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Aktenzeichen

File Number

Numéro du dossier

**T0005 / 90 - 333**

In der Anlage erhalten Sie

eine Kopie des Berichtigungsbeschlusses

ein korrigiertes Vorblatt (Form 3030)

einen Leitsatz / Orientierungssatz (Form 3030)

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Please find enclosed

a copy of the decision correcting errors

a corrected covering page (Form 3030)

a headnote / catchword (Form 3030)

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Veillez trouver en annexe

une copie de la décision rectifiant des erreurs

une page de garde (Form 3030) corrigée

un sommaire / une phrase vedette (Form 3030)

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Anmeldung Nr. / Patent Nr.:

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(soweit nicht aus der Anlage ersichtlich)

Application No. / Patent No.:

**82 63 0017.0**

(if not apparent from enclosure)

Demande n° / Brevet n°:

\_\_\_\_\_

(si le n° n'apparaît pas sur l'annexe)



Europäisches  
Patentamt

European  
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des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Case Number: T 0005/90 - 3.3.3

**D E C I S I O N**  
of 3 February 1994 correcting errors in the decision  
of the Technical Board of Appeal 3.3.3  
of 27 November 1992

**Appellant 01:**  
(Opponent 01)

Akzo N.V.  
Velperweg 76  
NL - 6824 BM Arnhem (NL)

**Representative:**

Schalkwijk, Pieter Cornelis  
Akzo N.V.  
Patent Department  
PO BOX 9300  
NL - 6800 SB Arnhem (NL)

**Appellant 02:**  
(Opponent 02)

HOECHST AKTIENGESELLSCHAFT, Frankfurt  
-Ressortgruppe Patente, Marken und Lizenzen-  
W - 6230 Frankfurt am Main 80 (DE)

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

THE GOODYEAR TIRE & RUBBER COMPANY  
1144 East Market Street  
Akron, Ohio 44316-0001 (US)

**Representative:**

Müller-Boré & Partner  
Patenanwälte  
Isartorplatz 6  
Postfach 26 02 47  
W - 8000 München 2 (DE)

**Decision under appeal:**

Interlocutory decision of the Opposition Division  
of the European Patent Office dated 15 November  
1989 concerning maintenance of European patent  
No. 0 061 414 in amended form.

**Composition of the Board:**

**Chairman:** C. Gérardin  
**Members:** H. Fessel  
S. Perryman

In application of Rule 89 EPC the decision given on 27 November 1992 is hereby corrected as follows:

On page 8, paragraph VII, lines 7 and 8, and on page 13, point 2, lines 4 and 5, the passage reading

"pages 2 and 5 to 10 of the description of the patent as granted"

is in each case amended to read:

"the headings and sentences appearing on the first page accompanying the letter dated 31 May 1989 received on 1 June 1989 from "Description" to "greyness therein." inclusive, and pages 2 and 5 to 11 of the description as received on 1 June 1989".

The Registrar:

  
E. Görgmeier

The Chairman:

  
C. Gérardin

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File Number: T 5/90 - 3.3.3  
Application No.: 82 630 017.0  
Publication No.: 0 061 414  
Title of invention: High clarity colorless polyesters

Classification: C08L 67/02

**DECISION**  
of 27 November 1992

Applicant: THE GOODYEAR TIRE & RUBBER COMPANY  
Opponents: 01) Akzo N.V.  
02) HOECHST AKTIENGESELLSCHAFT, Frankfurt

Headword: Change of claim category/GOODYEAR

EPC Articles 56 and 123(3)

Keyword: Change of claim category (allowable in this instance): process-limited-by-product claim and direct product of this process within scope of product claim originally granted - inventive step confirmed



Case Number : T 5/90 - 3.3.3

D E C I S I O N  
of the Technical Board of Appeal 3.3.3  
of 27 November 1992

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(Opponent 01)

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## Summary of Facts and Submissions

I. The mention of the grant of European patent No. 0 061 414 in respect of European patent application No. 82 630 017.0 filed on 26 February 1982 and claiming a US priority of 20 March 1981 (US 245 838) was announced on 29 January 1986 (Bulletin 86/05). The patent was granted with eight claims whereof the only independent Claims 1 and 7 read as follows:

"1. A polyester resin containing an antimony compound, a phosphorous compound, and a cobalt compound characterized in that the polyester resin is made from the reaction of a dicarboxylic acid and a polyhydric alcohol compound, said dicarboxylic acid selected from the group consisting of alkyl dicarboxylic acids having a total of from 2 to 16 carbon atoms, aryl or alkyl substituted aryl dicarboxylic acids containing a total of from 8 to 16 carbon atoms, and combinations thereof, and wherein said polyhydric alcohol is selected from the group consisting of glycols having from 2 to 12 carbon atoms, glycol ethers having from 4 to 12 carbon atoms, and combinations thereof, said polyester resin yielding an article of high clarity having a neutral hue.

7. A container made of polyester according to any one of the preceding claims."

II. Notices of opposition were filed on 16 October 1986 by Akzo N.V. (hereinafter Appellant I) and on 25 October 1986 by Hoechst AG (hereinafter Appellant II) on the grounds of Article 100(a), (b) and (c) EPC.

The oppositions were supported inter alia by

- (1) JP-A 55 015 424 (Derwent Abstract)
- (2) JP-A-55 040 714 (Derwent Abstract)
- (5) DE-B-2 265 402
- (7) DE-A-3 012 692
- (9) JP-A-54 120 699 (Derwent Abstract).

III. By an interlocutory decision within the meaning of Article 106(3) EPC issued on 15 November 1989 the Opposition Division held that there were no grounds of opposition to the maintenance of the patent in suit in the amended form based on the documents specified in the communication pursuant to Rule 58(4) EPC dated 22 August 1989.

The only claim reads as follows:

"Process for preparing a polyester resin in the presence of an antimony compound, a phosphorous compound, and a cobalt compound by the reaction of a dicarboxylic acid and polyhydric alcohol compound, said dicarboxylic acid being selected from the group consisting of alkyl dicarboxylic acids having a total of from 2 to 16 carbon atoms, aryl or alkyl substituted aryl dicarboxylic acids containing a total of from 8 to 16 carbon atoms, and combinations thereof, and wherein said polyhydric alcohol is selected from the group consisting of glycols having from 2 to 12 carbon atoms, glycol ethers having from 4 to 12 carbon atoms, and combinations thereof, characterized by reacting the dicarboxylic acid with polyhydric alcohol in a solvent consisting of a preformed low molecular weight linear condensation polyester, and by adding the phosphorous compound and the cobalt compound prior to adding the antimony compound."

IV. The Opposition Division held that:

- the claimed subject-matter met the requirements of Article 123(2) and (3) EPC;
- ample information was given in the description to enable a person skilled in the art to carry out the invention (Article 83 EPC);
- the claimed subject-matter was novel (Article 54 EPC) since the sequence of addition of the antimony, phosphorous and cobalt compounds was not disclosed in (2);
- the claimed subject-matter met the requirements of Article 56 EPC since vis á vis the only document attaching importance to the sequence of addition of P, Co and Sb (1) the disputed patent arrived at a different solution leading to a beneficial effect on haze and hue.

In (5) no distinction was made between the time of addition of the three P, Co and Sb compounds (cf. Example, columns 7 and 8) and although a neutral colour and/or a good transparency was desired, there was no pointer to add the Sb compound last. In (7) the addition of a P compound was not mentioned which addition might, in combination with Sb, cause the formation of particles responsible for the undesired haze phenomenon - an assertion not contested by Opponents - thus the teaching given therein could not give any hint to the solution of a problem related to the conjoint presence of Sb and P compounds.

(9) described the use of a combination of P, Co and Ti compounds in a process for the preparation of polyethylene terephthalate (PET), but did not mention any Sb compound.



Moreover, experimental evidence was provided demonstrating that the addition of a Sb compound as last catalyst component was beneficial over the addition of a Co compound as last component; that sequence was regarded as a specific selection from the two possible options resulting from (2) leading to superior haze and hue properties.

V. On 21 December 1989 an appeal was lodged by Opponent I (hereinafter Appellant I) and on 18 January 1990 by Opponent II (hereinafter Appellant II) against said decision, together with payment of the prescribed fee. In the grounds of appeal received respectively on 14 March and 24 March 1990 the Appellants mainly argued that:

- (9) disclosed a process for preparing a polyester differing from the claimed process in that a Ti-compound instead of a Sb-compound was used. Since a person with ordinary skill knew that the use of Ti for preparing PET would lead to a highly coloured product and the use of Sb was well known for said purpose, the man skilled in the art would know that he should not apply the teaching of (9) literally to PET, but instead would consider it obvious to prepare PET in the presence of Sb instead of Ti when looking for a PET having a good hue. In support of his contention Appellant I cited a further document:

(11) Smith et al, J. Polymer Science (1966), Part A-1, Vol. 4, page 1852, lines 6 to 8.

- During oral proceedings held on 27 November 1992, which Appellant I did not attend, Appellant II argued more specifically that the claim was amended in a way extending the protection conferred by the claims of the patent as granted in that the category was changed from

a product to a process. In addition thereto, the Appellant argued that with the renunciation during examination proceedings by the Applicant of claims directed to the process, the patent in dispute was granted with product claims only, and everyone was free to use the process originally claimed in the patent in dispute. Further the Appellant argued that if the product claims as granted were shown not to be novel in view of the prior art, then for the purpose of Article 123(3) the protection conferred was nil so that any amended claim to a particular method of making the product claimed in the patent as originally granted would be an extension of the protection conferred contrary to Article 123(3).

Finally the Appellant suggested that if the Board did not accept his arguments that the proposed amendments to the claims should not be allowed, the following question be referred to the Enlarged Board for decision (as phrased in the original German):

"Ist ein Kategoriewechsel möglich von einem Stoffanspruch mit product-by-process Format, der vom Stand der Technik neuheitsschädlich getroffen ist zu einem Anspruch auf ein Herstellungsverfahren für diesen Stoff, das ursprünglich offenbart, das aber im erteilten Patent nicht beansprucht worden ist."

In English translation:

"Is it allowable to make a change of claim category from a product claim in product-by-process form, which claim turns out not to be novel over the prior art, to a claim to a process of manufacturing this product, where the process was originally disclosed

but not claimed in the patent as originally granted?"

- With regard to the Test Report provided before the Opposition Division Appellant II considered (5) to represent the closest prior art. In said document it was taught to provide PET having a good quality and an improved hue (cf. column 5, line 28) by a process wherein acid and alcohol were reacted in a condensation polyester in the presence of a phosphorous compound, such as trimethylphosphate, and then adding a Co- and an Sb-compound at about the same time. In the Test Report, however, Co- and Sb-compounds were not added at the same time, but with a difference of 10 minutes, thus leading to the formation of antimony phosphate responsible for haze. The comparative example given in the Test Report did thus not correspond to the embodiment according to said prior art.

But even if only hue was taken into consideration, a person skilled in the art seeking to improve hue would learn from (7) that a polyester of high purity, i.e. one having good stability, excellent hue and clarity (cf. page 12, lines 9 to 13 in conjunction with page 23, lines 26 to 28) might be produced by a process disclosed on page 15 when the addition of the catalyst such as an Sb-compound was retarded, i.e. added last (cf. page 18, last paragraph). It would thus have been obvious to combine (5) and (7), i.e. to retard the addition of Sb in a process known from (5) with regard to the teaching given in (7).

VI. The Respondent submitted a new claim during oral proceedings reading as follows:

"Process of preparing a polyester resin yielding an article of high clarity having a neutral hue containing an antimony compound, a phosphorous compound, and a cobalt compound by the reaction of a dicarboxylic acid and polyhydric alcohol compound, said dicarboxylic acid being selected from the group consisting of alkyl dicarboxylic acids having a total of from 2 to 16 carbon atoms, aryl or alkyl substituted aryl dicarboxylic acids containing a total of from 8 to 16 carbon atoms, and combinations thereof, and wherein said polyhydric alcohol is selected from the group consisting of glycols having from 2 to 12 carbon atoms, glycol ethers having from 4 to 12 carbon atoms, and combinations thereof, characterized by reacting the dicarboxylic acid with polyhydric alcohol in a solvent consisting of a preformed low molecular weight linear condensation polyester, and by adding the phosphorous compound and the cobalt compound prior to adding the antimony compound."

In support of the patentability of that process he put forward essentially that the protection conferred by a process claim was more restricted than the protection conferred by a product claim since in a process claim the product was only protected by virtue of Article 64(2) EPC, i.e. as product obtained directly by the claimed process. As to the process claim the scope could not extend to a process leading to products outside the scope of the products claimed in the disputed patent. Such a claim thus met the requirements of Article 123(3) EPC.

Further, the Respondent referred to his experimental evidence showing that the particular sequence of addition of the three catalyst compounds lead to a product having improved hue. (7) could not provide any hint to add a Sb compound last, since the retarded addition of a polycondensation catalyst could not be equated with the

addition of the same as the last component of a ternary catalyst system as specified in the claim under dispute.

- VII. The Appellants requested that the decision under appeal be set aside and that the European patent No. 0 061 414 be revoked.

The Respondent requested that the appeal be dismissed and the patent be maintained on the basis of the single claim and amended pages 3 and 4 of the description submitted during oral proceedings, and pages 2 and 5 to 10 of the description of the patent as granted.

#### Reasons for the Decision

1. The appeal is admissible (cf. points I and V).
2. The Board has examined the document (11) referred to by the Appellant for the first time in the grounds of appeal in order to determine its relevance, namely its evidential weight compared with that of the documents filed in time, and has found that it was not sufficiently relevant to be taken into consideration. This document, therefore, will be disregarded hereinbelow pursuant to Article 114(2) EPC.
3. The Board is satisfied that the claimed subject-matter is disclosed in the application as filed as specified by the Opposition Division and not disputed by the parties. The provisions of Article 123(2) EPC are thus met.
4. The Board is for the following reasons also satisfied that the provisions of Article 123(3) EPC are met:

- 4.1 To appreciate the effect of the amendments allowed it may assist to represent the Claim 1 originally granted schematically in the following form:

A product having [product features X] and [product-by-process features characteristic of process steps Y]

The process claim now allowed can be stated schematically as:

Process of making a product having [product features X] by using [process steps Y] and [process steps Z].

- 4.2 The Board interprets such a claim as covering the process steps only insofar as a product having product features X actually results. This could be called a process-limited-by-product claim. The direct product of this process will also be protected under the provisions of Article 64(2), but such product inevitably falls within the scope of the product Claim 1 originally granted.
- 4.3 The Board regards a process-limited-by-product claim of this type as clearly complying with the requirements of Article 123(3) because it will only be infringed if the product it produces falls within the originally granted product claim and in addition the particular form of manufacture using process steps Z is used. Such a claim restricts the protection compared to the protection of the original claims, without in any way extending it.
- 4.4 No product feature has been redefined as a process feature, so that the problems of assessing whether these are exactly equivalent do not exist.
- 4.5 As regards the Appellants' arguments, if it were true that under Article 123(3) the extent of protection conferred

had to be considered as meaning the extent of valid protection conferred, then practically the only claims that could be amended would be valid claims. Yet the whole purpose of amendment is to substitute a valid claim for an invalid one. The Appellants' arguments on this are not accepted, and the Board holds that the words "protection conferred" in Article 123 means the protection the claims as originally granted would have if assumed to be valid.

4.6 It is a fundamental principle of European patent law appearing in the laws of all 17 member states of the EPC that a claim to a product is also infringed by the manufacture of that product. In changing from a product claim to a process-limited-by-product claim the Board is satisfied that the answer to the test proposed by the Enlarged Board in G 2/88 (EPO OJ 1990, 93) in paragraph 3 of its Reasons "Has the subject-matter of the claims, as defined by their categories in combination with their technical features been extended?" is no. In the same paragraph the Enlarged Board went on to say "It is not necessary to consider the national laws of the Contracting States in relation to the infringement when making such decision, however."

4.7 As regards the question that the Appellant suggested be put to the Enlarged Board, the answer to this on the reasoning of this paragraph above is clearly "Yes, such a change of category is allowable", and the Board sees no reason for referring it to the Enlarged Board for decision.

5. The patent in suit concerns a process for the preparation of high clarity colourless polyesters. Such a process is disclosed in document (5) which the Board, like the Opposition Division, regards as the closest state of the art. This citation relates to a process for preparing PET having improved hue (cf. column 2, lines 65 to 68) and a

good quality for fibres and films (column 5, lines 7 and 8). In said process the suspension of acid and alcohol is added to a preformed low molecular weight linear condensation polyester, i.e. a polyester oligomer and then esterified. The thus obtained product is subsequently polycondensated in the presence of a ternary catalyst system comprising a Co-, a Sb- and a P-compound (cf. columns 7 and 8).

The problem underlying the patent in suit with regard to said prior art may be seen in defining a process enabling a person skilled in the art to further improve the hue of such polyesters.

On the basis of the results of the Test Report of 26 January 1989 provided by the Respondent during opposition proceedings, the Board is satisfied that this problem is effectively solved with the means given in the claim, i.e. adding the phosphorous compound and the cobalt compound prior the antimony compound. The Board is aware of the fact that contrary to the teaching given in (5) Sb- and Co-compounds are not added at the same time in comparative example of the Test Report, but with a difference of 10 minutes between the addition of the Sb- and the Co-compounds. However, as conceded by Appellant II, this may lead to the formation of antimony phosphate and thus influence haze, but not hue.

6. The Board considers the claimed subject-matter to be novel with regard to the cited prior art, which novelty has not been disputed during the appeal proceedings. A detailed discussion is thus not necessary.
7. It still remains to be decided whether that subject-matter involves an inventive step having regard to the teaching of the documents relied upon by the Appellants.



7.1 A document seeking to improve hue of a polyester by a method quite similar to the process claimed in these proceedings is disclosed in (7) especially on page 12, lines 9 to 13; page 23, lines 26 to 28; Claim 41 and Claims 7 and 18. On page 18, last paragraph, there is taught that the addition of the catalyst for the polycondensation may be retarded. Such a retarded addition is having regard to the paragraph bridging pages 19 to 20 independent of the nature of the catalyst. Moreover (7) does not disclose the use of a condensation catalyst system comprising a Co- and an Sb-compound and thus does not point to any improved hue property resulting from the addition of the Co-compound before the Sb-compound.

Even a combination of the teachings given in (7) and (5) thus does not hint at the solution given in the disputed patent.

7.2 (2) discloses a process similar to the claimed process wherein the Sb- and the Co-compound are added to the ester within 2 to 15 minutes after the addition of the P-compound. There is no hint as to the sequence of addition of the Sb- and the Co-compounds. Moreover, the problem of hue is not mentioned therein. Neither alone nor in combination with the other documents can this document therefore point at the given solution.

7.3 A similar conclusion arises from document (1) which deals with a continuous preparation of PET involving the use of a series of reactors. The ternary catalyst is added in two steps, i.e. a combination of Sb compound and Co compound is added to a first reactor or before it, and a phosphate is added to a second of subsequent reactor, whereby the formation of undesired insoluble minute particles is prevented. It is evident that such teaching is irrelevant for the solution of the above-defined technical problem.

7.4 (9) discloses a process for the preparation of PET which makes use of a P-, Co- and Ti-compound, but not an Sb-compound. The ternary catalyst system used in said process differs thus completely and does not constitute relevant prior art. Moreover no hint is given as to an effect on hue of a retarded addition of a Ti-compound in said system. It is merely stated that the use of Co- and P-compounds enables the production of a polyester having superior colour tone and thermal stability and maintains the polymerisation promoting effect of Ti-compounds.

7.5 In conclusion, for the reasons given above, the documents relied upon by the Appellant cannot provide an incentive for the skilled person to operate along the lines claimed in the patent in suit which must therefore be regarded as inventive.

#### Order

For these reasons, it is decided that:

1. The appeal decision under appeal is set aside.
2. The case is remitted to the Opposition Division with the order to maintain the patent on the basis of the claim and the amended pages 3 and 4 submitted in the course of the oral proceedings, and pages 2 and 5 to 10 of the description of the patent as granted.

The Registrar:

The Chairman:

E. Görgmaier

C. Gérardin