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D E C I S I O N
of 8 March 2004

Case Number: T 1175/03 - 3.3.3

Application Number: 97905990.4

Publication Number: 0882083

IPC: C08G 63/86

Language of the proceedings: EN

Title of invention:
Process for preparing copolyesters of terephthalic acid, ethylene glycol, and 1,4-cyclohexanedimethanol exhibiting a neutral hue, high clarity and increased brightness

Applicant:
EASTMAN CHEMICAL COMPANY

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 113(1)
EPC R. 67

Keyword:
"Rejection based on new claims - substantial procedural violation (yes)"
"Remittal to the first instance"
"Reimbursement of the appeal fee (yes)"

Decisions cited:
T 0316/95

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1175/03 - 3.3.3

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 8 March 2004

Appellant: EASTMAN CHEMICAL COMPANY
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 26 June 2003 refusing European application No. 97905990.4 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: R. Young
Members: C. Idez
H. Preglau

Summary of Facts and Submissions

I. European patent application No. 97 905 990.4, based on International application No. PCT/US97/02436, filed on 14 February 1997, claiming a US priority of 20 February 1996 (US 08/604047), was published under No. WO-A-97/30102 on 21 August 1997 (EP-A-0 882 083).

II. The first communication of the Examining Division was issued on 6 February 2002 and was based on Claims 1 to 11 as originally filed.

Claim 1 read as follows:

"A process for preparing copolyesters of terephthalic acid, ethylene glycol, and 1,4-cyclohexanedimethanol having 30 to 90 mole percent ethylene glycol in the glycol component and characterized by a neutral hue, high clarity, and increased brightness, said process comprising the steps of:

(1) reacting terephthalic acid, ethylene glycol, and 1,4-cyclohexanedimethanol in a feed mole ratio of total glycols to dicarboxylic acid of 1.7:1 to 6.0:1, at a temperature of 240°C to 280°C, and a pressure of 15 psig (200 kPa) to 80 psig (650 kPa) for 100 to 300 minutes to form an esterification product;

(2) adding a polycondensation catalyst and 0.1 to 40 ppm of a toner to the esterification product of Step (1), wherein the polycondensation catalyst is selected from the group consisting of titanium, germanium, antimony, and combinations thereof; and

(3) polycondensing the product of Step (2) at a temperature of 260°C to 290°C and a reduced pressure of 400 mm Hg (50 kPa) to 0.1 mm Hg (0.01 kPa) for a sufficient time to form a copolyester having an inherent viscosity of at least 0.50 dL/g,
said process comprising adding 10 to 100 ppm of a phosphorus stabilizer in Step (2) or in Step (3)."

Independent Claim 2 read as follows:

"A process for preparing copolyesters of terephthalic acid, ethylene glycol, and 1,4-cyclohexanedimethanol having 30 to 90 mole percent ethylene glycol in the glycol component, and characterized by a neutral hue, high clarity, and increased brightness, said process comprising the steps of:

(1) reacting terephthalic acid, ethylene glycol, and 1,4-cyclohexanedimethanol in a feed mole ratio of total glycols to dicarboxylic acid of 2.0:1 to 4.5:1, at a temperature of 240°C to 280°C, and a pressure of 15 psig (200 kPa) to 80 psig (650 kPa) for 100 to 300 minutes to form an esterification product;

(2) adding 10 to 60 ppm of titanium and 0.1 to 40 ppm of a toner to the esterification product of Step (1); and

(3) polycondensing the product of Step (2) at a temperature of 260°C to 290°C and a reduced pressure of 400 mm Hg (50 kPa) to 0.1 mm Hg (0.01 kPa) for a sufficient time to form a copolyester having an inherent viscosity of at least 0.50 dL/g,

said process comprising adding 10 to 100 ppm of a phosphorus stabilizer in Step (2) or in Step (3)."

Claims 3 and 4 were dependent on Claim 2, and Claims 5 to 11 were dependent on Claim 1.

In its communication the Examining Division stated that an International preliminary examination report had been drawn up for the application in suit in accordance with the PCT and it held that the deficiencies mentioned in that report gave rise to objections under the corresponding provisions of the EPC. In that report it had been held that the subject-matter of Claim 1 differed from the teaching of document D1 (WO-A-95/00575) in that the polycondensation catalyst was added to the esterification product. According to the report there was no evidence on file for any effect caused by this distinguishing feature, and the technical problem was thus seen as the provision of a further method for preparing PECT (i.e. poly(ethylene glycol-cyclohexane dimethanol) terephthalate copolyesters). It was stated that it would have been obvious for the skilled person to add the polycondensation catalyst after the esterification as disclosed in document D3 (US-A-3 496 146; cf. column 5, line 4 and Example II, table 1). It was therefore concluded that the subject-matter of Claims 1 to 11 lacked inventive step. According to that report, the same conclusion would have applied when starting from document D4 (WO-A-94/25502), without however, mentioning any reason for this finding.

III. With its letter dated 4 July 2002, the Applicant filed a new set of claims 1 to 11.

Independent Claim 1 read as follows:

"A process for preparing copolyesters of terephthalic acid, ethylene glycol, and 1,4-cyclohexanedimethanol having 30 to 90 mole percent ethylene glycol in the glycol component and characterized by a neutral hue, high clarity, and increased brightness, said process comprising the steps of:

(1) reacting terephthalic acid, ethylene glycol, and 1,4-cyclohexanedimethanol in a feed mole ratio of total glycols to dicarboxylic acid of 1.7:1 to 6.0:1, at a temperature of 240°C to 280°C, and a pressure of 15 psig (200 kPa) to 80 psig (650 kPa) for 100 to 300 minutes in the absence of a catalyst to form an esterification product;

(2) adding a polycondensation catalyst and 0.1 to 40 ppm of a toner to the esterification product of Step (1), wherein the polycondensation catalyst consists of titanium, germanium, antimony, and combinations thereof; and

(3) polycondensing the product of Step (2) at a temperature of 260°C to 290°C and a reduced pressure of 400 mm Hg (50 kPa) to 0.1 mm Hg (0.01 kPa) for a sufficient time to form a copolyester having an inherent viscosity of at least 0.50 dL/g, said process comprising adding 10 to 100 ppm of a phosphorus stabilizer in Step (2) or in Step (3)."

Claims 2 to 11 were dependent claims.

The Applicant argued, in substance, that the definition of the polycondensation catalyst was intended to exclude zinc from the possible catalyst and pointed out that D1 required the use of a zinc catalyst. It also submitted that D3 taught to use of temperatures as high as 305°C to 330°C during the esterification step, while the esterification step according the claimed process was conducted at a temperature between 240°C and 280°C.

IV. By a decision issued in writing on 26 June 2003, the Examining Division refused the application on the grounds that Claims 1 to 11 lacked inventive step. More precisely, the decision stated that D1 represented the closest state of the art and that the process of Claim 1 differed from that of D1 in that the polycondensation catalyst was added to the esterification product whereas it was added at the beginning of the esterification reaction in D1, and that no zinc catalyst was used in the claimed process. According to the decision there was no evidence on file for any effect caused by these distinguishing features. Thus, according to the decision, the technical problem was merely the provision of a further process for making PECT having neutral hue, high clarity and brightness.

According to the decision, D3, which related to a process for making glycol terephthalate polyesters having good colour properties, taught not to use a catalyst during the esterification, and to add an antimony polycondensation catalyst after the esterification reaction. Furthermore, D3 did not use a zinc catalyst and the comparative Examples (a) and (b) of D3 carried out in the absence of a catalyst during

the esterification at a glycol/terephthalic acid ratio of 4:1 and 6:1, respectively, showed that a polyester with a good colour was obtained when working at 280°C. Thus, the decision stated that it would have been obvious to combine the teachings of D1 and D3 to arrive at the claimed process. According to the decision the combination of D3 with D4 would also render the subject-matter of Claim 1 obvious. It was further held that the subject-matter of Claims 2 to 11 referred to known additives and/or to conventional embodiments. Thus, the Examining Division came to the conclusion that the subject-matter of Claims 1 to 11 did not comply with Article 56 EPC.

V. A Notice of Appeal against the decision was lodged on 14 August 2003 by the Appellant (Applicant) with simultaneous payment of the prescribed fee. With the Statement of Grounds of Appeal filed on 29 October 2003, the Appellant submitted a set of Claims 1 to 13 as new main request. It requested that the decision of the Examining Division be set aside and the case remitted back to the Examining Division for prosecution to grant.

Reasons for the Decision

1. The appeal is admissible.

Procedural matters

1.1 As can be seen from Sections II and III above, Claim 1 of the set of claims on which the decision under appeal was based differed from that of the set of claims considered by the Examining Division in its first

communication, in particular, in that it has been indicated (a) that the esterification step is carried out in the absence of a catalyst, and (b) in that the definition of the polycondensation catalyst has been restricted in order to exclude, according to the Applicant, the presence of a zinc catalyst in the polycondensation step.

1.2 In that respect, it is evident that feature (b) has been taken into consideration in the contested decision, since it has expressly been stated in this decision that the subject-matter of Claim 1 of the set of claims submitted with letter of 4 July 2002 of the Applicant differed from D1 in that no zinc catalyst was used in the claimed process. However, while the contested decision held that the subject-matter of Claim 1 also differed from that of D1 in that the polycondensation catalyst was added to the esterification product, it did not take into account that Claim 1 further required that no catalyst at all (i.e. no esterification catalyst) be present during the esterification reaction.

1.3 In this connection it is further evident that the assessment of inventive step of Claim 1 as originally filed carried out in the International preliminary examination report referred to in the first communication of the Examining Division was entirely based on the assumption that Claim 1 as filed differed from the teaching of D1 only in that the polycondensation catalyst was added at the polycondensation stage.

1.4 It thus follows from these considerations that the claims on which the decision was based presented

substantial differences with respect to the claims which were the basis of the first communication of the Examining Division. These substantial differences were also reflected in the reasoning which led to the conclusion of lack of inventive step in the contested decision in view of the combination of D1 with D3. This reasoning was based on a line of argument which substantially differed from the one followed in the International preliminary examination report referred to in the first communication of the Examining Division in the assessment of the differences between the claimed process and D1, in the definition of the technical problem, and in the analysis of the teaching of document D3 (cf. Sections II and III above).

1.5 According to Article 113(1) EPC, decisions of the EPO may only be based on grounds on which the party concerned has had an opportunity to comment. In the present case, it is, however, evident that the Appellant did not have an opportunity to present its comments with regard to the grounds of refusal of the amended claims.

1.6 Consequently this failure to comply with the procedural requirements of Article 113(1) EPC clearly amounts to a substantial procedural violation and the contested decision must be set aside. Since this also constitutes a procedural violation within the meaning of Rule 67 EPC, the reimbursement of the appeal fee is equitable in the present circumstances (cf. also T 316/95 of 30 July 1999, not published in OJ EPO).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the Examining Division for further prosecution on the basis of Claims 1 to 13 filed by the Appellant with the Statement of Grounds of Appeal on 29 October 2003.

3. Reimbursement of the appeal fee is ordered.

The Registrar: The Chairman:

E. Görgmaier R. Young