

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte THIRUMURTI NARAYAN

Appeal No. 1997-1997
Application No. 08/263,496¹

ON BRIEF

Before CAROFF, KIMLIN and OWENS, Administrative Patent Judges.
KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-22, all the claims in the present application. Claim 1 is illustrative:

¹ Application for patent filed June 20, 1994. According to appellant, this application is a continuation of Application No. 07/881,922, filed May 12, 1992, now abandoned.

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1. A liquid polyisocyanate prepolymer comprising the reaction product of an organic polyisocyanate blend and a polyoxypropylene polyether polyol, said polyisocyanate blend comprising
 - A) a diphenylmethane diisocyanate component comprising from 50 weight percent to 98 weight percent 4,4N-diphenyl-methane diisocyanate, from 2 weight percent to 50 weight percent 2,4N-diphenylmethane diisocyanate, and less than 10 weight percent 2,2N-diphenylmethane diisocyanate, said weight percentages based on the total weight of the ingredients in A);
 - B) a polymethylene polyphenyl polyisocyanate component comprising from 30 weight percent to 70 weight percent diphenylmethane diisocyanate, the remainder comprising polymethylene polyphenyl polyisocyanates having functionalities greater than two, said weight percentages based on the total weight of the ingredients in B);
 - C) and optionally a uretonimine-carbodiimide modified diisocyanate component comprising from 10 weight percent to 35 weight percent uretonimine-carbodiimide species, the remainder comprising essentially pure 4,4,N- diphenylmethane diisocyanate, said weight percentages based on the weight of the ingredients in C);

said polyoxypropylene polyether polyol having a number average molecular weight ranging from greater than 1500 to 10,000 and an average functionality from 1.6 to about 3, wherein the polyol is reacted with the polyisocyanate blend at temperatures less than 80EC, the liquid polyisocyanate prepolymer having an overall NCO content of from 22 weight percent to 31 weight percent.

In the rejection of the appealed claims, the examiner relies upon the following references:

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Carroll et al. (Carroll)	4,261,852	Apr. 14, 1981
Watts et al. (Watts)	5,070,114	Dec. 03, 1991

Appellant's claimed invention is directed to a liquid polyisocyanate prepolymer that is the reaction product of an organic polyisocyanate blend and a polyoxypropylene polyether polyol. The polyisocyanate blend comprises a diphenylmethane diisocyanate and a polymethylene polyphenyl polyisocyanate. The prepolymer of the present invention has an overall NCO content of from 22 to 31 weight percent. According to appellant's specification, the claimed prepolymer is used in the manufacture of polyurethane foams.

Appealed claims 1-3, 5-7 and 18-22 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Carroll. Claims 8-17 stand rejected under 35 U.S.C. § 103 as being unpatentable over Watts. In addition, claim 4 stands rejected under 35 U.S.C. § 103 as being unpatentable over Carroll in view of Watts.

Upon careful consideration of the opposing arguments presented on appeal, we agree with appellant that the examiner's rejections are not sustainable.

We consider first the examiner's rejection of claims 1-3,

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5-7 and 18-22 under § 102 over Carroll. Since Carroll discloses a prepolymer formed by reacting a polyoxypropylene polyol with diphenylmethane diisocyanate, and blending the prepolymer with polymethylene polyphenylene polyisocyanate, the examiner concludes that "Carroll's composition would be the same as that of appellant's" (page 3 of Answer). However, as detailed by appellant, the presently claimed prepolymer is the chemical reaction product of three components, whereas the prepolymer of Carroll is the reaction product of only two components, a polyol and diphenylmethane diisocyanate, which reaction product is then physically admixed with a polymethylene polyphenylene polyisocyanate composition. Carroll expressly teaches that the diphenylmethane diisocyanate used in making the prepolymer is in pure form, i.e., it is substantially free from polymethylene polyphenyl polyisocyanates (column 2, lines 10-16 and column 3, lines 10-12). We also invite attention to Carroll's disclosure that "[t]he polyisocyanate compositions of the invention may be manufactured by mixing appropriate amounts of component A and component B in any convenient manner" (column 3, lines 38-41, emphasis added). While the examiner contends that "[d]ue to

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the large quantity of MDI and its greater reactivity, the polyol is going to combine with the MDI and not the polymeric MDI," and that, therefore, "appellant's invention represents the same mixture as Carroll's" (page 3 of Answer), the examiner has not provided any evidentiary factual support for this assertion. In our view, the examiner has not established on this record that it is reasonable to conclude that the claimed prepolymer, which is the reaction product of three components, is essentially the same as the two-component reaction product of Carroll.

We now turn to the examiner's rejection of claims 8-17 under 35 U.S.C. § 103 over Watts. Although Watts discloses the preparation of a polyisocyanate prepolymer by reacting the same three components that are employed by appellant, i.e., a polyoxypropylene polyether polyol, diphenylmethane diisocyanate and a polymethylene polyphenyl polyisocyanate, the prepolymer of Watts does not have the claimed "overall NCO content of from 22 weight percent to 31 weight percent" (claim 8). Rather, Watts specifically teaches that the prepolymer has an NCO content of from 2 to 15 percent by weight, preferably 2 to 12 percent by weight (column 2, lines 27 et

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seq.). Recognizing this deficiency of Watts, the examiner reasons that "[o]ne needing a quasi-prepolymer having a NCO content of 22 to 31% for a reaction injection molding application would be motivated to use Watt's [sic, Watts'] process because it's a simple way of making a mixture of an MDI prepolymer and polymeric MDI" (page 3 of Answer). In response, appellant refutes the examiner's reasoning with the following at page 6 of the Brief:

There is simply no motivation to increase the NCO content of Watts et al. from the levels specifically set forth in the reference. In this regard, there is no reason to expect that the invention of Watts et al. would even be operable if one were to increase the NCO content beyond that which is clearly described under Watts. Moreover, one skilled in the art would recognize that the free NCO content of the Watts prepolymer is specifically limited to a maximum of 15% by weight because higher free NCO contents would provide a greater number of isocyanate groups available for reaction with water to form insoluble polymer linkages. Higher polymer linkages, in turn, would result in undesirable foam collapse. Thus, one skilled in the art would, in fact, be motivated not to increase the NCO content of Watts et al. beyond these levels.

The examiner has not rebutted appellant's refutation with compelling reasoning or objective evidence, and, therefore, we concur with appellant that, although it may well be that one skilled in the art could have modified Watts, the examiner has

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not established sufficient motivation why one of ordinary skill in the art would have modified the teachings of Watts in a manner that ignores the expressed teachings. In general, it is not a matter of obviousness for one of ordinary skill in the art to operate outside a range disclosed in the prior art. In re Sebek, 465 F.2d 904, 907, 175 USPQ 93, 95 (CCPA 1972).

As for the examiner's rejection of claim 4 under § 103 over Carroll in view of Watts, we disagree with the examiner, for the reasons set forth above with respect to the § 102 rejection, that "Carroll shows the prepolymer of the claims" (page 4 of Answer).

In conclusion, based on the foregoing, the examiner's decision rejecting the appealed claims is reversed.

REVERSED

MARC L. CAROFF)	
Administrative Patent Judge)	
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EDWARD C. KIMLIN)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
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TERRY J. OWENS)
Administrative Patent Judge)

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