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THE PROCTER & GAMBLE COMPANY
Global IP Services
Central Building, C9
One Procter and Gamble Plaza
CINCINNATI, OH 45202

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CYNTHIA MARIE STARK,
ANTHONY CHARLES LANZALACO,
ANDREA KAY HEAPE, and CHANCHAL KUMAR GHOSH

Appeal 2017-011187
Application 14/598,051
Technology Center 1600

Before JEFFREY N. FREDMAN, MICHAEL J. FITZPATRICK, and JOHN E. SCHNEIDER, *Administrative Patent Judges*.

FREDMAN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a method of reducing underarm malodor.[1,2] The Examiner rejected the claims as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

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[1] Appellants identify the real party in interest as The Procter & Gamble Company. (App. Br. 1).

[2] We have considered and herein refer to the Specification of Jan. 15, 2015 ("Spec."); Final Office Action of June 28, 2016 ("Final Act."); Appeal Brief of Jan. 27, 2017 ("App. Br."); and Examiner's Answer of May 19, 2017 ("Ans.").

Statement of the Case

Background

"It is well established that human malodors are caused by microbial interactions with apocrine gland secretions. Historically, people have attempted to reduce these odors through cleansing and the topical application of deodorant or antiperspirant products" (Spec. 1:12–14). "Current rinse-off formulations, particularly body washes and bar soaps, can be ineffective in targeting odor-producing bacteria in the hair follicle and skin crevices. During typical use, such formulations can be applied to an underarm and then rinsed away, only targeting bacteria on the surface of the skin" (*id.* at 4:13–16). "It has surprisingly been discovered that PVam [polyvinylamine polymers] can provide a delivery and/or retention benefit for antimicrobial agents, like ZPT. In fact, it has a synergistic effect when used in a rinse-off personal care composition including a combination of zinc pyrithione (ZPT) and zinc carbonate (ZC)" (*id.* at 6:12–15).

The Claims

Claims 1–5, 8–10, and 13–19 are on appeal. Claim 1 is representative and reads as follows:

1. A method of reducing underarm malodor, comprising:

applying a rinse-off personal care composition to an underarm of a user, wherein the composition comprises a) an antimicrobial polyvinylamine copolymer comprising about 95% mol vinyl monomer and about 5% mol vinylformamide monomer; b) zinc pyrithione; and c) zinc carbonate; and

rinsing the personal care composition from the skin within minutes of the application of the personal care composition.

The Rejections

A. The Examiner rejected claims 1–5, 8–10, and 13–19 under 35 U.S.C. § 103(a) as obvious over Hildebrandt[3] and Smith, III[4] (Final Act. 8–11).

B. The Examiner rejected claims 1, 4, 5, and 8 under 35 U.S.C. § 103(a) as obvious over Smets[5] and Smith, III (Final Act. 4–8).

A. 35 U.S.C. § 103(a) over Hildebrandt and Smith, III

The Examiner finds Hildebrandt teaches odor reducing compositions that "can be used in washing, showering and bathing preparations, such as soaps and shower gels" that comprise "95 to 5 mol% of at least one vinylcarboxylic acid amide and 5 to 95 mol%, of other copolymerizable monoethylenically unsaturated monomers in copolymerized form" (Final Act. 8).

The Examiner acknowledges that Hildebrandt "does not teach zinc pyrithione and zinc carbonate" (Final Act. 8). The Examiner finds Smith, III "teaches a body wash composition that includes 1% by weight zinc pyrithione and 1.5% by weight zinc carbonate" (*id.*). The Examiner finds it obvious to include the zinc antimicrobial agents of Smith, III as the antibacterial agents in the Hildebrandt composition (*see id.* at 9).

Appellants contend that "[e]ven though the PVam showed no noticeable improvement on its own in hair follicle antimicrobial activity, when added to a formulation with zinc pyrithione (ZPT) and zinc carbonate,

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[3] Hildebrandt et al., WO 2009/150090 A2, published Dec. 17, 2009 ("(We rely upon the machine translation provided by Appellants with the IDS filed Mar. 7, 2016).

[4] Smith, III et al., US 2013/0045961 A1; published Feb. 21, 2013.

[5] Smets et al., US 2011/0111999 A1, published May 12, 2011.

the combination of the three materials outperformed a control containing only the zinc pyrithione and zinc carbonate." (App. Br. 4). Appellants contend that

> Applicant's data tends to show the addition of PVam to a formulation with a combination of ZPT and zinc carbonate showed enhanced antimicrobial activity in the hair follicle over the combination of ZPT and zinc carbonate without PVam. In addition, based on the data, there would be no expectation the addition of PVam to the combination of zinc pyrithione and zinc carbonate would have any impact on their antimicrobial properties in the hair follicles.

(App. Br. 4–5).

The issues with respect to this rejection are:

(i) Does a preponderance of the evidence of record support the Examiner's conclusion that the combination of Hildebrandt and Smith, III render claim 1 obvious?

(ii) If so, have Appellants presented evidence of secondary considerations, that when weighed with the evidence of obviousness, is sufficient to support a conclusion of non-obviousness?

Findings of Fact

1 Hildebrandt teaches a cosmetic preparation for "the reduction of unwanted skin smells" (Hildebrandt 2).

2. Hildebrandt teaches vinyl-formamides in polymers with hydrolysis degrees ranged from 95/5 mol% to 5/95 mol% (*see* Hildebrandt 3).

3. Hildebrandt teaches "showering and bath preparations" including soaps and liquid wash (*see* Hildebrandt 4).

4. Hildebrandt teaches inclusion of "antibacterially effective materials" (Hildebrandt 6).

5. Smith, III teaches a micellular body wash composition comprising zinc carbonate and zinc pyrithione (ZPT) as shown in Example 9 table (Smith, III ¶ 80), reproduced below:

sodium laureth-1 sulfate	9.50
cocamidopropyl betaine	1.50
citric acid	0.34
Polyquaternium 76	0.30
EGDS	3.50
Dried ZPT	1.00
zinc carbonate	1.50
sodium chloride	1.25
fragrance	1.00
preservatives	0.41
water	QS

The Example 9 table, reproduced above, shows a composition with a polyquaternium 76 polymer, 1% zince pyrithione, and 1.5% zince carbonate (*see* Smith, III ¶ 80).

6. Smith, III teaches

> Personal care compositions can be rinse-off formulations, in which the product can be applied topically to the skin or hair and then subsequently rinsed within minutes from the skin or hair with water. The product could also be wiped off using a substrate. In either case, it is believed at least a portion of the product is left behind (i.e. deposited) on the skin. The personal care compositions can be in the form of a liquid, semi-liquid cream, lotion, gel, solid, or combinations thereof and are intended for topical application to the skin and/or hair. Examples of personal care compositions can include but are not limited to bar soaps, shampoos, conditioning shampoos, body washes.

(Smith, III ¶ 12).

7. Table 2 of the Specification is reproduced below:

	% Raw Material	
Ingredient	Example 3: Rinse-off with ZPT/ZC	Example 4: Rinse-off with ZPT/ZC and PVam
Distilled Water	59.6355	50.1155
Thixcin® Base (see below)	38.2600	38.2600
Sodium Chloride	1.4000	1.4000
Zinc Carbonate	0.5000	0.5000
ZPT FPS, 48.9% active	0.2045	0.2045
PVam (Lupamin® 1595)	---	9.5200
Total %	100.0000	100.0000
Thixcin® Base:		
Sodium Laureth-3-Sulfate (28% Active)	19.8471	19.8471
Sodium Lauryl Sulfate (29% Active)	12.2367	12.2367
Cocoamidopropyl Betaine High pH, 30% active	4.7289	4.7289
Hydrochloric Acid, 6N Volumetric Solution	0.7576	0.7576
Thixcin® R	0.3549	0.3549
Sodium Benzoate, NF	0.2957	0.2957
Kathon CG, 1.5% active	0.0391	0.0391
Total %	38.2600	38.2600

Table 2 shows the compositions of Example 3 comprising ZPT and zinc carbonate and Example 4 that further comprises PVam (*see* Spec. 22:1–2).

8. Figures 3 and 4 of the Specification are reproduced below:

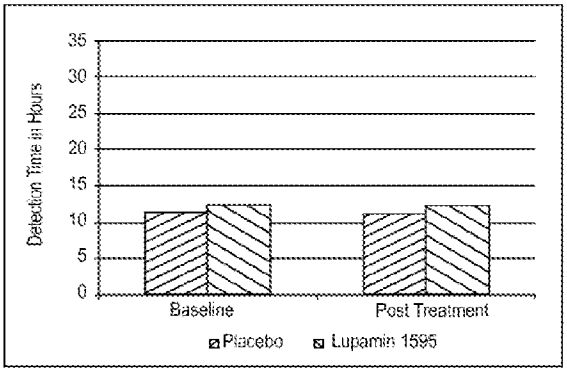

Fig. 3

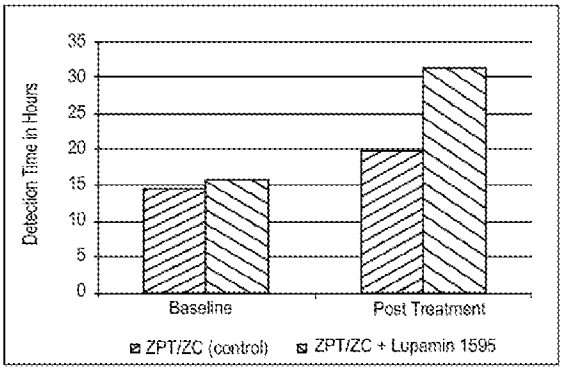

Fig. 4

Figure 3 shows that "[w]ith respect to antimicrobial activity, Example 2 did not appear to exhibit noticeable improvement in antimicrobial activity when compared to baseline and Example 1" Spec. 21:19–21). "As can be seen in Fig. 4, Example 4, a rinse-off personal care composition includingPVam

(Lupamin® 1595) and a combination of ZPT and ZC, can exert a stronger antimicrobial effect against key odor-causing bacteria than that exerted by Example 3, the control composition without PVam" (Spec. 22:16 to 23:3).

Principles of Law

"The combination of familiar elements according to known methods is likely to be obvious when it does not more than yield predictable results." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007).

Prima facie obviousness can be rebutted by presenting evidence of secondary considerations and when such evidence is submitted, all of the evidence must be considered anew. *In re Piasecki*, 745 F.2d 1468, 1472–1473 (Fed. Cir. 1984).

Analysis

We adopt the Examiner's findings of fact and reasoning regarding the scope and content of the prior art (Final Act. 8–11; FF 1–6) and agree that the claims are rendered obvious by Hildebrandt and Smith, III.

In particular, we agree that Hildebrandt teaches methods of using cosmetic compositions for reduction of body odor (FF 1) that comprises overlapping amounts of vinyl monomers and vinylformamide monomers (FF 2) and antibacterial agents (FF 4) in liquid wash preparation (FF 3). We agree that Smith, III teaches the use of zinc pyrithione and zinc carbonate as antibacterial components in body wash compositions (FF 5) that may be rinsed off within minutes (FF 6). We agree that selection of the known antibacterial components from the body wash method of Smith, III for inclusion as the antibacterial components in the body wash method of Hildebrandt is obvious because "if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would

improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill." *KSR*, 550 U.S. at 417. Thus, the Examiner does establish a prima facie case of obviousness.

We address Appellants arguments below.

Appellants contend "any prima facie case of obviousness has been overcome based on unexpected results. As shown in Fig. 3, a rinse-off composition including PVam (Lupamin® 1595) did not exhibit noticeable improvement in antimicrobial activity in the hair follicle when compared to baseline and a placebo formulation (without PVam)" (App. Br. 4). Appellants contend that

> the addition of PVam to a formulation with a combination of ZPT and zinc carbonate showed enhanced antimicrobial activity in the hair follicle over the combination of ZPT and zinc carbonate without PVam. In addition, based on the data, there would be no expectation the addition of PVam to the combination of zinc pyrithione and zinc carbonate would have any impact on their antimicrobial properties in the hair follicles.

(App. Br. 4–5).

We recognize that the Specification states that the combination of the PVam, zinc carbonate, and zinc pyrithione "exhibited superior antimicrobial activity when compared to a control composition without PVam" (Spec. 6:17–18). While we can agree with Appellants that there is an improvement in the particular composition disclosed in Example 4 of the Specification relative to Example 3 (FF 7–8), Appellants do not explain why the change from about 20 to about 30 hours, an approximately 50% improvement, is a difference in kind rather than degree. In *Harris*, the court found that a "32–43% increase in stress-rupture life, however, does not represent a 'difference in kind' that is required to show unexpected results." *In re Harris*, 409 F.3d

1339, 1344 (Fed. Cir. 2005).

Equally important, Appellants demonstrate this result for a single amount of the polyvinylamine copolymer of 9.52% (FF 7) but expressly claim a range of "about 0.01% to about 20%" in claim 2. The result with the single value is not commensurate in scope with claims that encompass as little as 0.01% of the polyvinylamine copolymer, and Appellants have not demonstrated that the unexpected result would obtain at both the lower and upper ends of the claimed ranges. Therefore, there is not a reasonable basis for concluding that the untested embodiments encompassed by the claims would behave in the same manner as the tested embodiment. "Evidence of unexpected results must be reasonably commensurate with the scope of the claims." In re Huai-Hung Kao, 639 F.3d 1057, 1068 (Fed. Cir. 2011). *See also In re Baxter Travenol Labs.*, 952 F.2d 388, 392 (Fed. Cir. 1991) ("[W]hen unexpected results are used as evidence of nonobviousness, the results must be shown to be unexpected compared with the closest prior art.").

Thus, Appellants do not establish that the unexpected results, when considered with the prima facie case of obviousness, render the full scope of the claimed invention unobvious.

Conclusions of Law

(i) A preponderance of the evidence of record supports the Examiner's conclusion that the prior art renders claim 1 obvious

(ii) Appellants have not presented evidence of secondary considerations, that when weighed with the evidence of obviousness, is sufficient to support a conclusion of non-obviousness.

B. 35 U.S.C. § 103(a) over Smets and Smith, III

The Examiner finds Smets teaches "deodorants, antiperspirants, and personal cleansing" and teaches "polymer coated perfume microcapsules are prepared with Lupamin™ 9030 (see [0237]) and used to formulate a shampoo (see [0246])" (Final Act. 5). The Examiner finds "Lupamin meets the limitation of a polyvinylamine copolymer comprising about 95% mole vinyl monomer and about 5% mol vinylformamide monomer" (*id.*).

The Examiner acknowledges that Smets "does not specifically teach applying the composition to an underarm of a user" and "does not teach zinc pyrithione and zinc carbonate" (Final Act. 5).

The Examiner finds Smith, III teaches "a body wash composition that includes 1% by weight zinc pyrithione and 1.5% by weight zinc carbonate (see [0080])" (Final Act. 5).

The Examiner finds it would have been obvious to apply Smets composition "to the underarm of a user" because Smets teaches "application of creams, lotions, and other topically applied products for consumer use, including deodorants, antiperspirants, and personal cleansing" (Final Act. 6). The Examiner finds it would have been obvious to include the zinc pyrithione and zinc carbonate components of Smith, III in the topical products of Smets "in order to add antimicrobial properties" (*id.*).

The issues with respect to this rejection are:

(i) Does a preponderance of the evidence of record support the Examiner's conclusion that that Smets and Smith, III suggest polyvinyl copolymers as required by claim 1?

(ii) If so, have Appellants presented evidence of secondary considerations, that when weighed with the evidence of obviousness, is sufficient to support a conclusion of non-obviousness?

Findings of Fact

9. Smets teaches consumer products that include "conditioning, shampooing, styling; deodorants and antiperspirants; personal cleansing" (Smets ¶ 7).

10. Smets teaches the products comprise an "encapsulate that may comprise a core, a wall having an outer surface and a coating, said wall encapsulating said core, said coating coating the outer surface of said wall, said coating may comprise one or more efficiency polymers" (Smets ¶ 18).

11. Smets teaches efficiency polymers with "a hydrolysis degree, for polyvinyl formamides, of from about 5% to about 95%, from about 7% to about 60%, or even from about 10% to about 40%" (Smets ¶ 26).

12. Smets teaches that "[s]uitable efficiency polymers can be obtained from BASF AG of Ludwigshafen, Germany and include Lupamin® 9010 and Lupamin® 9030" (Smets ¶ 68).

13. Smets teaches that the encapsulate core "may comprise a material selected from the group consisting of . . . anti-bacterial agents" (Smets ¶ 38).

Analysis

We adopt the Examiner's findings of fact and reasoning regarding the scope and content of the prior art (Final Act. 4–8; FF 5, 6, 9–13) and agree that the claims are rendered obvious by Smets and Smith, III.

Appellants contend "the Office Action fails to provide a teaching of an antimicrobial polyvinylamine copolymer comprising about 95% mol

vinyl monomer and about 5% mol vinylformamide monomer" (App. Br. 2). Appellants contend, citing Verboom,[6] that

> the nomenclature for the Lupamin® materials is generally understood such that the first to numerals "90" relate to the molecular weight, while the last two numbers relate "30" to the percent of formamide functional groups that have been hydrolyzed into vinylamine units. Thus, Lupamin® 9030 would contain approximately 30% vinylamine monomers and about 70% vinyl formamide monomers. Likewise, Lupamin® 9010 would contain about 10% vinyl amine monomers and about 90% vinyl formamide monomers.

(*id.* at 2–3).

While the Examiner correctly challenges the propriety of the citation to Verboom in the Appeal Brief (*see* Ans. 2–3),[7] we need not rely on this formal issue. Smets, in addition to teach the use of two specific Lupamin compounds (FF 12), also teaches efficiency polymers with "a hydrolysis degree, for polyvinyl formamides, of from about 5% to about 95%" (FF 13). Thus, Smets teaches polymers with overlapping ranges, at least at the endpoints, of vinyl monomer and vinylformamide monomer. *See In re Peterson*, 315 F.3d 1325, 1329 (Fed. Cir. 2003) ("In cases involving overlapping ranges, we and our predecessor court have consistently held that even a slight overlap in range establishes a prima facie case of obviousness.") Therefore, Appellants' argued point regarding the

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[6] Verboom et al., WO 2009/079288 A1, published June 25, 2009.

[7] *See* 37 CFR § 41.33(d)(2) ("All other affidavits or other Evidence filed after the date of filing an appeal pursuant to § 41.31(a)(1) through (a)(3) will not be admitted except as permitted by §§ 41.39(b)(1), 41.50(a)(2)(i), and 41.50(b)(1).") As this evidence is not drawn to a New Ground of Rejection by either the Examiner or the Board, none of the exceptions listed apply in this case.

polyvinylamine copolymer is not persuasive because Smets does teach a range of compositions overlapping that claimed.

We recognize that the same unexpected results issue raised in the Examiner's rejection over Hildebrandt and Smith, III applies to the rejection over Smets and Smith, III. For the same reasons as discussed above, principally that the evidence is not commensurate in scope with the claims and that there is no evidence that the improved properties are differences in kind rather than degree, we conclude that the unexpected results, when considered with the prima facie case of obviousness, fail render the full scope of the claimed invention unobvious.

Conclusions of Law

(i) A preponderance of the evidence of record supports the Examiner's conclusion that that Smets and Smith, III suggest polyvinyl copolymers as required by claim 1.

(ii) Appellants have not presented evidence of secondary considerations, that when weighed with the evidence of obviousness, is sufficient to support a conclusion of non-obviousness.

SUMMARY

In summary, we affirm the rejection of claim 1 under 35 U.S.C. § 103(a) as obvious over Hildebrandt and Smith, III. Claims 2–5, 8–10, and 13–19 fall with claim 1.

We affirm the rejection of claim 1 under 35 U.S.C. § 103(a) as obvious over Smets and Smith, III. Claims 4, 5, and 8 fall with claim 1.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED