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Aktenzeichen / Case Number / N° du recours : T 416/87 - 3.3.1

Anmeldenummer / Filing No / N° de la demande : 81 305 931.8

Veröffentlichungs-Nr. / Publication No / N° de la publication : 0 054 440

Bezeichnung der Erfindung: Styrene-butadiene block copolymer

Title of invention:

Titre de l'invention :

Klassifikation / Classification / Classement : C08F 297/04

## ENTSCHEIDUNG / DECISION

vom / of / du 29 June 1989

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /

Titulaire du brevet :

Japan Synthetic Rubber Co., Ltd.

Einsprechender / Opponent / Opposant : Hüls AG

Stichwort / Headword / Référence : Block copolymer/JSR

EPO / EPC / CBE Articles 54, 56, 69(1), 104, 111(1) and 114(2),  
Rule 63(1), Protocol on the Interpretation of Article 69

Schlagwort / Keyword / Mot clé : "Novelty (yes)" - "Inventive step (yes)" -  
"Late filed document is closest prior art but does not prejudice  
maintenance of patent" - "Document admitted" - "Exercise of  
discretion under Article 111(1) EPC - "No remittal to Opposition  
Division". "Late filed document first relied upon in grounds of  
appeal" - "Documents relied upon before Opposition Division not  
relied upon in grounds of appeal" - "Abuse of procedure" -  
"Apportionment of costs" **Leitsatz / Headnote / Sommaire**

I. If the description on its proper interpretation specifies a feature to be an overriding requirement of the invention, following Article 69(1) EPC and its Protocol the claims may be interpreted as requiring this as an essential feature, even though the wording of the claims when read in isolation does not specifically require such feature (see Reasons paragraph 5).

II. In a case where a prior document is cited by an opponent for the first time during the appeal stage of an opposition and is considered by the Board to be the closest prior art and therefore admissible but not such as to prejudice maintenance of the patent, the Board may itself examine and decide the matter under Article 111(1) EPC rather than remit the matter to the first instance (see Reasons paragraph 9). In such a case an apportionment of costs may be made against the opponent in respect of the submission of evidence in reply by the patentee, following Decision T 117/86 "Costs" (to be published - for Headnote see OJ EPO 5/1989) (see Reasons paragraph 10).

Europäisches  
Patentamt

European Patent  
Office

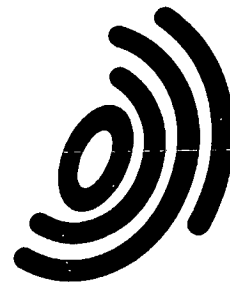
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Boards of Appeal

Chambres de recours

Case Number : T 416/87 - 3.3.1



**D E C I S I O N**  
of the Technical Board of Appeal 3.3.1  
of 29 June 1989

**Appellant :**  
(Opponent)

Hüls Aktiengesellschaft  
Postfach 1320  
D-4370 Marl 1

**Representative :**

**Respondent :**  
(Proprietor of the patent)

JAPAN SYNTHETIC RUBBER CO., LTD.  
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**Representative :**

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**Decision under appeal :**

Decision of the Opposition Division of the European  
Patent Office dated 29 September 1987 rejecting  
the opposition filed against European patent  
No. 0 054 440 pursuant to Article 102(2) EPC.

**Composition of the Board :**

**Chairman :** K. Jahn

**Members :** C. Gérardin

G.D. Paterson

## Summary of Facts and Submissions

- I. The mention of the grant of the patent No. 54 440 in respect of European patent application No. 81 305 931.8 filed on 17 December 1981 and claiming the priorities of four earlier applications in Japan, was published on 28 August 1985 on the basis of 8 claims.

Claim 1 reads as follows:

"A styrene-butadiene block copolymer having a Mooney viscosity ( $ML_{1+4}$ , 100°C) of from 10 to 150, a total vinyl content in the whole of the bound butadiene of from 30 to 70% and a total bound styrene content of from 10 to 40% by weight, said block copolymer comprising:

- (i) a combination of (A) at least one styrene-butadiene random copolymer block having a bound styrene content of from 10 to 50% by weight and a vinyl content of from 25 to 50% in the butadiene portion, and (B) at least one styrene-butadiene random copolymer block having a bound styrene content of from 1 to 30% by weight and a vinyl content of at least 60% in the butadiene portion, block (A) comprising from 10 to 90% by weight of the copolymer; or
- (ii) a combination of (A') at least one styrene-butadiene copolymer block having a bound styrene content of from 10 to 50% by weight and a vinyl content of from 10 to 10% in the butadiene portion, (B') at least one styrene-butadiene random copolymer block having a bound styrene content of from 1 to 30% by weight and a vinyl content of at least 60% in the butadiene portion, and (C) at least one polybutadiene block having a vinyl content of from 10 to 50%, each of said blocks (A'), (B') and (C) comprising at least 10% by weight of the copolymer".

II. On 13 December 1985 the Appellant (Opponent) filed a notice of opposition requesting the revocation of the whole patent on the ground of lack of inventive step. The following documents were cited in support of the opposition:

- (1) Kautschuk + Gummi-Kunststoffe, 33, No. 4/1980, pages 251 to 255
- (2) PRT "Polymer Age", 4, September 1973, pages 332 to 337
- (3) Kautschuk + Gummi-Kunststoffe, 28, No. 3/1975, pages 131 to 135

III. The Opposition Division rejected the opposition in a decision dated 29 September 1987.

It was stated therein that the teaching of documents (1) to (3) did not go beyond general relationships between glass transition temperature and wet skid resistance, or between the vinyl and styrene contents and rolling resistance and glass transition temperature. The Opponent's argumentation was further based on pieces of information selected from these documents for the only reason that they corresponded to one or the other specific feature of the block copolymer according to the opposed patent. Such a restrictive interpretation of the prior art could not suggest the combination of features characterizing the claimed block copolymer as a whole and was thus regarded as a mere ex post facto approach.

IV. The Appellant (Opponent) thereafter filed a notice of appeal on 28 November 1987 and paid the prescribed fee at the same time. In the Statement of Grounds filed on 28 January 1988 which did not challenge at all the reasoning set out in the decision, it was first

acknowledged that documents (1) to (3) only represented background art which did not disclose more than some of the general principles which govern the properties of styrene-butadiene copolymers. The substantive grounds of appeal referred exclusively to new documents

- (4) JP-74/37415 (translation into English thereof)
- (5) DE-A-1 963 038
- (6) DE-A-3 115 878

and were based on the following arguments.

In contradiction with the statement in the opposed patent (page 2, lines 40 to 42) the blocks A and B of the styrene-butadiene block copolymers according to document (4) do not differ both in their bound styrene contents and in their vinyl contents, but only in their vinyl contents. Since it is not clear on which basis and how the vinyl content is determined, this parameter cannot be regarded as a distinguishing feature; the subject-matter of the patent in suit is thus not novel.

Besides, the influence of vinyl content and styrene content on the properties of statistical styrene-butadiene block copolymers and random copolymers is known from document (4) respectively document (5). The subject-matter of the patent in suit is thus an obvious combination of these teachings which does not lead to any discernible advantage, as evident from a comparison between Table 4 (Examples 1 to 10) of the opposed patent and Table 8 (Example 2-1) of document (4), and therefore does not involve an inventive step.

As far as novelty of the national patent to be issued from the opposed patent, it cannot be acknowledged in view of the teaching of document (6).

- V. In the counterstatement filed on 7 September 1988 the Respondent (Patentee) first objected that the Grounds of Appeal involve new documents not previously made part of the Opposition proceedings and raise completely fresh issues.

The description of the opposed patent clearly specifies that the block copolymers comprise styrene-butadiene copolymer blocks differing from each other in their styrene content and in their vinyl content, so that novelty cannot be disputed.

The knowledge from documents (4) and (5) of the influence of the styrene content and/or vinyl content or the properties of styrene-butadiene block copolymers cannot lead to the present invention, since the object thereof is to optimise the balance of characteristics, not to improve one particular property. As to the comparison between the claimed block copolymers and the copolymers taught in document (4), it is meaningless because of the compounding differences.

Document (6) is not a prior publication, but merely an earlier German application; moreover the opposed patent does not even designate DE. Therefore, this document does not bar any part of the present patent.

- VI. The Appellant requested document (4) to (6) be accepted as relevant prior art in the proceedings, the impugned decision be set aside and the patent revoked.

The Respondent requested documents (4) to (6) not be accepted and the appeal be rejected. Further, in the event of oral proceedings, the Patentee reserved his rights to argue for his costs to be paid on a scale and to the extent appropriate to the circumstances.

VII. In view of the above grounds, arguments and requests the Board issued a communication on 27 October 1988 informing the parties that the late filed documents (4) to (6) had been examined. Although document (4) could be considered as sufficiently relevant to be admitted into the proceedings, it did not appear to deprive the patent in suit of novelty and inventive step. The Board further indicated that following the Decision T 117/86 it proposed to apportion the costs in favour of the Respondent pursuant to Article 104(1) EPC.

The Appellant's reply dated 21 December 1988 did not contain any new argument, neither from a substantive, nor from a procedural point of view.

#### Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is, therefore, admissible.
2. The Board notes that the grounds of appeal do not challenge at all the reasoning set out in the decision of the Opposition Division rejecting the opposition and that documents (1) to (3) which were the basis for the opposition are no longer cited by the Appellant to support the appeal grounds. In the Grounds of Appeal these documents are regarded more as background art disclosing at most general principles which govern the properties of styrene-butadiene block copolymers. The Appellant thus acknowledges in effect that documents (1) to (3), either alone or in combination, do not suggest the subject-matter of the patent in suit; this was also the conclusion of the Decision of the first instance.

3. As is apparent from paragraph IV above, in the Appellant's grounds of appeal, document (4) is now considered to be by far the most relevant of the cited prior art documents. It is referred to in the introduction of the patent in suit and should therefore have been known to the Appellant. The Appellant has given no reason, however, why this document has been relied upon as the main basis for attacking the validity of the patent in suit for the first time in the grounds of appeal. The question arises as to whether documents (4) to (6) should be admitted into the appeal proceedings at this stage of the opposition, and if so, upon what terms.
  
4. In the Board's view, document (4) represents the closest state of the art and should therefore be admitted in the appeal proceedings.

This document relates to a rubber composition suitable for tyre treads based on a styrene-butadiene block copolymer which comprises a copolymer block (A) containing 0 to 35% by weight of a monovinyl aromatic compound and 10 to 20% of vinyl structure in combined butadiene and a copolymer block (B) containing 0 to 35% by weight of a monovinyl aromatic compound and 40 to 95% of vinyl structure in combined butadiene, the weight ratio (A):(B) being 20:1 to 1:20, the overall amount of vinyl structure being 20 to 50%, the monovinyl aromatic compound being contained in at least either (A) or (B) and the block copolymer having a Mooney viscosity (1+4 minutes, 100°C) of 25 to 200 (claim 2 and page 2; paragraph 4 to page 3, paragraph 1).

By contrast to the relatively low amount of vinyl structure in block (A) (10 to 20%), vinyl contents from 25 to 50% are required for block (A) of the block copolymers according to the patent in suit. These figures do not depend on the length, i.e. the molecular weight of a particular segment as the Appellant put forward (page 9,



paragraph 2), but refer to the ratio of butadiene which undergoes 1,2-polyaddition with regard to the total amount of butadiene incorporated into the polymer backbone, as is evident from the expression "vinyl content in butadiene portion (%)" in Table 2; they represent thus objective differences between the prior art and the subject-matter of the patent in suit, so that novelty can be acknowledged on that basis.

It is further observed that document (4) only discloses block copolymers of type (A) (B) corresponding to the alternative (i) in Claim 1 of the patent in suit; nothing in this document suggests the additional presence of a polybutadiene block (C) corresponding thus to the alternative (ii) which will not be considered hereinafter.

5. Before discussing the problem of inventive step in the light of the differences between document (4) and patent in suit, the exact structure of the block copolymers of type (A) (B) as claimed in the latter has to be made clear. It is explicitly specified in the description of the patent in suit as an overriding requirement of the invention that the two styrene-butadiene blocks of the copolymer should differ in their styrene content as well as in their vinyl content (page 2, lines 3 to 5 and lines 52 to 58). Although only the latter feature is specifically required by the wording of Claim 1, there being some overlap in the ranges of styrene content (10 to 50% cf. 1 to 30%), the exact scope thereof should be interpreted in the light of the description as laid down in Article 69(1) EPC and its Protocol. In the Board's view, if the description on its proper interpretation specifies a feature to be an overriding requirement of the invention, following Article 69(1) EPC and its Protocol the claims may be interpreted as requiring this as an essential feature, even though the wording of the claims when read in

isolation does not specifically require such feature. In the present case, the overriding requirement regarding the difference in styrene content between the two blocks is to be implied in Claim 1, and cannot therefore be ignored; it follows from this that all the argumentation by the Appellant (page 3, paragraph 1) based on the vinyl content as the only distinguishing feature between block (A) and block (B) of the claimed block copolymers is an oversimplifying approach which cannot be accepted by the Board.

In fact, the Respondent has given the technical meaning of this double requirement in the patent in suit (page 3, lines 12 to 22). The difference in styrene content and the difference in vinyl content between the blocks (A) and (B) are essential factors which contribute to the compatibility of the blocks through vulcanization in spite of their different characteristics and solubility parameters.

6. With regard to the teaching of document (4) the subject-matter of the patent in suit differs in the following respects:

In the prior art the vinyl content is 10 to 20% in block (A) and 40 to 95% in block (B), these limits being regarded as critical to ensure comfortableness to drive (page 4, lines 12 to 18), whereas 25 to 50% and respectively at least 60% are required according to the patent in suit in order to optimize the fracture characteristics and the balance between wet skid resistance and rolling resistance (page 3, lines 26 to 28 and lines 34 to 38).

In the prior art the amount of the monovinyl aromatic compound is selected from the range of 0 to 35% by weight in the block (A) or (B), the upper limit being regarded as critical to ensure high abrasion resistance (page 4, paragraph 5 to page 5, paragraph 1); the fact that this compound may be totally absent from block (A) or (B) shows

that its distribution is less relevant than the overall amount thereof. By contrast, the bound styrene contents in the respective blocks in the patent in suit are 10 to 50% and 1 to 30% by weight (page 3, lines 39 to 45); below these limits unsatisfactory fracture characteristics are provided and above them the rolling resistance is inferior.

This comparison shows that the proportions and the distribution of styrene and vinyl units between blocks (A) and (B) are selected in the prior art and in the patent in suit according to different criteria which reflect the different balances of properties to be achieved. Appropriate examples and comparative examples in the patent in suit demonstrate convincingly that the ranges as specified in Claims 1 are necessary to obtain the desired balance of properties. Since document (4) does not suggest how to improve the balance of properties of the known styrene-butadiene block copolymers, the subject-matter of the patent in suit must be regarded as inventive.

7. The objection raised by the Appellant that the tyre compositions based on the claimed block copolymers do not exhibit any superiority at all with regard to the compositions disclosed in document (4) cannot be accepted. First of all, the object of the invention is not to improve one particular property, but to optimize a balance of properties. Besides, the comparison between the prior art compositions (page 13, Table 5) and the compositions according to the patent in suit (page 10, Table 3) is meaningless because of the compounding differences which affect both the ingredients and the proportions thereof. An objective comparison would have required from the Appellant to provide all the properties of a composition based on the block copolymer according to document (4) and containing the specific additives in the proportions according to Table 3 of the patent in suit. According to the decision

T 219/83 of this Board published in OJ EPO, 7/1986, 211, if the EPO is unable to establish the facts of its own motion, the patent proprietor is given the benefit of the doubt. This decision specifies that it is not sufficient in opposition proceedings for the Opponent to impugn a granted patent with an assertion which cannot be substantiated (point 12, paragraphs 4 and 5). In this respect, thus, the Appellant has clearly failed to prove his case.

8. In conclusion, document (4) does not either anticipate or suggest the subject-matter of the patent in suit.

The same applies to document (5) which does not even consider the vinyl content in the two blocks and thereby fails to appreciate the influence of the vinyl content distribution breadth on the properties of block copolymers. Document (6) is not a prepublished document (date of publication: 14 January 1982). These two documents are not sufficiently relevant to be admitted into the appeal.

9. Previous decisions of the Boards of Appeal, in particular Decisions T 258/84, dated 18 July 1986, published in OJ EPO, 1987, 119 and T 273/84, dated 21 March 1986, published in OJ EPO, 1986, 346, have stated that a document which is relied upon by an Opponent for the first time during the appeal stage of an opposition and which is sufficiently relevant to be admitted into the opposition proceedings, should (in the exercise of the Board's discretion under Article 111(1) EPC) normally be referred back to the first instance, in particular so as to allow the new document to be examined at two levels of jurisdiction and thus so as not to deprive the patent proprietor of one such level of jurisdiction.

Such a procedure is clearly right when the Board considers that a newly introduced document is so relevant that the maintenance of the patent is at risk. However, in the

present case, as set out in paragraphs 4 to 8 above, the Board has carefully considered document (4) and has come to the conclusion that the maintenance of the patent is not prejudiced. Since it is the Appellant (the Opponent) who is responsible for the late introduction of document (4) into the opposition proceedings, the Board has decided in the circumstances of this case to exercise its discretion under Article 111(1) EPC by itself examining document (4) and deciding the opposition having regard to this document, rather than referring it back to the first instance for examination. If the Board follows this approach the Appellant (the Opponent) loses one instance of examination in respect of document (4), but that is fair because he introduced the document late. The alternative course of referring document (4) to the first instance for examination would unjustifiably increase the costs of the Respondent, would prolong the proceedings and would be unfair to the Respondent. In the circumstances of the present case, in the Board's view the interests of the Respondent clearly outweigh those of the Appellant.

10. As noted above in point 2, the Grounds of Appeal make no criticism of the reasons for the decision of the Opposition Division, but rely only on documents submitted 20 months after the period of lodging an opposition provided by Article 99 (1) EPC. The Board has recently stated in Decision T 117/86 of 1 August 1988 (to be published) that Article 99 (1) and Rule 55 (c) EPC considered together clearly require that an Opponent's case against an opposed patent should be set out fully and completely in the notice of opposition and should not be presented and developed piece-meal (point 4, paragraph 4). In particular, the fact that a document is mentioned in the opposed patent already does not provide any justification for citing this document for the first time in support of lack of invention outside the nine month opposition period (point 6, paragraph 2).

In the present case, the fact that the Appellant relies in the Statement of Grounds of Appeal on three new documents exclusively and for the first time even raises the issue of novelty on the basis of a document already discussed in the patent in suit is regarded by the Board as an abuse of the opposition procedure. By introducing arguments and documents which bear little relation to those filed in the original opposition, the Appellant has produced virtually a new opposition at the appeal stage. This cannot be, by definition, the purpose of an appeal.

The late filing of documents (4) to (6) must have considerably increased the costs incurred by the Respondent, in comparison with the situation if all facts and evidence had been filed within the nine month period. Although the Respondent has clearly envisaged to request a decision on costs only in the event of oral proceedings, the present abuse of procedure justifies, in the Board's view, the apportionment of costs incurred during taking of evidence. As provided in Rule 63(1) EPC, such costs include the remuneration of the representatives of the parties (see Decision T 117/86 "Costs" dated 1 August 1988, to be published: see headnote OJ EPO 5/1989).

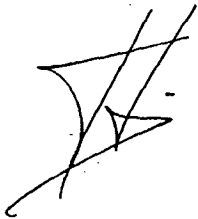
Having carefully considered all the relevant circumstances of the case, the Board has decided for reasons of equity to order an apportionment of costs by which the Appellant shall pay to the Respondent fifty per cent of the costs which were incurred by the Respondent's representative and charged to the Respondent in preparing and filing the reply to the appeal dated 7 September 1988.

Order

For these reasons, it is decided that:

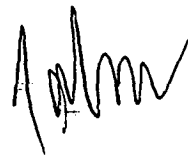
1. The appeal is dismissed.
2. The costs in the appeal procedure shall be apportioned so that the Appellant shall pay to the Respondent fifty per cent of the costs which were incurred by the Respondent's representative and charged to the Respondent in preparing and filing the Respondent's reply to the appeal dated 7 September 1988.

The Registrar:



F. Klein

The Chairman:



K. Jahn

CG

