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D E C I S I O N
of 20 February 1997

Case Number: T 0805/93 - 3.3.3

Application Number: 90124093.7

Publication Number: 0440934

IPC: C08G 18/50

Language of the proceedings: EN

Title of invention:

Sag resistant, unfilled, low viscosity urethane structural adhesive

Applicant:

Bayer Corporation

Opponent:

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Headword:

-

Relevant legal provisions:

EPC Art. 83, 84

Keyword:

"Clarity (no) - unclear definition of the matter for which protection is sought"

"Enabling disclosure (no) - no clear definition of generally suitable starting compounds"

Decisions cited:

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Catchword:

-



Case Number: T 0805/93 - 3.3.3

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 20 February 1997

Appellant:

Bayer Corporation
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Pittsburgh, PA 15219-2502 (US)

Representative:

Braun, Rolf, Dr.
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Decision under appeal:

Decision of the Examining Division of the
European Patent Office posted 25 June 1993
refusing European patent application
No. 90 124 093.7 pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: C. Gérardin
Members: B. ter Laan
J. A. Stephens-Ofner

Summary of Facts and Submissions

- I. European patent application No. 90 124 093.7, filed on 13 December 1990, claiming priority of 16 January 1990 from an earlier application in the USA (464 821), and published on 14 August 1991 under publication No. 0 440 934, was refused by a decision of the Examining Division of the European Patent Office dated 25 June 1993.

The decision was based on a set of five claims filed on 1 June 1993, Claim 1 reading as follows:

"Polyurethane adhesive comprising the reaction product of a curative and a polyisocyanate, said curative comprising a polyol and a polyether containing aromatically bound primary or secondary amino groups and having a molecular weight of from 250 to about 10,000, said adhesive being characterized in that the viscosity of its components is under about 15,000 cps."

Claims 2 to 5 referred to preferred embodiments of the adhesive of Claim 1.

- II. The reason given for refusal was lack of clarity and insufficient disclosure of the subject-matter as defined in Claim 1. More specifically, it was held that the viscosity feature was unclear because no temperature was indicated at which that viscosity was to be determined, although it was a well-known fact that the temperature at which viscosity was measured played a crucial role in the outcome of that measurement, as illustrated by Römpps Chemie Lexikon (8th edition, Franckh'sche Verlagshandlung, W. Keller & Co., Stuttgart, 1988) (D1). Not only Claim 1, but also the description of the original application did not contain any indication of the temperature at which the

viscosity was measured, so that there was no disclosure enabling the skilled person to carry out the invention. For these reasons, the requirements of Articles 83 and 84 EPC were not fulfilled.

III. On 18 August 1993 a Notice of Appeal was lodged against that decision, together with payment of the prescribed fee. In the Statement of Grounds of Appeal filed simultaneously, the Appellant (Applicant) argued that in the particular art with which the application was concerned, the skilled person knew that, unless stated otherwise, the viscosity was always measured at room temperature (from 20 to 25°C), so that there was no need to indicate that temperature. In support of its arguments the Appellant referred to three documents (US-A-4 743 672, US-A-3 714 127 and "Infotech", a product information leaflet of Ashland Chemical Inc.) to illustrate that the temperature of the viscosity measurement was not normally indicated, and to six other documents (US-A-3 979 364, US-A-4 336 298, US-A-4 444 976, US-A-4 552 934, EP-A-0 063 534 and US-A-3 886 122) to show that the measurement was usually carried out at temperatures ranging from 23.9 to 25°C. Furthermore, for Example 1 of the present application the viscosity was found to be 1970 mPa.s at 20°C and 1190 mPa.s at 25°, hence within the claimed range, namely below 15,000 cps, at both temperatures. Therefore, Claim 1 was clear, and the skilled person could also carry out the invention, so that the requirements of Articles 84 and 83 EPC were complied with.

IV. The Appellant requested that the decision under appeal be set aside and a patent be granted on the basis of Claims 1 to 5 filed on 27 May 1993.

- V. By letter of 20 January 1997, in response to the summons for oral proceedings which had been appointed according to its auxiliary request, the Appellant, withdrew that request and requested instead that a decision be taken based on the state of the file, taking into account the arguments as presented in the Statement of Grounds.

Reasons for the Decision

1. The appeal is admissible.
2. Claim 1 refers to an adhesive comprising a reaction product of a curative and a polyisocyanate, characterized in that the viscosity of its components is below a certain specified limit. Apart from the question whether that limit has sufficiently clearly been defined, which will be gone into later, the wording of Claim 1 needs to be interpreted.
 - 2.1 First, the meaning of "the viscosity of its components" needs to be considered in the light of "comprising". The latter term means that, apart from the curative, which itself comprises two further components (a polyol and a specific polyether), and the polyisocyanate, still further components may be present in the adhesive. These may include other liquid substances besides the two specified components and also substances to which the concept of viscosity does not apply, like e.g. fillers (original application, page 10, lines 5 to 7). Also in view of the documents cited by the Appellant, in which the only viscosities mentioned all refer to those of the final adhesive

reaction product itself or to its curative and/or polyisocyanate starting components, it is inferred that in the present case the viscosities of those two starting components, namely the curative and the polyisocyanate, are meant.

2.2 Secondly, the adhesive reaction product of the curative and the polyisocyanate components, by its nature, no longer reflects the viscosities of those components and, for that reason, cannot be characterized by them. Therefore, the Board interprets Claim 1 as being directed to an adhesive comprising the reaction product obtained by reacting a curative and a polyisocyanate component, both of which components should have a certain viscosity.

3. The application was refused for non-compliance with two Articles of the EPC: Article 84 and Article 83. However, both objections in fact concerned only one element, namely the lack of disclosure of the measuring temperature of the viscosity of each of the components used to form the polyurethane adhesive of Claim 1, both in the claims (Article 84 EPC) and in the description (Article 83 EPC). Therefore, and in view of point 2 above, in order to decide whether the application does or does not fulfil the requirements of both articles, the question to be answered is whether it was necessary to indicate the temperatures at which the viscosities of the two starting components were measured, namely the curative and the polyisocyanate, which are reacted so as to obtain an adhesive reaction product.

- 3.1 The Appellant argued that it was not necessary to indicate the viscosity measuring temperature since
- (a) such was usual in the present field and
 - (b) the skilled person knew that it was measured at room temperature (20 to 25°C).
- 3.2 As regards the first argument however, of all the nine documents to which the Appellant referred, only three mention the viscosity without a temperature indication. Six do contain a reference to the temperature at which the viscosity was measured. Therefore, the Appellant's first argument does not appear to be supported by the available evidence and hence cannot be accepted.
- 3.3 Regarding the second argument, the six documents mentioning the temperatures at which the respective viscosities were measured, do not refer to "room temperature" as such. Instead, five of those documents disclose the specific temperature of 25°C, whereas the sixth (US-A-3 886 122) specifies various temperatures ranging from 23.3°C to 25°C. Therefore, the second of the Appellant's arguments, like the first one, must also fail.

In addition, the Appellant referred to room temperature as being a temperature range varying from 20 to 25°C. It is a well-known fact that the temperature at which viscosity is measured influences the outcome. This is illustrated by D1 and was not contested by the Appellant. It is therefore undisputed that a difference of 5° in measuring temperature results in different viscosity values. The Appellant illustrated this by measuring "the viscosity" of present Example 1. Although it is not clear the viscosity of exactly which compound was measured - that of the curative component, the polyisocyanate component or of their reaction

product - the method was specified as Brookfield, LVT Spindle at 30 rpm. That measurement shows that a difference of 5° in measuring temperature almost doubles the viscosity of whatever compound was measured. This leads to the conclusion that, even if the Appellant's statement regarding "room temperature" being the usual viscosity measuring temperature were accepted, that term as such is so vague and indeterminate that it cannot serve as a reliable means of indicating with sufficient precision and clarity the limiting values for the viscosities of the components as now specified in Claim 1.

- 3.4 Moreover, even in case of a clear temperature indication, in the light of the Appellant's information about the additional measurement (Statement of Grounds of Appeal, page 3, lines 1 and 2) and of US-A-3 979 364, Table 3, according to which Brookfield viscosity measurements with different spindle RPMs give quite different results, one is left to wonder about the influence of the other measuring conditions of which, like the temperature, no mention is made.
- 3.5 Furthermore, it is to be noted that in almost all of the documents cited by the Appellant, the viscosity does not appear to play an essential role in the definition of the adhesive compositions described there, as it is not present in any of the claims. The only exception is US-A-4 336 298, where a viscosity range is indicated in Claim 3, and there the temperature is actually indicated.
- 3.6 For these reasons, the Appellant's argument that the viscosity limit of below 15,000 cps was a clear limit and that it was not necessary to indicate the measuring temperature, cannot be accepted.


4. Article 84 EPC stipulates that the claims shall **define** the matter for which protection is sought. In the present case, as the viscosity is the only characterizing feature of Claim 1, it is clear that its role in indicating the limits of the claimed subject-matter, or, in other words, defining the matter for which protection is sought, is a crucial one. From the above analysis (point 3) it appears that the lack of information regarding the exact conditions, in particular the temperature, under which the viscosity limit of Claim 1 is to be determined, results in uncertainty as to the exact limits of the scope of Claim 1. Therefore, the viscosity cannot be considered to be clearly indicated and the matter for which protection is sought cannot be deemed defined, so that Claim 1 does not comply with Article 84 EPC.
5. For the same reason, the skilled person would be left in considerable doubt as to which compounds to select when choosing the reactive components in order to obtain the reaction product falling within the terms of the claimed adhesive. Therefore, the disclosure of the application in suit does not enable him to carry out the claimed subject-matter on a general basis, so that the requirements of Article 83 EPC are also not met.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:



E. Gorgmaier

The Chairman:



C. Gérardin