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D E C I S I O N
of 20 March 2001

Case Number: W 0018/00 - 3.3.3

Application Number: PCT/NL 00/00035

Publication Number: W 00042091

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Language of the proceedings: EN

Title of invention:

Antistatic molded article comprising a polyesteramide resin

Applicant:

DSM N.V.

Opponent:

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Headword:

-

Relevant legal provisions:

PCT Art. 17(3)(a)
PCT R. 13.2, 40.2

Keyword:

"Assessment of unity a posteriori"

Decisions cited:

G 0001/89, G 0002/89

Catchword:

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Case Number: W 0018/00 - 3.3.3
International Application No. PCT/NL 00/00035

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 20 March 2001

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Subject of the Decision: Protest according to Rule 40.2(c) of the Patent Cooperation Treaty made by the applicant against the invitation (payment of additional fee) of the European Patent Office (branch at The Hague) dated 10 April 2000.

Composition of the Board:

Chairman: R. Young
Members: P. Kitzmantel
B. Günzel

Summary of Facts and Submissions

I. International application PCT/NL 00/00035 entitled "Antistatic molded article comprising a polyesteramide resin" comprising 54 claims was filed on 18 January 2000.

II. The nine (9) independent Claims 1, 13, 23, 25, 27, 32, 42, 44 and 46 read as follows:

"1. An antistatic molded article comprising a polyesteramide resin, characterized in that said molded article is prepared by copolymerizing (a) a cyclic amide and at least one ester selected from the group consisting of (b₁) a cyclic ester and (b₂) at least one linear ester selected from the group consisting of polyesterpolyol, polyesteretherpolyol, and polycarbonatepolyol, said molded article having a surface resistivity of less than 10¹³ Ω."

"13. A polyesteramide resin prepared by reacting 100 parts by weight of (a) a cyclic amide, 5 to 50 parts by weight of (b₂) at least one linear ester selected from the group consisting of polyesterpolyol, polyesteretherpolyol, and polycarbonatepolyol, or 5 to 50 parts by weight of a mixture of at least 5 parts by weight of the linear ester (b₂) and (b₁) a cyclic ester, and (c) a chemical compound having a molecular weight of 200 or smaller and having at least 2 hydroxyl groups, wherein said resin has a number average molecular weight, reduced from polystyrene, of from 4,000 to 100,000."

"23. An antistatic molded article comprising a polyesteramide resin according to any one of claims 13-

22."

"25. A method for preparing an antistatic polyesteramide resin by ring-opening copolymerizing (a) a cyclic amide and (b₁) a cyclic ester in a weight ratio of from 100:3 to 100:44."

"27. A method for preparing an antistatic polyesteramide resin by copolymerizing (a) a cyclic amide and (b₂) at least one linear ester selected from the group consisting of polyesterpolyol, polyesteretherpolyol, and polycarbonatepolyol or a mixture of (b₁) a cyclic ester and the linear ester (b₂), in a weight ratio of from 100:2 to 100:50."

"32. A method for preparing a polyesteramide resin by reacting 100 parts by weight of (a) a cyclic amide, 5 to 50 parts by weight of (b₂) at least one linear ester selected from the group consisting of polyesterpolyol, polyesteretherpolyol, and polycarbonatepolyol, or 5 to 50 parts by weight of a mixture of at least 5 parts by weight of the linear ester (b₂) and (b₁) a cyclic ester, and a chemical compound (c) having a molecular weight of 200 or smaller and having at least 2 hydroxyl groups."

"42. A method for making a polyesteramide resin antistatic, wherein the polyesteramide resin is prepared by ring-opening copolymerizing (a) a cyclic amide and (b₁) a cyclic ester, characterized in that the weight ratio of the cyclic amide (a) to the cyclic ester (b₁) is set in a range of from 100:3 to 100:44."

"44. A method for making a polyesteramide resin antistatic, wherein the polyesteramide resin is

prepared by copolymerizing (a) a cyclic amide and (b₂) at least one linear ester selected from the group consisting of polyesterpolyol, polyesteretherpolyol, and polycarbonatepolyol or a mixture of the linear ester (b₂) and (b₁) a cyclic ester, characterized in that the weight ratio of the cyclic amide (a) to the linear ester (b₂) or to the mixture of the cyclic ester (b₁) and the linear ester (b₂) is set in the range of from 100:2 to 100:50."

"46. A method for making a polyesteramide resin antistatic, wherein the polyesteramide resin is prepared by copolymerizing (a) a cyclic amide and (b₂) at least one linear ester selected from the group consisting of polyesterpolyol, polyesteretherpolyol, and polycarbonatepolyol or a mixture of the linear ester (b₂) and (b₁) a cyclic ester, characterized in that the weight ratio of the cyclic amide (a) to the linear ester (b₂) is set in the range of from 100:5 to 100:50, or the weight ratio of the mixture of the linear ester (b₂) and the cyclic ester (b₁) is set in the range of from 100:5 to 100:50, wherein the weight ratio of the linear ester (b₂) to the cyclic amide (a) is at least 5:100, and a chemical compound (c) having a molecular weight of 200 or smaller and having at least 2 hydroxyl groups."

III. On 10 April 2000 the European Patent Office (EPO), acting as International Searching Authority (ISA), issued an "Invitation to pay Additional Search Fees" stating that the application did not comply with the requirement of unity of the invention stipulated in Rules 13.1, 13.2 and 13.3 PCT and inviting the Applicant to pay, within a time limit of 30 days, one additional search fee.

IV. This "Invitation to pay Additional Search Fees" resulted from the EPO/ISA's conclusion that, in the light of documents

GB-A-1 099 456 (hereinafter D1) and

GB-A-1 297 546 (hereinafter D2),

which disclosed the "special technical feature polyester amide prepared by reacting/copolymerising/ring-opening a (a) cyclic amide", there was no single inventive concept capable of unifying the inventions comprised by the independent claims, since the further common technical feature "provision of antistatic properties" was known from

GB-A-1 419 979 (hereinafter D3),

GB-A-1 518 060 (hereinafter D4) and

EP-A-0 613 919 (hereinafter D5)

to be an inherent property of polyesteramide resins.

In view of this situation, the ISA concluded, that the present application comprised two inventions:

- **invention 1** relating to polyesteramide resins prepared by copolymerizing (a) cyclic amide (erroneously identified in the ISA's invitation as "cyclic ester") and (b₁) cyclic ester; and
- **invention 2** relating to polyesteramide resins prepared by copolymerizing (a) cyclic amide and (b₂) linear ester, possibly together with (b₁)

cyclic ester and/or compound (c).

- V. On 3 May 2000 the Applicant paid the additional search fee under protest, submitted a reasoned statement contesting the non-unity objection of the search examiner and requested that said opinion be reversed and that the additional search fee be refunded.

The Applicant essentially denied the ISA's assumption that "the polyesteramides of the present invention are already known in the art to have antistatic properties", *inter alia* because, in its view, the polyesteramide resins according to D3 and D5 had not been prepared from a cyclic amide and those according to D4 had not been prepared from cyclic or linear esters, thus not allowing any conclusion with respect to the antistatic properties of the differently prepared polyesteramide resins according to the application in suit.

- VI. On 4 July 2000 the EPA/ISA issued its "Notification regarding review of justification for invitation to pay additional search fees" according to Rule 40.2(e) PCT.

Therein the Applicant was notified that the "Invitation to pay Additional Search Fees" was deemed justified and was invited to pay a protest fee within one month.

- VII. The protest fee was paid by the Applicant on 3 August 2000.

Reasons for the Decision

1. The protest is admissible.

2. The finding of non-unity in the ISA's "Invitation to pay Additional Search Fees" was based on the alleged anticipation by documents D1 and D2 of the feature "polyesteramide resin prepared from a cyclic amide" (cf. point IV supra).
3. This finding is thus made *a posteriori*, i.e. taking into account the result of the partial international search report attached to the ISA's "Invitation to pay Additional Search Fees". According to the decision of the EPO's Enlarged Board of Appeal G 1/89 (OJ EPO 1991, 155) and its opinion G 2/89 (OJ EPO 1991, 166) such a *posteriori* objections are permissible.
4. The Applicant's defence against the ISA's non-unity objection concentrates on the argument that documents D3, D4 and D5 could not establish that the specific polyesteramide resins according to the various claims of the present application as well as those according to documents D1 and D2 have antistatic properties.
5. However, the Applicant's observations are not able to set aside the finding of non-unity of the "Invitation to pay Additional Search Fees" for the following reasons.
 - 5.1 The only element comprised by all independent claims, which might, thus, represent a unifying "special technical feature" within the meaning of Rule 13.2 PCT, is the concept of a polyesteramide resin derived from a cyclic amide and a cyclic ester.
 - 5.2 However, documents D1 and D2 both disclose polyesteramide resins which have been prepared from a

lactam and a lactone, e.g. from caprolactam and caprolactone (D1: Claim 1; D2: Claims 1 and 3).

- 5.3 In view of the fact that the concept "polyesteramide resin derived from a cyclic amide and a cyclic ester" was known, it is not justified to assume the function of a feature, which unifies all embodiments covered by the independent claims.
- 5.4 This conclusion is also valid if account is taken of the antistatic property the polyesteramide resins shall display according to independent Claims 1, 13, 23, 25, 27, 42, 44 and 46, because the upper limit of the surface resistivity of less than $10^{13} \text{ } \Omega$ set out in Claim 1 is known by the skilled person to border on "antistatic properties" of insulators.
- 5.5 This is corroborated by the further prior art cited in the "Invitation", in particular D3, which is generally concerned with "antistatic polyamide compositions" (page 1, line 6). According to the introduction of D3, shaped articles of polyamides are very restricted in their commercial applications by the extremely troublesome electric charging of these polymers having electrical surface resistance values of higher than 10^{12} ohms (page 1, lines 20 to 22). Furthermore, tests carried out on typical commercially available polyamides showed that the electrical surface resistance of Nylon-6 was 7×10^{12} ohms, and that of Nylon-66 was 9×10^{12} (page 5, lines 26 to 30). Consequently, even a conventional polyamide resin, such as Nylon-6 (produced by polymerisation of caprolactam), which has not been treated or modified to lower its electrical surface resistance is nevertheless already "antistatic" within the meaning of the application in

suit.

- 5.6 In the light of the above, it is immediately evident that such a requirement will be necessarily fulfilled by the polyesteramide resin prepared according to the Example of D1 (page 1, line 60 to page 2, line 9) as well as by that used according to Example 2 of D2 (page 3, lines 86 to 48), since these are themselves polymers of caprolactam which additionally contain ester units, the latter units improving, if anything, the antistatic properties of the polymer, as is undisputedly generally taught in D3 to D5.
- 5.7 Consequently, neither the concept of a polyesteramide resin derived from a cyclic amide and a cyclic ester, nor its antistatic characteristics as defined by a surface resistivity of less than $10^{13} \text{ } \Omega$ fulfil the requirement of a "special technical feature" as set out in Rule 13.2 PCT.
6. This conclusion is not affected by the counterarguments of the Appellant in its submission dated 1 May 2000; on the one hand possible differences in the preparation and/or structure of the polyesteramide resins disclosed in D3, D4 and D5 have no bearing on the here decisive fact, namely that D1 and D2 disclose the concept of a polyesteramide resin derived from a cyclic amide and a cyclic ester, and on the other hand, in view of what is set out in points 5.4 to 5.6 supra, those differences are of no consequence for the antistatic properties attributed by the skilled person to the polyesteramide resins according to D1 and D2.
7. Thus, the Board concurs with the ISA's finding of lack of unity.

8. The Board accordingly concludes that the Applicant's protest is not justified.

Order

For these reasons it is decided that:

The protest under Rule 40.2(c) PCT is dismissed.

The Registrar:

The Chairman:

M. Dainese

R. Young