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Datasheet for the decision of 15 January 2010

Case Number: T 1703/06 - 3.3.03

Application Number: 03796874.0

Publication Number: 1576053

IPC: C08L 67/00

Language of the proceedings: EN

Title of invention:
Static dissipating resin composition and methods for manufacture thereof

Applicant:
SABIC Innovative Plastics IP B.V.

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 123(2), 84, 54, 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Definition of parameter - clarity (yes)"
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
T 0555/05

Catchword:
-

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Case Number: T 1703/06 - 3.3.03

D E C I S I O N
of the Technical Board of Appeal 3.3.03
of 15 January 2010

Appellant: SABIC Innovative Plastics IP B.V.
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 7 June 2006 refusing European patent application No. 03796874.0 pursuant to Article 97(1) EPC 1973.**

Composition of the Board:

Chairman: R. Young
Members: O. Dury
H. Preglau

Summary of Facts and Submissions

I. European patent application No. 03796874.0, based on international application PCT/US2003/039203, filed on 8 December 2003 in the name of General Electric Company and further transferred to SABIC Innovative Plastics IP B.V., was published as No. WO 2004/060997 on 22 July 2004.

II. The application was refused by a decision of the examining division issued in writing on 7 June 2006 for lack of inventive merit. The decision was based on a single **main request** consisting of claims 1-10, made up of claims 1 to 3 of the application as originally filed and claims 4 to 10 filed with a letter dated 12 April 2006, where the single independent claim read as follows:

"1. A transparent permanent electrostatic dissipating composition comprising in combination
a transparent aromatic polycarbonate resin,
a miscible transparent cycloaliphatic copolyester, and
a sufficient amount of an electrostatic dissipating polymer for imparting electrostatic dissipative properties to said composition,
said aromatic polycarbonate, said cycloaliphatic copolyester, and said electrostatic dissipating polymer, each having a predetermined index of refraction wherein said index of refraction of said electrostatic dissipating polymer has a refractive index
value between said polycarbonate resin and said cycloaliphatic copolyester resin,
said polycarbonate resin and said cycloaliphatic copolyester resin are present in said electrostatic composition for substantially matching the index of

refraction of said electrostatic dissipating polymer, said cycloaliphatic copolyester comprises the reaction product selected from the group consisting of (1) at least 80 weight % of cycloaliphatic diol with the remainder, if any, being a linear aliphatic diol, or a combination of a linear aliphatic diol and a linear aliphatic diacid, or chemical equivalents of the above, (2) at least 80 weight % of a cycloaliphatic dicarboxylic acid with the remainder, if any, being a linear aliphatic diacid, or a combination of a linear aliphatic diacid and a linear aliphatic diol or chemical equivalents of above, and
(3) a mixture of at least 80 weight % of a cycloaliphatic diol and at least 80 weight % of a cycloaliphatic dicarboxylic acid with the remainder, if any, being a linear aliphatic diol or a linear aliphatic diacid or a mixture of the two, or chemical equivalents of the above."

The following documents were cited in the decision:

D1: WO 02/32 999 A

D2: WO 02/38 675 A

D3: Patent abstracts of Japan vol. 1997, no. 01, 31 January 1997 (1997-01-31) & JP 08 245869 A (TEIJIN LTD), 24 September 1996 (1996-09-24)

D4: US-A-5 574 104

D5: EP-A-0 924 259

According to the decision the subject matter claimed differed from D1 or D2, either of which could be considered as closest prior art, in that it comprised a polymeric antistatic agent having a specific index of refraction value which was comprised between that of the polycarbonate and that of the cycloaliphatic polyester

and which matched the index of refraction of the blend of the latter two polymers. The examining division identified the objective problem to be solved as being that of providing transparent, impact resistant and electrostatic dissipating polycarbonate/cycloaliphatic polyester blends. According to the decision, the skilled person starting from D1 or D2 would have been motivated to solve this problem by using any of the polymeric materials used in the transparent polycarbonate compositions of D3 to D5. Besides, taking into account the teaching of D1 and D4 relating to the importance of matching the index of refraction of the various components in order to provide clear compositions, the skilled person would have arrived at the claimed subject matter, which, thus, lacked an inventive merit.

III. On 7 August 2006 the applicant lodged an appeal against the decision of the examining division and simultaneously paid the prescribed fee. Together with the Statement of Grounds of Appeal filed on 17 October 2006, the appellant requested that a patent be granted on the basis of the then valid **main request** or, alternatively, on the basis of **one new auxiliary** request consisting of nine claims. The claims of the auxiliary request corresponded to the combination of each of claims 1 and 3-10 with claim 2 of the main request, thus requiring that:
"the ratio of cycloaliphatic copolyester to polycarbonate is from 2.0 to 1.6 and the combined weight of polycarbonate and cycloaliphatic copolyester is 20 to 80 weight % of the total weight of the composition".

IV. On 3 June 2008 the board issued a summons to attend oral proceedings and gave its provisional opinion that the

valid main request and the auxiliary request would both lack clarity. The expression "substantially matching the index of refraction" and the term "transparent" were *inter alia* considered to render the subject matter for which protection was sought unclear.

Besides, objections of lack of novelty of the main request over D1 and lack of inventive merit of the auxiliary request over D1 were raised.

V. Together with its reply of 10 July 2008 the applicant filed a **new main request** corresponding apart from the deletion of the word "substantially" to the auxiliary request of 17 October 2006, and six **auxiliary requests I-VI**, as well as three documents in support of its argumentation:

Enclosure A: Excerpt of the Technical Encyclopaedia "The Random House College Dictionary", keyword: "transparent"
Enclosure B: printout from wikipedia, keyword: "transparency"
Enclosure C: printout from wikipedia, keyword: "refractive index"

The appellant argued that both the parameter "index of refraction" as well as the meaning of the term "transparent" would be well known in the art and would belong to the knowledge of the skilled person as attested by the enclosures A, B and C.

The appellant was further of the opinion that none of the documents on file would disclose the specific combination of features now claimed, in particular the

specific ratio of cycloaliphatic polyester and polycarbonate.

Finally, the appellant stated that none of these documents would have provided a hint to the skilled person to provide electrostatic compositions of improved transparency, which was the objective problem solved.

Hence, the applicant concluded that the valid requests would not only be clear, but also novel and inventive over the cited prior art.

VI. After a change in the composition of the board had taken place, the board issued on 29 September 2009 a new summons to attend oral proceedings and raised the following objections:

Concerning the main request

With respect to the amendments made, the board considered, *inter alia*, that the subject matter of claim 9 was not derivable from the original disclosure.

The main request was further considered to lack clarity, *inter alia*, because of the following deficiencies:

a) The expression "matching the index of refraction" in claim 1 was vague and did not clearly define the matter for which protection was sought;

b) The definition of the cycloaliphatic copolyester as recited in claim 1 of the main request was not clear because of the wording "reaction product selected from the group consisting of (1) …, (2), …, and (3)…", in particular because of the position of the comma "," and the use of "or" and "if any";

c) The "ratio" claimed was not clearly defined;
d) The refractive indices (synonym for "index of refraction") were not clearly defined.

The board in particular drew the attention of the appellant to the fact that it would have to be assessed during the oral proceedings whether or not the subject matter of claim 1, which was *inter alia* characterised by the parameter "index of refraction", was clearly defined.

Concerning the auxiliary requests

Auxiliary requests I-VI were also objected to as lacking clarity for the same reasons as for the main request. Auxiliary requests I-II were further considered to extend beyond the content of the original application.

VII. In its submission of 15 December 2009 the appellant requested that a patent be granted on the basis of a **new main request** (claims 1-8) or any of **auxiliary requests I-IX** filed together with that reply.

The appellant simultaneously filed the following additional documents:

D6: Optical testing and Characterization, Characterization and Failure Analysis of Plastics, 2003, pages 177-178
D7: Declaration of Mr. J. Finan.

The main request comprised a single independent claim which read as follows:

"1. A transparent permanent electrostatic dissipating composition comprising in combination

a transparent aromatic polycarbonate resin
a miscible transparent cycloaliphatic copolyester resin, and
a sufficient amount of a polyetheresteramide polymer for imparting electrostatic dissipative properties to said composition,
said aromatic polycarbonate, said cycloaliphatic copolyester resin, and said polyetheresteramide polymer, each having a predetermined index of refraction wherein said index of refraction of said polyetheresteramide polymer has a refractive index value between said polycarbonate resin and said cycloaliphatic copolyester resin,
said polycarbonate resin and said cycloaliphatic copolyester resin are present in said electrostatic composition for matching the index of refraction of said polyetheresteramide polymer,
said cycloaliphatic copolyester resin comprises the reaction product selected from the group consisting of:
(1) at least 80 weight % of cycloaliphatic diol with the remainder, if any, being a linear aliphatic diol, or a combination of a linear aliphatic diol and a linear aliphatic diacid, or chemical equivalents of the above,
(2) at least 80 weight % of a cycloaliphatic dicarboxylic acid with the remainder, if any, being a linear aliphatic diacid, or a combination of a linear aliphatic diacid and a linear aliphatic diol or chemical equivalents of above, and
(3) a mixture of at least 80 weight % of a cycloaliphatic diol and at least 80 weight % of a cycloaliphatic dicarboxylic acid with the remainder, if any, being a linear aliphatic diol or a linear aliphatic diacid or a mixture of the two, or chemical equivalents of the above; and

wherein the weight ratio of cycloaliphatic copolyester resin to polycarbonate is from 2.0 to 1.6."

The remaining claims 2-8 of the main request were all dependent on claim 1.

Claim 8, which mostly corresponded to claim 9 of the main request filed on 10 July 2008, read as follows:

"8. The composition of claim 1 wherein the polycarbonate resin, the cycloaliphatic polyester resin and the polyetheresteramide polymer comprise a major portion by weight percent of the composition."

The appellant argued that support for the subject matter of claim 8 could be found in the second full paragraph of page 2 of the application as filed. The following passages of the original disclosure were also cited as representing the basis for the amendments performed: page 3, lines 5-10; page 15, lines 6-7; Table 1, page 15. The appellant, thus, concluded that the main request would fulfil the requirements of Art. 123 (2) EPC.

Regarding the clarity objections the appellant first referred to his submission of 10 July 2008 (see point VI above). He added further that the amendment made in order to indicate that the claimed ratios were "weight ratio" was derivable from the fact that in these claims the combined weight of polycarbonate and of the cycloaliphatic copolyester were given in weight percent, so their ratio was to be understood as being a "weight ratio".
Concerning the "refractive index" the appellant referred to D6 which explicitly stated on page 177, right column,

that "the refractive index (n_D) of a material that is quoted in the literature is the index at 23 °C (73 °F) or 25 °C (77 °F) and at the specific wavelength of the D line of the sodium emission spectrum, which is 589.3 nm". Hence, according to the appellant, the skilled person would know the meaning of this parameter.
The appellant concluded that the objections of lack of clarity would, thus, have been overcome.

The arguments brought by the appellant regarding the novelty and the inventive step were in substance identical to those submitted on 10 July 2008.

VIII. During the oral proceedings before the board held on 15 January 2010 the appellant confirmed that its initial requests were the grant of a patent on the basis of either the **main request** or any of **auxiliary requests I-IX** filed on 15 December 2009.

IX. The appellant was informed that one of the main concerns of the board was whether or not the subject matter claimed of any of the valid requests would satisfy the requirements of Art. 84 EPC since it was, amongst others, characterised using the parameter "refractive index", for which the application as filed failed to provide any information with regard to the method or the experimental conditions used for its determination. Reference was made in particular to document D6 in its whole (pages 177-181) which indicated that there were different methods of determination of the refractive index available in the art (see page 178). Besides, the first paragraph on page 177 as well as the references to Fig. 4 and Table 1 (page 178: columns 2-3) unambiguously taught that the measurements of refractive index were

affected by factors such as the wavelength used for its determination, the temperature and/or the humidity. The question, thus, arose whether or not, in the absence of any indication in the original disclosure as to which method was to be used and under which conditions the measurements were to be made (e.g. temperature, humidity), the subject matter for which protection was sought was clearly defined.

X. The appellant argued that D6 indicated on page 177, bottom of the right hand side column, that the refractive index was a well known parameter which was usually measured at 23-25 °C using the wavelength of the sodium D line. The skilled practitioner would thus be aware, based on his common general knowledge, which method should be used and which methodology should be applied. The mere reference in D6 to the existence of different measurement methods and to the dependence of the refractive index on temperature and humidity would not be sufficient evidence to consider that the parameter was not clearly defined or therefore that it led to a lack of clarity of the subject matter claimed.

XI. After deliberation the board informed the appellant that the reference to the parameter "index of refraction" in the valid requests fulfilled the requirements of Art. 84 EPC.

XII. The following formal objections regarding the valid set of requests were raised by the board:

a) The amendment of claim 1 according to the main request did not satisfy the requirements of Art. 123 (2) EPC because there was no basis in the

original disclosure for the specific combination of polyetheresteramide together with a specific weight ratio of cycloaliphatic copolyester to polycarbonate of 2.0 to 1.6, in particular because the said weight ratio was always disclosed in the application as filed in combination with a specific combined weight of polycarbonate and cycloaliphatic copolyester of 20-80 %, which was not recited in claim 1 of this request. Besides, no basis for the subject matter of claim 8 could be identified in the original application.

b) The definition of the cycloaliphatic copolyester given in paragraphs (1), (2) and (3) of claim 1 of each of auxiliary requests I-V was not understandable and rendered the subject matter claimed unclear.

As a consequence, the main request would not satisfy the requirements of Art. 123 (2) EPC and Art. 84 EPC. Noting that the same deficiencies would affect the corresponding claims of the auxiliary requests, the board further raised the objections that none of auxiliary requests I-III would satisfy the requirements of Art. 123 (2) EPC and that auxiliary requests I-V would all lack clarity.

XIII. Regarding the clarity objection, the appellant mentioned that the intention of the appellant had been to define that the copolyester was prepared from either (1) diol(s) and linear aliphatic diacid(s), wherein at least 80 w.% of the diols were cycloaliphatic diols optionally in combination with linear aliphatic diol(s) or (2) linear aliphatic diol(s) and diacid(s), wherein at least 80 w.% of the diacids were cycloaliphatic diacids optionally in

combination with linear aliphatic diacid(s) or (3) diol(s) and diacid(s), wherein at least 80 w.% of the diols were cycloaliphatic diols optionally in combination with linear aliphatic diol(s) and wherein at least 80 w.% of the diacids are cycloaliphatic diacids optionally in combination with linear aliphatic diacid(s).

In reply to the other objections raised by the board the appellant pointed to its argumentation submitted in writing.

XIV. After deliberation the board announced that:

a) The **main request** and **auxiliary requests I-III were refused** because they did not fulfil the requirements of both the Art. 123 (2) and the Art. 84 EPC;

b) **Auxiliary requests I-V were refused** because they lacked clarity (Art. 84 EPC).

XV. The board did not raise any formal objections regarding **auxiliary request VI**.

XVI. Concerning novelty of auxiliary request VI, the appellant indicated that D1 would not specifically disclose compositions comprising a polymeric antistatic agent and would further fail to disclose the matching of such an agent with that of the polycarbonate/ cycloaliphatic copolyester mixture as required in claim 1. The appellant further argued that D2 failed to disclose compositions comprising an electrostatic dissipating polymer as claimed in auxiliary request VI and that D3-D4 both at least failed to disclose cycloaliphatic copolyesters. Hence, according to the appellant, the subject matter claimed would be novel.

XVII. After deliberation the board informed the appellant that auxiliary request VI satisfied the requirements of Art. 54 EPC.

XVIII. The appellant based its argumentation in respect of inventive step of auxiliary request VI on the problem-solution approach starting from D1 as closest prior art. He identified the objective problem solved as being the provision of electrostatic compositions having improved transparency as well as good impact properties. The solution to that problem would be the selection of specific polymeric antistatic polymers as recited in claim 1 and in the matching of the refractive index of the said antistatic polymer with that of the polycarbonate/cycloaliphatic polyester mixture. There would be no hint to solve the above identified problem according to the subject matter of present claim 1, according to the appellant.

The appellant further argued that the only teaching of D1 was to match the refractive indices of the continuous phase to that of the discontinuous phase. D1 would fail to give any information regarding the refractive indices of the various constituents of the continuous phase other than the thermoplastic components of the continuous phase, let alone the refractive index of the optional additives present therein such as the electrostatic agent.

The passage of D4: col. 3, lines 10-15 which had been quoted by the board was considered as not pertinent for the case in suit by the appellant, in particular because D4 dealt with a different combination of polymers and

because it further failed to disclose the specific polymeric antistatic additives presently claimed.

XIX. After deliberation the board announced that auxiliary request VI satisfied the requirements of Art. 56 EPC.

Final requests

XX. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the **main request** or any of **auxiliary requests I-IX filed with letter dated 15 December 2009**.

XXI. The board announced its decision at the end of the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

Main Request

2. Amendments: Art. 123 (2) CBE

2.1 **Claim 1** of the main request is based on claim 1 of the application as originally filed which has been *inter alia* amended so as to specify that the electrostatic dissipating polymer is a polyetheresteramide polymer and to require that the weight ratio of cycloaliphatic copolyester resin to polycarbonate is from 2.0 to 1.6.

Although the claimed ratio of 2.0 to 1.6 may be found e.g. in original claim 2 it is only disclosed therein in

combination with a specific combined weight of polycarbonate and cycloaliphatic copolyester of 20 to 80 %. Considering the wording of said original claim 2 the board is of the opinion that there is a close relationship between both features originally disclosed in combination so that they could not be read independently one of each other. Since the feature related to the "combined weight" has been omitted in present claim 1, original claim 2 can not be considered as a valid basis for the amendment made.

Although the passage on page 13 of the application as filed (paragraph in the middle of the page starting with (A)…) recites said ratio of 2.0 to 1.6, the board considers that said passage can not be considered as a valid support for the amendment made either, because it deals with a more specific combination of features than present claim 1: the omission in the latter of features such as the respective amounts of polycarbonate, copolyester and electrostatic resin, or such as the more specific definition of the copolyester according to the above identified passage of original page 13 leads to an unallowable extension of the subject matter originally disclosed.

Finally, the passage on page 16, in the paragraph below Table 2 also quotes the claimed ratio of 2.0 to 1.6. However, this passage relates to the specific examples of the application as filed, which all deal with a specific composition *consisting of* polycarbonate, PCCD -which is a specific cycloaliphatic copolyester -, polyetheresteramide and specific stabilising additives, all these compounds being present in specific amounts. The amendment made by the appellant, if it were to be

based on these examples, would represent an undue generalisation which has no support in the original application.

The passages of the original disclosure cited by the appellant as support for the amendments made (page 3, lines 5-10; page 15, lines 6-7; Table 1, page 15) are of no help in the present matter since they are not related to the specified ratio of 2.0 to 1.6.

The board, thus, concludes that claim 1 has been amended in such a way that its subject matter extends beyond the content of the application as filed.

2.2 No support for the subject matter of **claim 8** as depending on claim 1 may be identified in the original disclosure. Claim 17 as originally filed is not considered as a valid support for present claim 8 because it was drafted as an independent claim and in particular did not refer either to the combination of the specific copolyester and polyetheresteramide according to the present set of claims or to the specific ratio cycloaliphatic copolyester/polycarbonate now claimed. The argument of the appellant that the subject matter of claim 8 is derivable from the second paragraph of page 2 is not accepted because said passage does not deal with a composition according to present claim 1 either. The requirements of Art. 123 (2) EPC are, thus, not fulfilled.

3. Clarity

The definition of the cycloaliphatic copolyester as recited in **claim 1** of the main request is not clear

because of the wording "reaction product selected from the group consisting of (1) …, (2), …, and (3)…", in particular because of the position of the comma "," and the use of "or" and "if any". Besides, the meaning of the sentence "being a linear aliphatic diol, or a combination of a linear aliphatic diol and a linear aliphatic diacid" is unclear. Since this passage of claim 1 is not supported by the description (see in particular page 6, second full paragraph) it is, thus, not clear how these embodiments are to be understood. Regarding embodiment (3) it is in particular not clear how it is possible to have a mixture of twice at least 80 w. % of two different components and an optional, additional compound.

Finally, no indication is given in the application as filed with regard to the basis considered to define the weight percentages. Considering that different interpretations of this feature are possible, e.g. the basis could either be the total amount of diols or the whole composition, the subject matter for which protection is sought is not clearly defined.

The lack of clarity in the definition of the cycloaliphatic polyester renders the subject matter claimed unclear, contrary to the requirements of Art. 84 EPC.

The arguments provided by the appellant during the oral proceedings explaining what the intention of the applicant had been (see section XIII, above) may not be considered here since this information does not make part of and is not derivable from the application as filed.

4. Hence, the main request is refused because it does not meet the requirements either of Art. 123 (2) EPC or of Art. 84 EPC.

Auxiliary Requests I-V

5. **Claims 1 and 8** of auxiliary requests I-III all suffer from the same deficiencies as the main request regarding Art. 123 (2) EPC.

Each of **claim 1** of auxiliary requests I-V is further not clear as required by Art. 84 EPC for the same reasons as given for claim 1 of the main request.

Auxiliary requests I-V are, thus, refused.

Auxiliary request VI

6. Amendments

6.1 Claim 1 reads as follows:

"1. A transparent permanent electrostatic dissipating composition comprising in combination
(A) from 20 to 80 weight %, based on the total weight of the composition, of a blend of polycarbonate resin and cycloaliphatic polyester resin, providing that the ratio of cycloaliphatic polyester resin to polycarbonate resin is from 1.0 to 2 and preferable from 1.6 to 1.9 wherein the cycloaliphatic polyester resin comprises the reaction product of (a) at least one cycloaliphatic C_2-C_{12} alkane diol, most
preferably a C_6-C_{12} cycloaliphatic diol and (b) at least one cycloaliphatic diacid, most preferably a C_6-C_{12}

diacid;
(B) from 0.01 to 25 weight %, preferably from 5 to 20 weight %, more preferably from 5 to 10 weight %, based on the total weight of the composition, of an electrostatic dissipating polymer selected from the group consisting of polyesteramides, copolyesteramides, polyetherpolyamides, polyetheramide block copolymers, polyetherester-amide block copolymers, polyurethane containing a polyalkyalkylene glycol moiety, polyetheresters, and mixtures thereof, said polycarbonate resin, said cycloaliphatic copolyester resin, and said
electrostatic dissipating polymer, each having a predetermined index of refraction wherein said index of refraction of said electrostatic dissipating polymer has a refractive index value between said polycarbonate resin and said cycloaliphatic copolyester resin, the proportions of said polycarbonate resin and said cycloaliphatic copolyester resin being selected so that the resulting index of refraction of the miscible mixture of said polycarbonate resin and said cycloaliphatic copolyester resin is within a value of 0.005 units of said electrostatic dissipating polymer."

The subject matter of claim 1 is based on page 13, lines 10-20 as originally filed with the following amendments:

a) The electrostatic dissipating polymer (B) has been limited to specific polymer classes.

This amendment is allowable since it is clearly indicated on page 13, lines 10-11 that the compositions recited in the following lines 12-20 of that page are illustrative of the "present invention". Considering that all the alternatives of (B) disclosed in the

original application have been recited in the claims (see original claims 10-11; original page 5, third paragraph), the amendment has in particular not created any new "subclass" or led to a "singling out" of compounds among those originally disclosed.

b) The matching of the refractive indices is defined in absolute terms.

This amendment is based on the general teaching disclosed on original page 3, lines 5-10, which refers to the three essential components whose refractive indices are matched, namely the cycloaliphatic polyester, polycarbonate resin and antistatic polymeric material in terms of generality as broad as that of original claim 1 (first four lines). Consequently, the preferred degree of matching (within about 0.005 units) is considered to be applicable to the broad disclosure of the invention. For this reason, the passage is not considered as being specific to the sole embodiments disclosed in that paragraph and bridging pages 2-3 of the original application.

c) It is required that the value of the refractive index of the electrostatic polymer is in-between those of the polycarbonate resin and said cycloaliphatic copolyester resin.

Again, taking into account that said passage of page 13, lines 10-20 is related to compositions according to the invention and further considering that the compositions defined in that passage fall under the scope of the independent claim 1 as originally filed, this amendment is derivable from the corresponding passage of original claim 1.

d) It is specified that the w. % of (A) and (B) are based on the total weight of the composition.

This amendment is derivable from the fact that the passage on page 13 refers to embodiments according to the invention and further considering that all the passages of the original application making reference to weight percentages of (A) and (B) make use of weight percentages based on the whole composition (see original claims 2-3; first complete paragraph on page 6).

The board is further satisfied that the combination of these amendments with the subject matter of original claim 1 is allowable since the amendments either refer to features of broad applicability or to features which have been defined in their broadest sense according to the original disclosure.

6.2 The subject matter of claims 2-4 results from the combination of the above identified passages together with the original claims 6, 7 and 9, respectively. These combinations are also considered to be derivable from the application as originally filed.

6.3 Accordingly, auxiliary request VI meets the requirements of Art. 123 (2) EPC.

7. Clarity

7.1 Parameter "index of refraction"

Claim 1 requires that the polymers of components (A) and (B) are such that i) the value of the refractive index of the electrostatic polymer should be in-between those of the polycarbonate and the cycloaliphatic copolyester resins and further so that ii) the refractive index of

the electrostatic resin be matched within a value of 0.005 units to that of the miscible mixture of the polycarbonate and the cycloaliphatic copolyester.

According to the EPO case law the unambiguous characterisation in a claim of a product by a parameter (here the refractive index) necessarily requires that the parameter can be clearly and reliably determined (see e.g. T 555/05 of 24 May 2007, not published in OJ EPO: section 3.2.8 of the reasons). This requirement is in particular necessary in order for the public to know whether they are working within the claims or not.

In the present case whilst the information provided in D6, pages 177 and 178 of which were cited by the appellant and which is considered by the board to be generally representative of the common general knowledge at the relevant filing date, shows that there are various methods available in the art to determine the refractive index (D6: page 178, columns 1 to 2), it is made clear that the refractive index of a material that is quoted in the literature is the index at 23 °C or 25 °C and at the specific wavelength of the D line of the sodium emission spectrum which is 589.3 nm (page 177, right column, paragraph below the heading "Refractive Index"). Furthermore it is stated that the standard for the plastics industry, ASTM D 542 calls for two methods of index measurement, one of which is accurate to three decimal places and possibly four, and the second of which is only accurate to approximately two decimal places (page 178, left and centre columns). It is conspicuous to the board in this connection that the refractive indices are quoted in the application in suit to three decimal places.

Consequently and even though there are details given on later pages of the same document which were not cited by the appellant but which were, with the appellant's consent discussed during the oral proceedings, of how refractive index can vary with the temperature of measurement, the wavelength of measurement and the moisture content of the atmosphere during measurement, it is nevertheless considered by the board that in spite of the absence of any precise definition in the application in suit itself of the way in which the refractive index is to be measured, this is indeed a well known and even standardised parameter (see above) for which there is no evidence for assuming a degree of variance in the values obtained by measuring it according to the relevant standard which would lead to an objectionable lack of clarity in the sense of Art. 84 EPC. On the contrary the board takes the view that the skilled person reading the application in suit at the filing date would immediately understand that any values of the refractive index would be those measured according to ASTM D 542 to the appropriate degree of accuracy.

The fact that there may be a purely theoretical lack of mathematical precision in the values quoted owing to the environmental variables mentioned above does not in the board's view in the present case lead to any real doubt as to whether a given composition would fall inside or outside the scope of claim 1 as regards the refractive index requirements of the latter, depending on whether it was measured at, say, 23 °C or 25 °C.

In other words the use of the term "refractive index" in claim 1 is clear in the sense of Art. 84 EPC.

7.2 The board agrees with the appellant that the term "transparent", which had been objected to during the appeal proceedings as lacking clarity, indeed has a clear meaning for the skilled person as attested e.g. by the Enclosures A and B.

7.3 Auxiliary request VI, thus, fulfils the requirements of Art. 84 EPC.

8. Novelty

8.1 D1 discloses non opaque thermoplastic alloys comprising a continuous phase comprising e.g. a miscible blend of polycarbonate and cycloaliphatic copolyester such as PCCD and a discontinuous phase such as an ABS impact modifier, wherein the discontinuous phase is immiscible with the continuous phase and wherein the refractive index of both phases are preferably adjusted so as to differ by less than 0.01 units (D1: claims 1, 6-8, 11, 12, 17; page 9, line 10 to page 10, line 25; example 5). D1 in particular teaches on page 9, lines 10-14 that "if it is desired to control the refractive index of the matrix or continuous phase, one means of accomplishing this goal is to utilize a mixture of polycarbonate and a miscible polymeric additive and/or a miscible oligomeric additive, wherein said additive has a refractive index that differs from the refractive index of polycarbonate by at least 0.01."
Example 5 of D1 deals with a polycarbonate/PCCD/ABS blend wherein the ratio PCCD/polycarbonate is of 0.57:1. D1 further teaches that the claimed compositions may

optionally comprise additives, such as antistatic agents, including e.g. polyalkylene glycols which is a polymeric antistatic agent (D1: page 21, line 2; page 22, lines 17-19).
D1, however, fails to specifically disclose the use of a polymeric electrostatic agent corresponding to compound (B) of claim 1. Besides, D1 does not disclose a ratio cycloaliphatic copolyester to polycarbonate of 1.0 to 2. Finally, the specific combination of polycarbonate, cycloaliphatic copolyester and polymeric antistatic agent could only be obtained after performing a series of choices within the ambit of D1 and is, consequently, not considered as being unambiguously disclosed in D1.

8.2 D2 discloses polycarbonate/PCCD/impact modifier compositions wherein the PCCD/polycarbonate ratio is pref. of up to 4:1 (D2: claim 23; page 15: lines 9-12; Examples 1-8, page 20), e.g. 1.8:1 (example 5, page 20). D2 does not, however, disclose a composition comprising an electrostatic polymer (B) as defined in auxiliary request VI.

8.3 D3-D5 all fail to disclose compositions comprising, among others, a cycloaliphatic copolyester and/or to disclose the specific ratio of cycloaliphatic polyester to polycarbonate as presently claimed.

8.4 Therefore auxiliary request VI satisfies the requirements of Art. 54 CBE.

9. Inventive step

The inventive merit will be assessed according to the problem-solution approach.

9.1 Closest prior art

The problem to be solved by the present application is to provide compositions comprising polycarbonate and cycloaliphatic polyesters which have simultaneously good transparency, antistatic properties and impact strength.

The board, in agreement with the appellant, considers that D1 represents the closest prior art because it aims at providing non-opaque thermoplastic polycarbonate compositions having good impact strength and which may contain antistatic additives.

The other documents cited in the proceedings either deal with compositions similar to those of D1 but fail to disclose antistatic agents (D2) or deal with antistatic compositions which are much different from the polycarbonate/cycloaliphatic copolyester systems presently claimed (D3-D5). They would, thus, not represent the most promising starting point for the skilled person dealing with the above identified problem.

9.2 Defining the alleged problem solved in view of the closest prior art

Normally, the problem addressed in the patent may be taken as the starting point. The problem addressed in the present application is to provide blends of polycarbonate and cycloaliphatic copolyester having good electrostatic properties and which exhibit improved transparency while maintaining good impact resistance properties.

9.3 The solution

The solution provided by the application is to use a polymeric antistatic additive selected among specific classes of resins, said antistatic resin having a refractive index value in-between those of the polycarbonate and of the cycloaliphatic copolyester, and to select an appropriate ratio of the latter two polymers in order to match the refractive index of the antistatic resin within a value of 0.005 units.

9.4 Examination of the success of the solution

The examples given in Tables 1-2 of the application together with the examples of D7 (provided by the appellant during the appeal proceedings) render plausible that the above identified problem is indeed solved, at least when using polyetheresteramide as the electrostatic dissipating resin. In particular the comparison of the examples listed in Table 1 and those given in Table 2 of the original disclosure show that the use of a PCCD/polycarbonate ratio of 1.8 leads to a drastic diminution in haze as compared to the use of a PCCD/polycarbonate ratio of 5. Similarly the comparison of the last three examples given in the Table of D7 (illustrative of the invention) with example C7 of Table 2 of the application shows the same result. There is no reason or evidence on file which might lead the board to think that the same effect is not plausible for the ranges of resins (A) and (B) presently claimed and/or for the other antistatic polymers claimed as compound (B). The board, thus, considers that the applicant has made plausible that the above identified

problem represents the objective problem which is indeed solved on the whole scope of the claims.

9.5 Examining whether the proposed solution is obvious with regard to the state of the art

Concerning the closest prior art D1

D1 specifically deals with polycarbonate thermoplastic alloys which are compositions comprising a continuous thermoplastic phase comprising the polycarbonate optionally as a blend with other polymeric compounds (such as cycloaliphatic copolyester) or further additives (including antistatic compounds) miscible therein and a discontinuous phase comprising a rubbery component such as ABS. The teaching of D1 is that it is possible to improve the transparency of the alloy compositions by matching the refractive indices of the continuous phase and of the discontinuous phase (D1: page 5, lines 17-27; page 9, line 10 to page 10, line 25).

D1, however, does not provide much information with respect to the control of the refractive index of the continuous phase. In the passage on page 9, lines 10-14, it is stated that the control of the refractive index of the continuous phase may be accomplished by utilizing a mixture of a polymeric additive which has a refractive index that differs from the refractive index of polycarbonate by at least 0.01. This is, however, the diametric opposite of the matching taught by the application in suit, which is to achieve a close matching (within 0.005 units).

Besides, although D1 certainly discloses one specific polymeric antistatic additive, namely polyalkylene glycols, on page 22, lines 17-19 within a list of other non polymeric alternative antistatic additives, it does not teach the use of any of the polymeric compounds (B) recited in present claim 1 which all belong to different classes of polymers than the polyalkylene glycols recited in D1.

Finally, D1 does not teach any compositions wherein the continuous phase comprises more cycloaliphatic polyester resin than polycarbonate as presently required in claim 1. Neither does D1 teach to limit the amount of polycarbonate in order not to exceed twice the amount of the cycloaliphatic polyester as presently claimed. The only information in this respect is found in example 5 of D1 which was performed with a PC/PCCD ratio of 54/31, i.e. using more polycarbonate than cycloaliphatic polyester.

To conclude, the skilled person would, firstly, not find any hint in D1 alone to provide a composition as defined in present claim 1, and secondly would have had no motivation to do so in order to solve the above identified objective problem.

Concerning the other cited prior art documents

Although D4 teaches in column 3, lines 11-16 that the index of refraction of an electrostatic dissipating polymer can be matched to that of a base polymer thereby providing a clear composition, the whole disclosure of D4 is related to different matrixes (no polycarbonate/ cycloaliphatic copolyester blend) and to different

polymeric antistatic additives (low molecular weight polyurethanes). D4 in particular does not deal with polycarbonate thermoplastic alloys according to D1. There is, thus, no reason why the skilled person starting from D1 as closest prior art would consider that teaching of D4 to modify the compositions of D1 according to the present claims in order to solve the above objective problem.

Finally, the remaining documents either do not deal with polymeric antistatic agents (D2), or do not disclose any effect related to the refractive index of polymeric antistatic agents (D3 and D5). These documents are, thus, not pertinent for the assessment of the inventive merit of the present application.

Conclusion

Starting from D1 as closest prior art, it would not have been obvious for the skilled person aiming at providing antistatic compositions comprising a polycarbonate/cycloaliphatic polyester blend, said composition having good impact strength and improved transparency first, i) to select polymeric antistatic agents as presently claimed and ii) to match the refractive index of a iii) polycarbonate/cycloaliphatic copolyester blend comprising more polycarbonate than polyester to that of said polymeric antistatic agent according to present claim 1.

9.6 The board is, thus, satisfied that auxiliary request VI fulfils the requirements of Art. 56 CBE.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to grant a patent on the basis of auxiliary request VI (claims 1 to 4) filed with letter dated 15 December 2009, and after any necessary consequential amendment of the description.

The Registrar: The Chairman:

E. Görgmaier R. Young