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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/700,063	01/31/2007	Hansen P. Swaniker	H-KN-00467 (1)	8275
55748	7590	03/07/2013	EXAMINER	
Covidien Attn: IP Legal Department 15 Hampshire Street, Bldg. 4A Mansfield, MA 02048			SCOTT, ANGELA C	
			ART UNIT	PAPER NUMBER
			1767	
			NOTIFICATION DATE	DELIVERY MODE
			03/07/2013	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HANSEN P. SWANIKER

Appeal 2011-005625
Application 11/700,063
Technology Center 1700

Before CHUNG K. PAK, HUBERT C. LORIN, and, MARK NAGUMO
Administrative Patent Judges.

PAK, *Administrative Patent Judge.*

DECISION ON APPEAL

The named inventor (hereinafter “Appellant”)¹ appeals under 35 U.S.C. § 134(a) from the Examiner’s final rejection of claims 1, 3 through 12 and 18 through 48, which are all of the claims pending in the above-identified application. We have jurisdiction under 35 U.S.C. § 6(b).

STATEMENT OF THE CASE

The subject matter recited in the claims on appeal relates to a foam composition comprising “at least one NCO-terminated hydrophilic urethane

¹ Appellant identifies the real party in interest as “Tyco Healthcare Group LP” which “is now d/b/a Covidien.” (*See* Appeal Brief filed September 13, 2010 (“App. Br.”) at 2.

prepolymer formed from at least one isocyanate in combination with a polyether polyol including a polyalkylene oxide and a compound containing at least two active hydrogen atoms such as a polyhydric alcohol, polyhydric phenol, amine, polycarboxylic acid, and phosphorous acid.” (Spec. 1, para. 0004 and claim 1.) According to page 8, paragraph 0035, of the Specification:

Suitable NCO-terminated polyether prepolymers for use in accordance with the present disclosure are within the purview of one skilled in the art and include, for example, the prepolymers disclosed in U.S. Patent Nos. 3,903,232 and 4,137,200. Such prepolymers may have an average isocyanate functionality of greater than 2, in embodiments from about 2 to about 10. In embodiments, suitable NCO-terminated polyether prepolymers include those sold under the trademark HYPOL, such as HYPOL 2000, HYPOL 2002, HYPOL 3000, HYPOL 4000, HYPOL 5000, HYPOL X6000 and HYPOL hydrogel.

The suitable NCO-terminated polyether prepolymer “may then be combined with an aqueous phase to produce a foam of the present disclosure.” (Spec. 9, para. 0038.) “The aqueous phase may also include surfactants including, but not limited to, alcohols, polysaccharides, [or] combinations thereof, and the like.” (Spec. 9, para. 0038 and claim 1.) In particular, the aqueous phase includes “deionized water, at least one fatty alcohol, and at least one alkyl polysaccharide.” (Spec. 2, para. 0004 and claim 1.)

Details of the appealed subject matter are recited in illustrative independent claim 1 reproduced below from the “CLAIMS APPENDIX” in the Appeal Brief:

1. A foam composition comprising: at least one NCO-terminated hydrophilic urethane prepolymer comprising at least one isocyanate in combination with a polyether polyol comprising an alkylene oxide in combination with a compound containing at least two active hydrogen atoms selected from the group consisting of polyhydric alcohols, polyhydric phenols, amines, polycarboxylic acids, and phosphorous acids, wherein the polyether polyol comprises an ethylene oxide and the at least one isocyanate is selected from the group consisting of aromatic isocyanates, aliphatic isocyanates, and combinations thereof;

an aqueous phase comprising deionized water, at least one fatty alcohol, and at least one alkyl polysaccharide; and

wherein a ratio of the amount of the aqueous phase to the at least one NCO-terminated hydrophilic urethane prepolymer is about 1:1 to about 3:1.
[(Emphasis added.)]

(See App. Br. (Claims App'x-1) .)

Appellant seeks review of the following grounds of rejection maintained by the Examiner in the Answer:

1. Claims 1, 3 through 7, 9,10, 26 through 29, 34 through 37, and 40 under 35 U.S.C. § 103(a) as unpatentable over Smith,² as evidenced by the instant Specification,³ in view of Wood;⁴

² US 2004/0170670 A1 published in the name of Smith et al. on September 2, 2004.

³ The Examiner relies upon page 8, paragraph 0035, of the Specification to explain commercially available polyether prepolymers sold under certain trademarks.

⁴ U.S. Patent 3,903,232 issued to Wood et al. on September 2, 1975.

2. Claim 8 under 35 U.S.C. § 103(a) as unpatentable over Smith, as evidenced by the instant Specification, in view of Wood and Thiede;⁵
3. Claims 10 through 12, 18 through 20, and 46 through 48 under 35 U.S.C. § 103(a) as unpatentable over Smith, as evidenced by the instant Specification, in view of Wood and Hobbs;⁶
4. Claims 30 through 33, 38 and 39 and 41 under 35 U.S.C. § 103(a) as unpatentable over Smith, as evidenced by the instant Specification, in view of Wood and Nielsen;⁷ and
5. Claims 42 through 45 under 35 U.S.C. § 103(a) as unpatentable over Smith, as evidenced by the instant Specification, in view of Wood, Nielsen, and Hobbs.

(See App. Br. 4-5 and Examiner's Answer mailed December 1, 2010 ("Ans.") at 3-12.)

DISCUSSION

1. REJECTION (1)

The Examiner finds, and Appellant does not dispute, that Smith discloses a foam composition comprising an isocyanate terminated urethane

⁵ US 2006/0142529 A1 published in the name of Thiede et al. on June 29, 2006.

⁶ US 2005/0249791 A1 published in the name of Hobbs et al. on November 10, 2005.

⁷ US 2004/0086549 A1 published in the name of Nielsen on May 6, 2004.

prepolymer and a liquid aqueous phase containing emulsifiers and/or surfactants, such fatty alcohols and alkyl polysaccharide. (*Compare* Ans. 3-4 with App. Br. 5-12 and Reply Br. 2-4; *see also* Smith, paras. 0009, 0042, 0043, 0058, 0060, 0065, 0070, 0075, and 0076.) The Examiner also finds that Example 11 at pages 16 and 17 of Smith employs a foam compositions comprising, *inter alia*, 35 wt.% of Hypol® 2002, which according to paragraph 0035 of the Specification is an NCO-terminated polyether prepolymer, 15 wt% of a fatty alcohol, 5 wt% of an alkyl polysaccharide (lauryl polyglucoside) , and a remaining amount of water. (Ans. 4.) The Examiner refers to Example 7 at page 16 of Smith as well to show that it was known to employ a smaller amount of a fatty alcohol (2.15 wt% of cetylstearyl alcohol) in a foam composition. (*Id.*) According to the Examiner, Smith exemplifies or suggests employing the aqueous phase to the at least one NCO-terminated urethane prepolymer ratio of approximately or near 1:1. (*Id.*) Further, the Examiner takes official notice, and Appellant does not question, that “deionized water is commonly used in applications where impurities in water would be undesirable, such as in the disinfectant foam pad taught by Smith.” (*Compare* Ans. 4 with App. Br. 5-12 and Reply Br. 2-4.)

The Examiner acknowledges at page 4 of the Answer that Hypol® 2002 exemplified by Smith does not correspond to “at least one NCO-terminated hydrophilic urethane prepolymer comprising at least one isocyanate in combination with a polyether polyol comprising an alkylene

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oxide in combination with a compound containing at least two active hydrogen atoms” recited in claim 1. However, the Examiner finds that Smith, like Appellant, teaches that:

Urethane prepolymer compositions suitable for producing the foam pads of the invention are described, for example, in *U.S Pat. Nos. 3,903,232* and *4,137,200*. Corresponding commercial products came from the Hypol® product line of W.R. Grace & Co., Lexington, MA, e.g., Hypol® FHP 5000, Hypol® FHP4000, Hypol® FHP 3000, Hypol® FHP 2000, Hypol® FHP 2000 HP, Hypol® FHP 2002, Hypol® 2000, *Hypol® 2002*, Hypol® 3000, Hypol® X6100 and Hypol® Hydrogel, now, offered by Dow Chemical Company. The liquid resins are produced by reacting polyols of low molecular weight and 3-8 hydroxyl groups with aromatic or aliphatic diisocyanates. After the reaction, the resins have at least two free isocyanate groups per molecule of polyol used. [(Emphasis added.) (*Compare* Smith 2, para. 0013, with Spec. 8, para. 0035.)]

U.S Patent No. 3,903,232 referred to in Smith is issued to Wood relied upon by the Examiner. (Ans. 4-5 and 13.) The Examiner finds, and Appellant does not dispute, that Wood’s NCO-terminated urethane prepolymer is embraced by the NCO-terminated hydrophilic urethane prepolymer recited in claim 1. (*Compare* Ans. 4-5 and 13 with App. Br. 5-12 and Reply Br. 2-4.) The Examiner then concludes that it would have been obvious to a person of ordinary skill in the art to employ the NCO-terminated hydrophilic urethane prepolymer recited in claim 1 taught by Wood as the NCO-terminated urethane prepolymer in the foam composition taught by Smith. (Ans. 5.)

Appellant contends that one of ordinary skill in the art would not have been led to employ the prepolymer taught by Wood as the prepolymer of the foam composition taught by Smith. (App. Br. 7- 9.) Appellant also contends that when the prepolymer taught by Wood is employed in Smith's foam composition, Wood teaches against using the aqueous phase to the at least one NCO-terminated urethane prepolymer ratio of 1:1 to 3:1 recited in claim 1. (App. Br. 7-9 and Reply Br. 2-4.)

Thus, the dispositive question is:

Has the Examiner reversibly erred⁸ in determining that the collective teachings of Smith and Wood would have led one of ordinary skill in the art to employ the NCO-terminated urethane prepolymer taught by Wood in the aqueous phase to the NCO-terminated urethane prepolymer ratio of a value within the required ratio recited in claim 1 in forming the foam composition taught by Smith within the meaning of 35 U.S.C. §103(a)? On this record, we answer this question in the negative.

As correctly found by the Examiner, Smith, like Appellant, expressly teaches employing the prepolymer taught by Wood in its foam composition as indicated *supra*. Wood, however, teaches against using its particular prepolymer in the aqueous phase to the prepolymer only at ratios below 2:1 since such low ratios require a catalyst, which is undesirable, for the catalyst can readily leach into the human body when the composition comes into

⁸ *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) (Appellants need to show reversible or harmful error on the part of the Examiner.)

contact with body fluids. (*See*, e.g., Reply Br. 3 and Wood, col. 1, ll. 26-30 and col. 8, ll. 42-57.) Although column 8, lines 42-47, of Wood relied upon by Appellant prefers to use a higher ratio of the aqueous phase to the prepolymer than those required by the appealed claims, without a surfactant and a catalyst, for its particular prepolymer to provide good foaming, Wood does not teach against using the aqueous phase to the prepolymer ratio of greater than 2:1 to about 3:1 included in claim 1 for its particular prepolymer. *In re Lamberti*, 545 F.2d 747, 750 (CCPA 1976) (“[A]ll disclosures of the prior art, including unpreferred embodiments, must be considered.”) This is particularly so since Wood also teaches that if a surfactant is used, it can enhance foaming even in a foam composition having a very low aqueous to the prepolymer ratio (Wood, col. 8, ll. 7-58, particularly col. 8, ll. 41-45), while Smith, like Appellant, teaches a surfactant suitable for use on the human body, which can be used in its foam composition containing the prepolymer taught by Wood (Smith, p. 2, para. 0017). *In re Keller*, 642 F.2d 413, 425-26 (CCPA 1981) (The test for obviousness “is what the combined teachings of the references would have suggested to those of ordinary skill in the art.”). As also indicated *supra*, Smith teaches that Hypol ® 2002, which is said to be equivalent to the prepolymer of Wood, can be used within such aqueous phase/prepolymer ratio when its surfactant is used.

It follows that the Examiner has not reversibly erred in determining that the collective teachings of Smith and Wood would have led one of

ordinary skill in the art to employ the NCO-terminated urethane prepolymer taught by Wood in the aqueous phase to the NCO-terminated urethane prepolymer ratio of a value within the claimed ratio recited in claim 1, i.e., greater than 2:1 to about 3:1, in forming the foam composition taught by Smith within the meaning of 35 U.S.C. §103(a).

2. REJECTIONS (2) through (5)

Appellant relies on the same arguments advanced in connection with claim 1 to impart patentability to the remaining claims rejected in Rejections (2) through (5). (App. Br. 10-12.) Thus, based on the same reasons set forth above and in the Answer, we affirm Rejections (2) through (5).

ORDER

Upon consideration of the record, and for the reasons given, it is ORDERED that the decision of the Examiner rejecting claims 1, 3 through 12 and 18 through 48 under 35 U.S.C. § 103(A) is AFFIRMED; and FURTHER ORDERED that no time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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