Internal distribution code:

(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 11 November 2014

Case Number: T 1762/12 - 3.3.09

Application Number: 02257059.2

Publication Number: 1302309

IPC: B32B27/18, B32B27/36, B32B27/34, B32B27/40, C08K5/3462, C08K5/3435

Language of the proceedings: EN

Title of invention:
Multi-layer, weatherable compositions and method of manufacture thereof

Patent Proprietor:
SABIC Innovative Plastics IP B.V.

Opponent:
Evonik Degussa GmbH

Headword:

Relevant legal provisions:
EPC Art. 56
RPBA Art. 13(1)

Keyword:
Main request and auxiliary request I - inventive step (no)
Auxiliary request II - admitted (yes)
Auxiliary request II - inventive step (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern
Boards of Appeal
Chambres de recours

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 1762/12 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 11 November 2014

Appellant: (Opponent)	Evonik Degussa GmbH Paul-Baumann-Strasse 1 45764 Marl (DE)
Representative:	Godemeyer Blum Lenze Patentanwälte Partnerschaft mbB werkpatent, An den Gärten 7 DE-51491 Overath (DE)
Respondent: (Patent Proprietor)	SABIC Innovative Plastics IP B.V. Plasticslaan 1 4612 PX Bergen op Zoom (NL)
Representative:	Müller Schupfner & Partner Patent- und Rechtsanwaltspartnerschaft mbB Bavariaring 11 80336 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 31 May 2012 rejecting the opposition filed against European patent No. 1302309 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	W. Sieber
Members:	J. Jardón Álvarez
	E. Kossonakou

Summary of Facts and Submissions

I. This decision concerns the appeal filed by the opponent against the decision of the opposition division to reject the opposition filed against European patent No. 1 302 309 granted to General Electric Company, now SABIC Innovative Plastics IP B.V..

II. The patent was granted with 10 claims, claim 1 reading as follows:

"1. A multi-layer composition, comprising

a) an upper layer comprising a cycloaliphatic polyester resin or an aliphatic polyamide, and an additive composition comprising a hindered amine light stabilizer and a hydroxyphenyl-triazine or -pyrimidine UV absorber;
b) an intermediate layer comprising a polymer system selected from one of a polyamide resin, a polymeric ionomer resin, a polyurethane resin, and a cycloaliphatic polyester resin, with the proviso that
if the upper layer comprises a cycloaliphatic polyester resin, then the polymer system of the intermediate layer comprises a cycloaliphatic polyester resin; and
if the upper layer comprises a polyamide resin, then the polymer system of the intermediate layer comprises a polyamide resin, a polymeric ionomer resin, or a polyurethane resin;
c) a polymeric substrate;

wherein said intermediate layer is disposed between and in intimate contact with said upper layer and said substrate."

Claims 2 to 10 were dependent claims.

III. The opponent, Evonik Degussa GmbH, had requested revocation of the patent in its entirety on the grounds that the claimed subject-matter lacked inventive step (Article 100(a) EPC).

The documents cited during the opposition proceedings included:

D1: WO 99/48685 A1;

D2: US 6 239 276 B1;

D3: WO 99/57189 A1;

D4: EP 0 568 988 A1;

D5: US 4 619 956 A;

D6: EP 0 434 608 A1;

D7: EP 0 483 488 A1; and

D8: US 5 597 854 A.

IV. The opposition division's decision, announced orally on 25 April 2012 and issued in writing on 31 May 2012, can be summarised as follows:

- The opposition division considered D1 to represent the closest prior art for the alternative embodiment of claim 1 with an upper layer comprising a cycloaliphatic polyester resin. The problem to be solved by this embodiment was seen

as being the provision of a multilayer structure having improved colour shift and gloss retention properties. In its view there was no incentive either in D1 itself or in any of D2, D3 and D5 to D8 to modify the multilayer composition of D1 by applying an intermediate layer comprising a cycloaliphatic polyester. Thus the subject-matter of this alternative embodiment of claim 1 involved an inventive step.

- Concerning the other alternative of claim 1, namely the multilayer compositions comprising an aliphatic polyamide as upper layer, the opposition division also acknowledged an inventive step, essentially because they were a non-obvious alternative to the multilayer compositions disclosed in D4.

V. On 3 August 2012 the opponent (in the following: the appellant) lodged an appeal and on the same day paid the prescribed fee. The statement setting out the grounds of appeal requesting the revocation of the patent was filed on 9 October 2012.

VI. With its reply dated 1 February 2013 the patent proprietor (in the following: the respondent) disputed the arguments submitted by the appellant and requested that the appeal be dismissed (main request) or, alternatively, that the patent be maintained in amended form with the claims according to the newly filed auxiliary request I.

VII. Further submissions were filed by the appellant with letters dated 12 June 2013 and 28 January 2014 and by the respondent with letter dated 25 October 2013.

VIII. On 21 May 2014 the board issued summons to oral proceedings, attaching a communication indicating the points to be discussed during the oral proceedings.

IX. Replies to the communication of the board were filed by the respondent on 31 July 2014 and by the appellant on 2 October 2014.

X. On 11 November 2014 oral proceedings were held before the board. During the oral proceedings, after the discussion of the main request and auxiliary request I, the respondent filed a further auxiliary request, auxiliary request II.

XI. The claims of the main request are the granted claims (see point II above).

The claims of auxiliary request I differ from the claims of the main request in that the embodiment relating to compositions with an upper layer comprising a polyamide resin has been deleted.

Claim 1 of auxiliary request II reads as follows:

"1. A multi-layer composition, comprising

a) an upper layer comprising as the only polymer a cycloaliphatic polyester resin and an additive composition comprising a hindered amine light stabilizer and a hydroxyphenyl-triazine or -pyrimidine UV absorber;
b) an intermediate layer comprising as the only polymer a cycloaliphatic polyester resin; and
c) a polymeric substrate;

wherein said intermediate layer is disposed between and in intimate contact with said upper layer and said substrate."

Claims 2 to 10 are dependent claims.

XII. The arguments of the appellant, insofar as they are relevant for the present decision, may be summarised as follows:

- The subject-matter of claim 1 of the main request and auxiliary request I, wherein the upper layer comprised a cycloaliphatic polyester resin, lacked inventive step starting from D1 as closest prior art document. D1 disclosed multilayer plastic articles comprising a polycarbonate and a cycloaliphatic polyester resin that could further include ultraviolet light absorbers and hindered amine light stabilisers. The further inclusion of an intermediate layer comprising a cycloaliphatic polyester resin showed no effect on the claimed compositions, as could be seen from examples 3 and 5 of the patent itself. Document D1 already suggested the possibility of using a further layer.

- Auxiliary request II should not be admitted into the proceedings. The request could have been filed earlier in the proceedings, and filing it at such a late stage was merely a procedural strategy ('salami tactics'). Moreover, the amendments made were not supported by the application as filed and lacked clarity.

XIII. The arguments of the respondent may be summarised as follows:

- The claimed subject-matter was distinguished from the disclosure of D1 by the use of (i) a cycloaliphatic polyester as intermediate layer, and (ii) a specific UV absorber, namely hydroxyphenyl-triazine in the upper layer. These two differences achieved improved properties of the multilayer compositions, in particular a better protection against colour shift and an increase in the weatherability of the structure, as shown in the examples of the patent, in particular in example 1 when compared with examples 3, 5, 6 and 7. The prior art cited contained no hint towards these distinguishing features.

- The subject-matter of claim 1 of auxiliary request II was limited to the preferred embodiment wherein the upper layer and the intermediate layer were a cycloaliphatic polyester resin. This restriction ensured that only example 1 was covered by the claims. The amendment thus limited the claims to the embodiments for which an improvement had been experimentally shown.

XIV. The appellant requested that the decision under appeal be set aside and that European patent No. 1 302 309 be revoked.

XV. The respondent requested that the appeal be dismissed (main request) and subsidiarily that the patent be maintained on the basis of claims 1 to 10 according to auxiliary request I filed with letter of 1 February 2013 or on the basis of claims 1 to 10 according to auxiliary request II filed on 11 November 2014 during the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. The issue in the present appeal proceedings is inventive step.

MAIN REQUEST

3. The patent relates to multilayer polymeric materials including a base layer, or substrate, that is protected against deterioration by an upper layer (or layers) (see paragraph [0001] of the specification). The invention aims to enhance the protection of the substrate layer by using specific formulations for the other layers in order to obtain products exhibiting improved properties, in particular with respect to yellowing or discolouration and gloss retention (see examples).

   Claim 1 of the main request includes two alternative embodiments wherein the composition of the upper layer of the multilayer composition comprises either a cycloaliphatic polyester resin (embodiment I) or aliphatic polyamide (embodiment II).

   In the following, inventive step of embodiment I is discussed.

4. Inventive step - embodiment I

4.1 Document D1 was agreed by the parties to represent the closest prior-art document for this embodiment.

D1 discloses a multilayer article which comprises a thermoplastic resin substrate layer (e.g. a polycarbonate layer) and an adherent layer comprising a cycloaliphatic polyester on at least one surface of the substrate (see claim 1). The use of cycloaliphatic polyester resins for the top layer is said to provide better weatherability than polycarbonate alone (see page 11, lines 13 and 14). The incorporation of ultraviolet light (UV) absorbers into the cycloaliphatic polyester provides additional benefits in weatherability (page 11, lines 18 to 23). In addition to UV absorbers, hindered amine light stabilisers also contribute to increased weatherability of the structure (page 11, lines 24 to 25).

In a preferred embodiment disclosed on page 19, lines 21 to 27, a surface layer is formed by coextruding polycarbonate and cycloaliphatic polyester as a composite film. Polycarbonate as the substrate is then injected onto the polycarbonate side of the composite during a subsequent moulding operation. The resulting multilayer article comprises a substrate (in this case polycarbonate), an intermediate film of the same material as the substrate, and a top layer of a cycloaliphatic polyester.

4.2 According to the respondent, the problem underlying the patent in the light of D1 is to provide a multilayer composition having improved properties, in particular better weatherability, heat ageing and gloss retention and better protection against colour shift.

4.2.1 This problem is said to be solved by the claimed compositions which differ from the disclosure of D1 as

far as embodiment I of claim 1 is concerned by the following two features:

a) the use of an intermediate layer comprising a cycloaliphatic polyester resin; and

b) the use of a specific additive, namely a composition comprising a hindered amine light stabiliser and a hydroxyphenyl-triazine or -pyrimidine UV absorber.

4.2.2 Concerning feature (b) there is no evidence on file showing that the selection of the specific additive composition within the teaching of D1 results in any improvement of the claimed compositions. Although in the examples of the patent a comparison is made between two different UV absorber compositions, the comparison has not been made correctly and cannot show that it has its origin in the distinguishing feature. In particular, the comparative UV absorber system used for comparison (see Table 1, UV2) differs from the claimed absorber system (UV1 in Table 1) not only in the UV absorber used. The comparative UV absorber is used in a much lower amount and with no hindered amine light stabiliser (see [0105]).

Thus, the use of known light stabilisers and UV absorbers is an obvious choice of the skilled person, so that feature (b) cannot justify an inventive step for the subject-matter of claim 1. This finding was not disputed by the respondent.

4.2.3 Concerning feature (a) the results in table 1 of the opposed patent show that improved gloss retention is indeed achieved when using an intermediate layer of

cycloaliphatic polyester resin between the substrate layer and the upper layer.

Thus, in example 1 according to the invention, using a cycloaliphatic polyester resin upper layer, a cycloaliphatic polyester resin intermediate layer and a polycarbonate base layer, a change in gloss of only -6% is obtained after 3000 hours of weathering according to ISO4892 protocol (see table 2).

On the other hand, example 6 shows that in the absence of the intermediate cycloaliphatic resin layer a change in gloss of -68% occurred after 3000 hours of weathering under the same conditions.

The comparison of these two examples (whereby example 6 reflects the general teaching of the closest prior-art document D2) shows that the improvement is due to the distinguishing feature, namely the use of a cycloaliphatic polyester resin intermediate layer.

4.2.4 However, as pointed out by the appellant, table 1 of the patent includes further examples falling within the scope of claim 1 for which no improvement over the teaching of D1 is achieved. In examples 3 and 5 a blend of a cycloaliphatic polyester resin and polycarbonate is used for the intermediate layer and no improvement in gloss retention is achieved (cf. table 2, examples 3 and 5 wherein the change in gloss amounts to -60% and -88%, respectively, after 3000 hours of weathering).

4.2.5 Examples 3 and 5 do indeed fall within the scope of the claim because of the use of the word "comprising" for the definition of the intermediate layer. The subject-matter of the claim embraces the use of cycloaliphatic polyester resins blends, like the ones used in these

examples. This is further confirmed by paragraph [0049] of the specification wherein it is stated that in an embodiment of the invention "the polymeric resin for the intermediate layer is a cycloaliphatic polyester, e.g., PCCD or a cycloaliphatic polyester **blend**, e.g., PCCD and a polycarbonate" (emphasis by the board).

4.2.6 The board thus concludes that an improvement of the above-mentioned properties due to the distinguishing feature of the invention cannot be acknowledged for the whole scope of the claim.

4.3 As a consequence, the problem has to be reformulated in a less ambitious manner, not involving an improvement in weatherability and protection against colour shift of the multilayer composition.

It is undisputed that this less ambitious problem has been solved by the claimed multilayer compositions.

4.4 In the absence of any improvement in the properties of the multilayer compositions, the claimed compositions having an intermediate layer comprising a cycloaliphatic polyester resin which has no influence on the properties of the composition have to be considered an obvious alternative to the compositions known from D1. In fact D1 itself already suggests that an intermediate layer "for decorative or functional purposes" can be included in the compositions therein disclosed (see page 2, lines 8 to 10).

4.5 In view of the above, the subject-matter of claim 1, insofar as it relates to the compositions wherein the upper layer comprises a cycloaliphatic polyester resin, embodiment I, lacks inventive step.

4.6 Under these circumstances, there is no need for the board to examine whether or not the subject-matter of embodiment II involves an inventive step.

AUXILIARY REQUEST I

5. Inventive step

5.1 Claim 1 of auxiliary request I differs from claim 1 of the main request in that embodiment II, namely the compositions comprising a polyamide resin in the upper layer, has been deleted.

5.2 The subject-matter is thus limited to the compositions of embodiment I discussed for the main request. The reasoning given for the main request therefore applies in the exact same way to the subject-matter of claim 1 of auxiliary request I, which thus also lacks inventive step.

AUXILIARY REQUEST II

6. *Admissibility*

6.1 The respondent filed auxiliary request II towards the end of the oral proceedings, after the board had deliberated on the allowability of the main request and auxiliary request I, i.e. at a very late stage of the proceedings.

6.2 Requests filed at such a late stage are admitted into the appeal proceedings only if there are sound reasons for filing them so late, as may be the case where amendments are occasioned by developments during the proceedings. Moreover the amendments must be *prima facie* clearly allowable, and their introduction must

not constitute an abuse of procedure (see Case Law of the Boards of Appeal of the EPO, 7th edition 2013, Chapter IV.E.4.4).

6.3 In the present case the board decided to admit auxiliary request II into the proceedings essentially because the amendment was caused by the objection of the appellant that several examples in the patent specification marked as comparative examples were actually within the scope of the claim, an objection raised for the first time with the appellant's reply to the summons and developed in detail during the discussion before the board.

6.4 It became clear during the discussion of the main request that an amended claim limited to an embodiment reflecting the teaching of example 1 of the patent constituted a promising attempt to overcome the inventive-step objections. The amendments resulted in a narrower definition of the features in the claim and were so straightforward that a person skilled in the art could easily understand them. They could be assessed without giving rise to any difficulty or delay.

6.5 Contrary to the objections of the appellant, no abuse of the proceedings could be seen in the late filing of this request. As explained above, the filing derived from the inventive-step discussion carried out during the oral proceedings.

6.6 Under these circumstances, auxiliary request II was, in spite of its late submission, admitted into the proceedings (Article 13(1) RPBA).

7. *Amendments*

7.1 Claim 1 of auxiliary request II is based on claim 1 of auxiliary request I (where embodiment II had been deleted), with the further limitation that both the upper layer and the intermediate layer comprise "as the only polymer a cycloaliphatic polyester".

7.2 This amendment is fully supported by the fourth paragraph of page 13 of the application as filed, where it is stated that "In one embodiment wherein a cycloaliphatic polyester **is used** for the upper top layer, the polymeric resin for the intermediate layers **is** a cycloaliphatic resin..." (emphasis by the board).

7.3 The appellant objected to the amendment as not compliant with Article 123(2) EPC, essentially because of the wording used for the amendment, namely the use of "as the only polymer" instead of, for instance, the words "consisting of" to define the layer composition.

7.4 The board disagrees for the following reason:

Although it is correct that the amendment in claim 1 cannot be found *expressis verbis* in the relevant passage, the meaning is nevertheless the same. The amendment ensures that the layers are made of cycloaliphatic polyester resin without any further polymeric resins. No other polymer is included, so that blends as used in examples 3 and 5 of the patent are now excluded from claim 1.

7.5 Further, the amendments also undisputedly restrict the scope of the granted claims.

7.6 Consequently, the subject-matter of the claim fulfils the requirements of Article 123(2) and (3) EPC.

8. Clarity

8.1 The appellant also objected to the amendment as introducing a lack of clarity into the claim. In its view the amended wording "comprising as the only polymer cycloaliphatic polyester resin" was not entirely clear. The composition could in its view still include as additives other polymer compounds. Further, the claim allowed the presence of oligomers that resulted in a lack of clarity as the border line between oligomer and polymer was not exactly defined.

8.2 The board notes that the skilled person when considering a claim should rule out interpretations which are inconsistent with its genuine meaning. In the present case the claim has been limited to the use of a cycloaliphatic polymer resin as the only polymeric component of the layer. The construction of the claim as embracing the presence of polymers other than the one mentioned in the claim can only be made by a mind unwilling to understand it. The claim is clear in that it requires the use of a cycloaliphatic polyester resin alone for both the upper layer and the intermediate layer.

The presence of oligomers is not excluded and the skilled person in the field can distinguish between an oligomer and a polymer. This objection of the appellant is also unjustified.

8.3 Finally, the appellant also objected to the clarity of claim 3 in view of the possible use of an "oligomer substituted piperidine moiety". There is no

contradiction between claim 3 and claim 1. As indicated above the presence of oligomers in the additive composition is not excluded from the scope of claim 1.

9. Inventive step

9.1.1 The subject-matter of claim 1 of auxiliary request II requires that the only polymer of the upper layer and the intermediate layer is a cycloaliphatic polyester resin. By this limitation the compositions of examples 3 and 5 of the patent are no longer covered by the claims. The objections discussed above under points 4.2.4 and 4.2.5 in the context of defining the objective technical problem for the subject-matter of claim 1 of the main request no longer apply to the claim of this request.

9.1.2 The board is therefore satisfied that, when assessing inventive step of the subject-matter of claim 1 of auxiliary request II, the objective technical problem has to be seen in the provision of a multilayer composition having improved properties.

9.1.3 As discussed under point 4.2.3 above, example 1 of the patent shows improved gloss retention when compared with the disclosure of the closest prior art. The above problem has been credibly solved by the multilayer compositions now claimed.

9.1.4 It remains to be decided whether, in view of the available prior art, it would have been obvious for the skilled person to modify the compositions of D1 in order to arrive at the now claimed compositions with improved properties.

9.1.5 There is undisputedly no hint to this solution in the available prior art. Document D1 is silent about any intermediate layer made of cycloaliphatic polyester resin; this was not contested by the appellant during the oral proceedings. There is also no hint to this solution in the other prior art cited during the proceedings.

9.1.6 For these reasons, the subject-matter of claim 1 of auxiliary request II and, by the same token, that of dependent claims 2 to 10 involves an inventive step.

Order

For these reasons it is decided that:

1. The 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 claims 1 to 10 filed as auxiliary request II at the oral proceedings of 11 November 2014, after any necessary consequential amendment of the description.

The Registrar: The Chairman:

M. Cañueto Carbajo W. Sieber

Decision electronically authenticated