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Bezeichnung der Erfindung:
Title of invention:
Titre de l'invention : Resin composition for injection molding, method for producing the composition, and articles molded therefrom

Klassifikation / Classification / Classement : C08L 71/04

## ENTSCHEIDUNG / DECISION

**vom / of / du** 4 July 1990

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /
Titulaire du brevet : Asahi Kasei Kogyo Kabushiki Kaisha

Einsprechender / Opponent / Opposant : 01) BASF AG
02) Hüls AG
03) General Electric Company

Stichwort / Headword / Référence : Resin composition/ASAHI KASEI KKK

EPÜ / EPC / CBE Article 54

Schlagwort / Keyword / Mot clé : "Prior use proved"

**Leitsatz / Headnote / Sommaire**

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Case Number : T 627/88 - 3.3.3

# DECISION
of the Technical Board of Appeal 3.3.3
of 4 July 1990

| | |
|---|---|
| Appellant : (Proprietor of the patent) | Asahi Kasei Kogyo Kabushiki Kaisha<br>2-6 Dojimahama 1-chome<br>Kita-Ku<br>Osaka-shi, Osaka 530<br>JP |
| Representative : | Blake, John Henry Francis<br>BROOKES & MARTIN<br>High Holborn House<br>52/54 High Holborn<br>London WC1V 6SE<br>GB |
| Respondent : (Opponent 01) | BASF Aktiengesellschaft, Ludwigshafen<br>-Patentabteilung - C6-<br>Carl-Bosch-Strasse 38<br>D-6700 Ludwigshafen |
| Respondent : (Opponent 02) | Hüls Aktiengesellschaft<br>Postfach 1320<br>D-4370 Marl 1 |
| Respondent : (Opponent 03) | General Electric Company<br>1, River Road<br>Schenectady, New York 12305<br>US |

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**Decision under appeal :** **Decision of the Opposition Division of the European Patent Office dated 12 October 1988 revoking European patent No. 0 048 154 pursuant to Article 102(1) EPC.**

**Composition of the Board :**

**Chairman :** F. Antony
**Members :** R. Lunzer
M. Aúz Castro

## Summary of Facts and Submissions

I. European patent No. 0 048 154 concerning a resin composition for injection moulding, a method for producing the composition and articles moulded therefrom was granted on 23 January 1985 on the basis of application No. 81 304 200.9 filed on 14 September 1981, claiming a priority date of 16 September 1980 derived from Japanese application No. 127 119/80.

II. Notice of Opposition was filed in due time and form by the three Respondents on the grounds of Article 100(a) EPC, alleging lack of novelty (Article 54 EPC), and/or lack of inventive step (Article 56 EPC).

III. During opposition proceedings the Appellant (Patentee) amended the patent, the independent Claims 1 and 3 reading as follows:

"1. A resin composition for injection molding which is composed of 20 to 80 weight % of a polyphenylene ether and 80 to 20 weight % of a rubber-reinforced styrene polymer and contains not more than 5000 ppm of volatile substances of which the molecular weight is 312 or less.

3. A moulded article obtained by injection molding a composition according to Claim 1 or 2."

IV. Whereas Respondents 1 and 2 argued that the patent was not inventive in view of the published state of the art, Respondent 3, based its arguments in addition on lack of novelty because of prior use.

i) It alleged having manufactured and sold to moulders before the priority date of the patent in issue commercial quantities of its polyphenylene ether and rubber reinforced styrene product (hereinafter PPE/HIPS) called "Noryl" (Registered Trade Mark) whose composition corresponded to that of Claims 1 and 2 as set out above. In particular, it relied on the manufacture and sale of two specific Noryl products identified respectively by the code numbers SE1 802 and PX 1180. As proof of the sales of SE1 802 copies of invoices sent to three different customers dated 8 January, 6 February and 8 February 1980 were produced as Exhibits A, B and C. As proof of the sale of PX 1180, it produced copies of three invoices of 28 November, 5 and 12 December 1979 to the same customer and all relating to one batch No. 7752 (Exhibit I, pages 1 to 3).

ii) An analysis of a single sample of SE1 802 was provided by the Manager of Analytical Services of Respondent 3, Mr. de Wit. He said that a granulate sample of Noryl SE1-802 of February 1980, stored in a closed bottle, when analysed by him in 1985 was found to contain 2660 ppm of volatiles of a molecular weight of 310 or less.

iv) As far as PX 1180 was concerned, Respondent 3 gave the information that the analysis showed the contents of volatiles to be 3950 ppm, of which 73% was the relatively non-volatile trimeric styrene.

v) The Appellant challenged the alleged prior use essentially on two points. First, it did not accept the evidence given that the samples offered for analysis were those produced before the priority date of the patent in suit and that they were available as asserted. Second, it was argued that as the matter in issue was the volatiles content of the product sold in 1980, there was doubt as to whether the volatiles content of a sample analysed five years later in 1985 was truly representative of that sold in 1980.

V. By its decision dated 12 October 1988 the Opposition Division revoked the patent, holding that the claims under consideration were lacking inventive step in the light of documents:

(1) US-A-4 184 999
(2) Hygiene of Plastics used with Food, published by Japanese Ministry of Health and Welfare, July 1980, Chapter 4, Section 4.1
(3) Voluntary Standards for Polyelefine and other Synthetics Resin Containers and Packaging for Food, published by the Polyelefine Hygiene Council, May 1979, Section 2-11, pages 57-77.

As to the allegation of prior use it found that Respondent 3 had failed to prove that the sample of February 1980 was identical with the product sold in January and early February 1980. Moreover, it accepted as credible the objection of the Appellant, to the effect that an analysis made in 1985 was not necessarily an accurate guide to the volatiles content of the products made five years eariler, and the benefit of doubt in such case should be given to the Appellant.

VI. Against this decision the Appellant filed a notice of appeal on October 13, 1988, paid the appeal fee on the same day and submitted the grounds of appeal on 20 February 1989.

It criticized the reasoning of the Opposition Division, and argued that any knowledge that reducing the volatiles content was desirable in food packaging materials, which were predominantly polystyrene or polyolefin, did not make it obvious to reduce the volatiles content in other materials. The evidence presented so far did not show that PPE/HIPS was an accepted material for use in food packaging, nor that there was a trend in the PPE/HIPS art to reduce volatile components for any other reason which might have pointed to the claimed composition. Therefore the improved crack resistance was not simply a bonus in a composition that was obvious to make, but a surprising effect in a composition that no-one had any reason to make, particularly not in expectation of improving crack resistance.

VII. The three Respondents argued that it was common practice to reduce the volatile content of plastics when faced with the problem of cracking in injection mouldings, as exemplified by numerous references thereto in the prior art, and that the specific level of 5000 ppm was not a particularly low one and furthermore frequently dealt with in literature.

In addition Respondent 3 amplified its evidence of prior use by the submission of four statements of employees to which reference is made later, in paragraph 3 of the reasons for this Decision.

VIII. On 29 June 1990 the Appellant submitted three sets of auxiliary claims whose independent claims read as follows:

"1st Auxiliary Claims (2nd Preference)

1. A method of producing molded articles which exhibit no cracks when tested for crack resistence in accordance with the test procedures set out in Example 1 or Comparative Example 2 herein, which comprises providing a resin composition which is composed of 20 to 80 weight % of a polyphenylene ether and 80 to 20 weight % of rubber-reinforced styrene polymer and containing not more than 5000 ppm of volatile substances of which the molecular weight is 312 or less, and subjecting the composition to injection molding.

2nd Auxiliary Claims (3rd Preference)

1. Molded articles which exhibit no cracks when tested for crack resistance in accordance with the test procedures set out in Example 1 or Comparative Example 2 herein obtained by injection molding a resin composition composed of 20 to 80 weight % of a polyphenylene ether and 80 to 20 weight % of rubber-reinforced styrene polymer and containing not more than 5000 ppm of volatile substances of which the molecular weight is 312 or less.

3rd Auxiliary Claims (4th Preference)

1. The use of a resin composition composed of 20 to 80 weight % of a polyphenylene ether and 80 to 20 weight % of rubber-reinforced styrene polymer and containing not more than 5000 ppm of volatile substances of which

the molecular weight is 312 or less for the purpose of injection molding articles which exhibit no cracks when tested for crack resistance in accordance with the test procedures set out in Example 1 or Comparative Example 2 herein."

The Appellant argued that through the introduction of a novel method of testing the volatiles content of a PPE/HIPS polymer it had found that there was a significant critical level of volatiles, and that provided the volatiles content was kept below this level, cracking on injection moulding could be avoided. It accepted that the method of lowering the volatiles content by the use of an extruder working under vacuum was not per se novel. It argued, however, that the skilled worker concerned with the problem of cracking could tackle this problem in a number of ways, without appreciating the importance of securing a level of volatiles below 5000 ppm.

It considered the different categories of the auxiliary claims, particularly those of the Third Auxiliary Request, to be admissible according to the guidelines set out in Decision G 2/88 of the Enlarged Board of Appeal, published in OJ EPO 1990, 93.

IX. At the oral proceedings held on 4 July 1990 the parties argued along the lines indicated above. The Appellant requested that the decision under appeal be set aside, and that the patent be maintained on the basis of Claims 1 to 3 under consideration before the Opposition Division or on the basis of one of the three auxiliary requests of June 29, 1990 in the order of preference given.

The Respondents requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal complies with Article 106 to 108 and Rule 64 EPC and is admissible.

2. The Opposition Division, in view of the written state of the art presented to it, saw apparently no merits in further investigating the evidence offered by Respondent 3 for its alleged novelty destroying prior use, but revoked the patent because of lack of inventive step on the basis of the three documents cited above.

2.1 In principle, it would seem logical, that if the novelty of a patent is challenged one deals with this before turning to the question of inventive step. For, if lack of novelty should be established, there would be no need to examine inventiveness.

2.2 However, for reasons of procedural economy it is under certain circumstances proper to put initially the question of novelty aside and deal only with the second requirement, i.e. inventive step. This would save an unnecessarily detailed examination of novelty if a negative answer results from the investigation on inventive step. Such an approach is unobjectionable, particularly if, at the time the decision is taken, further evidence would be needed, in the opinion of the Opposition Division, for answering the question of novelty.

2.3 An Opponent has no right to insist that those grounds against the patent put forward by him must of necessity be examined by the EPO, if the Opposition Division or Appeal Board deems it more appropriate to rely on another ground leading to the same result. This is clear from

Article 114(1) EPC according to which the European Patent Office shall not be restricted in its examination to the facts, evidence and arguments provided by the parties.

3. Because of the submission of further evidence on behalf of Respondent 3, the Board is now in a position to decide whether the alleged prior use destroys the novelty of the patent in issue.

3.1 Of the four statements submitted during appeal proceedings and whose truthfulness was not disputed by the Appellant in the oral proceedings, the declaration of Mr. W. Bos, supervisor of quality control, is, together with Exhibits I and K presented during Opposition proceedings, the most important.

Mr. Bos explained that from each production lot produced in the Noryl plant he analysed at least one sample to see if the specifications were met. A small representative set of samples was kept in well sealed polyethylene bags for an indefinite period of time. The samples were marked with the product code, the lot number, the production date and hour.

In 1985, one of these samples of Noryl PX 1180 with the lot number 7752 was sent to the analytical departement to be analysed for volatile substances.

According to Mr. Bos, lot number 7752 was manufactured in the period of 20 to 28 November 1979. The production dates are confirmed for the period of 20 to 22 November 1979 by Exhibit K. Sales of this lot number are proven by the three invoices submitted as Exhibit I.

While the validity per se of the analyses carried out in 1985 was never put in doubt by the Appellant, its objections as to the production and sale of the product are met and overcome by the evidence.

3.2 The same applies to the other Noryl product, SE1 802. According to Mr. Bos, 200 tons of this product were manufactured under lot number 8235 from 29 January to 5 February 1980. According to the corresponding production sheet (Exhibit F page 1) production started on 27 January and is documented on this sheet until 29 January 1980.

Actual sales of this lot number are evidenced in Exhibits B and C. The invoice submitted as Exhibit A relates to the same type of product, namely SE1 802, but to a different lot number, namely 7965.

As far as the analysis of a sample is concerned, the two statements of Mr. de Wit, the Manager of Analytical Technology, give the information that he had, in 1985, examined a sample marked February 1980, Noryl SE1 802. He stated his certainty that this sample must have come from an actual production run in January or February 1980.

3.3 Sales figures of the relevant products were given by the sales manager of Respondent 3, Mr. A.W. Mattijssen. He indicated that over the two years 1979 and 1980, sales of PX 1180 amounted to 1984 tons, while the corresponding figure for SE1 802 was 6671 tons.

3.4 The statement of Mr. R.C. Canne, manager of the Noryl plant since 1979, that vacuum venting was always used in the production of Noryl, confirms the submissions of the

two other Respondents, that with regard to such compositions vacuum extrusion was common practice at the time of filing the application for the claimed invention.

3.5 Coming to the issue of the reliability of an analysis done in 1985 as a proof for the composition of what was sold in 1980, it was common ground between the parties that the "volatiles" here concerned, i.e. those identified in Claim 1 set out above, are relatively high boiling point substances; i.e. they are relatively non-volatile. Accordingly, where, as in the present case, Respondent 3 has shown sales of two products which when analysed in 1985 contained 2660 ppm and 3950 ppm of volatiles respectively, (73% of those "volatiles" being scarcely volatile) it has, to the Board's satisfaction, on the balance of probabilities, discharged the burden of proving that in 1980, when these products were sold, their volatiles content was, as defined in the patent, below 5000 ppm.

3.6 Although the Appellant attempted to demonstrate by experiments that the 1985 analyses could not be relied on as indicating the composition of what was sold in 1980, having given careful consideration to this evidence and the arguments based on it, the Board is satisfied that there can be no serious doubt. On the material before it at present, which includes the detailed evidence in relation to the alleged prior use, coupled with the undisputed fact that vacuum degassing was commonly used, and the fact that 5000 ppm is not a particularly low level, the Board is satisfied that the PPE/HIPS products SE1 802 and PX 1180 sold in commercial quantities by Respondent 3 before the priority date of the patent in suit fell within the claims now in issue. Therefore, both Claims 1 and 2 of the main request lack novelty with regard to the prior use established. Claim 3 must share

the fate of Claims 1 and 2. It relates to a moulded article. Although it was not proved that the resins sold by Respondent 3 were in fact moulded, and not extruded, the Board has taken into account the undisputed fact that these resins are primarily intended for use in moulding, as was also indicated by Respondent 3.

4. The claims according to the auxiliary requests also lack novelty.

4.1 In each of its auxiliary requests, the Appellant has introduced into Claim 1 the feature of the test procedure disclosed in the patent. The Board does not accept that a claim which is not otherwise novel can gain novelty by having inserted into it the feature that a certain parameter is to be tested by what may be a particular test procedure. There is no evidence to suggest that the products sold by Respondent 3 would not fall within the claims if they had been tested in accordance with one test rather than another. Accordingly, the subject-matter of the first and second auxiliary requests is found to be lacking novelty, and is therefore unpatentable having regard to Article 54 EPC.

4.2 The Enlarged Board's decision G 2/88, published in OJ EPO 1990, 93, to which the Appellant refers in support of its Third Auxiliary Request, is not helpful to the present case. In the said decision, it was held that a claim to the use of a known product included its technical effect as a functional feature, and was accordingly considered novel provided that such technical feature has not previously been made available to the public. In contrast thereto, in the present case, the evidence is that vacuum degassing is used, and has commonly been used, for the purpose of avoiding formation of cracks. It was, therefore, available to the public for such purpose. In

view of this, the Board is satisfied that the use claimed according to the Third Auxiliary Request lacks novelty as well.

**Order**

**For these reasons, it is decided that:**

**The appeal is dismissed.**

**The Registrar:** **The Chairman:**

E. Görgmaier F. Antony