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File Number: T 472/88 - 3.3.3

Application No.: 83 110 294.2

Publication No.: 0 108 290

Title of invention: Light stable thermoplastic resin compositions

Classification: C08L 71/04

**D E C I S I O N**  
of 10 October 1990

Applicant:

Proprietor of the patent: General Electric Company

Opponent: BASF AG, Ludwigshafen

Headword: Compensation of discolouration

EPC Articles 56, 84

Keyword: "Inventive step (affirmed) - complete turnaround"  
"Lack of clarity (denied) - power of EPO to raise  
this issue when it arises from, i.e. is highlighted  
by an amendment after grant"

Headnote



## Summary of Facts and Submissions

- I. The grant of European patent 108 290 in respect of European patent application 83 110 294.2, filed on 15 October 1983 was announced on 3 September 1986 (cf. Bulletin 86/36).
- II. A Notice of Opposition was filed on 30 May 1987, in which the revocation of the patent was requested based on Article 100(a) and (b) EPC.

The opposition was supported by the following documents:

- (1) H. Hadert, BAG Farben-Lexikon Brunner-Verlag 1976, page 175
  - (2) Firmenschrift der BASF AG, Re: Litholechtgelb 1090, published 1973
  - (3) JP-A-55/009 641, published 1980, Derwent Referat 15808C/09
  - (4) DE-A-2 460 324.
- III. The Opposition Division acknowledged that the claimed subject-matter is new and involves an inventive step. Furthermore, the provisions of Article 83 EPC were held to be met. Therefore, the opposition was rejected.

The Opposition Division held that the present invention appeared to constitute a complete turn-around of the general teaching of the art (cf. e.g. (4) referring to polypropylene ether compositions - hereinafter PPE - comprising two specific photo stabilisers instead of a bleaching dye).

Furthermore, sufficient information was given in the patent application to enable the skilled man to choose an

appropriate dye in an amount effective for compensating discolouration (cf. patent specification page 2, lines 49-61 and page 3, lines 48-50).

- IV. An appeal was lodged by the Appellant (Opponent) against this decision on 17 September 1988, together with payment of the prescribed fee. A Statement of Grounds was filed on 23 November 1988.

Novelty, inventive step and sufficiency were contested in this statement.

The Appellant basically argued:

- Every dye was bleachable; thus, any thermoplastic composition comprising PPE and a dye destroyed novelty, the effect of an at least partial compensation being unavoidable in PPE compositions containing a yellow dye.
- The dye and its amount to be used were defined by the result achieved. No adequate instructions were given in the specification which would lead the skilled person necessarily and directly towards success; cf. e.g. the composition of 99 percent by weight of styrene polymer and 1 percent by weight of PPE and containing dyes stable at 200 to 280°C encompassed by the claims (page 3, last paragraph, of Statement of Grounds).

An undue burden was placed on the skilled person to find suitable dyes and amounts, i.e. the number of tests necessary was far too high to establish sufficiency of disclosure considering that the stability of the dyes differs from composition to composition.

Moreover, the Examples did not show how the result - compensation, i.e.  $\Delta E = 0$  - could be achieved.

- V. In his reply to the Statement of Grounds and during oral proceedings held on 10 October 1990, the Respondent (Patentee) essentially argued that the basic idea to use dyes compensating for the change of colour in PPE based compositions was novel and inventive. To prevent discolouration, a man skilled in the art would so far have sought for effective PPE stabilisers and for dyes which are as colour-stable as possible. As to sufficiency, it was easy to find suitable dyes since there was only a limited number meeting other requirements, such as thermal stability, and being at the same time subject to appropriate bleaching. Simple tests enabled the skilled person to fix the necessary amount of a given dye.
- VI. The Appellant requests that the decision under appeal be set aside and that the patent be revoked.
- VII. The Respondent requests that the appeal be dismissed and that the patent be maintained on the basis of his Main Request, or of either of two Auxiliary Requests submitted in the course of Oral Proceedings.

Claim 1 according to the Main Request reads as follows:

"A thermoplastic composition having improved resistance to discolouration upon exposure to light, comprising:

a polyphenylene ether or

a polyphenylene ether - styrene polymer blend with a weight ratio of the polyphenylene ether to the styrene polymer varying between 1:5 and 5:1; and

at least one dye capable of bleaching upon exposure to light in an amount effective for compensating for a change

in colour of the polyphenylene ether upon exposure to said light."

According to Claim 1 of the First Auxiliary Request the term "comprising" in Claim 1 of the Main Request is replaced by "consisting essentially of", and the phrase "admixed with conventional additives" is added as optional feature to both, the polyethylene ether and the polyethylene ether-styrene polymer blend alternative of the claimed composition.

Claims 2 to 6 according to the Main and First Auxiliary Requests correspond each to Claims 3 to 7 as granted.

The Second Auxiliary Request differs from the First Auxiliary Request essentially in that the result to be achieved is defined in more detail.

VIII. After conclusion of the Oral Proceedings, the Chairman announced the Board's decision.

#### Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is, therefore, admissible.
2. The subject-matter of Claim 1 as granted was for a composition comprising a PPE per se (hereinafter A) and a dye, functionally defined, i.e. bleaching upon exposure to light in an amount effective for compensating for a change in colour of the PPE upon exposure to said light, (hereinafter B). The term comprising is inherently ambiguous (cf. definition of "comprising" in the Concise Oxford Dictionary "include, comprehend"). The presence of

this term in Claim 1 as granted, therefore, renders that claim ambiguous, so that it fails to meet the requirements of Article 84 EPC, namely, that the claims shall define the matter for which protection is sought. This objection is, however, not one of the grounds of opposition proceedings set out in Article 100 EPC.

However, where amendments are requested by a patentee in the course of opposition proceedings, Article 102(3) EPC confers upon the Opposition Division as well as the Boards of Appeal jurisdiction, and thus the power, to consider the whole of the EPC, including Article 84. Thus, in decision T 227/88, "Detergent compositions/UNILEVER" (OJ EPO 1990, 292; following T 9/87 "Zeolites/ICI", OJ EPO 1989, 438), it was expressly held that the Board did have the power to deal with grounds and issues arising from any amendments being sought to an opposed patent, despite the fact that they were not (and could not) be specifically raised by an opponent pursuant to Rule 55(c) EPC. That decision left open the issue whether or not either instance had the power to deal with otherwise impermissible grounds or issues, which did not arise from any proposed amendment. In decision T 301/87, "Alpha-interferons/BIOGEN" (OJ 8/1990, 335), it was further held (point 3.8 of the Reasons) that when amendments are made to a patent during an opposition, Article 102(3) EPC requires consideration by either instance as to whether the amendments introduce any contravention of any requirement of the Convention, including Article 84 EPC. However, the Board held that Article 102(3) did not allow fresh objections to be based upon Article 84 if such objections did not arise out of the amendments so made.

In the Board's view, both the above decisions were correctly decided: it is self-evident that an amendment wholly unconnected with, e.g. an Article 84 issue, could

not, by its mere existence, legitimately invoke the operation of that Article in appeal or in opposition proceedings. It is equally self-evident that an amendment directly giving rise to an ambiguity objectionable under Article 84 EPC will require to be dealt with by the Board.

In the Board's view, the word 'arise' in both the above decisions needs to be broadly construed, so as to cover any one of its normal acceptations in the English language. The Concise Oxford Dictionary defines 'arise' as follows: "originate, be born, result from, come into notice, present itself". In the present case the amendments clearly "bring into notice" (in the above sense) an ambiguity that had existed all along. Accordingly, the Board finds that it has the power to deal with it under Article 84 EPC following the jurisprudence laid down in the above two cases.

The claim as sought to be amended (Main Request) is, on its proper analysis, for a thermoplastic composition "comprising" A or a PPE-styrene polymer blend with a weight ratio of the PPE to the styrene polymer varying between 1:5 and 5:1 (hereinafter C) and B, functionally defined.

The specific inclusion of C, in the stated ratios in the Main Request, constitutes but one example of the inclusion of an ingredient which the granted claim already covered - since comprising A and B (functionally defined) in no way excludes C in any ratio or for that matter any other ingredient. The specific exemplification in the Main Request (amended claim) of C, therefore, highlights and focuses attention on the fundamentally open-ended nature (ambiguity) of the granted claim and, for the reasons stated above, gives rise ("arises") to that ambiguity for the reasons stated above, thereby enabling the Board to deal with the Article 84 EPC issue.



For the reasons given above, the Main Request is not admissible with regard to the provisions of Article 84 EPC.

3. In Claim 1 of the first Auxiliary Request "comprising" has been replaced by "consisting essentially of" and an optional feature i.e. "admixed with conventional additives".

In the Board's view the term "consisting essentially of" means that in addition to those components which are mandatory i.e. PPE or PPE-styrene polymer blends and at least one dye, other components may also be present in the composition, provided that the essential characteristics of the composition are not materially affected by their presence.

The Board is thus satisfied that the subject-matter of this Claim 1 is clear and the provisions of Article 84 EPC are met thereby.

4. Claim 1 of the First Auxiliary Request differs from Claim 1 as granted in that:
  1. "comprising" was replaced by "consisting essentially of";
  2. "PPE" by "PPE or a PPE-styrene polymer blend with a weight ratio of the PPE to the styrene polymer varying between 1:5 and 5:1", and
  3. an optional feature i.e. "admixed with conventional additives" was introduced.

The amendments are supported by page 4, lines 10 to 12 in combination with page 5, lines 9 to 13 and page 6, lines 13 to 16 of the originally filed documents and page 3, lines 15 to 16, lines 38 to 41 and 59 to 61 of the patent specification. Claims 3 to 6 correspond to Claims 4 to 7 of the original and granted documents. The subject-matter of Claim 2 corresponds to Claim 3 as granted and in the originally filed documents is supported by Claim 3 in combination with page 3, lines 19 to 21.

Since the subject-matter of Claim 1, - taken as a whole, and considering the meaning of "comprising" as set out above -, is narrower in scope with regard to what has been said under item 2, the protection conferred by Claim 1 as granted is not extended.

For the reasons given above, the Board is satisfied that the provisions of Article 123(2) and (3) EPC are met by the claims of the First Auxiliary Request.

5. The only document in appeal proceedings dealing with light stable thermoplastic compositions comprising PPE is (4).

Following the findings of the Opposition Division, the Board accepts (4) as being the closest prior art.

6. In the light of this prior art, the problem underlying the patent in suit may thus be seen in providing an alternative to known light stable PPE containing thermoplastic compositions.
7. According to the patent in suit, this problem is solved by a composition essentially consisting of PPE or a PPE-styrene polymer blend as specified and a dye capable of bleaching upon exposure to light in an amount effective for

compensating a change in colour of the PPE upon exposure to said light.

In view of the functional definition of the dye, and the results given in the Examples of the patent specification, the Board is satisfied that the above defined technical problem has in fact been solved.

8. With regard to the provisions of Article 83 EPC, it has to be decided whether the subject-matter claimed in Claim 1 is disclosed in all the claims, the description and the examples, in a manner sufficiently clear and complete to enable a skilled man to carry out the invention.

In spite of the functional nature in which the dye to be used is defined, the Board is satisfied that the disclosure of the invention given in the specification as a whole is sufficiently clear and complete in the above sense, because the Examples given illustrate the invention insofar as structure and amount of dyes (cf. page 2, lines 49 and 50) are specified which are capable of compensating discoloration. Moreover, page 2, lines 56 to 61 and page 3, lines 45 to 50 teach that generally, in order to compensate for discolouration, the dye has to be one which, after exposure to light, will reflect "more in the blue and green spectral range" (page 3, lines 47 to 48), such as a yellow quinophthalone dye. Furthermore, numerous examples of suitable dyes are referred to on page 2 of the patent specification. Dyes which are not so suitable are also mentioned on page 2, lines 45 to 48 and in the comparative examples (e.g. cadmium sulphide yellow). In view of all this, and the further reference to the required thermal stability of the dyes (page 3, lines 53 to 56), a man skilled in the art would be able to select an appropriate dye in an appropriate amount without undue difficulties. He would also recognise that, in view of what has been said

above concerning reflection, the use of a purple dye alone would not give the desired result, as is erroneously specified on page 3, line 46 reading "yellow and/or purple dye".

The Board cannot follow the Appellant's arguments that the term "compensation" must be interpreted in accordance with its literal meaning, see e.g. Chambers 20th Century Dictionary, in the sense of a complete "neutralisation of opposing forces", that would mean, in the present case, complete compensation, i.e.  $\Delta E$  is zero. In the light of the worked examples consisting of comparative examples and those according to the invention, it is quite clear that by "compensation" is meant, for example, a  $\Delta E$  of 2.1 instead of 8.3, of 1.8 instead of 4.6, of 1.9 instead of 4.4. Contrary to the arguments provided by the Appellant, thus, a man skilled in the art would recognise the technical meaning of the term "compensation" as being different from the purely linguistic one.

9. After examining the cited documents, the Board has reached the conclusion that the claimed subject-matter is novel, since the only document referring to PPE compositions (4) requires the presence of a photostabiliser, which is absent in the compositions claimed by the patent in suit. Since novelty was not contested, it is not necessary to go into further detail on this point.
10. It still remains to be decided whether the requirement of inventive step is met by the claimed subject-matter.
  - 10.1 Starting from (4) as the closest prior art (point 5 above) and in the light of the existing technical problem (point 6 above), it is immediately apparent that document (4) as such, requiring the presence of photostabilisers as defined therein, cannot provide any incentive for choosing the

claimed solution which precisely obviates that requirement.

10.2 Nor can any of the other documents in the case provide such an incentive, considering that of these documents: (1) refers to a method of testing the light stability in general; (2) refers to a stable colourant; and (3) to specific photostabilisers. Each of them thus relates to components which are either stable per se or are capable of stabilising unstable compositions.

10.3 As against that, the alternative proposed by the patent in suit represents a complete turnaround in that dyes lacking stability are deliberately used for compensating a deliberately accepted discolouration of unstabilised PPE containing compositions. The Board is, therefore, satisfied that Claim 1 meets the requirements of Article 56 EPC and hence is patentable.

11. Claims 2 to 5 relate to preferred embodiments of the subject-matter of Claim 1, and are, therefore, likewise patentable. The same applies to Claim 6 concerning an article formed from the composition of Claim 1 and, thus, being based upon the same inventive idea.

12. Since the first Auxiliary Request is allowable, it was not necessary to examine the second Auxiliary Request.

#### Order

For these reasons, it is decided that:


1. The decision of the Opposition Division is set aside.

2. The case is remitted to the Opposition Division with the order to maintain the patent on the basis of the first Auxiliary Request submitted in the course of oral proceedings, with consequential amendments to the body of the specification.

The Registrar:

  
E. Görgmaier

The Chairman:

  
F. Antony

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