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Datasheet for the decision of 29 September 2021

Case Number: T 0048/19 - 3.3.03

Application Number: 12809784.7

Publication Number: 2794689

IPC: C08F210/06, C08J5/18, C08L23/14, B29C45/00

Language of the proceedings: EN

Title of invention:
PROPYLENE COPOLYMER FOR INJECTION MOLDED ARTICLES OR FILMS

Patent Proprietor:
Borealis AG

Opponent:
Basell Poliolefine Italia S.r.l.

Relevant legal provisions:
RPBA 2020 Art. 12(3) sentence 2
RPBA Art. 12(4)
EPC Art. 54, 56

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Keyword:
Discretion not to admit submission - requirements of Art. 12(3) RPBA 2020 met (no)
Late-filed evidence - admitted (no)
Late-filed evidence - admitted (yes)
Novelty - (yes)
Inventive step - (yes)

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Case Number: T 0048/19 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 29 September 2021

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 IZD Tower Wagramerstraße 17-19 1220 Vienna (AT)
Representative:	Maiwald Patent- und Rechtsanwaltsgesellschaft mbH Elisenhof Elisenstraße 3 80335 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 31 October 2018 concerning maintenance of the European Patent No. 2794689 in amended form.**

Composition of the Board:

Chairman	D. Semino
Members:	M. Barrère
	W. Ungler

Summary of Facts and Submissions

I. The appeal of the opponent lies against the interlocutory decision of the opposition division posted on 31 October 2018 concerning maintenance of European Patent number 2 794 689 in amended form on the basis of the claims of the first auxiliary request filed with letter of 27 July 2018 and an amended description.

II. A notice of opposition was filed against the patent, requesting the revocation of the patent in its entirety.

III. Claim 1 of the patentee's first auxiliary request read as follows:

"*1. Propylene copolymer having*

(a) a melt flow rate MFR_2 (230°C) measured according to ISO 1133 in the range of more than 2.5 to 12.0 g/10min,

(b) a comonomer content in the range of more than 7.5 to 12.0 wt.-%,

(c) a xylene cold soluble content (XCS) determined according ISO 16152 (25°C) in the range of 20.0 to 45.0 wt.-%, and

(d) an intrinsic viscosity (IV) of the xylene cold insoluble (XCI) fraction in the range of equal to or more than 1.8 to equal or below 2.7 dl/g, wherein the intrinsic

viscosity (IV) is determined according to DIN ISO 1628/1, (in Decalin at 135°C),

wherein further

(e) the comonomer content of xylene cold soluble (XCS) fraction of the propylene copolymer is in the range of 16.0 to 28.0 wt.-%, and

(f) the propylene copolymer fulfills inequation (II)

$$\frac{Co\ (total)}{XCS} \leq 0.35$$

wherein
Co (total) is the comonomer content [wt.-%] of the propylene copolymer,
XCS is the content of the xylene cold soluble fraction (XCS) [wt.-%] of the propylene copolymer."

The remaining claims of that request are not relevant to the present decision.

IV. The following document was *inter alia* cited in the decision under appeal:

D3: WO 03/046021 A1

V. The contested decision, as far as it is relevant to the present appeal, can be summarized as follows:

- The objection of lack of sufficiency of disclosure failed because it was considered that the method for measuring the ethylene content was clearly described in paragraph [152] of the opposed patent.

- The first auxiliary request was novel over D3. In particular it was held that

    - the precursor polymer of examples 1-3 of D3 was not characterised by a xylene cold soluble content (XCS) and an intrinsic viscosity of the xylene cold insoluble (XCI) fraction according to claim 1.

    - the visbroken polymer of examples 1-3 of D3 was not characterised by a comonomer content in the XCS and an intrinsic viscosity of the XCI according to claim 1.

- The first auxiliary request involved an inventive step over D3 as the closest prior art. Specifically claim 1 differed from D3 at least in that the ratio of comonomer content to the XCS content (inequation II) was in the claimed range. On the basis of the experimental section of the opposed patent, the problem solved was defined as providing a polypropylene copolymer with a lower haze. Since there was no indication in the prior art towards the solution claimed, an inventive step was acknowledged.

VI. With the statement of grounds of appeal the opponent (appellant) requested that the decision under appeal be set aside and that the patent be revoked.

The appellant submitted therewith the following documents:

D7: declaration of Davide Tartari dated 8 March 2019
D8: WO 97/49744

VII. With the rejoinder to the statement of grounds the patent proprietor (respondent) requested dismissal of the appeal. In the alternative maintenance of the patent in amended form on the basis of one of auxiliary requests 1, 2A, 2B, 3, 4, 5A, 5B, 6A, 6B, 7A and 7B filed therewith was requested.

The respondent further requested that documents D7-D8 not be admitted into the proceedings.

Moreover, the respondent filed the following documents:

D6A: declaration of Markus Gahleitner dated 10 July 2019
D9: Polypropylene handbook, 2nd edition, ISBN 1-56990-385-9, pages 373 and 377
D10: declaration of Markus Gahleitner dated 21 May 2019
D11: Polypropylene, The Definitive User's Guide and Databook, ISBN 1-884207-58-8, page 131
D12: declaration of Markus Gahleitner dated 12 July 2019

The wording of the auxiliary requests is not relevant to the present decision.

VIII. By letter of 29 January 2021, the parties were summoned to oral proceedings to be held on 29 September 2021.

IX. The Board specified issues to be discussed at the oral proceedings in a communication dated 20 May 2021. In a preliminary opinion, the Board considered *inter alia*

that the decision on sufficiency was not contested and therefore did not need to be reviewed.

X. With the explicit agreement of both parties, oral proceedings were held before the Board on 29 September 2021 by video conference.

During oral proceedings, the appellant referred to their written submissions with respect to the sufficiency of disclosure. In addition, the appellant withdrew their objection of lack of inventive step starting from D5 as the closest prior art.

XI. The appellant's arguments, insofar as relevant to the decision, may be summarised as follows:

(a) Admittance of D7

D7 was filed with the statement of grounds of appeal in order to show that the visbroken polymer of example 3 of D3 anticipated the subject-matter of claim 1 of the main request. It is was not possible to submit D7 during opposition proceedings because the relevant issues arose with the filing of the first auxiliary request (corresponding to the present main request), which took place only two months before the oral proceedings.

With regard to the alleged impossibility of reproducing example 3 of D3, it was argued that the appellant could reproduce said example and obtain a polymer having the properties of the visbroken polymer of example 3. Moreover, it would not be difficult for the skilled person to fill any gap in the description of D3 on the basis of common general knowledge. With regard to the fact that the Melt Flow Rates (MFRs) of the polymers of

Examples 2 and 3 of D3 are different, even if the reaction conditions are the same, it was known to the skilled person that the MFR could be adjusted by controlling the hydrogen concentration.

(b) Admittance of D8

D8 was filed in reaction to the decision of the opposition division in order to provide evidence that the ethylene content had an effect on the optical properties of heterophasic copolymers.

(c) Main request

(i) Sufficiency of disclosure

A method for measuring the comonomer content was described in paragraph [0152] of the opposed patent. However, the information provided therein was not sufficient, as evidenced by D1 and D2.

(ii) Novelty

The visbroken composition of Example 3 of D3 anticipated the subject-matter of claim 1 of the main request. A MFR of 6,9 g/10min (feature (a)) for that composition was explicitly disclosed. The ethylene content (feature (b)) of the composition precursor was 9,3 wt.%. Furthermore it was obvious that the visbreaking treatment could not alter the total comonomer content. The XCS content (feature (c)) was explicitly disclosed in D3 to be 28.8 wt%. Although the method used to measure XCS content differed slightly from the method disclosed in the opposed patent, the results would not change so much as to fall outside the range of 20.0 to 45.0 wt% required by claim 1. A value

of intrinsic viscosity (IV) of the XCI of 1,57 dl/g was measured in tetralin and not in decalin as according to claim 1. However, it would be common general knowledge for a person skilled in the art that the IV would fall within the range of 1,8 to 2,7 dl/g if measured in decalin according to the method of claim 1 (feature (d)). Feature (e) was not explicitly disclosed for the visbroken composition, however it was reported to be 23.5 wt% for the precursor composition. Furthermore, the visbreaking treatment would not substantially alter that feature. Finally the ratio of features (b)/(c) was calculated to be 0.32 (feature (f)).

(iii) Inventive step

D3 was the closest prior art. Claim 1 differed from the visbroken polymer of example 3 of D3 at most in that the propylene copolymer was characterized by

(d) an intrinsic viscosity (IV) of the xylene cold insoluble (XCI) fraction in the range of 1.8 to 2.7 dl/g (in Decalin at 135°C) and

(e) a comonomer content of xylene cold soluble (XCS) fraction in the range of 16.0 to 28.0 wt.-%.

While in writing only the criticality of inequation II was discussed with respect to the formulation of the technical problem, it was held for the first time at the oral proceedings before the Board that all examples of the opposed patent including the comparative examples fulfilled the features (d) and (e) (see table 2a) and that consequently there was no proof that the distinguishing features had any effect on the polymer properties. Moreover, the alleged effect on impact strength was rather linked to the amount of rubber than to features (d) and (e).

The problem to be solved was therefore to provide an alternative propylene copolymer. It was obvious to the skilled person to arbitrarily select features (d) and (e) according to claim 1, especially as the values of IV and comonomer content in the XCS in D3 were close to the requirements of claim 1. Furthermore D8 taught that the optical properties could be improved by changing the ethylene content of the copolymer. The subject-matter of claim 1 was therefore obvious in view of D3 alone or in combination with D8.

XII. The respondent's arguments, insofar as relevant to the decision, may be summarised as follows:

(a) Admittance of D7

The features of claim 1 of the main request were already present in the granted claims. Thus D7 should have been filed during the opposition proceedings and not during appeal.

Furthermore it was neither clear nor credible that example 3 could be reproduced. On the basis of the comparison between examples 2 and 3 of D3 (same reaction conditions although the properties of the product were different), there was no doubt that some crucial information required to repeat example 3 was lacking.

For these reasons D7 should not be admitted into the proceedings.

(b) Admittance of D8

D8 was not suitable to show an effect of the ethylene content on optical properties since it pertained to

completely different polymer compositions: in contrast to the opposed patent, the rubber phase was the matrix in which the crystalline part was dispersed. Thus the teaching of D8 could not be applied to the heterophasic compositions according to present claim 1.

For these reasons D8 should not be admitted into the proceedings.

(c) Main request

(i) Sufficiency of disclosure

The method for measuring the comonomer content was described in paragraph [0152] of the opposed patent. Furthermore no evidence was provided that based on this disclosure a skilled person was not in a position to obtain a propylene copolymer as claimed.

(ii) Novelty

D3 did not disclose a composition characterized by features (a)-(f) according to claim 1. Contrary to the appellant's opinion, D3 did not mention

> (c) the xylene cold soluble (XCS) content measured according to ISO 16152 (25 °C),
> (d) the intrinsic viscosity of the xylene cold insoluble (XCI) fraction determined according to DIN ISO 1628/1 (in Decalin at 135°C) and
> (e) the ethylene content of the xylene cold soluble (XCS) fraction

of the visbroken material of example 3.

Although D3 indicated that the XCS content of the visbroken polymer was 28,8 wt.%, the method used in D3 was the "ice-method" and not the required standard ISO 16152. Likewise the IV of the compositions of D3 were measured in tetralin instead of decalin as indicated in claim 1. Finally D3 mentioned the ethylene content of the XCS fraction of the precursor polymer composition but not that of the visbroken polymer and it could not be assumed that both values would be identical.

(iii) Inventive step

D3 was the closest prior art. Claim 1 differed from the visbroken polymer of example 3 of D3 in that the propylene copolymer was characterized by

(c) a xylene cold soluble content (XCS) determined according ISO 16152 (25 °C) in the range of 20.0 to 45.0 wt.-%,
(d) an intrinsic viscosity (IV) of the xylene cold insoluble (XCI) fraction in the range of 1.8 to 2.7 dl/g (in Decalin at 135°C),
(e) a comonomer content of xylene cold soluble (XCS) fraction in the range of 16.0 to 28.0 wt.-% and
(f) fulfilled inequation (II)

$$\frac{Co\ (total)}{XCS} \leq 0.35$$

Evidence was provided showing that the compositions according to the opposed patent were characterized by an improved impact strength in comparison to example 3 of D3. Furthermore, the examples of the patent showed that the claimed compositions had good optical performances before and after sterilization. The problem to be solved was therefore to provide a

propylene copolymer with improved impact resistance and good haze. There was no teaching in the prior art that the above distinguishing features could have an effect on the copolymer properties. The solution proposed in the present set of claims was therefore inventive over D3 as the closest prior art.

Furthermore even if the problem to be solved were to be formulated as merely providing an alternative copolymer, there would be no incentive in the prior art to modify the visbroken polymer of example 3 of D3 in order to arrive at a copolymer according to claim 1.

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

XIV. The respondent requested that the appeal be dismissed (main request), in the alternative that the patent be maintained in amended form on the basis of one of auxiliary requests 1, 2A, 2B, 3, 4, 5A, 5B, 6A, 6B, 7A and 7B filed with the rejoinder to the statement of grounds of appeal.

Reasons for the Decision

1. Admittance of document D7

D7 is a new item of evidence filed by the appellant with the statement of grounds of appeal. Its admission to the proceedings, which is contested by the respondent, is subject to the discretionary power of the Board in accordance with Article 12(4) RPBA 2007 (which applies in view of the transitional provisions in Article 25(2) RPBA 2020) according to which the Board has the discretionary power to hold inadmissible

facts, evidence and requests which could have been presented or were not admitted in the first instance proceedings.

According to the appellant this document is directed to establishing that claim 1 of the main request is not novel over the visbroken polymer of example 3 of D3 (see statement of the grounds of appeal, paragraphs 4.3-4.8). Since claim 1 of the main request (corresponding to claim 1 of the first auxiliary request decided upon by the opposition division) was filed for the first time only two months before the oral proceedings, it was not possible to carry out the required experiments and to file D7 during the opposition proceedings.

The admittance of D7 is contested by the respondent for the following reasons (see rejoinder, paragraphs 6-38):

D7 should have been submitted during opposition proceedings,

it would not be possible to verify that the data provided by the respondent correspond to example 3 of D3 and

D3 would not provide sufficient information to reproduce example 3.

The Board notes that D7 discloses the properties of the visbroken composition of example 3 which were not explicitly disclosed in D3 such as the intrinsic viscosity (IV) of the XCI fraction (feature (d)) or the comonomer content of XCS fraction (feature (e)). However the absence of said features in D3 was mentioned at the beginning of the opposition proceedings, as it appears from the submissions of the patent proprietor in section 4.2 of the reply to the notice of opposition. Furthermore, said features were

already present in the granted claims (in granted claim 1 for feature (e) and in granted claim 4 for feature (d)) so that it cannot be argued that the opponent was confronted with features which were not taken into account in the notice of opposition. If the appellant had intended to support its attack of lack of novelty over D3 with experimental data, these should have been filed during opposition proceedings.

Under these circumstances, the Board finds it appropriate to exercise its discretion under Article 12(4) RPBA 2007 by not admitting document D7 into the proceedings.

2. Admittance of document D8

D8 is a document filed by the appellant with the statement of grounds of appeal. The same criteria apply for its admittance as for D7 (*vide supra*).

According to the appellant D8 was filed in reaction to the decision of the opposition division in order to provide evidence that the ethylene content has an effect on the optical properties of heterophasic copolymers.

The respondent considered that D8 is not suitable to show an effect of the ethylene content on optical properties and should therefore not be admitted.

The Board notes that the main criterion for the admittance of a document filed with the statement of grounds of appeal is whether it could and should have been presented in the first instance proceedings. The respondent did no address this criterion and the Board sees no reason to raise an objection in this regard.

Although, in exercising its discretion, the Board is not obliged to assess whether D8 is *prima facie* relevant or not, it is pointed out that said document appears to address the relation between ethylene content and haze (see D8, table 1), which is the question that the appellant addresses with the document.

In consequence, and in application of Article 12(4) RPBA 2007, the Board can identify no grounds to hold D8 inadmissible with the consequence that it is in the proceedings.

3. Main request

3.1 Sufficiency of disclosure

According to the appellant (see statement of grounds of appeal, page 2, paragraph 3.2), the method for measuring the comonomer content as described in paragraph [0152] of the patent is not sufficiently described "as evidenced by D1 and D2". No further explanation as to why the decision of the opposition division should be incorrect is given.

The primary object of the appeal is a review of the appealed decision in a judicial manner. In this respect, it is necessary that the statement setting out the grounds be such that the Board and the other party can understand without their own investigations why the first instance decision is allegedly wrong (see Case Law of the Boards of Appeal, 9th edition 2019, V.A. 2.6.3 d)).

Referring to D1 and D2 without explaining why the method described in the opposed patent is allegedly

insufficiently disclosed is a mere invitation for the Board to carry out its own investigation in order to understand why the decision on sufficiency is incorrect. This is in particular not in accordance with the requirements of Article 12(3) RPBA 2020 (which corresponds substantially to Article 12(2) RPBA 2007) according to which the statement of grounds should set out clearly and concisely why it is requested that the decision under appeal be reversed, amended or upheld.

Consequently, the Board considers that the appellant's submissions do not meet the requirements of Article 12(3) RPBA 2020 and that the decision on sufficiency is not contested in appeal. The appellant's submissions concerning lack of sufficiency of disclosure are therefore not to be taken into account (Article 12(4) RPBA 2007 which applies in view of the transitional provisions in Article 25(2) RPBA 2020).

3.2 Novelty over D3

3.2.1 According to the appellant the visbroken polymer of example 3 of D3 anticipates the subject-matter of claim 1 of the main request. In particular, although the intrinsic viscosity (IV) of the XCI in tetralin was 1,57 dl/g, it would be common general knowledge for a person skilled in the art that the IV would fall within the range of 1,8 to 2,7 dl/g if measured in decalin according to the method of claim 1 (feature (d)). Likewise, while the comonomer content of the XCS fraction (feature (e)) was not explicitly disclosed for the visbroken composition, it was reported to be 23.5 wt% for the precursor composition and the visbreaking treatment would not substantially alter that property.

3.2.2 As pointed out by the appellant the visbroken polymer of example 3 is characterized by an intrinsic viscosity (IV) of the XCI in tetralin of 1,57 dl/g. A value of the measurement in decalin is not available, nor is any evidence present on file concerning the relationship between the value in tetralin and the one in decalin. In the absence of evidence that the IV in decalin (feature (d)) would fall within the claimed range the Board must come to the conclusion that D3 does not clearly and unambiguously disclose in its example 3 a visbroken polymer with an IV according to claim 1. With regard to the comonomer content in the XCS fraction (feature (e)), the Board sees no reason why the visbreaking treatment, which is a chemical degradation treatment, would have no impact on the XCS content and therefore on the comonomer content thereof. In the absence of evidence of the contrary, the Board must come to the conclusion that D3 does not disclose in its example 3 a visbroken polymer with a comonomer content in the XCS fraction according to claim 1.

On that basis there is no need to analyse the other features of claim 1 in any further detail and novelty over the visbroken polymer of example 3 of D3 is therefore acknowledged.

3.3 Inventive step with respect to D3

D3 pertains as the patent is suit to propylene copolymers which have *inter alia* good flexibility and good optical properties (see patent, paragraphs [0005] and [0009] and D3, claim 1 and page 1, lines 5-8). The Board therefore agrees with the parties and the opposition division that D3 is a suitable document to be taken as the closest prior art and that the visbroken polymer of example 3 is a particularly

relevant starting point for the assessment of the inventive step of claim 1.

3.3.1 Technical differences

As explained previously (see point 3.2.2), the Board considers that claim 1 differs from the visbroken polymer of example 3 at least in that:

(d) the IV of the XCI fraction is in the range of 1.8 to 2.7 dl/g, wherein the IV is determined according to DIN ISO 1628/1 (in Decalin at 135 °C) and

(e) the comonomer content of XCS fraction of the propylene copolymer is in the range of 16.0 to 28.0 wt.-%.

3.3.2 Problem to be solved

The respondent argued from the beginning of the appeal proceedings that the impact strength of the inventive compositions is improved compared to the examples of D3 (see reply to the statement of grounds of appeal, paragraph 78 with reference to paragraph 5.5 of the letter dated 30 June 2017).

While the Board preliminarily acknowledged in the communication dated 20 May 2021 an improvement of the impact strength based on the experimental data provided by the respondent and a comparison between the examples of the opposed patent and the visbroken polymers of the examples of D3, the appellant never challenged the presence of such an improvement in its written submissions, not even after receiving the preliminary opinion of the Board.

It was only at the oral proceedings before the Board that the appellant for the first time considered that there was no proof that the alleged improvement was linked to the distinguishing features. Rather, the effect on impact properties would be linked to the rubber content of the copolymer.

It is correct that the burden of proof that an effect relevant to the formulation of the technical problem is indeed achieved with respect to the closest prior art and has its origin in the distinguishing features is normally with the patent proprietor (here the respondent), who has to discharge it by proper evidence (e.g. an appropriate comparison). However, in a case like the present one in which the patent proprietor has provided comparisons with the closest prior art (even if possibly not the perfect ones) which have never been put into question up to the oral proceedings neither by the opponent, nor by the Board, that burden of proof is considered to be discharged. In such a case the burden of proof is therefore shifted to the opponent (here the appellant) to provide evidence of the contrary (see Case Law of the Boards of Appeal, 9th edition 2019, III.G.5.2.1). In the absence of counter-evidence and by means of the mere allegation that the alleged improvement was not linked to the distinguishing features but to some other properties, such a burden of proof, now on the opponent, cannot be considered to be discharged.

On this basis the objective technical problem to be solved over D3 is to be formulated as the provision of a polypropylene copolymer having improved impact strength.

3.3.3 Obviousness

The question has to be answered if the skilled person, desiring to solve the problem identified above, would, in view of the closest prior art, possibly in combination with other prior art or with common general knowledge, have modified the disclosure of D3 in such a way as to arrive at the claimed subject matter.

The appellant took the view that it would be obvious to arbitrarily select slightly different IV and comonomer content and to arrive at the subject-matter of claim 1. However, the arguments and evidence advanced by the appellant did not consider the above identified problem. In agreement with the respondent, the Board considers that none of the available prior art suggests to modify the features (d) and (e) in order to improve the impact strength of polypropylene copolymers. This is in particular the case for D8, which was cited with reference to a possible improvement of the optical properties, but not with reference to the above identified technical problem. Moreover, as the values in the closest prior art are not known, it cannot be argued that a slight modification would be sufficient to fall under the scope of the claim.

The Board sees therefore no reason to overturn the decision of the opposition division regarding the presence of an inventive step.

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

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

A. Pinna D. Semino

Decision electronically authenticated