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Datasheet for the decision of 27 September 2023

Case Number: T 0648/21 - 3.3.03

Application Number: 12198091.6

Publication Number: 2746326

IPC: C08K5/00, C08L23/10

Language of the proceedings: EN

Title of invention:
AUTOMOTIVE COMPOUND WITH REDUCED TIGERSKIN

Patent Proprietor:
Borealis AG

Opponent:
Basell Poliolefine Italia S.r.l.

Relevant legal provisions:
EPC Art. 56, 123(2)
RPBA 2020 Art. 12(6) sentence 2

Keyword:
Late-filed evidence - should have been submitted in first-instance proceedings (no)
Amendments - extension beyond the content of the application as filed (no)
Inventive step - improvement credible - non-obvious solution

Decisions cited:
T 0234/03, T 1621/16

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Case Number: T 0648/21 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 27 September 2023

Appellant: (Opponent)	Basell Poliolefine Italia S.r.l. Via Pontaccio 10 20121 Milano (IT)
Representative:	LyondellBasell c/o Basell Poliolefine Italia Intellectual Property P.le Donegani 12 44122 Ferrara (IT)
Respondent: (Patent Proprietor)	Borealis AG Trabrennstrasse 6-8 1020 Vienna (AT)
Representative:	Maiwald GmbH Elisenhof Elisenstraße 3 80335 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 1 April 2021 concerning maintenance of the European Patent No. 2746326 in amended form.**

Composition of the Board:

Chairman	D. Semino
Members:	M. Barrère
	L. Basterreix

Summary of Facts and Submissions

I. The appeal of the opponent lies against the interlocutory decision of the opposition division concerning maintenance of European Patent number 2 746 326 in amended form on the basis of the claims of the third auxiliary request and an amended description both filed during oral proceedings on 2 February 2021.

II. The following documents were *inter alia* cited in the decision of the opposition division:

D1: EP 2 495 280 A1
D5: WO 2010/009825 A1
D6: Technical report by Friedrich Berger, dated 9 January 2020
D6a: Correction and extension of technical report D6 by Friedrich Berger, dated 12 January 2021
D7: EP 2 036 947 A1
D9: WO 2010/149549 A1

III. In that decision the opposition division held, among others, that:

- document D6a was not admitted into the proceedings;

- claims 1 to 8 of the third auxiliary request complied with the requirements of Article 123(2) EPC;

- the subject-matter of claims 1 to 8 of the third auxiliary request involved an inventive step over D1 in combination with D5 or D9.

IV. The opponent (appellant) filed an appeal against said decision.

V. With the rejoinder to the statement of grounds of appeal, the patent proprietor (respondent) filed five sets of claims as first to fifth auxiliary requests as well as the following document:

D6b: Extension of Technical Report D6a by Friedrich Berger, dated 19 November 2021

VI. Oral proceedings were held before the Board on 27 September 2023.

VII. The appellant requested that the decision under appeal be set aside and that the patent be revoked.

The respondent requested that the appeal be dismissed and that the patent be maintained on the basis of the third auxiliary request considered allowable by the opposition division (now the main request). In the alternative the respondent requested that the patent be maintained in amended form on the basis of one of the first to fifth auxiliary requests filed with the rejoinder to the statement of grounds of appeal.

VIII. Claims 1-8of the third auxiliary request before the opposition division (main request of the respondent) read as follows:

"1. Polymer composition, comprising

(a) 20 to 80 wt.-%, based on the total composition, of a heterophasic propylene copolymer (HPP-1), comprising

- a polypropylene matrix (M1) and
- an elastomeric propylene copolymer (E1)

(b) 5 to 35 wt.-%, based on the total composition, of a high melt flow polypropylene (HMF-PP) being a heterophasic propylene copolymer comprising

- a polypropylene matrix (M2) and
- an elastomeric copolymer (E2) comprising units derived from propylene and ethylene and/or C_4 to C_{12} α-olefins,

(c) 3 to 20 wt.-%, based on the total composition, of a high density polyethylene (HDPE);

(d) 5 to 30 wt.-%, based on the total composition, of a mineral filler (F), and

(e) 0.15 to 1.0 wt.-%, based on the total composition, of an earth alkali fatty acid salt (EAF),

wherein
the heterophasic propylene copolymer (HPP-1) has
(i) a melt flow rate MFR_2 (230 °C) measured according to ISO 1133 in the range of 5 to 50 g/10 min,
(ii) a total ethylene content of 5 to 30 wt.-%, and
(iii) a total xylene cold soluble (XCS) content determined at 25 °C according to ISO 16152 of 10 to 50 wt.-%,

wherein further

the high melt flow polypropylene (HMF-PP) has
(iv) a melt flow rate MFR_2 (230 °C) measured according to ISO 1133 of at least 60 g/10 min and
(v) a density measured according to ISO 1183 of at least 890 kg/m^3

and wherein still further
the high density polyethylene (HDPE) has
(vi) a melt flow rate MFR_2 (190 °C) measured according to ISO 1133 below 20 g/10 min, and
(vii) a density measured according to ISO 1183 of at least 940 kg/m^3.

2. Polymer composition according to claim 1, wherein the said earth alkali fatty acid salt (EAF) is selected from magnesium and/or calcium salts of C_{12} to C_{26} fatty acids.

3. Polymer composition according to any one of the preceding claims, wherein the elastomeric propylene copolymer (E1) comprises a fraction (A) and a fraction (B), wherein said fraction (A) has a lower comonomer content and/or a different intrinsic viscosity than fraction (B).

4. Polymer composition according to any one of the preceding claims, wherein the polypropylene matrix (M1) of the heterophasic propylene copolymer (H-PP1) has

(a) a melt flow rate MFR_2 (230 °C) measured according to ISO 1133 in the range of 40 to 150 g/10 min and
(b) a xylene cold soluble (XCS) content no higher than 5 wt.-%.

5. Polymer composition according to any one of the preceding claims, wherein the mineral filler (F) is talc, preferably said talc has a cutoff particle size d95 of equal or below 20 µm.

6. Use of a polymer composition according to any one of the preceding claims 1 to 5 as an automotive article.

7. Automotive article comprising a polymer composition according to any one of the preceding claims 1 to 5.

8. Process for producing a polymer composition according to any one of the preceding claims 1 to 5 comprising the step of mixing up the heterophasic propylene copolymer (HPP-1), the mineral filler (F), the earth alkali fatty acid salt (EAF) and the high melt flow polypropylene (HMF-PP) and high density polyethylene (HDPE) in an extruder."

The claims of the first to fifth auxiliary requests are not relevant to this decision.

IX. The appellant's submissions, in so far as they are pertinent to the present decision, may be derived from the reasons for the decision below. They were essentially as follows:

(a) Admittance of document D6b

D6b was late-filed and should not be admitted into the proceedings.

(b) Main request

(i) Objection under article 123(2) EPC

The subject-matter of claims 1, 6 and 8 extended beyond the content of the application as filed.

(ii) Inventive step

The subject-matter of claims 1 to 8 lacked an inventive step over document D1 as the closest prior art in combination with D5, D7 or D9.

X. The respondent's submissions, in so far as they are pertinent to the present decision, may be derived from the reasons for the decision below. They were essentially as follows:

(a) Admittance of document D6b

D6b should be admitted into the proceedings.

(b) Main request

(i) Objection under article 123(2) EPC

The subject-matter of claims 1, 6 and 8 did not extend beyond the content of the application as filed.

(ii) Inventive step

The subject-matter of claims 1 to 8 involved an inventive step over document D1 as the closest prior art in combination with D5, D7 or D9.

Reasons for the Decision

1. Admittance of document D6b

1.1 Document D6b is a new item of evidence filed by the respondent with the rejoinder to the statement of grounds of appeal. Its admission to the proceedings, which is contested by the appellant, is subject to the discretionary power of the Board in accordance with Article 12 paragraphs (4) to (6) RPBA 2020.

1.2 This document aims at overcoming the alleged shortcomings of document D6 (see rejoinder to the statement of grounds of appeal, section 70 on page 17).

1.3 The admittance of D6b is contested by the appellant for the following reason (see letter dated 4 March 2022, page 7, first paragraph):

> During opposition proceedings the opponent had pointed out that D6 was incomplete because information concerning the nature and amounts of additives present in the examples were missing. Hence D6b should have been filed during opposition proceedings.

1.4 In that respect, the following is noted:

1.4.1 D6 is an experimental report of the respondent aimed at providing evidence of a technical effect of the claimed compositions in comparison to compositions according to document D1. D6 was originally filed by the patentee during opposition proceedings with letter of

24 January 2020. With letter of 2 December 2020, the opponent argued that D6 did not disclose the nature of the component "others (CMB)" present in the examples. Furthermore, it was criticised that 15,3 wt% of components was missing in the "Reworked IE2 of D1". With letter of 13 January 2021 the patentee filed D6a (as a revised version of D6) to add the missing information. However, D6a was not admitted by the opposition division because D6 was considered sufficient to show an effect linked to the distinguishing feature between the claim 1 of auxiliary request 3 and the closest prior art (see Reasons for the decision, point 5).

1.4.2 With the statement of grounds of appeal, the opponent as appellant additionally criticised that the nature of the "Additives" present in the examples of D6 was not disclosed (see sections 10 and 12 on pages 3 and 4 of the statement of grounds of appeal). In reply thereto the respondent filed D6b indicating amongst others the nature of the said additives. The test results in D6b are, however, identical to those in D6 and D6a.

1.4.3 In the Board's view, the additional concerns raised by the appellant in relation to the "Additives" were put forward for the first time in the appeal proceedings. While it is true that the appellant already raised an objection against D6 during the opposition proceedings, said objection did not concern the nature of the "Additives" (see above point 1.4.1). Therefore, the filing of D6b with the reply to the grounds of appeal is seen as a legitimate reaction to a new objection.

1.5 In view of this, the Board finds it appropriate to exercise its discretion under Article 12(6) RPBA 2020 by admitting document D6b into the proceedings.

1.6 As the content of D6 is entirely included in D6b, the Board will only refer to the latter in the following assessment of inventive step.

Main request (patent as maintained by the opposition division)

2. Article 123(2) EPC

In the contested decision, the opposition division concluded that present claims 1 to 8 complied with the requirements of Article 123(2) EPC.

2.1 The appellant contests the above conclusion and argues that no explicit disclosure may be found for the combination of features of present claim 1. In the absence of an explicit disclosure, the application as filed should include a pointer towards said combination (in this respect, reference was made to T 1621/16 which concerned multiple selections from lists of converging alternatives). However, contrary to the contested decision, the example of the application as filed could not be seen as a pointer because it would not fall within the scope of claim 1 (the density of HMF-PP being unknown).

2.2 The respondent requests that the objection based on the density of HMF-PP in the examples of the patent not be admitted into the proceedings. Furthermore the respondent holds that present claim 1 is directly and unambiguously derivable from original claims 1, 4, 7, 8 and 11 in combination with page 4, second paragraph of description as filed. In addition, the findings of decision T 1621/16 would not apply to the present case.

2.3 Claim 1 of the main request corresponds to original claim 1 with the following amendments:

"1. Polymer composition, comprising

(a) ~~at least 10 wt.-%~~ **20 to 80 wt.-%,** based on the total composition, of a heterophasic propylene copolymer (HPP-1), comprising

- a polypropylene matrix (M1) and
- an elastomeric propylene copolymer (E1)

(b) 5 to 35 wt.-%, based on the total composition, of a high melt flow polypropylene (HMF-PP) being a heterophasic propylene copolymer comprising

- a polypropylene matrix (M2) and
- an elastomeric copolymer (E2) comprising units derived from propylene and ethylene and/or C_4 to C_{12} α-olefins,

(c) 3 to 20 wt.-%, based on the total composition, of a high density polyethylene (HDPE);

(d) **5 to 30 wt.-%, based on the total composition, of** a mineral filler (F), and

(e) ~~at least~~ 0.15 **to 1.0** wt.-%, based on the total composition, of an earth alkali fatty acid salt (EAF),

wherein
the heterophasic propylene copolymer (HPP-1) has

(i) a melt flow rate MFR_2 (230 °C) measured according to ISO 1133 in the range of 5 to 50 g/10 min,
(ii) a total ethylene content of 5 to 30 wt.-%, and
(iii) a total xylene cold soluble (XCS) content determined at 25 °C according to ISO 16152 of 10 to 50 wt.-%,

wherein further
the high melt flow polypropylene (HMF-PP) has
(iv) a melt flow rate MFR_2 (230 °C) measured according to ISO 1133 of at least 60 g/10 min and
(v) a density measured according to ISO 1183 of at least 890 kg/m^3

and wherein still further
the high density polyethylene (HDPE) has
(vi) a melt flow rate MFR_2 (190 °C) measured according to ISO 1133 below 20 g/10 min, and
(vii) a density measured according to ISO 1183 of at least 940 kg/m^3." (deletions in ~~strike through~~, additions in **bold**)

2.3.1 With regard to the present objection, is was not disputed by the parties that the specific components H-PP1 (component (a)), HMF-PP (component (b)), HDPE (component (c)), mineral filler (component (d)) and earth alkali fatty acid salt (component (e)) as defined in operative claim 1 were individually disclosed in original claims 4, 7, 8 and 11. In view of the multiple dependencies in original claims 2 to 11 (each claim N being dependent on claims 1 to N-1), the Board agrees with the opposition division (see points 10.2 and 17.2 of the decision) that the combination of these individual components is directly and unambiguously

derivable from the combination of original claims 1, 4, 7, 8 and 11.

2.3.2 In addition, the description as filed discloses a composition comprising specifically components (a) to (e), although H-PP1, HMF-PP and HDPE are mentioned in more general terms (see page 4, second paragraph). In this paragraph, the amounts of the five components are disclosed in combination in a single passage. Contrary to the appellant's view, the amounts specified in claim 1 of the main request are the broadest ranges disclosed in the cited paragraph of the description. Therefore, the Board also considers that the combination of the amounts of components (a) to (e) in claim 1 is directly and unambiguously disclosed in the application as filed.

2.3.3 The appellant holds that there is no clear and unambiguous basis in the application as filed for the combination of the amounts of components (a) to (e) (constituting a first embodiment) with the specific components H-PP1, HMF-PP and HDPE as defined in present claim 1 (constituting a second embodiment). The Board cannot follow this line of argument for the following reasons:

As mentioned above, the original claims disclose a composition comprising the specific components (a) to (e) as defined in claim 1. The amounts thereof are not specified in the claims (at least as far as (b), (c) and (d) are concerned). However, on page 4 of the description as filed, a composition comprising components (a) to (e) and specifying the amounts thereof is disclosed (in more general terms for the definition of (a), (b) and (c)). Moreover, said passage of the description is the only one describing the

amounts of components (a) to (e) in a single composition. It is immediately apparent to the Board that the amounts mentioned therein can be directly applied to the specific combination of components (a) to (e) derived from the claims. Therefore, operative claim 1 is directly and unambiguously derivable from original claims 1, 4, 7, 8 and 11 in combination with the passage on page 4, lines 5-17 of the application as filed. The same reasoning applies to independent claims 6 and 8 of the main request which were objected to on the same basis without providing any additional argument.

2.3.4 Given that the subject-matter of claim 1 is directly and unambiguously derivable from the above combination, no additional pointer in the application as filed is necessary. In any event, decision T 1621/16 is not relevant for the present case because it relates to amendments in which multiple selections from lists of converging alternatives were made (i.e. multiple choices of a more or less preferred element from such lists; see T 1621/16, catchword). In the present case, however, the Board cannot recognise any selection in the lists of converging ranges disclosed on page 4, lines 5 to 17 of the application as filed. Indeed, as mentioned above, present claim 1 retains all the broadest ranges of the cited passage.

In view of the fact that no additional pointer is necessary, the Board does not need to address the admittance of:

the appellant's arguments with regard to the density of the HMF-PP in the example or

the documents submitted by the respondent to provide evidence of the density.

2.3.5 In conclusion, the Board does not see any reason to depart from the opposition division's conclusion on the basis of the appellant's arguments (see point 17.2 of the contested decision).

3. Inventive step

3.1 Closest prior art

The parties agree that D1 (and in particular example IE2) can be selected as the closest prior art for the subject-matter of claim 1.

The Board has no reason to deviate from that view.

3.2 Technical differences

According to the appellant, claim 1 differs from example IE2 of D1 in that the composition comprises:

(i) 3 to 20 wt% of a high density polyethylene (HDPE) (instead of the ethylene-1-butene copolymer EB2)

In addition to feature (i), the respondent argued that D1 did not disclose the density of the HMF-PP used in example IE2 which would represent a further distinguishing feature between claim 1 and D1.

Since the Board concluded that claim 1 involved an inventive step on the basis of distinguishing feature (i) alone, the actual presence of a further

distinguishing feature cannot affect that conclusion and is, therefore, not relevant to the decision.

Hence, for the purpose of the assessment of inventive step, the Board agrees with distinguishing feature (i) identified by the appellant.

3.3 Problem to be solved

3.3.1 The respondent relies on the additional experimental data provided in D6b to provide evidence that distinguishing feature (i) leads to a reduction of the "tigerskin" (i.e. appearance defects due to flow marks) when the claimed composition is injection moulded.

3.3.2 According to the appellant, the additional experiments of D6b are not suited to show a technical effect for the following reasons:

(a) D6b does not show a direct comparison to example IE2 of D1 in which the copolymer EB2 is replaced by HDPE;

(b) it was not possible for the appellant to reproduce the experiments submitted by the respondent because the chemical nature of the additives had not been disclosed;

(c) the tiger stripe effect in D6b is not measured under the conditions described in D1 or in the opposed patent;

(d) D6b does not disclose the injection speed, which would be essential to obtain a meaningful comparison;

(e) the comparative tests are not reproducible because D6 does not mention how the plates (for measuring flow marks) were polished. Reference is made to a similar case (see T 0234/03, point 8.4.4 of the reasons).

The appellant therefore concludes that the problem to be solved should be formulated as the provision of an alternative polymer composition.

3.3.3 The Board cannot follow the appellant's line of argument for the following reasons:

(a) According to the established jurisprudence, if comparative tests are chosen to demonstrate an inventive step on the basis of an improved effect, the nature of the comparison with the closest state of the art must be such that the alleged advantage or effect is convincingly shown to have its origin in the distinguishing feature of the invention compared with the closest state of the art (see Case Law of the Boards of Appeal, 10th edition 2022, I.D.4.3.2).

In the present case, the appellant provided two examples in which the only difference was that copolymer EB2 (used in example IE2 of D1) was replaced by HDPE (see D6, table). Thus said difference corresponds to distinguishing feature (i).

Moreover, it is shown in D6b that the flow marks (reported as the values of the mean square error (MSE)) are reduced for a composition according to present claim 1 in comparison to a composition wherein HDPE is replaced by copolymer EB2.

Contrary to the appellant's view, the Board sees no obligation to reproduce example IE2 of D1 to show an effect linked to the claimed composition. Instead, as noted previously, the patent proprietor should make it credible that the distinguishing feature (i) is linked to a technical effect. In that respect, the comparison made in D6b is correct (as the only difference corresponds to distinguishing feature (i)) and it furthermore makes it credible that, by replacing copolymer EB2 with HDPE, a reduction of flow marks is obtained.

(b) The same considerations apply to the appellant, who was not obliged to reproduce the experiments of D6b one to one in order to provide evidence that distinguishing feature (i) was not linked to an effect (as they alleged). Therefore, even assuming that some information would have been missing from D6b in order to reproduce exactly the experiments reported therein, the appellant could still have put together experimental tests to refute the effect on flow marks and should have done that if they intended to challenge the presence of an effect and the tests of the respondent.

(c) In addition, even if it were true that details (such as the exact nature of the additives and the injection speed of the measurement method) were missing, the Board has no reason to consider that it should invalidate the conclusion derived from D6b. In this respect the same additives are used in the same quantities in the relevant experiments so that any difference in the results cannot be attributed to the additives. In the absence of evidence it is *prima facie* not credible that the

nature of the additives should have any influence on the effect of HDPE compared to copolymer EB2. As to the injection speed, it is noted that flow marks are defects occurring predominantly under "fast injection speed" (see opposed patent, paragraph [0002]). Thus, assuming that D6b did not disclose the injection speed, the skilled person would have been in a position to find conditions in which flow marks occur (simply by increasing the injection speed).

In any event, the appellant bears the burden of proof for the facts alleged. However, no evidence was provided that different additives and measurement methods would give conflicting results.

(d) As to the question whether the flow marks should be measured by the method described in D1 or by some other means, the Board considers that no limitation in this respect can be derived from the opposed patent. In particular, the Board does not see on what (legal) basis the method of D1 should be used. The only requirement is that the method of D6b is capable of showing an effect with respect to flow marks. In the absence of evidence to the contrary, the Board has no reason to believe that the method of D6b is not suitable for that purpose.

Finally, as far as the polishing method of D6b is concerned, the Board agrees with the respondent that said method is of little relevance for the question of the technical problem to be solved (see point 74 on page 18 of the rejoinder to the statement of grounds of appeal). Instead, what is important is that relative differences in the MSE-values may be observed between the examples of D6b

independently of the method used to measure these values, as long as the method used is the same for the compared examples.

In decision T 0234/03, cited by the appellant, a method for testing the rub resistance was considered to be so unclear that the scale of notation did not exist any longer rendering any comparison irrelevant (see point 8.4.4 of the reasons). The present case is different in that, once a polished plate has been selected for testing, it is expected that reliable MSE-values can be obtained and a meaningful comparison can be made.

In conclusion, the Board considers that the experimental evidence presented in D6b makes it credible that the presence in the polymer composition of HDPE instead of copolymer EB2 used in D1 (corresponding to distinguishing feature (i)) leads to a reduction in flow marks. In the absence of evidence to the contrary from the appellant, the problem to be solved over D1 is formulated as providing a polymer composition which is suitable for producing injection moulded articles with reduced tigerskin.

3.4 Obviousness of the solution

3.4.1 The appellant argued that the skilled person would consult D5, D7 and D9 which would suggest to use HDPE in the compositions of D1.

3.4.2 For the Board, the relevant question is whether the skilled person would have replaced the ethylene-1-butene copolymer EB2 with HDPE in the composition of D1

with the expectation to reduce the presence of tigerskin on moulded articles derived therefrom.

While D5, D7 and D9 mention that polyethylene may be used in a moulding composition, these documents do not teach or suggest that HDPE might be advantageous to reduce tiger stripes.

Moreover, as far as D5 is concerned, the Board agrees with the respondent that this document does not even disclose the use of HDPE. D7 teaches that HDPE may be used in a moulding composition, however it is silent about any improvement in terms of flow marks. Even if it is true that this document mentions that the surface properties could be improved, said improvement is related to the scratch resistance (see D7, paragraphs [0001] and [0079]) but not to the surface appearance as such. Besides the HDPE used in D7 is not associated with any specific properties, so that the skilled person would have no reason to expect any advantage as a substitute for copolymer EB2 of D1. The same considerations apply to D9 which does not concern the appearance of moulded articles, let alone the reduction of flow marks.

3.5 Consequently, it was not obvious for the skilled person wishing to reduce the presence of flow marks on moulded articles, to replace copolymer EB2 of D1 by HDPE. Therefore, the subject-matter of claim 1 involves an inventive step over D1 as the closest prior art. The same conclusion applies to claims 2 to 8 of the main request which are all limited by the features of claim 1.

4. As all appellant's objections against the main request fail, the appeal is to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

D. Hampe D. Semino

Decision electronically authenticated