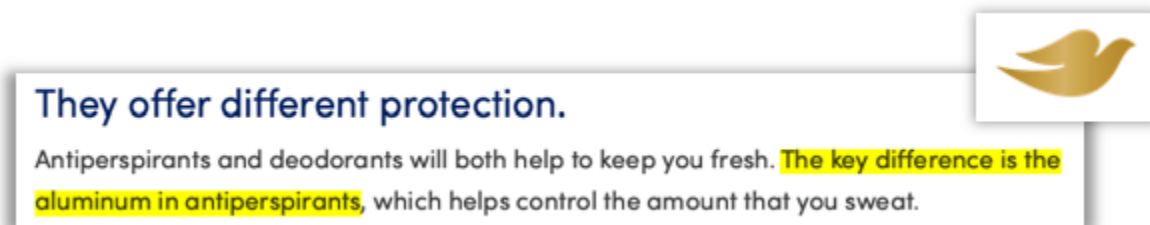
Here, the FDA-approved antiperspirant actives inform the POSA’s knowledge about the scope of Lesniak’s disclosure. (Ex. 2011 at ¶ 50.) A POSA would have

understood, based on both FDA requirements and as a matter of common knowledge in the field, that Lesniak's "antiperspirant" contains aluminum. (Ex. 2011 at ¶ 50.)

This is standard across the industry:



(Ex. 2014 (Nivea).)



(Ex. 2015 (Dove).)

Secret.

What is the difference between an antiperspirant and a deodorant?

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

(Ex. 2016 (Secret).)

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



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

The POSA's understanding of "antiperspirant" to include aluminum is fatal to Petitioner's obviousness argument. Even if the Board were to accept Petitioner's argument that Lesniak teaches a "deodorant stick" through its single-instance "antiperspirant" disclosure—notwithstanding Lesniak's teachings as a whole directed to high zinc oxide concentration sunscreens and diaper creams, and its mere passing and contradictory use of the term "antiperspirant"—Petitioner's claim mapping would fail as to the aluminum-free requirement of the challenged claims. Put differently, if Lesniak sufficiently discloses "a deodorant stick in the form of an

antiperspirant stick” as Petitioner contends (and Lesniak does not), then that Lesniak stick contains aluminum. (*See* Petition at 27-28.) Either way, Petitioner fails to establish the Lesniak-based grounds disclose each and every element of the challenged claims.² (Ex. 2011 at ¶¶ 46-51.)

3. *Lesniak’s Purported Disclosure of a Deodorant Stick is Non-Enabling.*

For yet an additional reason, Lesniak fails to render obvious the “deodorant stick” limitation: its disclosure is decidedly non-enabling. Petitioner contends “Lesniak discloses a deodorant stick in the form of an antiperspirant stick.” (Petition at 28.) But Lesniak does not enable an antiperspirant stick, and certainly fails to enable a deodorant stick.

² To the extent Petitioner contends Lesniak’s sunscreen and diaper cream formulations do not need to be modified before serving as an antiperspirant or deodorant, and in that scenario, would be aluminum-free, that is wrong. For the reasons already discussed above, a POSA would not have considered Lesniak’s 20% zinc oxide formulas to be an antiperspirant or the claimed “deodorant stick.” (Ex. 2011 at ¶¶ 43-45.) And Petitioner’s expert could not identify which of Lesniak’s formulations would indeed work as a deodorant or form a deodorant stick. (*See* Ex. 2012 at 65:2-66:20.)

Lesniak never mentions an antiperspirant *stick*,³ and of course never discloses a *deodorant stick*. (Ex. 2011 at ¶ 53-54.) In fact, the only “stick” formulation Lesniak expressly teaches is a sunscreen stick:

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

(Ex. 1003 at Table 7; *see also* Ex. 2012 at 75:5-10 (Petitioner’s expert confirming that Table 7 “is the only one that contains the ingredients that Lesniak discloses as creating [a] stick”).

Lesniak’s single *sunscreen* stick example does not rise to the level of an enabling disclosure of the ’915 Patent’s deodorant stick. For an alleged anticipatory reference to be enabling, that reference alone must “enable one of ordinary skill in the art to make the invention without undue experimentation.” *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assoc., Inc.*, 670 F.3d 1171, 1184 (Fed. Cir. 2012)

³ Note that at the time of the invention, antiperspirants and deodorants were available in different forms, including sprays, creams, liquids, and gels. (Ex. 2011 at ¶ 53; Ex. 1002 at ¶¶ 34, 37.)

(quoting *Orion IP, LLC v. Hyundai Motor Am.*, 605 F.3d 967, 975 (Fed. Cir. 2010)). “To render a claim obvious, the prior art, taken as a whole, must enable a skilled artisan to make and use the claimed invention.” *Raytheon Techs. Corp. v. Gen. Elec. Co.*, 993 F.3d 1374, 1380 (Fed. Cir. 2021); *see also In re Kumar*, 418 F.3d 1361, 1368 (Fed. Cir. 2005). “In the absence of such other supporting evidence to enable a skilled artisan to make the claimed invention, a standalone § 103 reference must enable the portions of its disclosure being relied upon.” *Raytheon*, 999 F.3d at 1381. Lesniak cannot satisfy these standards because its compositions are riddled with instability problems, and there is no indication that a POSA could have derived from Lesniak *any* stable cosmetic stick (including a sunscreen stick); there is certainly no indication that a POSA could have derived from Lesniak a stable *deodorant* stick.

Lesniak describes a test to assess “[t]he physical stability of each composition,” and presents the results of that testing in Table 2. (*Id.* at 11:7-26.) As shown below, Lesniak explains that out of the eleven (non-stick) sunscreen compositions evaluated, *only two* were physically stable when stored at 49°C and did not exhibit “separation”:

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

*denotes comparative composition.

(*Id.* at Table 2; *see also id.* at 11:17-19 (explaining a “fail” in physical stability “indicat[es] separation into two bulk phases”). As to its only stick formulation—the sunscreen stick taught in Table 7—Lesniak is silent as to stability. (*See id.* at Table 7; Ex. 2011 at ¶ 57.)

As explained by Dr. Lochhead, the instability of Lesniak’s formulas is consistent with a POSA’s understanding of the complex interactions involved in crystalline semisolids. (Ex. 2011 at ¶ 58.) As a POSA would have understood, Lesniak’s structured compositions comprise a network of crystals that physically trap liquid in their interstices. (*Id.* at ¶ 58.) The texture, stability, and bulk properties of these compositions depend upon their microcrystal morphology—the size, shape, and strength of interaction between the crystals in the fractal network—which varies

with the amount and type of liquid component(s) used as the carrier system. (*Id.* at ¶ 58.) A POSA would have recognized that Lesniak's compositions utilize a triglyceride-based carrier system. (*Id.*; Ex. 1003 at Tables 2-3, 5, 7.)

A POSA would have appreciated and been aware of the morphological crystal changes that could result from any alteration in the structured composition, such that even the slightest variation in ingredients as to the carrier system or structurants could yield an unstable composition, and if in the form of a stick, an unusable stick. (*Id.* at ¶ 59.) Lesniak itself acknowledges this, as its disclosure evidences the inventors' struggle to find compositions that pass stability tests. (*E.g.*, Ex. 1003 at Table 2.) As the POSA would have known and appreciated, physical stability upon storage is a widely-recognized requirement for cosmetic products, including deodorant and antiperspirant sticks. (Ex. 2011 at ¶ 59.)

Importantly, Lesniak reveals only *slight differences* in a composition can cause it to go from stable to unstable, exemplifying the fragility of these crystal-network-structured semisolids. (Ex. 2011 at ¶ 60; *see also* Ex. 1003 at 12:1-5.) Comparing a few of Lesniak's Table 2 compositions is instructive:

Ingredient	Unstable Comp. 4	Unstable Comp. 5	Unstable Comp. 7	Stable Comp. 8	Stable Comp. 11
Zinc Oxide	20	20	20	20	20
Sunflower Oil	10	10	10	10	12.5
Caprylic / Capric Triglyceride	53	53	54	53	52
Beeswax	17	17	15	15	13.5
Castor Wax <u>MP80</u>	0	0	0	2	2
Tapioca Starch	0	0	1	0	0
Total	100	100	100	100	100

(See Ex. 1003 at Table 2.)

Only Compositions 8 and 11 passed Lesniak’s stability tests, though their formulations contain only slight deviations from comparative non-stable compositions. (Ex. 1003 at 12:1-5.) For example, the only difference between unstable Compositions 4 and 5, and stable Composition 8, is that 2 percent of the beeswax was replaced by the same weight percent of castor wax. (See Ex. 2011 at ¶ 61.) Unstable Composition 7 also has nearly identical ingredients, except it includes an extra percent by weight of the triglyceride and 1% tapioca starch. A POSA would thus have understood from Lesniak that very small changes to any of its compositions could yield an unstable and separated composition. (Ex. 2011 at ¶¶ 60-63.)

In light of Lesniak’s conceded stability issues and failure to disclose a stable “stick” composition, Lesniak would not have enabled a POSA to create an operative,

solid deodorant stick with the ingredients Lesniak discloses, much less the stick of the '915 Patent, without undue experimentation. This is “strong evidence” that the reference is non-enabling. *In re Kumar*, 418 F.3d at 1369 (“[I]f it were shown that the Rostoker product could not be produced by the Rostoker method, that would be relevant evidence concerning whether Rostoker rendered obvious the Kumar product.”); *cf. In re Donohue*, 766 F.2d 531, 533 (Fed. Cir. 1985) (POSA’s inability to re-create compound based on reference would be “strong evidence” that the reference is non-enabling). Indeed, in some cases, a reference’s “self-enablement (or lack thereof) is not only relevant to the enablement analysis... it is dispositive.” *Raytheon Techs. Corp. v. Gen. Elec. Co.*, 993 F.3d 1374, 1382 (Fed. Cir. 2021).

In sum, Lesniak provides no teaching of a stable “deodorant stick,” no teaching of a stable “antiperspirant stick,” and at least nine different sunscreen formulas with slight variations that are all unstable. (Ex. 2011 at ¶¶ 52-66.) Among all of this is one example *sunscreen* “stick” as to which stability is unknown. A POSA armed with Lesniak’s disclosure on the fragility of its crystal-network-structured compositions—which wholly lacks any guidance as to how to formulate a stable deodorant or antiperspirant stick—would not have been enabled to make and use the claimed “deodorant stick.” (Ex. 2011 at ¶ 52-66.) None of Petitioner’s other cited references remedy this deficiency; Petitioner does not even attempt to argue that they do.

Petitioner’s Lesniak-based grounds fail to invalidate claims 1-15 for this additional, independent reason. (Ex. 2011 at ¶¶ 52-66.)

B. Petitioner Admits A POSA Would Have Had No Reason to Modify Lesniak.
(Grounds 1-4: All Claims 1-15)

Turning to Petitioner’s proposed modifications of Lesniak—whether in light of a POSA’s knowledge alone or as presented in Petitioner’s combinations—Petitioner does not identify any deficiencies of the (few) stable compositions of Lesniak that would have provided a POSA motivation to modify it, aside from what Petitioner gleans from hindsight. In fact, in numerous places throughout the Petition, Petitioner and its expert argue *against* any modification of Lesniak, asserting a POSA “would have understood Lesniak’s formulations *to be complete deodorant sticks that did not require additional ingredients.*” (Petition at 31-32; *see also* Ex. 1002 at ¶ 76 (Petitioner’s expert stating in her declaration: “[I]n my opinion, a POSA would have understood Lesniak’s formulations to be complete deodorant sticks that did not require additional ingredients....”).) Petitioner’s expert doubled-down on the standalone sufficiency of Lesniak at her deposition. When asked whether “the formulations in Lesniak require a modification in order to be turned into a deodorant,” she answered: “No. They are deodorants.” (Ex. 2012 at 59:4-7.)

Yet Petitioner *also* contends that a POSA *would have* sought to modify Lesniak by adding and changing a host of different ingredients. (*See* Petition at 27-

41.) These inconsistent arguments undermine the strength of the Petition, and in any event, the notion of completely reformulating Lesniak is unfounded. Petitioner cannot explain why a POSA would have been motivated to reformulate Lesniak in any of these ways, and how a POSA could have had a reasonable expectation of success of making the deodorant stick of the '915 Patent claims through these modifications. In fact, given the POSA's understanding of Lesniak's high zinc oxide concentrations and instability challenges—with only two of twelve proposed formulations passing stability testing—the POSA would have been dissuaded from even attempting to use Lesniak as a starting point or modifying any of Lesniak's formulations. (Ex. 2011 at ¶¶ 67-69.)

Patent Owner addresses in more detail below Petitioner's specific motivation to combine arguments as to Phinney, Bianchi-518, and Lamb are addressed in more detail below, but each combination suffers from this threshold deficiency.

C. A POSA Would Not Have Added Phinney's Magnesium Hydroxide to Lesniak or Had a Reasonable Expectation of Success in Doing So.
(Ground 2: Claims 2, 10)

As to its Phinney combination, Petitioner cannot show that a POSA would have been motivated to look to Phinney to completely reformulate Lesniak to include magnesium hydroxide as an antimicrobial. Petitioner contends "Lesniak teaches using zinc oxide (a known antimicrobial), while Phinney teaches that combining magnesium hydroxide with zinc oxide improves antimicrobial properties. Thus, a

POSA would have been motivated to incorporate magnesium hydroxide into Lesniak's composition following Phinney's guidance....” (Petition at 35.) Petitioner's rationale is belied by Phinney itself.

First, Lesniak and Phinney describe entirely different uses for their metal oxides/hydroxides and a POSA would not have looked to combine their teachings on this topic. (Ex. 2011 at ¶ 71.) Lesniak includes zinc oxide in its sunscreen and diaper cream products as a protective barrier, i.e., to protect the skin from sun and other irritants, and in the case of the diaper cream, to help prevent diaper rash. (See, e.g., Ex. 1003 at cl. 13; see also Ex. 2003.) Lesniak does not use zinc oxide in Lesniak for odor control at all. As explained above, a POSA would have understood Lesniak's formulas with high concentrations of zinc oxide to be unsuitable for use as an underarm deodorant or antiperspirant. (Ex. 2011 at ¶ 71; *see also* Ex. 1004 at 2:33-36 (“[Z]inc oxide... [is] very unreactive against perspiration odour.”), 3:20-21.). Thus, a POSA would not have been motivated to look at Phinney to modify Lesniak or incorporate any additional antimicrobial into Lesniak “to improve odor protection,” as odor protection was not a goal of Lesniak's zinc oxide in the first place. (Ex. 2011 at ¶ 71.)

Second, Petitioner cherry picks the single ingredient magnesium hydroxide from Phinney's disclosure of a three- or four-ingredient combination to combat odor. Phinney explains that to combat odor, its compositions contain a combination of (1)

magnesium hydroxide, **and** (2) zinc *hydroxide*, **and** (3) potassium chloride and/or potassium sulfate. (Ex. 1004 at 8:7-31, cl. 1.) There are two significant aspects to this multi-part odor fighting combination: the requirement of zinc hydroxide, not zinc oxide; and the requirement of potassium chloride/sulfate. (Ex. 2011 at ¶ 72.)

Phinney emphasizes the need for zinc *hydroxide*, not zinc *oxide*, stating that “[t]he zinc hydroxide typically lowers the pH of the magnesium hydroxide-perspiration odour-controlling formulation of the invention,” which “avoid[s] skin irritation.” (*Id.* at 5:31-33, 52-60.) Phinney further requires the “disinfection capacity” of a potassium and/or sulfate potassium chloride, and makes clear at least one of these ingredients is responsible “for destroying microorganisms associated with odour.” (*Id.* at 3:66-4:4, 5:1-5, 5:64-67.)

Thus, Phinney does not teach, as Petitioner would have it, a combination of zinc oxide and magnesium hydroxide at all. Rather, Phinney utilizes an odor-fighting mixture of zinc *hydroxide*, magnesium hydroxide, *in combination with* potassium sulfate and/or chloride: “In respect of greater detail regarding the formulation, *magnesium oxide* and *zinc oxide* must have high reactivity and are *added to water along with potassium sulfate* and mixed until the magnesium oxide and zinc oxide are converted to their hydroxides....” (*Id.* at 8:22-41; Ex. 2011 at ¶¶ 72-73.)

Petitioner's cherry picking of magnesium hydroxide alone is unsupported by Phinney's compositions and is further evidence of Petitioner's hindsight bias. (Ex. 2011 at ¶ 73.) Indeed, Petitioner's expert acknowledges that the Phinney reference does not disclose any deodorant composition containing magnesium hydroxide without zinc hydroxide *and* a separate ingredient(s)—potassium sulfate and/or chloride—as the disinfecting agent. (Ex. 2012 at 89:4-10 (Q: “And so none of these compositions that are disclosed in Phinney contain magnesium hydroxide alone without the other two elements that we’ve discussed, right?” A: “No, because I guess his invention was the -- the actual combination that he was looking at.”))

Third, Petitioner glosses over the conversion of zinc oxide to zinc hydroxide required by Phinney. Phinney teaches its metal oxides must be converted to their hydroxides by mixing with water, lest “skin irritation will occur.” (Ex. 1004 at 4:48-51.) Phinney's compositions are, on average, 20% by weight water, whereas Lesniak's zinc oxide compositions are anhydrous. (Ex. 2011 at ¶ 74.) Petitioner ignores this fundamental difference, and does not acknowledge that a POSA would have needed to add a significant amount of water to the Lesniak compositions to convert Lesniak's zinc oxide into zinc hydroxide, as required by Phinney's teachings, which would fundamentally alter the Lesniak-combination composition to the point that it might not even form a stick at all. (*Id.*) Phinney suggests combining zinc oxide and magnesium oxide, which are then both hydrated in a slurry

to form zinc hydroxide and magnesium hydroxide. (Ex. 1004 at 8:22-26.) Were a POSA to add Phinney's magnesium oxide to the zinc oxide in Lesniak, neither would be converted to hydroxide in Lesniak's anhydrous composition. (Ex. 2011 at ¶ 74.)

Fourth, Petitioner does not rectify the vast difference in the amounts of the metal oxides/hydroxides in Lesniak and Phinney. A POSA would have understood Lesniak's upwards of 20% zinc oxide compositions to be far from the 0.5–1.5% of zinc hydroxide used in Phinney. (*Id.* at ¶ 75; *see also* Ex. 2012 at 84:14-16 (Petitioner's expert testifying in agreement that Phinney's zinc oxide is "much lower" than Lesniak's).) Moreover, Phinney requires the magnesium hydroxide to be substantially in excess of the zinc hydroxide to be effective in his deodorant compositions. (Ex. 1004 at 8:42-43.) As Petitioner's expert confirmed, "Phinney teaches [a POSA] that you should have *more* magnesium hydroxide than zinc hydroxide," and in fact, "it should be a ratio of 3 to 1." (Ex. 2012 at 83:20-84:8; Ex. 1004 at 8:42-43; Ex. 2011 at ¶ 75.) Petitioner's alleged motivations to combine do not consider the incompatibility of the disclosures in Lesniak and Phinney whatsoever.

Given the disparate teachings of the two references, which disclose two very different types of cosmetic systems (Lesniak anhydrous, triglyceride-based; Phinney water/polyol based), a POSA would not have looked to Phinney to modify Lesniak, and would not have been motivated to pluck magnesium hydroxide out of the

Phinney multi-ingredient teachings to add it to the high zinc oxide concentration Lesniak compositions. (Ex. 2011 at ¶ 70–77.)

Nor would a POSA have had a reasonable expectation of success in any such modification. Indeed, as explained above, Lesniak teaches that its triglyceride-carried formulations are delicate, with even the slightest changes yielding unstable results. (Ex. 2011 at ¶ 76.) A POSA would have understood and appreciated the instability of the formulations disclosed in Lesniak, and thus would not have had a reasonable expectation of success in reformulating Lesniak to add magnesium hydroxide, at either the amount specified in Phinney or the scaled-up amount required to maintain Phinney’s “effective” 3:1 ratio of magnesium hydroxide to zinc hydroxide. (*Id.*) And a POSA certainly would not have had a reasonable expectation of success in a reformulation comprising not just magnesium hydroxide, but also the requisite amount of water to turn Lesniak’s 20% zinc oxide into zinc hydroxide, as required by Phinney. (*Id.*)

Further, a POSA would have understood that the deodorant formulations disclosed in Phinney comprise water/propylene glycol carrier systems structured by sodium stearate, which a POSA would have appreciated is different than the anhydrous and triglyceride-based carrier systems relied on in Lesniak. (Ex. 2011 at ¶ 77.) A POSA would have known and appreciated the fundamental differences between Lesniak’s and Phinney’s technologies, in terms of their carriers,

structurant(s), and crystal network, and as such, would not have had a reasonable expectation of success in combining the references' teachings. (*Id.*)

For all of these reasons, Petitioner does not articulate a rational motivation to combine Lesniak and Phinney with any reasonable expectation of success. (Ex. 2011 at ¶¶ 70-77.)

D. The Combination of Lesniak and Bianchi-518 Does Not Support a *Prima Facie* Case of Obviousness.
(Ground 3: All Claims 1-18)

As to Bianchi-518, Petitioner's combination of Lesniak and Bianchi-518 is improper to begin with and does not support a *prima facie* case of obviousness. As discussed, Lesniak discloses anhydrous, natural compositions and touts a desire "to formulate such compositions from all-natural ingredients (i.e. '100% natural' compositions)," "which are extracted from the earth or sea, derived from plants, or synthesized by other organisms." (Ex. 1003 at 4:61-64, 5:29-31.) In stark contrast, the antiperspirant compositions of Bianchi-518 require 30-50% of volatile silicone, which is not a natural ingredient. (Ex. 1006 at 1:56, 2:14, 4:9-12.) The POSA would not have been motivated to consider the teachings of Bianchi-518 in combination with Lesniak, as the Bianchi compositions require large amounts of non-natural ingredients (volatile silicones), and using such non-natural ingredients would defeat the core objective of Lesniak to provide natural compositions. *See In re Fritch*, 972 F.2d 1260, 1265 (Fed. Cir. 1992); *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

E. Petitioner's References Do Not Disclose or Render Obvious the Claim 15 Hardness Limitation.
(Ground 4: Claims 15)

Petitioner also has not shown that either Lesniak or Bianchi-518 discloses or suggests the stick hardness range “from about 80 mm*10 to about 140 mm*10, as measured by penetration with [a 50-g total force] ASTM D-1321 needle,” required by dependent claim 15. ('915 at cl. 15.)

1. *Neither Lesniak nor Bianchi-518 Disclose a Stick of the Claimed Hardness.*

Petitioner does not identify a *single reference* that discloses or even suggests the claimed hardness range. Petitioner admits its key reference Lesniak “does not expressly teach” the claimed hardness range. (Petition at 41.) Lesniak states its stick embodiments “can have a hardness of 300 to 550 g,” as measured using a texture analyzer, with its only formulated stick having a hardness of 432g. (Ex. 1003 at 9:60-61, 15:41-42.) Neither Petitioner nor its expert attempt to convert this hardness to the metric claimed in the '915 Patent, and Petitioner's expert cannot say whether Lesniak's range is too soft, too hard, or overlapping at all with the '915 Patent. (*See* Ex. 2012 at 76:21-78:6.)

Petitioner thus contends a POSA would have been motivated to combine Lesniak with Bianchi-518, which allegedly discloses the claimed hardness range. (Petition at 41.) Not so. Petitioner fails to provide a prima facie case of obviousness for the reasons discussed above, but further, Petitioner's argument is premised on a

false equivalency between the hardness measurements disclosed in Bianchi-518 and those claimed in the '915 Patent. In fact, the Bianchi hardness test uses a needle and shaft with *double the weight* of the needle and shaft used in the '915 Patent (100 grams vs. 50 grams), and thus its so-called same or similar hardness ranges reflect that the Bianchi compositions are actually *significantly harder* than those claimed in the '915 Patent (*i.e.*, it requires twice the weight of the penetration needle assembly to yield similar penetration depths). Petitioner's failure to understand this difference in testing methodology is fatal to its case.

Bianchi-518 teaches a hardness range of "7.0 to about 14.0 mm" based on penetration results using the ASTM D-1321 testing method, which utilizes 100 grams of weight for its penetration needle assembly. (Ex. 1006 at 2:58, 6:25-28; Ex. 2011 at ¶ 83; Ex. 2018 at 5-6 ("Place a 50-g weight above the penetrometer needle, making a *total load of 100 ± 0.015 g* for the needle and all attachments.")) This ASTM D-1321 hardness penetration method using 100 grams of total load was readily known to a POSA. (Ex. 2011 at ¶ 85.)

The '915 Patent uses a different hardness testing method. The '915 Patent explains that its invention exhibits a hardness in the range of "80 mm*10 to about 140 mm*10," as measured using an ASTM D-1321 penetration needle in a test similar to ASTM D-1321, but with a significant difference: "the total weight of the shaft and needle is 50 ± 0.2 grams when the shaft is in free fall." ('915 at 12:24-26.)

The '915 Patent's method does not include the extra "50-g weight" added to the needle in the standard ASTM D-1321 test utilized by Bianchi-518 and therefore does not utilize a 100-gram load as required by the hardness test of Bianchi-518. (Ex. 2011 at ¶ 86.)

In other words, the hardness values in Bianchi-518 reflect its antiperspirant stick's response to 100 grams of shaft and needle weight, whereas the hardness values in the '915 Patent reflect the response of the claimed deodorant stick to 50 grams of shaft and needle weight. (Ex. 2011 at ¶ 87.) Thus, the hardness values disclosed in Bianchi-518 are based on the penetration depth of a needle assembly having *two times the weight* of the needle assembly utilized in the '915 Patent. (Ex. 2011 at ¶ 87.) If the Bianchi compositions were tested using the method of the '915 Patent (*i.e.*, with a 50-g total needle assembly, as opposed to a 100-g one), the 50-g assembly would have a much shorter penetration distance than an assembly twice its weight. (*Id.*)

Thus, while Petitioner attempts to paint the Bianchi-518 hardness range as overlapping with the '915 Patent hardness range, the two ranges are not overlapping at all. They are significantly different—they reflect very similar penetration values for very different load weights. A POSA would have understood that Bianchi-518 required a 100-g weight needle in order to penetrate the same or similar distance as a 50-g weight needle would penetrate in the '915 claimed compositions. (Ex. 2011

at ¶ 88.) Dr. Lochhead explains that while there are no formulas to convert the results of one of these methods to the other, a POSA would have expected that the hardness range disclosed in Bianchi-518 indicates *significantly harder* sticks than that claimed in the '915 Patent. (Ex. 2011 at ¶ 88; '915 at 3:13-14 (explaining harder sticks have lower hardness scores).)

In short, Petitioner has not cited any reference disclosing the hardness range as measured by the test defined in the '915 Patent, and thus provides no reference with the hardness range specified in claim 15. Petitioner has not shown that claim 15 is obvious. (Ex. 2011 at ¶¶ 80-89.)

2. *Even If the Claimed Hardness Range Is Disclosed (It Is Not), Petitioner's Argument Still Falls Short.*

Moreover, even if Bianchi-518's hardness range was relevant to the hardness range claimed in Claim 15—which it is not—Petitioner's argument still falls short for several additional reasons.

First, Bianchi-518 expressly ties its hardness disclosure to the specific inventive antiperspirant compositions described in the reference, which as Dr. Lochhead explains, are silicone-based and contain aluminum—an ingredient the claims of the '915 Patent expressly exclude. (Ex. 1006 at 5:15-6:14, 6:23-29; Ex. 2011 at ¶ 91.) Bianchi-518 discloses Compositions A–U, with their ingredients expressed in weight percentages in the tables below. As highlighted, each of Bianchi-518's compositions contain one or more aluminum salts or complexes:

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

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

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

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

**Aluminum Zirconium Trichlorohydrate-Gly

(Ex. 1006 at 3:45-67, 5:15-6:14; Ex. 2007 at 1:17-18, 7:15, 9:18-21.) Petitioner's expert agrees that all of these compositions contain aluminum. (Ex. 2012 at 99:6-101:17.) The Petition is silent on Bianchi-518's use of aluminum, and neither Petitioner nor its expert explain how a POSA could have achieved the hardness range taught for Bianchi-518's aluminum-based compositions in an aluminum-free deodorant composition.

Second, Petitioner does not explain why a POSA would have modified the hardness of Lesniak in the first place, given Petitioner's assertion that it is allegedly a "complete deodorant stick[]" that did not require additional ingredients or modifications. (See Petition at 28-34.) Petitioner's expert concedes Lesniak does

not identify any deficiencies with the hardness of its compositions such that a POSA would have sought to modify it. (*See* Ex. 2012 at 76:2-7 (Q: “And Lesniak doesn’t indicate anywhere that this hardness is insufficient, right?” A: “I believe he doesn’t.” Q: “He doesn’t say that the sticks are too soft or too hard?” A: “I believe not....”); *see also* Ex. 1002 ¶ 76.) And Lesniak’s known stability issues would have further dissuaded a POSA from modifying it. (Ex. 2011 at ¶ 92.) Beyond hindsight reconstruction, Petitioner provides no basis for its obviousness argument.

Third, given the POSA’s understanding of the instability of Lesniak’s compositions, a POSA would not have been able to arrive at the claimed hardness through routine optimization of Lesniak, nor would he or she had a reasonable expectation of success in modifying Lesniak to achieve the purported hardness of Bianchi-518 (which, again, does not overlap with the ’915 Patent’s claimed range in the first place). “[K]nowledge of the goal does not render its achievement obvious.” *Abbott Laby’s. v. Sandoz, Inc.*, 544 F.3d 1341, 1352 (Fed. Cir. 2008); *see also Procter & Gamble Co. v. McNeil-PPC, Inc.*, 615 F. Supp. 2d 832, 849-50 (W.D. Wisc. 2009). And here, even if the Board were to ignore the falsity of Petitioner’s hardness range comparisons between Bianchi-518 and the ’915 claimed invention, achievement of the claimed hardness range would not have been obvious to a POSA. Neither Petitioner nor its expert tried to convert the hardness range disclosed in Lesniak to the claimed hardness metric, so neither Petitioner nor its expert can even

provide a starting point for the POSA as to Lesniak's hardness. (*See* Ex. 2011 at ¶¶ 93-94.)

Moreover, as discussed above, even the slightest change in Lesniak's ingredients could yield unstable and unusable compositions. (*Id.* at ¶ 95.) And, in view of Lesniak's Table 2, POSA would have understood that an increase in structurant content, for example, would not predictably provide physical stability to the formulation, and as such would not affect Lesniak's overall hardness in the easy and expected way Petitioner contends. (*See* Petition at 43-44; Ex. 2011 at ¶ 95; *see also* Ex. 1008 at Tables 1, 6 (showing even small changes in ingredients yield different hardnesses).) Instead, a POSA would not have had a reasonable expectation of success in modifying Lesniak to achieve the claimed hardness in a stable composition. (Ex. 2011 at ¶ 95.)

All of these additional issues further highlight Petitioner's deficient challenge to the hardness claim, which already loses at the outset for lack of a single reference that teaches the hardness range recited in claim 15. (Ex. 2011 at ¶¶ 90-96.)

F. A POSA Would Not Have Added Baking Soda to the Ground-1 Combination as an Antimicrobial
(Ground 3: Claim 9)

Claim 9 requires "the antimicrobial comprising baking soda." ('915 at cl. 9.) Petitioner contends this limitation is disclosed by the Ground-3 combination of Lesniak with Lamb, claiming a POSA would have utilized Lamb's baking soda as

an antimicrobial in Lesniak, despite it being known “*baking soda . . . could cause skin irritation* for some users.” (Petition at 61, 63.)

Petitioner identifies the problem with its own argument and fails to overcome it. Petitioner’s rationale for combining Lesniak with Lamb is directly contrary to the knowledge and motivations Petitioner claims the POSA would have had, namely that baking soda is a known irritant and a POSA would have been motivated to remove it from deodorants. (*See id.* at 61-65 (arguing in support of its Ground 5 Native combination that a POSA “would have known that deodorants containing baking soda... could cause skin irritation for some users” and would thus have been motivated to replace it in Native’s formulation); *id.* at 62.)

Even worse, Petitioner makes no effort to reconcile its pro-baking soda argument in its Lesniak-based grounds with its anti-baking soda argument in its Native-based grounds. Instead, Petitioner and its expert claim that a POSA would have both been motivated to add baking soda to Lesniak because it creates an “excellent” and “valuable” deodorant, yet remove baking soda in the Native combinations because of the “associated skin irritation.” (*See id.* at 38, 61-65.) Petitioner cannot have it both ways.

Petitioner also makes the crippling admission that “A POSA would have understood Lesniak’s formulations to be *complete deodorant sticks that did not require additional ingredients such as baking soda*.” (Petition at 31.) If that was

the POSA's understanding, as Petitioner and its expert contend, then the POSA would not have been motivated to add baking soda as an antimicrobial to Lesniak. (Ex. 2011 at ¶¶ 97-102.) And of course, even without taking Petitioner's word for it, a POSA would not have been motivated or successful in adding baking soda to Lesniak due to the same instability issues identified above.

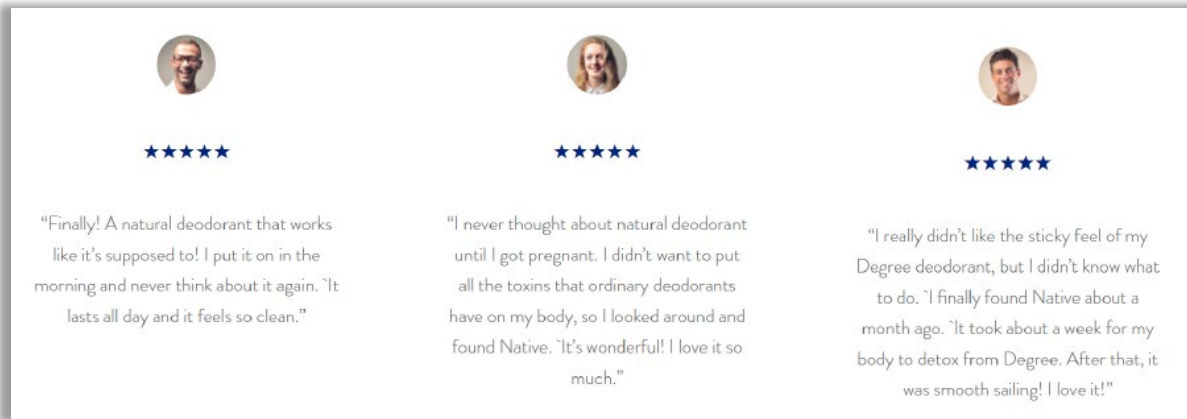
Thus, Petitioner's Lesniak-based grounds fail as to claim 9.

VI. PETITIONER'S NATIVE-BASED GROUNDS ARE SIMILARLY UNCONVINCING

Petitioner's Native-based grounds also do not render obvious the challenged claims. In these grounds, Petitioner first combines Native with Bianchi-254 and (Ground 5), and then adds Easy Homemade for a four-reference combination (Ground 6). These combinations are wholly unsupportable on both the facts and the law, for the independent reasons described below.

A. A POSA Would Have Had No Reason to Modify Native (Grounds 5-6: All Claims 1-15)

As an initial matter, Petitioner provides no legitimate reason for the POSA to have modified Native at all. According to Petitioner, Native lists the ingredients of a commercially available deodorant stick that was "a known leader in the field" and that had "reached internet fame" by 2017. (Petition at 45-46; Ex. 1010.) The Native exhibit contains uniformly positive reviews from customers:



(Ex. 1007 at 8; Ex. 2011 at ¶¶ 104-05.) Petitioner’s expert agrees there is nothing in the Native reference that indicates a problem with the Native stick. (Ex. 2012 at 117:15-118:14.). With this level of consumer acceptance and praise, and no identified issues or concerns, there was simply no reason for a POSA to have sought to modify Native. Petitioner’s attempts to manufacture so-called motivations are based on improper hindsight and must be rejected. *See TQ Delta, LLC v. CISCO Systems, Inc.*, 942 F.3d 1352, 1361 (Fed. Cir. 2019) (cautioning against “allowing the challenger to use the challenged patent as a roadmap to reconstruct the claimed invention using disparate elements from the prior art—i.e., the impermissible *ex post* reasoning and hindsight bias that *KSR* warned against.”). In addition to this foundational defect of all of Petitioner’s Native grounds, each combination has additional flaws, discussed in turn below.

B. The Combination of Native and Bianchi-254 Does Not Support a Case of *Prima Facie* Obviousness.

As with Petitioner’s proposed combination of Lesniak and Bianchi-518, the proposed combination of Native and Bianchi-254 is also improper and does not support a *prima facie case* of obviousness for the same reasons. The Native reference advertises and markets to consumers an aluminum-free deodorant product containing natural ingredients. (Ex. 1007.) In contrast, Bianchi-254 discloses compositions comprising, together, up to 50% or more of a volatile silicone and aluminum-containing antiperspirant active. (See Ex. 1008 at [0042], Tables 1, 5; Ex. 2012 at 108:10-14.) The POSA would not have been motivated to consider the teachings of Bianchi-254 in combination with Native, as Bianchi-254’s prominent use of non-natural ingredients and aluminum would defeat the core objective of Native to provide aluminum-free, natural deodorant products. (Ex. 2011 at ¶ 106; see *In re Fritch*, 972 F.2d at 1265; *In re Gordon*, 733 F.2d at 902 (Fed. Cir. 1984).)

**C. A POSA Would Not Have Implemented Bianchi-254’s Weight Percentages With Any Success
(Grounds 5-6: All Claims 1-15)**

An additional issue with the Native combination lies with implementing Bianchi-254’s weight percentages. Specifically, Petitioner admits Native “does not expressly teach the percentage of each ingredient used” and claimed in the ’915 Patent, but contends Bianchi-254 “establish[es] that the claimed concentrations of ingredients were conventional.” (Petition at 46.) This argument misses the mark.

A POSA seeking to develop a natural deodorant stick would not have been motivated to implement the weight percentages disclosed in Bianchi-254, which describes and claims antiperspirant formulations containing, again, 50% or more by weight of aluminum and silicone. (Ex. 2011 at ¶ 108.) For example, the antiperspirant compositions disclosed in Bianchi-254 contain, *e.g.*, “from 20 to 40 wt. %” of a volatile silicone, and silicone is the ingredient often present in the greatest amount across Bianchi-254’s compositions. (*See* Ex. 1008 at [0042], Tables 1, 5; Ex. 2012 at 108:10-14.) The Bianchi-254 compositions further include from 20 to 30 wt. % of the aluminum-containing antiperspirant active. (Ex. 1008 at Tables 1, 5; Ex. 2012 at 108:10-14.)

Petitioner ignores Bianchi-254’s inclusion of these ingredients, despite its sole reason for combining Native and Bianchi-254 hinging on it: “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 hardness and amount of ingredients.” (Petition at 48.)

Yet Bianchi-254 does not disclose a “natural, aluminum-free deodorant stick.” Petitioner does not reconcile this with its supposed motivation to combine. The Petition does not explain what would have motivated a POSA to have implemented the weight-percentages from a non-natural antiperspirant stick into the natural,

aluminum-free stick of Native (if it is even possible), or what a POSA would have substituted for aluminum and volatile silicone in order to preserve the same weight percentages without the presence of the aluminum active and silicones. (Ex. 2011 at ¶¶ 109-110.) Nor does the Petition explain how a POSA would have had a reasonable expectation of success in implementing Bianchi-254's teachings while maintaining a stable composition. (Ex. 2011 at ¶ 110.)

Thus, Petitioner has not shown the Native-based grounds disclose or render obvious the limitations of any of the challenged claims. (Ex. 2011 at ¶¶ 107-111.)

D. Petitioner's Hardness Challenge Is Again Wholly Deficient.
(Ground 5: Claim 15)

Just like the Lesniak-based grounds, Petitioner cannot show its Native combination discloses the hardness range required by claim 15 of the '915 Patent.

1. *No Reference Discloses a Stick of the Claimed Hardness.*

None of the references cited in Petitioner's Native-based grounds disclose a deodorant stick with the claimed hardness. Petitioner admits Native "does not disclose the hardness of the deodorant stick," as required by claim 15 of the '915 Patent. (Petition at 46.) Its expert agrees. (Ex. 2012 at 114:1-3.) Thus, Petitioner adds Bianchi-254, claiming "it would be obvious to formulate a deodorant stick such as the stick disclosed by Native using ingredients concentrations and hardnesses taught by Bianchi-254," which allegedly "establish[es]... that the claimed hardness range was standard." (Petition at 46.)

Petitioner's combination does not support a prima facie case of obviousness for the reasons provided above, but further, Petitioner relies on the same false equivalence of Bianchi-254's hardness measurements to those of the '915 Patent as it does with respect to Bianchi-518. Bianchi-254 discloses hardness values "from 5 to 15 mm, more particularly 5 to 10," and "from 8 to 15 mm, preferably 8 to 10 mm," measured pursuant to the standard DIN 51-579 hardness method. (Ex. 1008 at [0026], [0117]; Ex., 2011 at ¶ 114.) Like the standard ASTM D-1321 test, the DIN 51-579 method utilizes a 100-g total load for the needle assembly, whereas the '915 Patent test requires a total needle assembly load of 50 g. (*Compare* Ex. 2019 at 2 ("The weight of the test needle should be $2.5\text{ g} \pm 0.05\text{ g}$ and that of the guide rod $97.5\text{ g} \pm 0.1\text{ g}$."), *with* '915 at 12:24-26; Ex. 2011 at ¶ 114.) For the same reasons explained above, if the Bianchi compositions were tested using the method of the '915 Patent (*i.e.*, with a 50-g total needle assembly, as opposed to a 100-g one), the hardness values would be much lower. (Ex. 2011 at ¶ 114.) Thus, Bianchi-254's desired range actually indicates *significantly harder* sticks than that claimed in the '915 Patent. (Ex. 2011 at ¶ 113-14.) Put another way, Petitioner has not cited *any reference* disclosing the hardness range as measured by the test defined in the '915 Patent, and thus no reference with the hardness range specified in Claim 15. This issue alone is fatal to Petitioner's argument on claim 15.

2. *Even if the Claimed Hardness Range Was Taught by Bianchi-254 (It Was Not), Petitioner’s Argument Still Fails.*

What’s more, even if the hardness ranges of Bianchi-254 and the ’915 Patent were overlapping (which Petitioner has not shown), Petitioner’s argument misses the mark for several additional reasons.

First, given Native’s silence as to hardness, Petitioner’s argument that a POSA would have modified Native—whether through so-called routine optimization or via Petitioner’s proposed combination with Bianchi-254—starts from a false premise. A POSA looking at the Native reference would have had no indication whether Native discloses a deodorant that is either too hard or too soft as compared to the challenged claims. (Ex. 2011 at ¶ 116.) And as a result, a POSA would not have known which ingredients to alter or by how much. (Ex. 2011 at ¶ 116.)

Second, Bianchi-254 expressly ties its hardness disclosure to the inventive formulations it discloses, stating that in “embodiment[s] of interest,” it is “desirable” that the antiperspirant stick compositions have that particular hardness. (Ex. 1008 at [0026].) As Bianchi-254 makes clear, all of its antiperspirant formulations contain aluminum—an ingredient claim 15 expressly forbids:

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

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

(Ex. 1008 at Tables 1, 5; *see also id.* at [0033] (defining AAZG as “an aluminum zirconium tetrachlorohydrate complex with glycine”).) Even Petitioner’s expert agrees that each of these formulations contain aluminum. (Ex. 2012 at 108:10-14.) The Petition is silent on Bianchi-254’s use of aluminum salts, and neither Petitioner nor its expert explain how, or whether, a POSA could have achieved the hardness of

Bianchi-254's aluminum-based compositions, let alone the hardness of the Claim 15, in an aluminum-free deodorant composition. (Ex. 2011 at ¶ 117.)

Third, a POSA would not have had a reasonable expectation of success in reformulating Native to achieve the purported hardness of Bianchi-254 (which, again, is significantly harder than the claimed range). (Ex. 2011 at ¶ 118.) A POSA would have appreciated that Native's ingredient list suggests it is an anhydrous, wax-structured semisolid with a triglyceride-based carrier system, similar to Lesniak's examples, where even the slightest change in ingredients yields unstable and unusable compositions. (*See id.*; *see also* Ex. 1003 at Table 2.) A POSA would have understood that there is an art to formulating these compositions, such that minor modifications in the amount and type of structurants and liquid components, may not lead to predictable and stable results. (Ex. 2011 at ¶ 118.)

For these additional reasons, compounded with Petitioner's threshold failure to cite a single reference that discloses the claimed range, Petitioner has not shown its Native-based grounds render obvious claim 15's hardness limitation. (Ex. 2011 at ¶¶ 115-19.)

E. A POSA Would Not Have Added Easy Homemade's Magnesium Hydroxide to Native or Had a Reasonable Expectation of Success in Doing So.
(Ground 6: Claims 3, 4, 10)

Additionally, Petitioner cannot show that a POSA would have been motivated to reformulate the cited Native product to include magnesium hydroxide as an

antimicrobial, or would have reasonably expected success in doing so. Petitioner argues that “[w]hile Native teaches a deodorant stick composition comprising an antimicrobial, a POSA would have known that deodorants containing baking soda could cause skin irritation for some users.” (Petition at 61.) Accordingly, Petitioner claims “[a] POSA would have looked to publications in the field of deodorants describing natural antimicrobials that were not known to cause skin irritation,” like the Easy Homemade hobbyist blog, which allegedly “confirms ... that magnesium hydroxide could be used to replace baking soda as an antimicrobial in deodorant compositions, and it works just as well.” (Petition at 63-64.)

As an initial matter, Petitioner has not sufficiently established that Easy Homemade is prior art that would have been publicly accessible to a POSA. Simply because a document is archived on the Internet Archive’s Wayback Machine®, does not qualify it as publicly accessible prior art for an IPR challenge, even when accompanied by a standard affidavit from the Internet Archive. *In First Solar Inc. v. Rovshan Sade*, IPR2023-00827, Paper 13 (Nov. 16, 2023). Like the Petitioner in *First Solar*, Petitioner here does not provide any evidence that interested persons exercising reasonable diligence would have been able to locate Easy Homemade at the time of the priority date of the challenged patent, such as “evidence, or even argument, that [the] webpage was ‘indexed... (through search engines or otherwise)’ and thus locatable by a search engine.” *See id.* at 18.

Petitioner’s only “evidence” of alleged public accessibility is a statement from its expert that Easy Homemade was a “part of a series of related ‘Soap Deli News’ articles... with significant engagement from individuals globally” (Ex. 1002 at ¶ 113), where she cites three different “Soap Deli News” posts in apparent support. These additional blogposts do nothing to show the public accessibility of the specific Easy Homemade blogpost on which Petitioner relies, at any time before the priority date of the challenged patent. Since Petitioner has failed to sufficiently establish Easy Homemade as a publicly accessible printed publication to the POSA as of the critical date, Petitioner’s grounds based on Easy Homemade should fail.

Further, Petitioner’s argument evinces a fundamental misunderstanding of Easy Homemade. Petitioner contends Easy Homemade teaches a POSA how to use magnesium hydroxide powder as “a known substitute for baking soda that avoided skin irritation,” but Easy Homemade does not actually teach the removal and substitution of baking soda. (*See* Petition at 63.) Rather, the Easy Homemade hobbyist tells her followers to purchase a pre-made baking soda-free deodorant base—a base Petitioner’s expert could not identify the ingredients of—and add some magnesium hydroxide powder to it. (Ex. 1009 at 7; *see* Ex. 2012 at 120:6-8 (Q: “Do you know what natural deodorant base she’s starting with?” A: “At this stage I’m not sure.”)) As Petitioner’s expert confirms, Easy Homemade “doesn’t talk about

removing any ingredients from these sticks; she’s talking about adding ingredients.” (Ex. 2012 at 121:1-9.)

Further, Petitioner cannot show why a POSA would have been motivated to look at the amateur Easy Homemade soap blog in the first place, or why a POSA would have found it necessary to modify the already-commercialized Native product. Petitioner claims baking soda can be a skin irritant, but the Native webpage also shows that its formulation includes shea butter and coconut oil, which a POSA would have understood to have anti-inflammatory and healing properties for skin. (Ex. 1007 at 15; Ex. 2011 at ¶¶ 120-21.) The Native reference also contains positive reviews from its users, none of which discuss experiencing any skin irritation. (Ex. 1007 at 17.)

Petitioner does not show any issue with the cited Native formula that would have motivated a POSA to have modified it, and also does not provide any rationale behind a POSA’s alleged selection of magnesium hydroxide to replace Native’s baking soda, apart from hindsight. As Petitioner’s expert confirms, there are many different antimicrobial options a POSA could have chosen if it wished to remove baking soda from Native, and Petitioner provides zero reasoning as to why a POSA would have selected magnesium hydroxide specifically. (See Ex. 2012 at 52:9-54:18.) Rather than a motivation to combine, Petitioner offers only hindsight based

on a “roadmap” of the ’915 Patent’s successful formula. *See TQ Delta*, 942 F.3d at 1360-62; Ex. 2011 at ¶ 121-22.

Finally, even if a POSA would have been motivated to modify the cited Native product and replace baking soda with magnesium hydroxide, a POSA would not have had a reasonable expectation of success in any such modification. As explained above, a POSA would have understood and appreciated that compositions like Native are delicate. (Ex. 2011 at ¶¶ 123-24; *see also* Ex. 1003 at Table 2.) As Lesniak explains, even the slightest changes in these types of formulas, to the degree of a single weight percent, may yield unstable results. (Ex. 2011 at ¶¶ 123-24.) A POSA would have understood the instability that could result from a reformulation of Native, and thus would not have had a reasonable expectation of success in modifying Native to incorporate the teachings of Easy Homemade on magnesium hydroxide. (*Id.*)

Petitioner does not articulate a rational motivation to combine Native and Easy Homemade with any reasonable expectation of success. Petitioner’s Native-based grounds do not render obvious dependent claims 3, 4, and 10 for this additional reason. (Ex. 2021 at ¶¶ 120-25.)

F. Petitioner’s Argument a POSA Would Have Both Removed and Added Baking Soda is Nonsensical
(Ground 5: Claim 9)

Petitioner’s conflicting argumentation continues with claim 9, which requires that “the antimicrobial comprises baking soda.” Petitioner contends this limitation is disclosed by the Ground-5 combination of Native and Bianchi-254 because “Native’s deodorant stick comprised baking soda” (Petition at 52), despite also arguing that “a POSA would have known that deodorants containing baking soda (Native’s antimicrobial) could cause skin irritation for some users,” so a POSA would have been motivated to “use magnesium hydroxide as a substitute to baking soda in the composition of Native.” (*Id.* at 61-63.)

Petitioner’s contradictions highlight its reliance on hindsight. Petitioner contends in its Ground-6 challenge of claims 3, 4, and 10 that its proposed Native combination discloses each and every element of those claims because Easy Homemade allegedly discloses magnesium hydroxide powder as a “*substitute for baking soda* that avoided skin irritation.” (*Id.* at 61-63.) Thus, Petitioner’s motivation-to-combine rationale centers on the “substitution” of magnesium hydroxide for baking soda, as a POSA would have understood the latter to be a skin irritant. (*See id.*) But in Ground 5, Petitioner and its expert argue as to claim 9 that the POSA actually would have been motivated to *keep* baking soda in Native’s formula, despite its apparent potential for irritation and despite the fact that

Petitioner argues Easy Homemade explicitly teaches away from using baking soda. (*Id.* at 52; Ex. 1009 at 6.)

Petitioner's rationale for combining Native with Easy Homemade for claims 3, 4, and 10 is directly contrary to the knowledge and motivations Petitioner argues the POSA would have had as to claim 9. Petitioner makes no effort to reconcile its pro- and anti-baking soda arguments as to these claims and explain why a POSA would have been motivated to remove baking soda and then also decide to keep it in. Petitioner's contradictions demonstrate its improper hindsight reconstruction of the '915 Patent claims. *See TQ Delta*, 942 F.3d at 1361-62; Ex. 2011 at ¶¶ 127-28.

Petitioner's Native-based grounds do not render obvious dependent claim 9 for this additional reason. (Ex. 2011 at ¶¶ 126-29.)

VII. CONCLUSION

For the reasons set forth above, the challenged claims of the '915 Patent are not unpatentable.

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Respectfully submitted,

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CERTIFICATE OF WORD COUNT

Pursuant to Rule 37 C.F.R. 42.24(d), the undersigned hereby certifies that, based upon the word count of the word-processing system used to prepare this Response, the number of words in this Response is 12,160.

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §42.6(e), I certify that I caused to be served on the counsel for Petitioner a true and correct copy of the foregoing by email on May 2, 2025, at the following address:

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