The opinion in support of the decision being entered today
is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte IBRAHIM BECHARA and ANATOLY LIPKIN

Appeal 2007-1386
Application 10/439,922
Technology Center 1700

Decided: August 15,2007

Before THOMAS A. WALTZ, JEFFREY T. SMITH, and
LINDA M. GAUDETTE, *Administrative Patent Judges*.

GAUDETTE, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 2, 4-8, and 14-27, the only claims pending in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

The invention relates to preparation of polyurethane dispersions from fast reacting aromatic (MDI based) or aliphatic (HDI based) diisocyanates (Br. 8). According to Appellants, they have found that by modifying the low

free diisocyanate (LF) prepolymers with polyols containing pendent carboxyl, sulfonic, or polyoxyethylene moieties, it is possible to make dispersions which are free of organic solvents. Claim 5 is illustrative of the invention and is reproduced below:

5. A stable aqueous polyurethane dispersion prepared by a process comprising subjecting a low free-diisocyanate polyurethane prepolymer modified by the addition of pendent anionic, cationic, or nonionic moieties to high shear mixing in the presence of a reaction retarder and water to form a dispersion of said prepolymer, then extending said prepolymer to yield said stable aqueous polyurethane dispersion.

The Examiner relies on the following prior art references to show unpatentability:

Dieterich	US 4,276,044	Jun. 30, 1981
Lorenz	US 4,528,323	Jul. 9, 1985

The Examiner made the following rejection:

Claims 2, 4-8, and 14-27 under 35 U.S.C. § 103 as unpatentable over Lorenz in view of Dieterich.

ISSUE

Based on the contentions of the Examiner and the Appellants, the issue before us is: Has the Examiner made accurate and sufficient factual findings such that it is reasonable to conclude that one of ordinary skill in the art would have been motivated to combine the teachings of the references in the manner claimed? For the reasons discussed below, we answer this question in the affirmative.

RELEVANT FINDINGS OF FACT

1) Lorenz discloses a "process for the preparation of aqueous dispersions of polyurethanes containing chemically fixed carboxylate

and/or sulphonate groups by the reaction of prepolymers containing free isocyanate groups with organic diaminocarboxylates and/or organic diaminosulphonates and/or organic dihydroxycarboxylates and/or organic dihydroxysulphonates in the aqueous or organic phase using isocyanate prepolymers which are virtually free from free monomeric diisocyanates" (col. 1, ll. 10-19).

2) In Example 1, Lorenz discloses preparation of an isocyanate prepolymer by reacting an anhydrous polyether of tetrahydrofuran with hexamethylenediisocyanate (HDI). The isocyanate prepolymer was subjected to thin layer distillation to remove unreacted HDI. A dispersion was prepared by reacting the distilled isocyanate prepolymer, dissolved in acetone, with N-(2-aminoethyl)-2-aminoethane sulphonic acid sodium (AAS-Na) in the form of an aqueous solution. Water was added for dispersion with stirring so that after removal of the acetone by distillation, the dispersion obtained had a solid content of about 35%.

3) Dieterich discloses polyurethane anionomers which may be produced from the following starting materials: (a) hexamethylene diisocyanate; (b) triethylene glycol or tetraethylene glycol or technical mixtures of these glycols; (c) optionally other low molecular weight glycols; and (d) glycols having a molecular weight below about 500 and containing free carboxyl, carboxylate, sulphonic acid or sulphonate groups (col. 2, ll. 33-61). According to Dieterich, component (d) is preferably a sodium salt of 1,4-dihydroxy-2-butane sulphonic acid or 3,4-dihydroxy-1-butane sulphonic acid (col. 3, ll. 7-9).

4) Dieterich discloses that "[w]here carboxylate and/or sulphonate groups are present, it may be advisable to add small quantities of an acid (for example, from 0.05 to 0.8% by weight, based on the quantity of synthesis component (d)), for example, phosphoric acid, for deactivation" (col. 3, l. 67 - col. 4, l. 3).

ANALYSIS AND CONCLUSIONS

The Examiner found that Lorenz Example 1 discloses the invention as claimed with the exception of a reaction retarder (Answer 3). The Examiner found that Dieterich discloses the use of a phosphoric acid retarder to deactivate anionic groups during the reaction of components used in forming water soluble polyurethane (Answer 3). The Examiner concluded that it would have been obvious to one of ordinary skill in the art at the time of the invention to use a reaction retarder in Lorenz Example 1 to deactivate the anionic groups as taught by Dieterich (Answer 4).

Appellants argue that Lorenz teaches away from the present invention, because Lorenz indicates a preference for isocyanate prepolymers which do not contain ionic groups (Br. 12). We do not find this argument persuasive, because it fails to address the Examiner's finding that Lorenz Example 1 *does disclose* polyurethane prepolymers comprising pendent anionic moieties (Answer 3). *See In re Fritch*, 972 F.2d 1260, 1264-65, 23 USPQ2d 1780, 1782-83 (Fed. Cir. 1992) (A reference stands for all of the specific teachings thereof as well as the inferences one of ordinary skill in this art would have reasonably been expected to draw therefrom.); *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969)(A reference disclosure must be evaluated for all that it fairly teaches and not only for

what is indicated as preferred). *See also, In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed.Cir.1994)("A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.").

Appellants argue that the prepolymers of Lorenz are preferably dissolved in acetone, whereas, in the present invention the prepolymers are dispersed in water in the absence of organic solvents (Br. 12). We do not consider this argument relevant to the issue of whether the claims are obvious in this case because the claim language does not preclude the presence of organic solvents. *See Panduit v. Dennison Mfg. Co.*, 774 F.2d 1082, 1093, 227 USPQ 337, 344 (Fed. Cir. 1985)("Patentability begins with the legal question "what is the invention claimed?").

Appellants also argue that one of ordinary skill in the art would not have been motivated to combine Dieterich with Lorenz, because Dieterich is directed to a process for making water-soluble polymers whereas Lorenz teaches a process for making aqueous dispersions of polyurethanes, i.e., a water-insoluble product (Br. 13). We do not find this argument persuasive, because it fails to address the Examiner's finding that one of ordinary skill in the art would have been motivated to use Dieterich's reaction retarder in Lorenz Example 1 to slow the reaction to enable better mixing of ingredients and form a finer dispersion as the prepolymer chain extends in water (Answer 4). *See KSR Int'l Co. Teleflex, Inc.*, 127 S. Ct. 1727, 82 USPQ2d 1385 (2007)(*quoting In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006))(While the analysis in support of an obviousness

determination should "identify a reason that would have prompted a person of ordinary skill in the art to combine the elements"[1] in the manner claimed, "the analysis [of whether the subject matter of a claim is obvious] need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ."[2]); *DyStar Textilfarben GmBH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1361, 80 USPQ2d 1641, 1645 (Fed. Cir. 2006)("The motivation need not be found in the references sought to be combined, but may be found in any number of sources, including common knowledge, the prior art as a whole, or the nature of the problem itself.").

In view of the foregoing, we find that Appellants have failed to overcome the Examiner's prima facie showing that claims 2, 4-8, and 14-27 are obvious over Lorenz in view of Dieterich.

OTHER ISSUES

In the event that Appellants elect to continue prosecution of this Application, we note that the following informality should be addressed for purposes of compliance with 37 CFR 1.75 (c): Claim 16 is not a proper dependent claim because "4, 4'-methylene bis (phenyl diisocyanate)" is not included in the Markush group of claim 8. MPEP § 608.01(n).

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[1] *KSR,* 127 S. Ct. at 1731, 82 USPQ2d at 1389.

[2] *Id.,* at 1741, 82 USPQ2d at 1396.

ORDER

The rejection of claims 2, 4-8, and 14-27 under 35 U.S.C. § 103 as unpatentable over Lorenz in view of Dieterich is affirmed.

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

AFFIRMED

clj

Michael P. Dilworth
Crompton Corp.
Benson Road
Middlebury, CT 06749