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File Number: T 153/89 - 3.3.1
Application No.: 86 300 794.4
Publication No.: 0 196 749
Title of invention: Adhesive compositions

Classification: C09J 3/16

DECISION
of 17 November 1992

Applicant: BOSTIK LIMITED, et al

Headword: Pressure-sensitive adhesive/BOSTIK

EPC Articles 54(2), 111(1)

Keyword: "Novelty (yes)"
"Functionally defined technical feature"
"Remittance to the Examining Division"
"Streamlined proceeding and procedural economy requires first instance decisions to deal with all legal obstacles to patentability"



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Boards of Appeal

Chambres de recours

Case Number : T 153/89 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 17 November 1992

Appellant :

BOSTIK LIMITED
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Representative :

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CRAY VALLEY
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Decision under appeal :

Decision of the Examining Division of the
European Patent Office dated 21 September 1988
refusing European patent application
No. 86 300 794.4 pursuant to Article 97(1) EPC.

Composition of the Board :

Chairman : K.J.A. Jahn
Members : P. Krasa
J.A. Stephens-Ofner

Summary of Facts and Submissions

- I. European patent application No. 86 300 794.4, filed on 6 February 1986 and published on 8 October 1986 under publication No. 0 196 749, was refused by a decision of the Examining Division of 21 September 1988. That decision was confined to Claims 1 to 16 and 20 as originally filed, Claims 17 to 19 having been cancelled by the Appellant (Applicant) in the course of the examination procedure. Claims 1 and 2 read:

"1. A moisture-curable adhesive composition capable of providing a pressure-sensitive adhesive layer on a substrate by a process in which the composition is applied to a substrate and cured or allowed to cure by exposure to moist atmosphere, wherein the composition comprises a prepolymer component having an isocyanate functionality between 2.0 and 3.0 together with one or more polyetherurethane prepolymers having NCO groups available for reaction with water for chain extension, the cured adhesive composition having a glass transition temperature less than 20°C.

2. An adhesive composition according to claim 1, wherein the prepolymer component comprises a mixture of prepolymers having NCO groups available for reaction, a first one of said prepolymers being a reaction product of a linear polyol of hydroxyl number from 10 to 230 which is an addition product of ethylene oxide or of propylene oxide or of mixtures of both, and a diisocyanate reacted in amounts to provide an NCO:OH ratio from 1.2 to 2.5, and a second one of said prepolymers being a reaction product of a branched polyol of hydroxyl number from 10 to 570 which is an addition product of ethylene oxide or of propylene oxide or of mixtures of both, and a diisocyanate

reacted in amounts to provide an NCO:OH ratio from 1.2 to 2.5."

Claims 3 to 16 are dependent claims and Claim 20 refers to a method of forming a pressure-sensitive adhesive layer on a workpiece making use of compositions according to any one of the preceding claims.

II. The ground of refusal was that the subject-matter of Claims 1 and 2 was not novel in view of the following citations:

- (1) EP-A- 103 453
- (2) US-A-3 933 725
- (3) FR-A-2 366 348
- (4) DE-A-3 416 773.

According to the Examining Division, these documents disclosed some polymeric mixtures corresponding to the prepolymers as defined by the parameters of Claim 2. The Examining Division therefore concluded that the subject-matter of Claims 1 and 2 was anticipated and stated, furthermore, that the T_g (glass transition temperature) related to the whole adhesive, and was not a parameter of the cured prepolymers themselves.

In addition, the Examining Division found (without giving any reasons for this finding) that the subject-matter of the dependent claims was not inventive and, finally, confirmed an objection of lack of unity of invention which had already been raised by the Search Division on the assumption of the anticipation of Claim 1.

III. An appeal was lodged against this decision on 21 November 1988 and the prescribed fee was duly paid. In his Statement of Grounds of Appeal, filed on 17 January 1989,

the Appellant argued that it was an inherent requirement of a pressure-sensitive adhesive to retain its tackiness when cured. As none of the above citations disclosed cured adhesive compositions with permanent tackiness, they could not anticipate the claimed subject-matter.

- IV. The Appellant requested that the decision under appeal be set aside and that Claims 1 and 20 should be reconsidered and allowed (main request), or if necessary, allowed with amended Claim 1, whereby "a pressure-sensitive adhesive layer on a substrate" is replaced by "a layer of pressure-sensitive adhesive as herein above defined on a substrate" (first auxiliary request); or with Claim 1 amended by the replacement being "a layer of pressure-sensitive adhesive on a substrate which will retain its tackiness for at least three months" (second auxiliary request). For both auxiliary requests an amendment was suggested by the Appellant also of Claim 20.

Reasons for the Decision

1. The appeal is admissible.
2. When establishing whether or not a claimed product is novel having regard to what is disclosed in the state of the art, all the technically essential features that are actually part of the claim have to be taken into consideration.

Having considered all the features of Claim 1, the Board concludes that the process of creating the adhesive layer and the availability of NCO groups for reaction with water for chain extension need not to be discussed further, as they have no bearing on the present issue. A prepolymer

with an NCO-functionality between 2 and 3 is moisture curable and, naturally, has NCO groups available for the reaction with water which in turn will lead also to chain extension (see also page 7, lines 2 to 5 of the specification).

Thus, the subject-matter of present Claim 1 is essentially a composition

- (i) which is capable of providing a pressure sensitive adhesive layer after moisture-curing it;
- (ii) which comprises as a prepolymer component one or more polyetherurethane prepolymers having a NCO functionality between 2 and 3, and
- (iii) which has, in the cured state, a glass transition temperature less than 20°C.

3. The impugned decision is defective in that it did not take into account all three technical features listed in the above paragraph: the Examining Division gave no reasons why features (i) and (iii) were disregarded as characterising parameters of the compositions of Claim 1.

In point of fact, the decision is completely silent on feature (i). Only from the sentence "It should be stressed here, that the possible different uses of compositions do not confer novelty to these compounds." (to be found in paragraph 5 of the impugned decision) might it be inferred that the Examining Division was of the opinion that feature (i) related only to a new use of a known product which could not confer novelty on the latter.

- 3.1 However, in the Board's judgment, feature (i) is a functionally defined technical feature which implies, inter alia, a permanent (or at least prolonged) tackiness of the adhesive layer. According to common general

knowledge, such layers must maintain their wetting abilities to that end, as wetting is essential to adhesion (for example Kirk-Othmer, Encyclopedia of Chemical Technology, Third Edition, Volume 1, page 492, paragraph 4, 1978). The maintenance of a "pseudo-liquid" state of the cured adhesive composition implies that it cannot have high T_g -values. This is confirmed by an expert opinion which was published after the priority date of the present application namely, Habenicht, Kleben, Grundlagen, Technologie, Anwendungen, page 93, last paragraph, and pages 126 to 127, in particular page 127, lines 16 to 22, Springer Verlag 1986, where it is stated that cured, pressure-sensitive adhesives with permanent (prolonged) tackiness must have low T_g -values as otherwise they would not be useful. Thus, feature (iii) is, in the Board's judgement, a valid parameter for defining the claimed subject-matter which supplements the above feature (i).

- 3.2 The Examining Division stated that the T_g -value of Claim 1 is not a parameter of the prepolymer or of the cured polyurethane itself but is a parameter of the whole adhesive, as it may be influenced by plastifying and tackifying additives. However, the whole adhesive composition is the subject-matter of Claim 1 and, therefore, the T_g -value cannot be disregarded. This holds also for those compositions of Claim 1 which consist of polyetherurethane prepolymer only.

Thus, it would have been mandatory to investigate whether adhesive compositions with all the features (i) to (iii) were already disclosed in the documents (1) to (4).

4. Having studied the four documents cited by the Examining Division, the Board has reached the conclusion that none of them discloses adhesive compositions which in the cured state can provide a pressure-sensitive adhesive layer.

Short tack-free times are either disclosed expressis verbis for the respective adhesives or have to be implied in view of their field of application (compare document (1), page 2, lines 21 to 24 and page 8, lines 8 to 20; document (2), column 3, lines 39 to 44 in combination with lines 26 to 38 of the same column; document (3), page 1, lines 1 to 25 in combination with page 5, line 36 to page 6, line 6, and the paragraph bridging pages 6 and 7; document (4), page 7, second paragraph in combination with the table on page 15).

None of the citations (1) to (4) even mentions the glass transition temperature, let alone of giving particular T_g -values for the cured composition.

It follows that none of those documents discloses clearly and unambiguously compositions with the above features (i) and (iii) and, therefore, they do not anticipate the subject-matter of present Claims 1 and 2 according to the main request. Hence, the reasons given in the impugned decision do not sustain the Examining Division's finding for lack of novelty.

In these circumstances it is not necessary to consider the Appellant's auxiliary requests.

5. However, the application requires, and had always required, further examination, in particular as to inventive step. The scant statement in the impugned decision (already referred to), with no discussion or analysis whatsoever of the underlying technical problem and its solution, does not permit the Board to judge whether this issue had been sufficiently investigated, or investigated at all. The Examining Division's decision on this ground does not, in the Board's judgment, amount to a reasoned and therefore appealable decision under Article 106 EPC.

The Board had already adverted to the need for the first instance departments to render appealable decisions on all issues that had been pleaded and adequately supported by a party (Examining Division), or the parties (Opposition Division). The reason for this stems from the overriding need to deal expeditiously with the proceedings as a whole, including appeals so as to ensure that commercial uncertainty in the minds of the public and applicant is removed. It is obvious that if a first instance department fails to give an appealable decision on all the issues that have been properly raised in the course of the proceedings before it, a decision on an issue omitted to be dealt with by them cannot be given by way of appeal. This circumstance will, therefore, afford a legal basis for remittance of the case to that department, either at the Board's initiative, or the party's request, thereby causing an undesirable delay in the proceedings. For this reason, it is highly undesirable that the first instance decisions should be decided in such a defective manner.

Furthermore, the wording of Claim 1, in the Boards opinion, could give rise to misunderstanding in so far as the "polyetherurethane prepolymers having NCO groups" could be deemed to be something different from the "prepolymer component". The first sentence in paragraph 5 of the impugned decision indicates that the Examining Division was perhaps misled in this respect ("in mixture with"). However, the Board construes the current Claim 1 as defining adhesive compositions comprising one or more polyetherurethane prepolymers having NCO groups as the prepolymer component with an isocyanate functionality between 2.0 and 3.0 in view of the specification (in particular the paragraph bridging pages 6 and 7 and all the examples on pages 24 to 32). Claim 1 should be clarified.

The Examining Division will also need to investigate whether the requirements of Article 83 are fulfilled with respect to the functional feature (i), in other words, whether the application in toto contains sufficient information for the skilled person to carry out the invention as claimed without undue burden.

It is self-evident from the above discussion that the Examination Division's objection regarding lack of unity of invention, which was based solely on the purported anticipation of the subject-matter of Claim 1, cannot at present be maintained. It is also appropriate to indicate that the Examining Division would be required to explain why no common inventive concept could be acknowledged for the respective inventions, should they raise the same objection again for other reasons.

6. In view of the above, the Board exercises its power under Article 111(1) EPC and remits the case to the Examining Division for further prosecution.

Order

For these reasons, it is decided that:

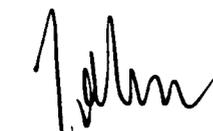
1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to proceed with the examination.

The Registrar:



E. Görgmaier

The Chairman:



K. Jahn

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