

Internal distribution code:

- (A) [] Publication in OJ
(B) [X] To Chairmen and Members
(C) [] To Chairmen

D E C I S I O N
of 12 July 1994

Case Number: T 0210/93 - 3.3.3

Application Number: 85905026.2

Publication Number: 0200742

IPC: C08F 8/22

Language of the proceedings: EN

Title of invention:

Process for producing brominated butyl rubber high in primary allylic bromine

Applicant:

Exxon Research and Engineering Company

Opponent:

-

Headword:

-

Relevant legal norms:

EPC Art. 54

Keyword:

"Novelty (denied) - use of a known process for preparing its inevitable product (G 0006/88/distinguished)"

Decisions cited:

G 0002/88, G 0006/88, G 0001/92, T 0198/84

Catchword:

-



Case Number: T 0210/93 - 3.3.3

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 12 July 1994

Appellant: Exxon Research and Engineering Company
P.O. Box 503
Florham Park
NJ 07932 (US)

Representative: Dew, Melvyn John
Esso Chemical Ltd.
Esso Chemical Research Centre
P.O. Box 1
Abingdon
Oxfordshire, OX13 6BB (GB)

Decision under appeal: Decision of the Examining Division of the European Patent Office dated 1 April 1992 refusing European patent application No. 85 905 026.2 pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: F. Antony
Members: P. Kitzmantel
M. K. S. Aúz Castro

Summary of Facts and Submissions

- I. European patent application No. 85 905 026.2, Publication No. 200 742, filed on 26 September 1985 with the international filing No. PCT/US85/01858, and claiming priority from a US application filed on 1 October 1984, was refused by the Examining Division on 1 April 1992.
- II. The decision of refusal was taken on the basis of Claim 1 filed on 11 January 1991, reading as follows:
- "A process for producing brominated butyl rubber having a substantial fraction of the bromine in the primary allylic position characterized in that said process comprises contacting a butyl rubber polymer, predissolved in solvent, with bromine at a temperature of 65°C to 130°C for 1 to 60 minutes."
- In that decision the Examining Division held that the subject-matter of Claim 1 lacked novelty with regard to document
- D1: US-A-2 955 103,
- which disclosed conditions for the bromination of butyl rubber overlapping those of the alleged invention, and which mentioned specific temperatures within the claimed range of the application in suit. Reference was made to decisions T 12/81 (OJ EPO 1982, 296) and T 198/84 (OJ EPO 1985, 209).
- III. The Appellant (Applicant) lodged an appeal, received on 1 June 1992, against that decision and paid the appeal fee on the same date. A Statement of Grounds of Appeal was filed on 27 July 1992.

IV. In response to observations of the Board upholding the novelty objection of the Examining Division and finding fault with some inconsistency in the description, the Appellant submitted new main and auxiliary requests comprising the following Claims 1:

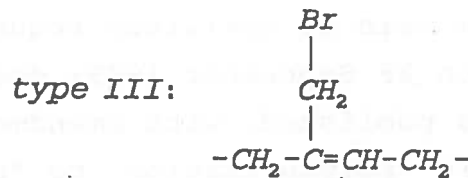
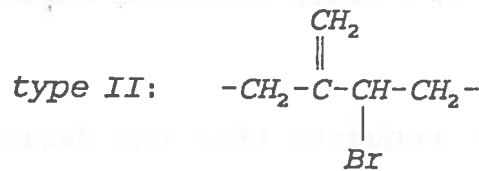
Main Request (filed on 16 July 1993):

"The use of a process comprising contacting a butyl rubber dissolved in a solvent with bromine at a reaction temperature of about 65°C to about 130°C for 1 to 60 min for the purpose of preparing a brominated butyl rubber product having a mole ratio of secondary allylic bromine (type II) to primary allylic bromine (type III) of less than 2/1."

Auxiliary Request (filed on 6 January 1994, as amended on 26 January 1994), after correction of two obvious clerical errors ("ratio" instead of "ration" and deletion of "or" after "(type II)", both in the penultimate line):

"A process for directly brominating butyl rubber which comprises contacting a butyl rubber polymer, predissolved in a solvent, with bromine at a temperature 65°C to 95°C for 1 to 60 minutes so as to produce a brominated butyl rubber having a mole ratio of secondary allylic bromine (type II) to primary allylic bromine (type III) of less than 1/2."

The terms "secondary allylic bromine (type II)" and "primary allylic bromine (type III)" relate to the following structures (pursuant to formulae (XI) and (XII) on page 12 of the description):



V.

V.1 As to the main request the Appellant argued that its novelty could be concluded by analogy from the decision of the Enlarged Board of Appeal G 02/88 (OJ EPO 1990, 93), since D1 was silent about the type II/type III mole ratio, this being the now claimed purpose of the alleged invention.

V.2 With regard to the novelty of the subject-matter of the auxiliary request over D1, the Appellant expressed the opinion that the restricted range of temperatures satisfied the criteria for selection inventions set out especially in in T 198/84 (loc. cit.). Arguments in support of inventive step were also presented.

V.3 Concerning the conflicting temperature statements, on the one hand in Figure 1/1, and on the other hand on page 18, lines 16 to 18 and in Table II, the Appellant argued that an amendment of Figure 1/1 by exchange of the temperature annotations "70°C"/"90°C" of the dotted and solid lines would be admissible under Rule 88 EPC.

VI. The Appellant requests that the decision under appeal be set aside and a patent be granted on the basis of the following documents:

Claim 1 of the main or auxiliary request; Claims 2 to 6 as amended on 28 September 1989; description of the application as published, with amendment under Rule 88 EPC of the word "polymerization" to "bromination" on page 9, line 6, and of Figure 1/1 by association of the dotted lines with the temperature of 70°C and of the solid lines with 90°C.

An original request for oral proceedings was withdrawn with letter of 16 July 1993; this withdrawal was confirmed in the Appellant's facsimile of 26 January 1994 under the condition that the Board would "admit" the auxiliary request submitted therewith.

Reasons for the Decision

1. *Admissibility*

The appeal is admissible.

While, due to an apparent incompleteness of its wording, the Notice of Appeal, filed by facsimile on 1 June 1992, was not entirely clear as to the extent

to which amendment of the contested decision was requested, this deficiency constitutes no bar to the admissibility of the appeal (Art. 64(b) and Art. 65(a) EPC), since there could be no reasonable doubt that the incomplete sentence "It is requested that the decision be cancelled in whole with respect to the rejection for lack novelty of 3, 5-6, and 8-11, the claims examined." should be interpreted to extend to Claim 1, because the decision of refusal was solely concerned with Claim 1.

2. *Procedural matters*

As set out in section VI the Appellant, in his last submission, has effectively reinstated his original request for oral proceedings in the event that the Board would not "admit" his latest auxiliary request. In the context of the Appellant's whole submission of 26 January 1994 the term "admit" is interpreted in the sense of "admit into consideration" as opposed to "allow". While the Appellant's repeated amendments to the claims (facsimiles of 27 July 1992, 6 January 1994 and 26 January 1994) come close to a procedural abuse which would warrant disregarding of at least the latest auxiliary request under the provisions of Rule 86(3) EPC, the Board has, nevertheless, decided to admit it into consideration. Consequently, a valid request of the Appellant for oral proceedings is not in existence.

3. *Main Request*

3.1 *Compliance with Article 123(2) and Rule 88 EPC*

Being based on original Claims 1 and 10 and on page 12, lines 29 to 32 of the original description,

Claim 1 of the main request does not go beyond the original disclosure of the application in suit.

The corrections in Figure 1/1 and on page 9, line 6 (cf. sections V.3 and VI of this decision) involve obvious amendments of obvious errors and are, thus, admissible under Rule 88 EPC. In view of the outcome of this appeal a more detailed reasoning is not necessary.

3.2 Patentability

3.2.1 In its communication of 1 June 1993, the Board had endorsed the opinion of the Examining Division that Claim 1 in the version then before it (cf. point II hereinbefore) lacked novelty because, in relation to D1, the temperature range specified in that claim did not meet the conditions for the novelty of a selection out of a known numerical range, viz. that the selected range would have to be both, narrow and sufficiently far removed from the preferred (exemplified) range of the citation concerned (decision T 198/84, loc. cit.). The view then expressed by the Board is maintained.

3.2.2 Claim 1 of the present main request is directed to "the use of" that same process held to be not novel "for the purpose of preparing a brominated butyl rubber product having" a certain maximum ratio of secondary to primary allylic bromine. With reference to the Enlarged Board's Decisions G 2/88 and G 6/88 (OJ EPO 1990, 93, Reasons 10.3; and OJ EPO 1990, 114, Reasons 9; respectively), it was argued that, in the absence of a disclosure of the said mole ratio in D1, this constituted a "specific technical purpose of achieving the previously unknown chemical structural arrangement".

3.2.3 At the outset, the Board has serious doubts whether the above-referred Enlarged Board decisions can at all be applied to the present situation. Those decisions related to claims to the use of a known **compound** for a particular purpose; in contrast thereto, the claim here under discussion is directed to the use of a known **process** for a particular purpose, the purpose being the preparation of the particular product (mixture) naturally resulting from such process. The use of a process for the purpose of preparing its product(s) could be said to be nothing but that very same process, and the scope of protection would appear to be the same for a claim to the process as such and a claim to such use.

3.2.4 Supposing, however, to the Appellant's benefit, that the use of a known **process** for achieving a certain result could indeed be equated, by way of analogy, to the use of a known **compound** for a particular purpose, this would still not be helpful to the Appellant in the result, since under the prevailing circumstances the claimed use would not be novel, for reasons which follow:

3.2.4.1 The Order of G 6/88 (identical to point (iii) of the Order of G 2/88) reads in full:

"A claim to the use of a known compound for a particular purpose, which is based on a technical effect which is described in the patent, should be interpreted as including that technical effect as a functional technical feature, and is accordingly not open to objection under Article 54(1) EPC **provided that such technical feature has not previously been made available to the public**" (emphasis added).

The latter proviso is not met in the present case, as set out below.

3.2.4.2 It is true that D1 does not explicitly spell out the mole ratio of secondary to primary allylic bromine as defined in the claim under discussion. It cannot, however, be denied that, to the extent the process of D1 is identical to that used according to the application in suit, the results, i.e. the product mixture including the said mole ratio, must also be identical. A chemical analysis of the respective product mixture would show this.

3.2.4.3 With respect to the aforesaid factual situation, the Enlarged Board Opinion G 1/92 (OJ EPO 1993, 277) must be borne in mind. Its Conclusion No. 1 reads as follows:

"The chemical composition of a product is state of the art when the product as such is available to the public and can be analysed and reproduced by the skilled person, irrespective of whether or not particular reasons can be identified for analysing the composition."

Applied to the present case this means: The chemical composition (including the mole ratios concerned) of the products of D1 was available to the public, even though it was not explicitly disclosed in D1. Once it was available, this technical feature could not establish novelty in the framework of the use claim in question (cf. emphasized proviso in the Order of G 6/88).

3.2.5 While the aforementioned approach was chosen because the language of the Enlarged Board cases referred to fits particularly well, the same result could have been arrived at by simply referring to the fact that the very same product which is the purpose of Claim 1 to prepare, is the **inevitable result** of the process disclosed in D1, to the extent the temperature ranges of that document and of the application in suit overlap.

3.2.6 The Main Request must therefore fail.

4. *Auxiliary Request*

4.1 Compliance with Article 123(2) EPC

Being based on original Claims 1, 7 and 10 and on page 12, lines 29 to 32 and page 16, lines 19 to 22 of the original description, Claim 1 of the Auxiliary Request does not go beyond what was originally disclosed.

4.2 Novelty

4.2.1 The nearest document of the prior art is represented by D1. It discloses a process for the bromination of butyl rubber in solution at a temperature of between about -30°C and +100°C, preferably between about 20°C and about 70°C, and for a time of e.g. about 1 to 60 minutes (cf. Claims 1 and 5; column 2, lines 25 to 39). D1 is silent about the substitution pattern obtained by the bromination and does not disclose, therefore, the type II/type III mole ratio of less than 1/2 required by Claim 1.

- 4.2.2 In a process claim, like the present, a structural characteristic of the product obtained, here the bromine substitution pattern, is not a feature separate from the process conditions (the starting materials inclusive) but rather is a corollary thereof. So this feature, by itself, cannot establish novelty.
- 4.2.3 As regards each of the temperature and the time conditions in Claim 1, there is a broad overlap with the disclosure of D1: the claimed range of 65°C to 95°C is completely within the broader range of from -30°C to 100°C, and even overlaps the preferred range of from 20°C to 70°C (column 2, lines 31 to 33) according to D1, and the claimed bromination time of from 1 to 60 minutes may be identical to that according to D1 (column 2, line 34). There can, therefore, be no question of the criteria of T 198/84 (loc. cit.) being met (cf. point 3.2.1 hereinabove).
- 4.2.4 Appellant's argument that despite the disclosure in D1 of temperatures as high as 70°C and even 100°C the skilled man, when starting from this document, would stick to the temperature of 25°C/room temperature used in the three worked examples is not convincing. Rather in the absence of any information in the document militating against the feasibility of its subject-matter within the full range of temperatures disclosed in its specification, the skilled person had no reason to doubt the correctness of the disclosure also in this respect. Consequently, the skilled person would at least seriously contemplate applying the technical teaching of D1 in the range of overlap of temperatures between the alleged invention and D1 (cf. T 26/85 "Thickness of magnetic layers/TOSHIBA", OJ EPO 1989, 495, Reasons 9).

The same arguments apply to the duration of the bromination.

Thus, the temperature and time conditions according to present Claim 1 cannot, by themselves, establish novelty over D1.

4.2.5 The Board is not convinced either by the Appellant's allegation that the claimed invention would require a combination of both, "a higher temperature and a longer duration" undisclosed in D1, and thus establishing novelty; as explained below, the evidence on file cannot support the Appellant's contention that according to the alleged invention high temperatures would have to be combined with long duration in order to achieve the desired low type II/ type III molar ratio, thus establishing an implicit functional limitation:

The "Endo(III)/Exo(II) graphs" in Figure 1/1, representing the only available information in that respect, allow an approximation of the following type II/type (III) molar ratios (reciprocal values to those of the graphs):

reaction time:	≈50s	≈90s	≈240s	≈400s

type II/type III (70°C) (upper graph, as corrected)	-	0,12	0,10	0,08
type II/type III (90°C) (lower graph, as corrected)	0,6	0,45	0,20	0,10

According to this table the desired type II/type III ratio of less than 1/2 = 0,5 is achieved for all reaction times except the 50s-value (which is outside the claimed range) and - since the temperatures 70°C

and 90°C in the above tabulation are close to the limits of 65°C and 95°C of the claim in suit - it must be assumed that a type II/type III ratio of less than 1/2 is essentially obtained with any temperature/duration combination covered by this claim. Consequently, the functional feature in the claim ("to produce a ... rubber having a mole ratio ... of less than 1/2") does not involve any limitation to the combination of the ranges of temperature and duration as defined in the claim.

In the Board's opinion, therefore, the Appellant's argument that D1 would not disclose the required combined disclosure of "both a higher temperature and a higher duration", is not conclusive.

4.2.6 For the above reasons, the disclosure of D1 anticipates the subject-matter of Claim 1 of the Auxiliary Request, which must therefore fail.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:


E. Gorgmayer

The Chairman:


F. Antony