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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte BENJAMIN GABRIEL STERN, ROBERT HUTTON RAY,
JAMES J. RAMIREZ, and MATTHEW GERNSTEIN

Appeal 2020-001175
Application 16/149,543
Technology Center 1600

Before JEFFREY N. FREDMAN, MICHAEL A. VALEK, and
JAMIE T. WISZ, *Administrative Patent Judges*.

FREDMAN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal^{1,2} under 35 U.S.C. § 134 involving claims to a method of using a hygiene product pod comprising about 40 wt% to about 70 wt% of butylene glycol and surfactant. The Examiner rejected the claims as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We affirm-in-part.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the Real Party in Interest as Nohbo, LLC (*see* Appeal Br. 2).

² We have considered the Specification of Oct. 2, 2018 (“Spec.”); Final Office Action of Feb. 26, 2019 (“Final Action”); Appeal Brief of July 1, 2019 (“Appeal Br.”); Examiner’s Answer of Sept. 19, 2019 (“Ans.”); and Reply Brief of Nov. 18, 2019 (“Reply Br.”).

Statement of the Case

Background

“Hygiene products, such as shampoo, bodywash, shaving cream, and conditioner are usually . . . provided in small bottles for use in the hospitality and/or travel industries” (Spec. ¶¶ 3–4). “However, the small bottles of shampoo/conditioner/shaving cream generally found in the hospitality industry have a high packaging to product ratio, which contributes to higher costs and excessive amounts of waste” (*id.* ¶ 4). The Specification teaches “a single-use hygiene product pod having a water-soluble envelope and a hygiene product sealed in the envelope, in which the hygiene product includes a carrier comprising butylene glycol in an amount ranging from about 40 wt% to about 70 wt%” (*id.* ¶ 7).

The Claims

Claims 1–7 are on appeal. Claim 1 is an independent claim, is representative and reads as follows:

1. A method of using a hygiene product pod comprising a water-soluble envelope and a hygiene product sealed in the envelope and comprising an active agent and a carrier comprising butylene glycol in an amount ranging from about 40 wt% to about 70 wt%, based on the total weight of the hygiene product, the method comprising:
 - applying water to the pod to dissolve the envelope and release the hygiene product;
 - applying the hygiene product to at least one body part of a user; and
 - rinsing the hygiene product from the body part.

The Rejections

- A. The Examiner rejected claims 1–5 and 7 under U.S.C. § 103(a) as obvious over Labeque,³ Wiesche,⁴ and Jeong⁵ (Final Act. 3–7).
- B. The Examiner rejected claims 1–7 under U.S.C. § 103(a) as obvious over Labeque and Jeong (Final Act. 7–10).

A. 35 U.S.C. § 103(a) over Labeque, Wiesche, and Jeong

The Examiner finds Wiesche teaches a “hair treatment composition containing, based on their weight, (a) 0.01-40 wt% of 3-methyl-1,3-butanediol (aka isopentyldiol) and (b) 0.1-40 wt% alkylpolyglycoside(s) (surfactants)” (Final Act. 5). The Examiner finds “3-methyl-1,3-butanediol has nourishing and moisturizing properties, and in combination with surfactant(s), leads to improved softness and suppleness of the hair” (*id.* at 5).

The Examiner finds Jeong teaches “a bubble type waterless shampoo composition. Jeong teaches that butylene glycol have functions of providing skin stimulus release and scalp moisturizing” (Final Act. 5). The Examiner finds it obvious to combine the teachings of Wiesche and Jeong and “to substitute equivalents, each of which is taught by the prior art to be useful for the same purpose (3-methyl-1,3-butanediol and 1,3-butanediol for the purpose of providing moisturization to the hair/scalp)” (*id.* at 7).

³ Labeque et al., US 2017/0298216 A1, published Oct. 19, 2017 (“Labeque”).

⁴ Schulze Zur Wiesche et al., WO 2012/055584 A2, published May 3, 2012 (“Wiesche”).

⁵ Jeong, S., US 2016/0143833 A1, published May 26, 2016 (“Jeong”).

The Examiner further combines the teachings of Wiesche and Jeong with those of Labeque and finds Labeque teaches a “pouch [that] comprises a household care composition which includes a shampoo or body wash” (Final Act. 4). The Examiner finds that Labeque “implicitly teach[es] that such composition would be applied to hair/scalp and/or body of a user followed by a rinsing step” (*id.*). The Examiner finds that Labeque teaches “the process of contacting the water-soluble pouch with water, which allows at least some of the film of the pouch to dissolve and dilutes the composition contained within it” (*id.*).

The Examiner finds it obvious to use the obvious shampoo of Wiesche and Jeong in the pods of Labeque “for the purpose of providing moisturization to the hair/scalp via a shampoo” (Final Act. 7).

The issues with respect to this rejection are:

(i) Does a preponderance of the evidence of record support the Examiner’s conclusion that Labeque, Wiesche, and Jeong render the claims obvious?

(ii) If so, has Appellant provided evidence of unexpected results that outweighs the evidence supporting the prima facie case of obviousness?

Findings of Fact

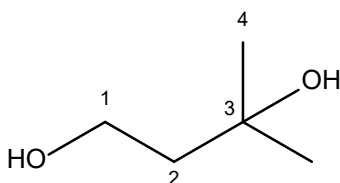
1. Wiesche teaches: “Hair cleaning products which have increased hair care effect and particularly improve softness, suppleness and shine of the hair contain, based on their weight, 0.01 to 40% of weight of 3-methyl-1,3-butanediol and 0.1 to 40% by weight of alkyl polyglycoside(s)” (Wiesche, code [57]).

2. Wiesche teaches “3-methyl-1,3-butanediol . . . which is also referred to as isopentyldiol, has nourishing and moisturizing properties and,

in combination with surfactant (s), leads to improved softness and suppleness of the hair” (Wiesche translation 1).

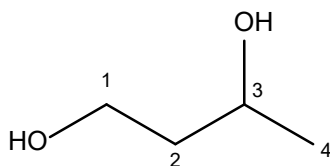
3. Jeong teaches a “bubble type waterless shampoo composition further includes any one or more of . . . 3 to 5 wt% of butylenes glycol having functions of providing skin stimulus release and scalp moisturizing” (Jeong ¶ 18).

4. The structure of 3-methyl-1,3-butanediol is shown below:



3-methyl-1,3 butanediol

5. The structure of 1,3 butanediol (a type of butylene glycol) is shown below:



1,3 butanediol

6. Labeque teaches “pouches that include a water-soluble film and a composition at least partially enclosed by the water-soluble film in at least one compartment, where the water-soluble film includes a polyvinyl alcohol (PVOH) resin blend” (Labeque ¶ 1).

7. Labeque teaches pouches may contain “shampoos, body washes, other personal care compositions” (Labeque ¶ 36).

8. Labeque teaches “detergent compositions can comprise from about 1 % to 80% by weight of a surfactant. Surfactant is particularly preferred as a component of the first composition” (Labeque ¶ 132).

9. Labeque teaches that the solvent system can include “mixtures of organic solvents with water” where the organic solvent includes “1,3 butanediol” (Labeque ¶ 139).

10. Labeque teaches that the solvent system may be “at least about 1 % to about 50%” by weight of the composition but contain “about 5% to about 12%, by weight of the composition, of water” (Labeque ¶ 139).

11. Labeque teaches that “glycerol may be present in an amount less than about 15%, preferably less than about 10%, of the total composition by weight” (Labeque ¶ 139).

12. Labeque teaches the

choice of solvent type and level is used to control final pouch quality, including phase stability of the liquid ingredients, the tightness/floppiness of the pouch, pouch strength and to control the diffusion of chemistry through the film. Without wishing to be bound by theory it is believed that preferred solvent systems (as described above) ensure a good balance of film plasticization. If the system contains too much water and glycerol, then the pouches become too floppy, and at too low a level, the pouches can become too brittle.

(Labeque ¶ 140).

13. Labeque teaches that a pouch “provides for accurate dosing while eliminating the need for the consumer to measure the composition. The pouch may also reduce mess that would be associated with dispensing a similar composition from a vessel” (Labeque ¶ 2).

Principles of Law

The Examiner has the initial burden of establishing a prima facie case obviousness under 35 U.S.C. § 103. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). “The combination of familiar elements according to known methods is likely to be obvious when it does no 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). Secondary considerations include: long-felt but unsolved needs, failure of others, unexpected results, commercial success, copying, licensing, and praise. *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998).

Analysis

We adopt the Examiner’s findings of fact and conclusion of law (*see* Final Act. 3–7; FF 1–12) and agree that Labeque, Wiesche, and Jeong render claim 1 obvious. We address Appellant’s arguments below.

Obviousness

Appellant contends

contrary to the assertion of the Examiner, Labeque’s teaching that the composition may include up to about 98% [by weight] of the solvent system fails to teach or suggest that the composition includes an organic solvent (e.g., glycol such as butylene glycol) concentration of greater than 15% [by weight]. [In fact, Labeque specifically limits water and glycol content] to less than about 20 wt%.

(Appeal Br. 6).

We find this argument unpersuasive as the Examiner also finds that it would have been obvious to fill the Labeque pouch, taught by Labeque for use with shampoos (FF 7), with the obvious shampoo composition of Wiesche and Jeong (FF 1–3; *see* Ans. 4–5). Wiesche teaches a range of glycol that overlaps that recited by claim 1, specifically teaching “0.01 to 40% of weight of 3-methyl-1,3-butanediol” (FF 1). In “cases involving overlapping ranges, [courts] have consistently held that even a slight overlap in range establishes a prima facie case of obviousness.” *In re Peterson*, 315 F.3d 1325, 1329 (Fed. Cir. 2003).

Therefore, the shampoo composition would have been obvious over Wiesche and Jeong, and it would further have been obvious to incorporate this obvious composition into the shampoo containing pouch of Labeque because Labeque teaches that the use of a pouch “provides for accurate dosing while eliminating the need for the consumer to measure the composition. The pouch may also reduce mess that would be associated with dispensing a similar composition from a vessel” (FF 13). To the extent that Labeque is argued separately, this argument does not address the totality of the art in combination.⁶ Prior art “must be read, not in isolation, but for

⁶ While we agree with Appellant that Labeque prefers glycol concentrations less than 15% (FF 11) and does not specifically disclose solvent systems with 40 to 70% butylene glycol, Labeque does teach the use of 1,3 butanediol (FF 9) in a solvent system that may be up to 50% of the weight of the composition and comprise as little as 5% water by weight (FF 10). That would result in a shampoo solvent system 45% weight of an organic solvent like 1,3 butanediol and 5% by weight of water, well within the scope of claims 1 and 11. We do not, however, rely upon this reasoning because it was not articulated by the Examiner in the rejection.

what it fairly teaches in combination with the prior art as a whole.” *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986).

Appellant contends that “Wiesche fails to disclose any other diols that may be included in the composition” (Appeal Br. 7). Appellant contends “butylene glycol may refer to one of four different stable butanediol structural isomers, namely, 1,2-butanediol, 1,3-butanediol, 1,4-butanediol, or 2,3-butanediol. In other words, butylene glycol is not a methylated diol, such as isopentyldiol” (*id.* at 7). Appellant also contends “the cited art teaches that isopentyldiol and butylene glycol perform different functions, namely treating the skin or treating the hair and operating as a solvent” (*id.* at 9). Appellant contends “that the cited art cannot reasonably be interpreted to teach or suggest that isopentyldiol is functionally equivalent to other diol compounds such as butylene glycol” (*id.* at 10).

We are not persuaded. As Appellant acknowledges, butylene glycol may refer to 1,3 butanediol (FF 5) disclosed by Jeong as a useful moisturizing agent in shampoo (FF 3) while Wiesche teaches isopentyldiol (also known as 3-methyl-1,3-butanediol) as a useful moisturizing agent in shampoo (FF 2, 4). These compounds differ by a single methyl group and are therefore reasonably understood as homologs (*see* FF 4–5). “A homologous series is a family of chemically related compounds, the composition of which varies from member to member by CH₂.” *In re Henze*, 181 F.2d 196, 200 (CCPA 1950). Thus, the Examiner reasonably finds that it would have been obvious to substitute one known homologous⁷

⁷ “[I]f an examiner considers that he has found prior art close enough to the claimed invention to give one skilled in the relevant chemical art the motivation to make close relatives (homologs, analogs, isomers, etc.) of the

moisturizing agent for another, using the amounts desired by Wische.
Wrigley found a “strong case of obviousness” based on a claim that “recites a combination of elements that were all known in the prior art, and all that was required to obtain that combination was to substitute one well-known . . . agent for another.” *Wm. Wrigley Jr. Co. v. Cadbury Adams USA LLC*, 683 F.3d 1356, 1364 (Fed. Cir. 2012).

Moreover, that Labeque teaches an additional function of 1,3 butanediol, i.e., as a solvent, does not detract from its use as a moisturizing agent (FF 3). Indeed, the ordinary artisan informed by Jeong that 1,3 butanediol is a useful moisturizing agent in shampoo and informed by Labeque that 1,3 butanediol is also a useful solvent would have reasonably found it useful to select 1,3 butanediol in order to obtain both desirable properties. “If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.” *KSR*, 550 U.S. at 417. “A person of ordinary skill is also a person of ordinary creativity, not an automaton.” *Id.* at 421.

prior art compound(s), then there arises what has been called a presumption of obviousness or a prima facie case of obviousness.” *In re Dillon*, 919 F.2d 688, 696 (Fed. Cir. 1990) (*en banc*).

Appellant contends

Jeong is directed to a dry shampoo composition that is designed to be used without water. In contrast, Labeque is directed to a pouch that is designed to rapidly and completely dissolve in water. As such, a skilled artisan would not look to apply the teaching of [a dry shampoo composition by] Jeong to the [wet shampoo] compositions of Labeque, since the two compositions are taught to be configured to operate in completely different environments and through different methods of application, namely, via aqueous application vs. non-aqueous application.

(Appeal Br. 8).

We find this argument unpersuasive because it fails to address the references as combined. The Examiner relies upon Jeong simply to show that 1,3-butanediol is an obvious equivalent of Wiesche's 3-methyl-1,3-butanediol because both are shampoo components used for moisturizing (FF 1-3) and therefore it would have been obvious to include Jeong's 1,3-butanediol in Wiesche's shampoo composition as a substitute for 3-methyl-1,3-butanediol. Wiesche's shampoo composition, using 1,3-butanediol, also includes aqueous components (*see, e.g.*, Wiesche Translation 17 "water ad 100"). Thus, it is the combination of all three references, not simply Labeque and Jeong, that renders the rejected claims obvious.

Appellant contends

Labeque teaches away from including more than 15 wt% organic solvent in the disclosed pouches, since doing so may negatively affect pouch strength and diffusion chemistry, as well as the phase stability of the liquid ingredients. Therefore, Labeque discloses that increasing the organic solvent concentration would destroy the functionality of the disclosed pouches.

(Appeal Br. 11).

We find this argument focusing on Labeque unpersuasive because Wiesche specifically suggests that up to 40% of 3-methyl-1,3-butanediol may be used as a moisturizer in a shampoo composition (FF 1). Thus, this argument fails to address the references in combination. As to the teaching away argument, Labeque never teaches that any specific amount of glycol has any negative effects (FF 10–11). Instead, Labeque teaches that the solvent system may be optimized to maximize film plasticization but does not provide any specific details on amounts of glycol that are too much. Consequently, Labeque does not criticize, discredit, or otherwise teach away from incorporating shampoo compositions such as the obvious shampoo composition of Wiesche and Jeong into the pouch of Labeque. *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004).

Secondary considerations

Appellant asserts that

the present inventors tested a multitude of nonaqueous solvents, including various diols, in an effort to provide an encapsulatable hygiene product having an acceptable consistency, stability, and envelope compatibility. *See* Specification, ¶¶ [0085]-[0099]. For example, Composition 22 of the present disclosure included 40 wt% of propylene glycol and had an acceptable consistency, and stability, but was found to rapidly dissolve a PVOH envelope, thereby rendering it unsuitable. *See id.*, ¶¶ [0094]-[0095].

(Appeal Br. 13). Appellant also asserts the inventors “unexpectedly discovered that hygiene compositions that included elevated amounts of the seemingly similar diol, butylene glycol, exhibited not only an acceptable consistency and stability, but also exhibited unexpectedly high envelope compatibility” (*id.* at 13–14).

We find this argument unpersuasive for several reasons. First, that one of the tested compositions, composition 22, that used propylene glycol but did not use 3-methyl-1,3-butanediol failed to work provides no evidence regarding the efficacy or usefulness of 3-methyl-1,3-butanediol in the composition (*see* Spec. ¶ 95). Instead, this is simply attorney argument without evidence regarding the rejection as presented by the Examiner. *See In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984).

Second, the results disclosed in the Specification are not commensurate in scope with the range in claim 1 of 40 to 70% of 1,3 butanediol. Indeed, Table 1 of the Specification shows that values from 60 to 70% of 1,3 butanediol are not functional but rather “exhibited phase separation” or “an overly dense creamy solid” (Spec. ¶ 87). The only compositions tested below 59% in the range from 40% to 59%, compositions 23–26, all showed undesirable properties including “poor performance,” “phase separation,” and “moderate gelation” (*see* Spec. ¶ 98). Only compositions 28 and 29, using 59.35% and 59.25% 1,3 butanediol respectively, resulted in successful compositions (*see* Spec. ¶ 99). Therefore, the unexpected results data for either 59.25% and 59.35% is not commensurate in scope with claim 1.

Third, the asserted unexpected results were not compared to the closest prior art of Wiesche, who discloses the use of up to 40% 3-methyl-1,3-butanediol (FF 1). *See 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.”).

Fourth, we are not persuaded by Appellant’s argument that amounts of 1,3-butanediol were not recognized as optimizable variables (*see* Appeal Br. 14), because Wiesche teaches that the amount of 3-methyl-1,3-butanediol is a moisturizing ingredient and provides a range for that ingredient (FF 1–2) and Jeong also teaches that 1,3-butanediol is a moisturizing agent (FF 3). Thus, the ordinary artisan would have recognized that the amount of 1,3-butanediol would impact the moisturizing ability of the shampoo composition and therefore be an optimizable variable. “[D]iscovery of an optimum value of a result effective variable . . . is ordinarily within the skill of the art.” *In re Boesch*, 617 F.2d 272, 276 (CCPA 1980).

Conclusion of Law

(i) A preponderance of the evidence of record supports the Examiner’s conclusion that Wiesche and Jeong render the claims obvious.

(ii) Appellant has not provided evidence of unexpected results that outweighs the evidence supporting the prima facie case of obviousness.

B. 35 U.S.C. § 103(a) over Labeque and Jeong

The Examiner finds Labeque teaches “a pouch that include a water-soluble film and a composition at least partially enclosed by the water-soluble film in at least one compartment, where the water-soluble film includes a polyvinyl alcohol (PVOH) resin blend” (Final Act. 8). The Examiner finds Labeque teaches that “the composition within the pouch comprises a household care composition which includes a shampoo or body wash” (*id.*).

The Examiner finds Labeque teaches “the solvent system is present at levels in the range of from about 0.1 % to about 98% and preferably at least about 1% to about 50% (overlaps the ranges recited[])” (Final Act. 8).

The Examiner finds Jeong teaches “butylene glycol have functions of providing skin stimulus release and scalp moisturizing” in a shampoo composition (*id.* at 9).

Appellant contends “Labeque fails to teach or suggest including more than 15% butylene glycol in a composition” (Appeal Br. 6). Appellant also contends

Jeong is directed to a dry shampoo composition that is designed to be used without water. In contrast, Labeque is directed to a pouch that is designed to rapidly and completely dissolve in water. As such, a skilled artisan would not look to apply the teaching of [a dry shampoo composition by] Jeong to the [wet shampoo] compositions of Labeque, since the two compositions are taught to be configured to operate in completely different environments and through different methods of application, namely, via aqueous application vs. non-aqueous application.

(Appeal Br. 8).

We find that Appellant has the better position. While we do not agree with Appellant’s analysis of Labeque’s concentration of butylene glycol as per footnote 6 above, this rejection does not include Wiesche. Therefore, the Examiner’s combination cannot rely upon a shampoo rendered obvious by Wiesche and Jeong, but must directly provide a reason why the waterless shampoo of Jeong would have been obvious to incorporate into the liquid pouches of Labeque. The Examiner provides no persuasive reason for this combination, instead simply asserting “[a]lthough Jeong’s specific embodiments are directed to waterless shampoos, they do not specifically teach that butylene glycol can't be used in a composition” (Ans. 5). While

this statement may demonstrate that Jeong does not teach away from the combination, it does not provide the “a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *KSR*, 550 U.S. at 418. Without such a reason, we are constrained to reverse this rejection.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1-5, 7	103	Labeque, Wiesche, Jeong	1-5, 7	
1-7	103	Labeque, Jeong		1-7
Overall Outcome			1-5, 7	6

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 IN PART