Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte STEFAN GROTH,
JOSEF PEDAIN,
LUTZ SCHMALSTIEG,
and
DETLEF-INGO SCHÜTZE

Appeal No. 2000-1155
Application No. 08/908,655

ON BRIEF

Before GARRIS, WARREN, and KRATZ, Administrative Patent Judges.

GARRIS, Administrative Patent Judge.

## DECISION ON APPEAL

This is a decision on an appeal from the final rejection of claims 2-4 and 6-13 which are of the claims remaining in the application.

The subject matter on appeal relates to a reactive composition comprising (1) an NCO prepolymer based on an aliphatic and/or cycloaliphatic polyisocyanate and having an NCO content of 2 to 4 wt.% and a monomeric polyisocyanate content of

less than 2 wt.%, and (2) an amine-free chain extender having a particular formula. This appealed subject matter is adequately illustrated by independent claim 12 which reads as follows:

12. A reactive composition comprising

(A) an NCO prepolymer based on an aliphatic and/or cycloaliphatic polyisocyanate and having an NCO content, based on the aliphatic and/or cycloaliphatic polyisocyanate, of 2 to 4 wt.% and a monomeric polyisocyanate content of less than 2 wt.%,

(B) an amine-free chain extender comprising at least 50 equivalent percent, relative to the NCO-reactive groups of the chain extender, of a compound melting between 50°C and 160°C and having the formula (I)

HO-X-Y-X-OH (I)

wherein

Y denotes 1,4-, 1,3-, or 1,2-phenylene, and

X denotes methylene or $-OCH_2CH_2-$ (wherein the oxygen atom is bonded to group Y), and

(C) 0 to 20 wt.%, relative to component (A), of one or more inert organic solvents, wherein the equivalent ratio of the free NCO groups of component (A) to the NCO-reactive groups of component (B) is 0.90 to 1.35.

The reference set forth below is relied upon by the examiner as evidence of obviousness:

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| Quay et al. (Quay) | 5,175,230 | Dec. 29, 1992 |

All of the claims on appeal stand rejected under 35 U.S.C. § 103 as being unpatentable over Quay.[1]

We refer to the brief and to the answer for a complete discussion of the opposing viewpoints expressed by the appellants and by the examiner regarding this rejection.

OPINION

For the reasons set forth in the answer and below, we will sustain the above noted rejection.

It is the appellants' fundamental contention that appealed claim 12 distinguishes from Quay via the here claimed requirements for an NCO content of 2 to 4 wt.% and a monomeric polyisocyanate content of less than 2 wt.%. We cannot agree.

As the appellants themselves acknowledge, "Quay . . . teaches that the prepolymer can have a relatively broad free NCO content of 2 to 12% by weight (and even the preferred range is from 3 to 9% by weight). See column 4, lines 32-40" (brief, page 3). Because Quay discloses that the prepolymer of his composition can have an NCO content within the here claimed range, the NCO content requirement of appealed claim 12 plainly

[1]As indicated by the appellants on page 2 of the brief, the appealed claims are grouped together. Therefore, in our assessment of the Section 103 rejection before us, we will focus only on claim 12 which is the sole independent claim on appeal.

is satisfied by the Quay reference. See In re Wertheim, 541 F.2d 257, 267, 191 USPQ 90, 100 (CCPA 1976) and Ex parte Lee, 31 USPQ2d 1105, 1106 (Bd. Pat. App. & Int. 1993).

As for the appellants' claimed requirement for a monomeric polyisocyanate content of less than 2 wt.%, we observe that, on page 4 of the brief, the appellants acknowledge that it is known to remove excess isocyanate monomer in compositions of the type under consideration (also see the paragraph bridging pages 6 and 7 of the subject specification wherein the appellants state that excess monomer is optionally separated from their prepolymer by known technical methods). Moreover, as support for this acknowledgment, the appellants refer to a copied excerpt, attached to their brief, taken from the Polyurethane Handbook, 2nd Ed. This excerpt does indeed support the appellants' acknowledgment, for example, on page 92 wherein it is disclosed that "[r]emoval of the excess monomeric polyisocyanate from the prepolymer is a requirement often based on considerations of workplace hygiene."

Under the circumstances recounted above, it is our determination that the removal of excess polyisocyanate monomer from a prepolymer by conventional techniques was known to be desirable in the prior art. We conclude, therefore, that it

would have been obvious for one with ordinary skill in the art to remove any excess polyisocyanate monomer from the prepolymer of Quay in order to achieve results (e.g., involving workplace hygiene) known to be desirable in the prior art.

Finally, the appellants repeatedly point out that their claimed composition exhibits long pot life and rapid cure time, thereby implying that these properties are unexpected and thus evidence of nonobviousness.

However, Quay expressly discloses that his compositions possess an extended pot life (e.g., see lines 39-43 in column 2). In light of this disclosure, a long pot life would have been an expected rather than unexpected property of the here claimed compositions (which are conceded by the appellants themselves as being at least similar to patentee's compositions).

As for the property of cure time, the record before us contains little if any probative evidence that the appellants' claimed compositions possess a cure time property which is unexpectedly superior or even different compared to the cure time property of Quay's compositions. In this regard, the appellants refer to Quay's disclosure at lines 7-8 in column 9 of a cure time of 20 hours at 80°C, and they contrast this cure time disclosure of Quay with the 2 to 18 minutes cure time

disclosure in the paragraph bridging pages 10 and 11 of the subject specification. However, this last mentioned cure time is in relation to a thin layer having specified thickness of the active composition exposed to stepwise treatment at particular temperatures until a coherent polymer film of specific modulus is achieved whereas the 20 hours cure time disclosed by Quay relates to the period of time his components were held in a mold at 80°C. Because these respective time periods involve entirely different conditions and parameters, they cannot be reliably compared to one another. Thus, for all we know, Quay's compositions would exhibit exactly the same cure times as the here claimed compositions when subjected to the cure time protocol defined in the appellants' specification.

In summary, the argument and evidence before us on this appeal weigh most heavily in favor of an obviousness conclusion. We hereby sustain, therefore, the examiner's Section 103 rejection of all appealed claims as being unpatentable over Quay.

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

AFFIRMED

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| BRADLEY R. GARRIS<br>Administrative Patent Judge | ) | |
| CHARLES F. WARREN<br>Administrative Patent Judge | ) | BOARD OF PATENT APPEALS AND INTERFERENCES |
| PETER F. KRATZ<br>Administrative Patent Judge | ) | |

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