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File Number: T 111/90 - 3.3.3
Application No.: 85 308 603.1
Publication No.: 0 192 888
Title of invention: Flexible, flame-retardant polyurethane foams

Classification: C08J 9/00

D E C I S I O N
of 11 April 1991

Applicant: DUNLOP LIMITED

Headword:

EPC Art. 56

Keyword: "Inventive step - remittal to first instance after substantial amendment"

Headnote



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Boards of Appeal

Chambres de recours

Case Number : T 111/90 - 3.3.3

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 11 April 1991

Appellant : DUNLOP LIMITED
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Decision under appeal : Decision of Examining Division of the European
Patent Office dated 5 September 1989 refusing
European patent application No. 85 308 603.1
pursuant to Article 97(1) EPC.

Composition of the Board :

Chairman : F. Antony
Members : H.H.R. Fessel
J.-C. Saisset

Summary of Facts and Submissions

- I. European patent application No. 85 308 603.1 filed on 27 November 1985, claiming priority of 20 December 1984 (GB 84/32 153) and published under publication number 0 192 888, was rejected by a decision of the Examining Division dated 5 September 1989.

That decision was based on a set of twelve claims dealing with a flexible flame-retardant polyurethane foam containing "expandable graphite" and a method of making same.

- II. The only ground of the said decision was non-compliance with the requirements of Article 56 EPC with regard to the teaching of

- (I) US-A-3 574 644
- (II) GB-A-1 404 822
- (III) Chem. Abs. Vol. 85, No. 16, page 36, No. 109453 f and
- (IV) EP-A-0 051 347.

The use of expandable graphite in polyurethane foams being generally known from (I) and (II), and the use of solid materials as flame retardants in flexible polyurethane foams being equally known from (IV), it was held to be obvious to use the said graphite in flexible polyurethane foams with the expectation of an advantageous result. No surprising effect over and above what would have been expected had been proved, e.g. by providing comparative Examples, since the given Examples did not represent the closest prior art.

- III. A notice of appeal was lodged against that decision on 20 October 1989 with payment of the prescribed fee. A Statement of Grounds was filed on 9 December 1989.
- IV. During oral proceedings held on 11 April 1991 the Appellant requested to set aside the appealed decision and to grant a patent based on a new set of Claims 1 to 10 filed in these proceedings. He did not maintain his request of reimbursement of appeal fee. The only independent Claims 1 and 5 now read as follows:

"1. A method for the production of a flexible flame-retardant polyurethane foam, from a foam-forming reaction mixture including a polymeric polyol and an organic polyisocyanate, characterised in that the polymeric polyol is a polyether polyol and the foam-forming reaction mixture also contains "expandable graphite" which is graphite containing one or more exfoliating agents such that considerable expansion will occur at high temperatures.

5. A flexible flame-retardant polyurethane foam which comprises the reaction product of a polyether polyol and an organic polyisocyanate characterised in that the foam contains "expandable graphite" which is graphite containing one or more exfoliating agents such that considerable expansion will occur at high temperatures."

- V. The Appellant argued that, not only were rigid and flexible polyurethane foams different in their burning characteristics, but within the flexible polyurethane foams there was as well a difference between polyester and polyether polyurethane foams. There was no indication in the prior art, at least over a period of fifteen years, that the application of a technique known for rigid foams would lead to the desired result when applied to flexible polyether polyurethane foams. The skilled worker had

discarded this possibility in view of the completely different burning characteristics of rigid and flexible foams, and in addition thereto of polyester and polyether polyurethane foams.

- V) At the end of the oral proceedings the Chairman announced the decision of the Board.

Reasons for the Decision

1. The appeal is admissible (cf. items I and III above).
2. The amended set of claims filed during oral proceedings is clearly intended to meet the objections to grant which had previously been raised by the Examining Division (non-compliance with the requirements of Article 56 EPC), on the basis of the new arguments referred to in item V above.
3. With regard to the considerations made hereinafter and in accordance with Rule 86(3) EPC, last sentence, together with Article 111(1) EPC, first part of the second sentence, the Board consents to admit this new set of claims into the proceedings.
4. The claims now on file differ from the claims whereupon the decision under appeal was based in that the subject-matter of former claims 5 and 10 has been incorporated into present Claims 1 and 5 (former Claims 1 and 6).

The resulting wording of Claims 1 and 5 does not give rise to any objections under Article 123(2) EPC since the feature concerned - use of a polyether polyol as polymeric polyol - is supported by the worked examples of the documents as filed originally.

5. Having examined the cited prior art, the Board is satisfied that the claimed subject-matter was not disclosed in any single document thereof, because (II) and (III) refer to rigid polyurethane foams containing expandable graphite, and (I) to, inter alia, polyurethane foams in general (column 2, lines 33 to 36 read in conjunction with Claim 4), with specific mention of rigid foams containing graphite in examples I and II. Document (IV) refers to flexible polyurethane foams without mentioning "expandable graphite" as flame-retardant. The Board thus considers the claimed subject-matter to be novel (Article 54 EPC).

6. It remains to be decided whether the subject-matter of the amended set of claims involves an inventive step with regard to the teaching of the cited documents.

The Examining Division did consider the issue of inventive step and mentioned in the decision in a very general form that the former appendant claims related to features already known from (I) to (IV), and therefore could not be regarded as being inventive. No detailed reasons were, however, given for this view.

The subject-matter of independent Claims 1 and 5 now on file is defined by a feature of a former dependent claim. This feature appears to be an essential one, on the basis of the arguments provided by the Appellant. Thus, the Examining Division should have an opportunity to further evaluate the subject-matter of the present set of claims in respect to inventive step.

7. The Board agrees with the findings of the Examining Division that the control examples of the patent application did not constitute the closest prior art. Moreover, in the case as it stands, no evidence was provided by the Appellant that would support his

allegation, made for the first time during oral proceedings, that polyether polyurethanes had burning characteristics different from those of polyester polyurethanes and the results produced by such a selection were not predictable.

8. In view of this situation, the case is remitted to the Examining Division under Article 111 EPC for further examination, on the basis of the new set of claims submitted during oral proceedings, as to whether this amended version meets the requirements of Article 56 EPC.

Order

For these reasons, it is decided:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance for further prosecution.

The Registrar:

The Chairman:

P. Martorana

F. Antony