

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BRUCE D. LAWREY,
THOMAS A.J. GROSS,
and
ROLF-VOLKER MEYER

Appeal No. 2004-2208
Application No. 10/158,988

ON BRIEF

Before OWENS, DELMENDO, and PAWLIKOWSKI, Administrative Patent Judges.

DELMENDO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 (2004) from the examiner's final rejection of claims 1 through 4 and 6 through 21 (final Office action mailed Nov. 7, 2003) in the above-identified application. Claim 5, the only other pending claim, stands "objected to for depending on rejected claims." (Id. at 3.)

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The subject matter on appeal relates to a process for the production of a polyurethane/urea in solution (claims 1-4 and 6-14) and to a polyurethane/urea produced by such a process (claims 15-21). Further details of this appealed subject matter are recited in representative claims 1, 4, 15, and 16 reproduced below:

1. A process for the production of a polyurethane/urea in solution comprising
 - a) reacting
 - 1) a diisocyanate with
 - 2) an isocyanate-reactive component comprising
 - (i) a diol component comprising
 - (a) from about 10 to about 100 equivalent percent of at least one polyoxypropylene diol having a number average molecular weight of at least about 1500 Da and an average unsaturation level less than or equal to 0.03 meq/g,
 - (b) up to 90 equivalent percent of at least one polytetramethylene glycol having a number average molecular weight of at least 200 Da, and optionally,
 - (ii) an isocyanate-reactive material which is different from 2)(i)(a) and 2)(i)(b),
 - in the presence of
 - 3) a catalyst which promotes linear polymerization but does not cause degradation of a polymer produced therewith under processing conditions,
- in amounts such that an NCO prepolymer having an NCO group content of from about 1.0 to about 3.75% will be formed, and

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- b) chain extending the NCO prepolymer with
 - 4) at least one aliphatic diamine chain extender in
 - 5) a solvent
- to form the polyurethane/urea in solution.

4. The process of Claim 1 in which the catalyst used is a naphthenic acid or a C₆-C₂₀ monocarboxylic acid salt of a metal selected from the group consisting of zinc, barium, lead, calcium, cerium, cobalt, copper, tin, lithium, manganese, bismuth, and zirconium.

15. The polyurethane/urea produced by the process of Claim 1.

16. The polyurethane/urea produced by the process of Claim 4.

The examiner relies on the following prior art reference as evidence of unpatentability:

Seneker et al. (Seneker)	5,691,441	Nov. 25, 1997
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Claims 1 through 4, 6 through 16, and 18 through 21 on appeal stand rejected under 35 U.S.C. § 112, ¶1, as failing to comply with the enablement requirement. (Examiner's answer mailed May 12, 2004, pages 3-4.) In addition, claims 15 through 18, 20, and 21 on appeal stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Seneker. (Id. at 4-5.)

We reverse the rejection under 35 U.S.C. § 112, ¶1, but affirm the rejection under 35 U.S.C. § 102(b) or, in the

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alternative, 35 U.S.C. § 103(a) for the reasons well stated in the answer.¹

35 U.S.C. § 112, ¶1

The examiner's position is stated as follows (answer at 3-4):

The claims are directed to a process for making a polyurethane/urea in the presence of a catalyst that "promotes linear polymerization but does not cause degradation". In claim three, the appellant narrows the catalyst to metal salts or soaps of monocarboxylic acids or naphthenic [sic, naphthenic] acid, and claim four lists twelve metals. In the disclosure, the appellant names only two specific catalysts - zinc and calcium octoate - that will perform according to the claims, and one catalyst, dibutyltin dilaurate, that won't. In order to determine which catalyst to use, one of ordinary skill would have to undergo undue experimentation of making up batches of polyurethane/urea and testing their properties. Claim four encompasses about 200 possible catalysts and even encompasses dibutyltin dilaurate, which the appellant shows, in comparison example 8, to make a fiber with poor tenacity.

¹ With respect to the rejection under 35 U.S.C. § 102(b) or 35 U.S.C. § 103(a), the appellants submit that "[c]laims 16 and 17 do not stand or fall with [c]laims 15, 18, 20 and 21." (Appeal brief filed Apr. 8, 2004, p. 3.) We therefore select claims 15 and 16 from these two groups of claims and decide this appeal as to the examiner's alternative grounds of rejection on the bases of these two selected claims. 37 CFR § 1.192(c)(7)(2003)(effective Apr. 21, 1995). Also, prior to an allowance, the examiner should reconsider whether claim 19 should be rejected on this ground.

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We cannot agree. Like any other rejection, the initial burden of establishing a prima facie case of unpatentability based on non-enablement under 35 U.S.C. § 112, ¶1, rests on the examiner. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

"Although not explicitly stated in section 112, to be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation.'"² In re Wright, 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). As long as "undue experimentation" is not involved, a specification would comply with the enablement requirement of the statute even if a reasonable amount of routine experimentation is necessary to practice the claimed invention. Enzo Biochem Inc. v. Calgene, 188 F.3d 1362, 1371, 52 USPQ2d 1129, 1135 (Fed. Cir.

² The question of whether making and using the invention would have required "undue experimentation" depends on several underlying factual inquiries including: (1) the quantity of experimentation necessary; (2) the amount of direction or guidance presented; (3) the presence or absence of working examples; (4) the nature of the invention; (5) the state of the prior art; (6) the relative skill of those in the art; (7) the predictability or unpredictability of the art; and (8) the breadth of the claims. In re Wands, 858 F.2d 731, 735, 736-37, 8 USPQ2d 1400, 1402, 1404 (Fed. Cir. 1988).

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1999). That is, even "a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed..." Wands, 858 F.2d at 737, 8 USPQ2d at 1404.

Here, the specification provides explicit guidance with respect to the direction in which the experimentation should proceed in determining suitable catalysts. (Specification, page 9, lines 18-26.) Given this guidance, we hold that the examiner has not adequately established that the experimentation would be undue rather than considerable but routine.

For these reasons, we reverse the examiner's rejection under 35 U.S.C. § 112, ¶1, of appealed claims 1 through 4, 6 through 16, and 18 through 21 as failing to comply with the enablement requirement.

35 U.S.C. § 102(b)/103(a)

We are in complete agreement with the examiner's concise and cogent analysis.

Seneker describes aliphatic diamine-extended polyurethane/urea spandex-type elastomers. (Column 1, lines 4-15.) Specifically, Seneker teaches that the polyurethane/urea is prepared by a "prepolymer process" in which a polyol

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component composed essentially of diols is reacted with an excess of diisocyanate to yield an isocyanate-terminated prepolymer containing a relatively low isocyanate content (preferably 2-4%) and then chain extended with a diamine. (Column 6, lines 17-30.) According to Seneker, the polyol component must comprise one or more high molecular weight, ultra-low unsaturation polyoxypropylene polyols in admixture with one or more polytetramethylene ether glycols (PTMEG). (Column 7, lines 31-36.)

Seneker's working examples describe the use of diols having the here recited characteristics to form isocyanate prepolymers having the here recited NCO contents. (Examples 1-4, Tables 1-4.) No mention is made in Seneker's examples regarding the use of any catalysts to form the isocyanate prepolymer.³ (Column 11, lines 24-58.) As pointed out by the examiner, Comparative Example 5 of the present specification shows that a polyurethane/urea made from an isocyanate prepolymer prepared without any catalyst and a polyurethane urea made from an

³ In this regard, Seneker teaches: "The reaction of the isocyanate with the polyol may be catalyzed with standard catalysts such as dibutyltin dilaurate, but may take place without catalysis." (Emphasis added; col. 9, ll. 56-59.)

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isocyanate prepolymer prepared with zinc octoate catalyst have substantially the same properties. (Table 1.)

While Seneker's polyurethane/urea is prepared by a process that is different from that recited in appealed claim 1, this does not defeat the examiner's rejection. When a product recited in a product-by-process claim reasonably appears to be the same as or obvious from a product of the prior art, the burden is on the applicants to show that the prior art product is in fact different from the claimed product, even though the products may be made by different processes. In re Thorpe, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985).

The appellants argue that they have demonstrated that a catalyst must be used to obtain a polyurethane/urea that does not degrade under processing conditions. (Appeal brief at 7.) The appellants further contend (id. at 8):

Appellants have demonstrated in their examples that use of a catalyst satisfying the criteria specified in their claims during preparation of the prepolymer has a significant effect upon the product properties and in the types and amounts of diol necessary to produce the polyurethane/urea solution.

For example, in Comparative Example 5 in which no catalyst was used to prepare the prepolymer, the rheology of the polymer solution was so sensitive that with only a small change in the mono-amine chain extender level, either a spinnable solution or an unspinnable gel could be obtained. This sensitivity was not, however, seen with the polymer solution of

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Example 4 which was produced in accordance with the present invention.

We see no merit in the appellants' position. When a mixture of ethylene diamine and diethylamine was used as a chain extender, Seneker obtained a spinnable solution without any difficulty. Furthermore, the appellants do not identify any evidence (i.e., data) to support the allegation of a palpable difference in terms of polymer solution sensitivity. To the extent that Example 4 and Comparative Example 5 of the present specification are seen as establishing some criticality for the use of zinc octoate on polymer solution sensitivity, we note that the relied upon examples are limited to specific reactants in particular amounts under a limited set of conditions. The appealed claims, by contrast, are significantly broader in scope. Thus, it is our judgment that the showing is insufficient to establish any difference, much less an unexpected difference, between the claimed invention and the relied upon prior art.

The appellants urge that Seneker requires a polyol component that includes from 50 to 95% polytetramethylene glycol, whereas the appealed claims require 0 to 90% of the same. (Appeal brief at 8; reply brief filed Jul. 15, 2004,

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pages 3-4.) Seneker, however, teaches the use of polytetramethylene glycol amounts within the range recited in the appealed claims.

Separately argued claim 16 is of no help to the appellants. Like appealed claim 15, the patentability of appealed claim 16 rests on the actual product made, not on the process by which it is made. In re Thorpe, 777 F.2d at 697, 227 USPQ at 966.

For these reasons, we uphold the examiner's rejection on this ground.

Summary

In summary, we reverse the 35 U.S.C. § 112, ¶1, rejection of appealed claims 1 through 4, 6 through 16, and 18 through 21. We affirm, however, the rejection of appealed claims 15 through 18, 20, and 21 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Seneker.

The decision of the examiner is therefore affirmed in part.

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

AFFIRMED IN PART

Terry J. Owens)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
Romulo H. Delmendo)	
Administrative Patent Judge)	APPEALS AND
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