

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 June 1995

Case Number: T 0737/92 - 3.3.3

Application Number: 85303146.6

Publication Number: 0164874

IPC: C08F 212/12

Language of the proceedings: EN

Title of invention:

Process for producing a heat-resistant copolymer of alpha-methylstyrene and acrylonitrile, and thermoplastic resin composition containing the same

Patentee:

JAPAN SYNTHETIC RUBBER CO., LTD.

Opponent:

Bayer AG, Leverkusen Konzernverwaltung RP Patente Konzern

Headword:

-

Relevant legal provisions:

EPC Art. 54, 56, 100

EPC R. 55(c)

Keyword:

"Legal and factual framework of the appeal limited to that on which Opposition Division's decision was based (G 0009/91 and G 0010/91 followed)"

"Function of appeals - actual case raised in Grounds of Opposition as distinct from merely formal one"

"Novelty (yes) - no implicit disclosure"

"Inventive step (yes) - no incentive"

Decisions cited:

G 0009/91, G 0010/91, G 0007/91, G 0008/91

Catchword:

-

Case Number: T 0737/92 - 3.3.3

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 12 June 1995

Appellant: Bayer AG, Leverkusen
(Opponent) Konzernverwaltung RP
Patente Konzern
Bayerwerk
D-51368 Leverkusen (DE)

Representative: -

Respondent: JAPAN SYNTHETIC RUBBER CO., LTD.
(Proprietor of the patent)11-24, Tsukiji-2-chome
Chuo-ku
Tokyo 104 (JP)

Representative: Tubby, David George
MARKS & CLERK
57-60 Lincoln's Inn Fields
London WC2A 3LS (GB)

Decision under appeal: Decision of the Opposition Division of the European Patent Office dated 2 July 1992 rejecting the opposition filed against European patent No. 0 164 874 pursuant to Article 102(2) EPC.

Composition of the Board:

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

Summary of Facts and Submissions

- I. Mention of the grant of European patent No. 0 164 874 in respect of European patent application No. 85 303 146.6, filed on 2 May 1985, claiming priority from two earlier applications in Japan (113853/84 of 5 June 1984 and 133056/84 of 29 June 1984), was announced on 26 April 1989, on the basis of fourteen claims, Claim 1 reading as follows:

"A process for producing a heat-resistant copolymer containing from 74 to 82% by weight of α -methylstyrene (A) and from 18 to 26% by weight of acrylonitrile (B) and (a) from 0 to 15% by weight of monomer chains)[(A))(A))(A)]), (b) 50% by weight or more of monomer chains)[(A))(A))(B)]), and (c) from 50 to 0% by weight of monomer chains)[(B))(A))(B)]), the total of (a), (b) and (c) being 100% by weight which process comprises initially feeding (A) α -methylstyrene and (B) acrylonitrile in a (A) to (B) weight ratio of less than 9:1, emulsifying the mixture, initiating the polymerization thereof at a temperature in the range of from 67 to 90°C and continuing the polymerization in said temperature range while supplying acrylonitrile or a mixture of α -methylstyrene and acrylonitrile continuously or intermittently so that the weight ratio of α -methylstyrene to acrylonitrile of the unreacted monomers in the system is maintained at 7:1 or more."

Claims 2 to 8 are dependant and refer to preferred embodiments of the process for producing a heat-resistant copolymer as defined by Claim 1.

Claim 9 is an independent claim directed to a ternary thermoplastic resin composition comprising (I) a heat resistant copolymer having an intrinsic viscosity of 0.2 to 0.7 dl/g and as prepared by the process according to any of Claims 1 to 8, (II) a copolymer of α -methylstyrene, an alkenyl cyanide and optionally one or several further monomers, and (III) a rubber-modified thermoplastic resin.

Claims 10 to 14 are dependent and refer to preferred embodiments of the thermoplastic resin composition of Claim 9.

II. On 22 September 1989 an opposition was filed against the granted patent, requesting the total revocation of the patent, on all the grounds set out in Article 100 EPC, by merely referring to that Article in its entirety. The only document cited during the opposition was US-A-4 427 832 (D1).

III. By a reasoned decision issued on 2 July 1992, the Opposition Division rejected the opposition on the grounds that the subject-matter of Claims 1 to 8 was novel and inventive over D1. They stated, in essence, that:

(i) Although the opposition was formally pleaded upon the basis of Article 100 EPC as a whole, requesting the revocation of the patent in its entirety, it was clear from the submissions and arguments presented in the Notice of Opposition (pursuant to Rule 55(c) EPC) that the actual grounds of opposition were non-compliance with the requirements of Articles 52 to 57 EPC only and

furthermore that the opposition did not extend to composition Claims 9 to 14;

(ii) The weight ratio of α -methylstyrene to acrylonitrile was a distinguishing feature, since neither the general process taught in D1, nor the specific embodiment according to Example 4 disclosed the use of monomers in the required amounts;

(iii) Furthermore, the claimed process involved an inventive step, since the combination of required features could not be derived in an obvious manner from D1.

IV. The Appellant (Opponent) lodged an appeal against that decision on 6 June 1992 and paid the prescribed fee at the same time. In the Statement of Grounds of Appeal filed simultaneously and in later written submissions the Appellant argued essentially as follows:

(i) The compositions defined in Claims 9 to 14 were partially identical with the polymer mixtures described in D1. Therefore the EPO was obliged, pursuant to Article 114(1) EPC, to examine of its own motion the patentability of these claims, despite the fact that the Opposition Division had confined itself to the matter actually pleaded under Rule 55(c) EPC, namely, the validity of Claims 1 to 8. In a statement filed on 18 March 1993, however, the Appellant resiled from this position, stating that it had no longer any real objections against Claims 9 to 14.

(ii) Although D1 disclosed an upper limit of the molar ratio α -methylstyrene to acrylonitrile of 3, the

possibility to use higher ratios was clearly envisaged. Given the small difference between that upper limit and the lower limit required in the patent in suit, it followed that an implicit lack of novelty was present.

(iii) As was evident from newly cited documents EP-A-0 041 703 (D2) and EP-A-0 042 572 (D3), the products obtainable by the claimed process were not novel. In the absence of any technical effect or improved properties, the higher ratio α -methylstyrene/acrylonitrile could not be regarded as inventive since D1, column 2, from line 33 onward, provided an incentive to consider monomer ratios other than those corresponding to the basic range.

V. The Respondent (Proprietor) argued essentially as follows:

(i) Claims 9 to 14 had not been attacked by the Appellant in the opposition proceedings. In particular, no submissions had been made, nor any prior art cited against them. Opening the issue of the patentability of these claims at the appeal stage would therefore be unduly onerous upon the Respondents.

(ii) There was a clear and unequivocal teaching in D1 not to use the vinyl aromatic monomer and the vinyl cyanide compound in molar ratios exceeding 3, since higher values were said to be detrimental to yield, molecular weight and properties of the copolymer. In the patent in suit, on the contrary, the controlled amounts of α -methylstyrene and acrylonitrile during the entire reaction ensured a particular distribution of

monomer chains, by which a surprising improvement in heat stability was achieved.

- VI. The Appellant implicitly requested that the decision of the Opposition Division be set aside and the patent be revoked.

The Respondent requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.

Procedural matter

2. The first issue that falls to be decided is the **actual** legal and factual framework of the opposition, as set out in the **grounds of opposition** filed pursuant to Rule 55(c) EPC. Whilst the Notice itself referred to all the claims of the patent and, by implication, all the grounds encompassed by Article 100 EPC, the case that was pleaded and supported in the grounds of opposition was of a much narrower compass in two vital respects, as was correctly found by the Opposition Division for the reasons set out below.

- 2.1 As was clearly stated in the decision under appeal (Reasons for the Decision, point 2), the substantive part (grounds) of the Notice of Opposition did not, as it needed under Rule 55(c) EPC, contain any facts, evidence or arguments which could be regarded either explicitly or implicitly as relating to, let alone supporting a ground of opposition pursuant to

Article 100(b) and (c) EPC. Equally, whilst detailed reasons were advanced against the patentability of the process claims, nothing whatsoever was submitted in relation to the novelty and inventive step of the composition claims. In particular, there was no comparison of the compositional features of the prior art and of the claimed subject-matter upon which an objection of lack of novelty could have been argued or implied. Nor was there any argument to show or to imply that the compositions would have been obvious to a skilled person in view of the technical problem to be solved. The Opposition Division was therefore fully justified in reaching the conclusion that the opposition extended only to Claims 1 to 8, and solely on the grounds within Article 100(a) EPC. It was, therefore, on this **legal and factual** framework upon which the decision of the first instance was eventually **based** and delivered, in conformity with decisions G 9/91 (OJ EPO 93, 408) and G 10/91 (OJ EPO 93, 420). In those decisions it was clearly stated that Rule 55(c) EPC must be "interpreted as having the double function of governing (together with other provisions) the admissibility of the opposition and of establishing at the same time **the legal and factual framework, within which the substantive examination of the opposition in principle shall be conducted.**" (Reasons for the Decision, point 6 in both cases). As further stated in those decisions, "By limiting the extent to which the patent is opposed to only certain subject-matters, the opponent deliberately refrains from making use of his right under the EPC to oppose remaining subject-matters covered by the patent. Such subject-matters are therefore, strictly speaking, not subject to any "opposition" in the sense of

Articles 101 and 102 EPC, nor are there any "proceedings" in the sense of Articles 114 and 115 EPC in existence concerning such non-opposed subject-matters. Consequently, the EPO has no competence to deal with them at all." (Reasons for the Decision, point 10 in both cases).

- 2.2 The Appellant in this case effectively submitted that the principle of **ex officio** examination, pursuant to Article 114(1) EPC, obliged the Board to adjudicate upon matters on which the Opposition Division's decision had not been based, namely upon the patentability (having regard to Article 100 EPC as a whole) of all the claims, including Claims 9 to 14.

Now it is clear from both the above cases that the **legal and factual** framework of a case heard **on appeal** must remain the same or closely similar to the one upon which the first instance's decision has been rendered, for the purpose of an appeal **inter partes** is to give the losing party a possibility to challenge the decision of the Opposition Division **on its merits** and "it is not in conformity with this purpose to consider grounds of opposition upon which the decision of the Opposition Division have not been based." The reason for this, as has already been explained in cases G 7/91 (OJ EPO 1993, 356) and G 8/91 (OJ EPO 1993, 346), and expressly reiterated in the above cited cases, is that appeals are **judicial**, whilst oppositions are "merely administrative" (G 9/91 and G 10/91, Reasons for the Decision, point 18 in both cases). It is this judicial character that sets the limits to the investigative power of the Boards under Article 114(1) EPC read in conjunction with the proviso "mutatis mutandis" in

Rule 66(1) EPC. The legal framework of any opposition case is uniquely defined by (i) the extent to which a patent is actually opposed and (ii) the grounds (in the sense of Article 100(a), (b) and (c) EPC) upon which it is opposed, whilst its factual framework is determined by the facts, evidence and arguments adduced and set out in the Notice of Opposition pursuant to Rule 55(c) EPC. It is thus self-evident that neither grounds not actually supported by such facts, evidence and arguments, nor claims not actually opposed (as distinct from being merely formally mentioned in the Notice of Opposition) can be properly regarded as making up the "legal and factual framework" of the opposition and, for the reasons stated above, of the appeal from a decision of the Opposition Division **based** on that framework. To permit the shifting of that framework in appeal, in a mistaken reliance on the wording of Article 114(1) EPC, read in isolation from the rest of the EPC, and in particular Rule 66(1), would clearly offend the legal principles contained and expressed in the EPC and explained in the above-cited decisions of the Enlarged Board.

2.3 Accordingly, this Board will confine its deliberations to Claims 1 to 8 and to the grounds set out in Article 100(a) EPC, these being the matters that constituted the opposition case as set out pursuant to Rule 55(c) EPC, and therefore the legal and factual basis of the decision upon whose merits the Board is called upon to adjudicate.

3. The late-filed documents D2 and D3 have been cited as evidence that products obtainable by the process according to Claim 1 are known. However, claims

directed to such products are not present and hence do not form part of the appeal. Moreover, the Board has found that neither of the documents was sufficiently relevant, in the sense of their evidential weight as compared with that of D1, to be taken into consideration and has therefore disregarded them.

Novelty

4. D1 describes a process for the preparation of copolymers by emulsion polymerisation of a monomer mixture comprising 65 to 80% by weight of α -methylstyrene, 15 to 30% by weight of a vinyl cyanide compound and 0 to 20% by weight of other copolymerisable vinyl compounds, during which polymerisation the molar ratio of the total of α -methylstyrene and other vinyl compounds to the vinyl cyanide compound is maintained within the range of 1.3 to 3.0 by addition of vinyl cyanide (Claim 1 in conjunction with column 2, lines 26 to 33). For a binary system of α -methylstyrene and acrylonitrile, the range would be 2.9 to 6.7 in terms of weight. Although there is no explicit disclosure of higher ratios, this possibility is mentioned in general terms; in particular, molar ratios of α -methylstyrene to vinyl cyanide compound that exceed 3, appear to have been tested (column 2, lines 33 to 38) and to have a detrimental effect on the yield of the reaction as well as on the molecular weight and impact resistance of the copolymer.

However, in the light of that general statement, even a broader interpretation of Claim 1 of D1 does not result in a novelty destroying disclosure for the following

reasons. First, the correspondence between a molar ratio of 3 and weight ratio of 6.7 only applies to acrylonitrile; when methacrylonitrile or α -chloroacrylonitrile, which are described as being equally suitable (column 2, lines 9 to 12), are used, the weight ratio is significantly lower (5.3 and 4.1 respectively). Secondly, as distinct from the patent in suit in which the weight ratio is defined with respect to the amounts of α -methylstyrene and acrylonitrile, in D1 it is the molar ratio of the total of α -methylstyrene and other comonomer(s) to the vinyl cyanide compound which has to be within the given range, which lowers the actual ratio of α -methylstyrene to vinyl cyanide accordingly in e.g. ternary systems.

These considerations show that the value of 6.7 cannot be regarded as a general upper limit of the weight ratio applying to any monomer composition within the scope of D1. Consequently, the gap between the teaching of that citation and the claimed subject-matter is greater than the difference between 6.7 and 7 would prima facie suggest. Even the possibility mentioned in D1 to operate outside the basic range of molar ratios in the direction of the values required in the patent in suit cannot be equated with the new teaching given in the latter that, by operating at weight ratios higher than 7, copolymers having improved properties are obtained. It is thus not reasonable to assume that the disclosure of D1 inherently extends to that limit.

For these reasons it is concluded that the subject-matter of Claims 1 to 8 is novel.

Inventive step

5. The patent in suit concerns a process for producing a heat resistant copolymer of α -methylstyrene and acrylonitrile, and thermoplastic resin compositions containing same.

As stated above, such subject-matter is disclosed in D1, in particular in Example 4 which the Board, like the Opposition Division, regards as the closest state of the art. According to that embodiment the mole ratio α -methylstyrene to acrylonitrile is specified to be initially 2.5 and to decrease continuously to 1.8 during polymerisation (Table 3), i.e. from a weight ratio of 5.6 to 4.0.

Although the copolymers obtained by this method are said to have improved heat and impact resistance, the degree of heat resistance, in particular the Vicat softening temperature and the mouldability at high temperatures, was capable of improvement.

In view of these shortcomings the technical problem underlying the patent in suit may thus be seen in the definition of a process of manufacturing a resin having a low deformation at high temperatures and a high heat stability during moulding at high temperatures.

According to the patent in suit this problem is to be solved by using specified monomer ratios at specified polymerisation stages, as indicated in Claim 1.

The examples and comparative examples in the patent (Tables 2, 5 and 8) demonstrate that the various aspects of the above-defined problem are effectively solved.

6. It remains to be decided whether the claimed subject-matter is obvious having regard to this cited document.

Apart from the fact that D1 does not describe the specific lower limit of 7 for the α -methylstyrene/acrylonitrile weight ratio as required by the patent in suit, its specific teaching in column 2, lines 33 to 38, would discourage the skilled person to operate at molar monomer ratios of above 3, corresponding to a weight ratio of 6.7 in a binary system of α -methyl styrene/acrylonitrile or less in a ternary system. In particular, it clearly appears that both the lower limit of a molar ratio of 1.3 and the upper limit of a molar ratio of 3 for the total of the aromatic vinyl compound and the copolymerisable other vinyl compounds to the vinyl cyanide are essential for the properties of the copolymers of D1. Moreover, D1 is silent about the distribution of the monomers along the polymer chains and the effect it has upon the heat resistance of the copolymer. For these reasons, D1 teaches away from the specific conditions for producing heat resistant copolymers which are required by the patent in suit.

In view of the above, the Board concludes that the process as defined in Claim 1 is inventive.

7. As Claim 1 is allowable, the same goes for dependent Claims 2 to 8, which are directed to preferred embodiments of the process according to Claim 1, and the patentability of which is supported by that of Claim 1.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

P. Martorana

C. Gérardin