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**Datasheet for the decision
of 23 November 2022**

Case Number: T 2582/19 - 3.3.03

Application Number: 15732003.7

Publication Number: 3074464

IPC: C08L23/06

Language of the proceedings: EN

Title of invention:

PROCESS FOR PRODUCING HIGH DENSITY POLYETHYLENE COMPOSITION
HAVING HIGH ENVIRONMENTAL STRESS CRACK RESISTANCE FROM POST
CONSUMER PLASTIC AND ARTICLES MADE OF SAID COMPOSITION

Patent Proprietor:

TotalEnergies OneTech Belgium

Opponents:

INEOS Europe AG
Borealis AG
The Dow Chemical Company

Relevant legal provisions:

EPC Art. 100(b), 111(1)
RPBA Art. 12(4)
RPBA 2020 Art. 13(2)

Keyword:

Admittance of main request (yes)

Sufficiency of disclosure (no)

Admittance of auxiliary request submitted during the oral proceedings - cogent reasons (no)

Admittance of auxiliary request submitted with reply to the statement of grounds of appeal (yes)

Remittal (yes)

Decisions cited:

G 0009/92, G 0003/14, T 0435/91, T 0063/06, T 2301/12



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Case Number: T 2582/19 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 23 November 2022

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
9 July 2019 concerning maintenance of the
European Patent No. 3074464 in amended form.**

Composition of the Board:

Chairman D. Semino
Members: F. Rousseau
 A. Bacchin

Summary of Facts and Submissions

I. The appeals lie from the interlocutory decision of the opposition division according to which European patent No. 3 074 464 as amended according to the claims of auxiliary request 1 submitted during the oral proceedings on 21 Mai 2019 and a description adapted thereto met the requirements of the EPC. The contested decision was also based on the patent as granted as the main request.

II. Claim 1 of auxiliary request 1 reads as follows:

"1. A process to produce a polyethylene composition comprising post-consumer resin (PCR) comprising the steps of:

- providing a high-density polyethylene post-consumer resin (PCR) being a dairy waste, preferably milk bottles, having an ESCR (100%) of at most 10 hours as determined according to ASTM D 1693 (2013) condition B, a density ranging from 0.950 to 0.967 g/cm³ as determined according to ASTM 1505 at a temperature of 23°C, an HLMI of 40 to 70 g/10 min as determined according to ISO 1133, condition G, at 190°C and 21.6 kg;
- providing a virgin Ziegler-Natta catalyzed polyethylene resin, wherein the virgin polyethylene resin has a multimodal distribution and comprises at least two polyethylene fractions A and B, fraction A having a higher molecular weight and lower density than fraction B, wherein fraction A has a HL275 of at least 0.1 g/10 min and of at most 1.9 g/10 min as determined according to ISO 1133, condition G, at 190°C and under a load of 21.6 kg

except that a die of 2.75 mm broad was used and has a density of at least 0.920 g/cm³ and of at most 0.942 g/cm³; and the virgin polyethylene resin having an HLMI of 5 to 75 g/10 min as determined according to ISO 1133, condition G, at 190°C and 21.6 kg, a density ranging from 0.945 to 0.960 g/cm³, the density being determined according to ASTM 1505 at a temperature of 23°C;

- blending the high-density polyethylene post-consumer resin with the virgin polyethylene resin in to form a polyethylene composition, wherein said composition comprises from 15 to 70 wt% of high density polyethylene post-consumer resin relative to the total weight of the composition;

wherein the polyethylene composition has an HLMI of 20 to 50 g/10 min as determined according to ISO 1133, condition G, at 190°C and 21.6 kg, and wherein the polyethylene composition satisfies the relationship

$$\text{HLMComp} = \left(\frac{1 - [\text{PCR}]}{\text{HLMIVr}} + \frac{[\text{PCR}]}{\text{HLMIPcr}} \right)^{-1}$$

wherein HLMComp is the HLMI of the polyethylene composition, HLMIVr is the HLMI of the virgin Ziegler-Natta catalyzed polyethylene resin, HLMIPcr is the HLMI of the high density polyethylene post-consumer resin, [PCR] is the proportion of the high density polyethylene post-consumer resin in the polyethylene composition relative to the total weight of the composition such that [PCR] = wt% PCR/100, and wt% PCR is the proportion in weight percent of the high density polyethylene post-consumer resin in the polyethylene composition relative to the total weight of the composition."

For the ease of reading, the relationship between HLMComp, HLMIVr and HLMIPcr defined in the last part of above claim 1 is referred in what follows as the "HLIM relationship". That HLIM relationship, defined in dependent claim 15 of the granted patent, was among other features inserted in claim 1 of auxiliary request 1.

III. The following documentary evidence was inter alia submitted before the opposition division:

D1: WO 2012/139967 A1

D2: WO 2011/051472 A1

D3: WO 91/19763 A1

D7: WRAP Food Grade HDPE Recycling Process: Commercial Feasibility Study, pages 1-44, ISBN : 1-84405-270-2

D9: Printout of <https://www.letsrecycle.com/news/over-70-of-hdpe-milkbottles-now-recycled> (2010)

D11: Large Scale HDPE Recycling Trial, ISBN: 1-84405-308-3

D16: WO 2009/085922 A1

D20: CONTINUUMTM Bimodal Polyethylene and CONTINUUMTM EP HDPE Resins, The Dow Chemical Company, presented at the NPE ANTEC conference, McCormick Place, June 22-26, 2009, Chicago (II)

D25: ANTEC 2009, NEXT GENERATION HOPE FOR BLOW MOLDING APPLICATIONS, Mridula (Babli) Kapur, The Dow Chemical Company, Freeport, TX, pages 65-69;

D26: Presentation of A. Radwanski, Enhanced performance HDPE for Blow Molding Applications, SPE Annual Blow Molding Conference, October 7-8, 2009, Michigan State University, East Lansing, Michigan

D28: NCHRP Report 696, Performance of Corrugated Pipe Manufactured with Recycled Polyethylene Content, R. Thomas and D. Cuttino (2011), ISBN 978-0-309-21340-0

D29: Appendix B of D28

D30: Appendix C of D28

D31: Appendix D of D28

D33: Total Raffinage-Chimie, Study on recycled HDPE by Gas Chromatography dated 28 November 2012

D34: Comparative colour tests submitted with patentee's letter of 21 March 2019.

IV. According to the reasons for the contested decision which are pertinent for the appeal proceedings:

Main request

(a) Concerning sufficiency of disclosure, the patent in suit, having regard in particular to its example 2 and paragraph 29, provided enough information to prepare the virgin HDPE. Moreover, paragraph 62 of the specification described English milk bottles as one source of Post Consumer Resin (PCR) HDPE to be used for the invention. D29 to D31 demonstrated that PCR polyethylene resins as used in the patent in suit were available from various sources. Moreover, test methods to determine the desired HLMI, density, ESCR and color parameters L*, a* and b* were described in the patent in suit so that a PCR HDPE having the properties defined in the claims could be selected. In contrast, the opponents had failed to substantiate by verifiable facts, that the claimed invention could not be carried out by the person skilled in the art on the basis of the information provided in the patent in suit and common general knowledge.

This same hold true for claim 15 as granted which defined the HLMI relationship. The fact that only example B3 of the patent in suit satisfied that HLMI relationship, but not examples B1, B2 and B4

could not be seen as evidence that the subject-matter of claim 15 was insufficiently disclosed. It was merely the result of the fact that examples B1, B2 and B4 did not fall within the preferred embodiment as defined by claim 15 as granted.

The patent in suit disclosed therefore the claimed invention in a manner sufficiently clear and complete for it to be carried by a person skilled in the art.

- (b) The main request was, however, not allowable, since its claim 17 which defined an article made from the polyethylene composition obtained by the process according to any of the preceding claims lacked novelty over D1.

Auxiliary request 1

- (c) In auxiliary request 1 the claims as granted had been modified by including in claim 1 among others the HLMI relationship defined in claim 15 as granted. Granted claim 17 had been also deleted. Auxiliary request 1 met the requirements of Articles 123(2), 123(3) and 84 EPC. For the reasons given in respect of the main request, the invention defined in auxiliary request 1 met the requirement of sufficiency of disclosure.
- (d) Novelty was also acknowledged and an inventive step starting from D1 or D16 as the closest prior art was recognized. Taking into account documents D2, D7, D9, D11 and D20, it was held that the person skilled in the art could provide a process according to claim 1, but there was no teaching that they would do so in order to provide a further

process for the preparation of a polyethylene composition comprising post-consumer resin and wherein the obtained composition satisfied the HLMI relationship. The description adapted to the set of claims of auxiliary request 1 filed during the oral proceedings specified that examples B1, B2, B4 and CB1 were not according to the definition of the claims.

(e) The patent could be therefore maintained in the form of auxiliary request 1 filed during the oral proceeding with the description adapted thereto, also filed during the oral proceedings.

V. An appeal was filed by both the patent proprietor and opponent 1.

VI. With their statement of grounds of appeal (letter dated 13 November 2019), the patent proprietor filed the following additional documents:

D35: WO 2016/005265 A1

D36: ISO 1133-1:2011(E)

D37: ISO 1133:1997(E)

D38: Declaration of Mr. Jacques Michel.

With their rejoinder to the statement of grounds of appeal of opponent 1 (letter dated 29 March 2020), they submitted 12 sets of claim requests labelled auxiliary requests 1 to 12.

The text of an amended description for the main request already identified in the patent proprietor's statement of grounds of appeal was filed with letter of 13 October 2022.

VII. Oral proceedings before the Board were held on 23 November 2022. In the course of the discussion on admittance of auxiliary request 1 filed with the statement of grounds of appeal, the patent proprietor requested to admit auxiliary request 1, filed with letter of 12 June 2018, into the proceedings.

VIII. The final requests of the parties were as follows:

The patent proprietor requested that the decision under appeal be set aside and the patent be maintained on the basis of the claims of auxiliary request 1 submitted during the oral proceedings on 21 Mai 2019 and an amended description submitted with letter of 13 October 2022. As an auxiliary request, the patent proprietor requested that the appeal of opponent 1 be dismissed. In the alternative, the patent proprietor requested that auxiliary request 1 filed with the letter of 12 June 2018 be admitted into the proceedings and the case be remitted to the opposition division for further prosecution, or that auxiliary request 1 filed with the letter of 29 March 2020 be admitted into the proceedings and the case be remitted to the opposition division for further prosecution, or that the patent be maintained on the basis of any of auxiliary requests 2 to 12 filed with letter of 29 March 2020.

Appellant opponent 1 requested that the decision under appeal be set aside and that the European patent be revoked.

Opponents 2 and 3 as respondents requested that the appeal of the patent proprietor be dismissed.

IX. Claim 1 according to the claim requests relevant for the present decision is as follows:

- Claim 1 of auxiliary request 1 submitted during the oral proceedings on 21 Mai 2019 has the wording indicated in section II above.

- Claim 1 of auxiliary request 1 filed with letter of 12 June 2018 corresponds to claim 1 submitted during the oral proceedings on 21 Mai 2019, with the exception that (i) the limitation of the PCR being a dairy waste, preferably milk bottles, is removed, (ii) the upper limit of the HL275 value of the polyethylene fraction A of the virgin resin is up to 4 g/10 min instead of 1.9 g/10 min, (iii) the range of the HLMI of the polyethylene composition is removed and (iv) the last part of the claim feature defining the HLMI relationship is removed.

- Claim 1 of auxiliary request 1 filed with the letter of 29 March 2020 corresponds to claim 1 of auxiliary request 1 submitted during the oral proceedings on 21 Mai 2019 except that the feature defining the HLMI relationship has been deleted.

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

(a) The skilled person being aware of the degree of inaccuracy of HLMI measurements and of a necessary degree of inaccuracy for the blending law defined with the HLMI relationship would have no difficulty to provide a process fulfilling the HLMI relationship. This matter would be more a question of clarity rather than of sufficiency of disclosure. In the absence of serious doubts, substantiated by verifiable facts, the process

defined in the main request should be held to be sufficiently disclosed.

- (b) Auxiliary request 1 filed with the letter of 12 June 2018 should be allowed into the proceedings.
- (c) The case should be remitted to the opposition division for further prosecution on the basis of auxiliary request 1 filed with the statement of grounds of appeal.

XI. The opponents' submissions, in so far as they are pertinent, may be derived from the reasons for the decision below. They are essentially as follows:

- (a) According to opponent 3 the adapted description of the main request wherein examples B2 and B3 were indicated to be according to the invention was not part of the contested decision. The main request should not be admitted into the proceedings.
- (b) Opponent 3 also submitted that D36 to D38 should not be admitted.
- (c) According to opponents 1 to 3 the requirement of sufficiency of disclosure would not be met for the subject-matter of claim 1 of the main request, because the patent would not give the skilled person sufficient information to reliably obtain a composition satisfying the HLMI relationship without undue burden. The examples themselves would show with examples B1 to B3 that the HLMI relationship is not necessary fulfilled when all other requirements of claim 1 are met. The only information given in the patent in suit concerning

this relationship would be in paragraph [0071]. There would be however no indication in the patent in suit as to which measures should be carried out in order to ensure that this relationship is satisfied.

- (d) Auxiliary request 1 filed with the letter of 12 June 2018 and which had not be relied upon until the oral proceedings and auxiliary request 1 filed with the statement of grounds of appeal of the patent proprietor should not be admitted into the proceedings. Remittal for further prosecution on the basis of the latter should not be allowed.

Reasons for the Decision

Admittance of the main request

- 1. The main request is based on the claims of auxiliary request 1 underlying the contested decision and a new amended description. This new description is identified in the patent proprietor's statement of grounds of appeal as being identical to the version as maintained by the opposition division with the exception that the statement that example B2 is "*not according to the definition of the claims*" has been removed. The description was physically filed with letter of 13 October 2022. Its table 4 on page 25 differs from table 4 in the version maintained by the opposition division in that example B2 is not marked as being "*not according to the definition of the claims*".
 - 1.1 The admission to the proceedings of the main request, which is contested by opponent 3, 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. As illustrated in point 2.6 of the reasons for decision T 2301/12 of 22 November 2017 referred to by opponent 3, admittance of a new main request in appeal proceedings remains a matter of discretion under Article 12(4) RPBA 2007 to be exercised by the Board on a case by case basis even in the extreme case when such main request was withdrawn before the department of first instance.

- 1.2 The question as to whether the examples of the patent in suit, in particular example B2, can be considered to fall within the definition of claim 1 of the present main request boils down to the question whether these examples can be considered to meet the HLMI relationship, which feature present in claim 15 as granted was inserted in claim 1 during the opposition proceedings.

This question had been first brought forward by opponent 2 two months before the oral proceedings with a letter dated 20 March 2019 (items 34 to 38), albeit in relation to the issue of sufficiency of disclosure of claim 1 according to former auxiliary requests 2 to 9 filed with letter of 12 June 2018 which all contained said relationship as functional limitation.

According to point 2.1.3 of the reasons for the contested decision concerning sufficiency of disclosure of granted claim 15, it could appear that the patent proprietor had accepted that only example B3 satisfied the HLMI relationship. However, having regard to point 5 of the minutes concerning the debate on that issue, the patent proprietor submitted that some discrepancy

between the measured and calculated values of HLMI was due to the existence of an error margin for the measurement which was between 8 and 10%.

After the opposition division had announced their opinion that the main request was not allowable, since its product-by-process claim 17 lacked novelty over example 1 of D1, the discussion turned to auxiliary request 1, whose claims were found to not extend beyond the content of the application as filed and meet the requirements of sufficiency of disclosure, novelty and inventive step (minutes, points 14 to 25). After the patent proprietor had submitted a first version of the adapted the description, the opponents requested additional amendments in relation to the text of the examples as they considered that only example B3 was within the scope of amended claim 1 (minutes, point 27). Opponent 3 argued in this respect that error margins could not be taken into account, for example B2. After the opposition division had announced the opinion that example B3 could be regarded as the only example being in accordance with claim 1, the patent proprietor submitted amended pages of the description wherein examples B1, B2 and B4 were marked as being not in accordance with the claimed invention.

- 1.3 It follows from the above and the written submissions on appeal that the new main request submitted with the statement of grounds of appeal does not bring additional issues to those already debated before the opposition division and that all relevant issues for that new request were already decided, apart from the conformity of that request with the requirements of Article 84 EPC due to example B2 not being indicated to be outside of the claimed invention. It appears furthermore that the position of the opposition

division after having heard the parties was in that respect that example B2 could not be accordance with the subject-matter of claim 1.

1.4 Under these circumstances and considering that this issue was addressed at a very last stage of the oral proceedings, it would not be appropriate for the Board to hold the present main request inadmissible for the sole reason that the opposition division was prevented from deciding that such a request would not meet the requirement of Article 84 EPC.

1.5 On that basis the Board has no reason to make use of its discretionary power under Article 12(4) RPBA 2007 and hold the main request inadmissible. The main request is therefore in the proceedings.

Admittance of D36 to D38

2. D36 to D38 are items of evidence submitted by the patent proprietor with their statement of grounds of appeal. Their admission to the proceedings, which was contested by opponent 3, is also subject to the discretionary power of the Board in accordance with Article 12(4) RPBA 2007.

D36 and D37 are ISO standards mentioned in the patent in suit which concern the determination of the Melt Flow Rate (MFR) of thermoplastics. According to those standards the MFR can be measured according to various test conditions listed in Annex A of D37, conditions G meaning a test temperature of 190°C under a load of 21,6 kg. It is undisputed that the HLMI (High Load Melt Index) as determined according to ISO 1133, condition G, at 190°C and 21.6 kg which is the parameter defined in operative claim 1 means a MFR measured according to

test conditions G of D37. Moreover, D36 addresses in its point 11 and Annex D the precision of the method used for determining the MFR. It is therefore apparent that D36 and D37 have been submitted in support of the patent proprietor's argument during the oral proceedings before the opposition division that the degree of precision of the measure of the HLMI parameter of operative claim 1 should be taken into account when assessing whether the HLMI relationship is met. D38 is a declaration concerning the margin of error for blending laws which according to the patent proprietor's submissions must be also considered when judging whether the HLMI relationship is met.

Under these conditions, the submission of D36 to D38 at the outset of the appeal proceedings pursuant to Article 12(2) RPBA 2007 can be seen as a timely and legitimate response to the opinion of the opposition division expressed for the first time during the oral proceedings according to which the composition of example B2 of the patent in suit could not be considered to fulfil the HLMI relationship. The Board has therefore no reason to make use of its discretionary power under Article 12(4) RPBA 2007 and to hold D36 to D38 inadmissible. D36 to D38 are therefore in the proceedings.

Sufficiency of disclosure

3. According to the established jurisprudence of the Boards of Appeal of the EPO a European patent complies with the requirements of sufficiency of disclosure, if a skilled person, on the basis of the information provided in the patent specification and, if necessary, using common general knowledge, is able to carry out the invention as claimed in its whole extent without

undue burden, i.e. with reasonable effort. This means in particular in the present case the ability to fulfil the HLMI relationship defined in claim 1, throughout the whole scope of claim 1, taking into account the information given in the patent in suit, the common general knowledge and the use of routine experimentation.

Meaning of the HLMI relationship

4. The HLMI relationship is a feature of granted dependent claim 15 which has been inserted into claim 1. It is undisputed that its meaning in the context of claim 1 is not open to objections under Article 84 EPC in accordance with the ruling of G 3/14 (OJ 2015, A102).

4.1 The patent proprietor conceded that the HLMI relationship is a limiting feature of the process claimed.

In the opinion of the patent proprietor, however, this feature should not be seen as a condition to be fulfilled in a strict mathematical sense. Instead, by expressing a known blending law valid for two-component systems, it would limit the process to the production of a polyethylene composition for which a blend of the PCR and VR components meets the HLMI relationship (patent proprietor's letter of 21 November 2022, page 3, second and third paragraphs).

While the general wording of claim 1 would not exclude the presence of further components, the addition of the blending law, which does not make sense in the presence of other components, would imply such a limitation.

For a two-component system the relationship would then be always satisfied, at least taking into account the usual errors of measurement of the HLMI values. In this respect, the only condition on the value of the HLMI of the polyethylene composition would be that it is in the range 20 to 50 g/10 min when determined according to ISO 1133.

- 4.2 The introductory part of claim 1 reads "A process to produce a polyethylene composition comprising post-consumer resin (PCR) comprising the steps of" (passages highlighted by the Board). This open wording due to the use of the term "comprising" allows for the presence of other steps, including the addition of a third polymeric component which will be contained in the produced polyethylene composition. This reading of operative claim 1 is also consistent with paragraph [0080] of the description in which it is stated that although it is preferred that the polyethylene composition consists of PCR and VR, the polyethylene composition may comprise other thermoplastic polymers in a minor amount and the subsequent paragraph, according to which "independently of the number of components comprised in the polyethylene composition, it is clear that their relative percentages in wt% add up to a total of 100 wt%".

No basis can be found in the wording of claim 1, nor in the patent specification to read the HLMI feature as necessarily implying a limitation concerning the PCR and VR components and nothing more. On the contrary, the skilled person considering that the claim includes a mathematical relationship among properties defined in the claim (HLMI of the composition and of the two components and the proportion of PCR) would need to make technical sense out of it and see under which

conditions this relationship, which expresses an equality between two terms, is fulfilled.

- 4.3 For the sake of simplicity, in what follows, the analysis is, however, limited to the case where only a blend of PCR and VR is prepared by the claimed process. As it is concluded that there is lack of sufficiency for this case (which is indeed covered by the claim), there is no need to consider the situation of further components in addition to PCR and VR.
- 4.4 It is undisputed that the HLMI relationship is recognized by the skilled person as a blending law for the PCR and VR. Although this is not mentioned in the specification, this relationship can be seen as a tool for the skilled person to select a VR for preparing a resin having a targeted HLMI value when using a PCR. It is therefore technically meaningful.
- 4.4.1 The value of $HLMI_{comp}$ of 20 to 50 g/10 min is defined in claim 1 to two significant figures, as pointed out by opponents 1 and 2. Based on the value measured in the examples which are given with two or three significant digits, the skilled person would understand that the $HLMI_{comp}$ defined in claim 1 corresponds to the measured value rounded to the nearest integer, meaning that the calculated right term of the relationship has to be rounded in the same way. The values of $HLMI_{pcr}$ and $HLMI_{vr}$, which are defined in claim 1 also with two significant figures, are also obviously understood to be rounded to the next integer.
- 4.4.2 The patent proprietor submits that it would not make technical sense to understand the HLMI relationship as defining an exact equality between the two terms of the relationship, as this would not take into account the

well known lack of accuracy of both the measuring method and the blending law.

As regards the blending law, this argument fails to convince, since claim 1 does not define any degree of accuracy for this law to be taken into account when verifying whether the relationship between the two terms whose values are rounded to the next integer is met or not. Having regard to the necessary objectivity required for an assessment of the meaning of claim 1, there is no room to read the HLMI relationship in a different way when the patent in suit does not provide the slightest indication about the level of accuracy of the blending law and such a level of accuracy cannot be even inferred from the preferred embodiment to which this relationship relates, as that preferred embodiment addressed in paragraph [0071] is not further specified. Even the examples of the patent in suit do not refer to the HLMI relationship or the manner it should be calculated based on measured HLMIPcr and HLMIVr values.

The indication provided in declaration D38 of what would constitute a good blending law in terms of standard error of regression represents the opinion of the author of this declaration. This has not been shown to represent an opinion generally shared at the date of filing of the patent in suit so that the skilled person would have no reason to give the HLMI relationship a meaning different from that addressed above.

Concerning the alleged inaccuracy of the measuring method ISO 1133, which according to the patent proprietor's might be as much as 10% based on a statement in D36, the passages referred to by the patent proprietor (section 11 on page 16 and Annex D on page 23) refer to variations between laboratories,

which is not relevant. The only degree of inaccuracy which could be relevant is the one within a laboratory which is as much as 5%. The passages cited by the patent proprietor, however, make clear that the precision of the measurement is dependent on the type of material tested and the test parameters. Those passages, however, do not concern the kind of material defined in operative claim 1, nor the present testing conditions.

As to the statement provided in section 9 of D37 (pages 8 and 9) that a coefficient of variation of about $\pm 10\%$ could be expected, this statement is made in the context of factors indicated to decrease the repeatability of the measurements, reference being made to thermal degradation or crosslinking of the material and the presence of filler whose distribution or orientation may affect the melt flow rate. None of these factors have been shown to be relevant for the materials and testing conditions defined in operative claim 1.

- 4.5 In conclusion, the HLMI relationship defined in operative claim 1 is understood by the skilled person to be a limiting technical feature of the process claimed. As far as it concerns the production of blends of PCR and VR, the HLMI relationship is fulfilled if the measured value of the blend $HLMI_{comp}$ rounded to the nearest integer is equal to the value calculated on the basis of the measured $HLMI_{pcr}$ and $HLMI_{vr}$ values, all being also rounded to the next integer.

Technical teaching provided in the patent in suit

5. As pointed by opponent 1, apart from the definition of the HLMI relationship in paragraph [0071] of the

description, which mirrors the definition in dependent claim 15 as granted, the specification does not provide any further information concerning that relationship. That embodiment is not further specified, with the exception that it concerns a composition having a HLMI value of 20 to 50 g/10 min as determined by ISO 1133. A reference to other parts of the specification is not made. As already pointed out above, even the examples of patent in suit do not refer to the HLMI relationship or any calculation made in this respect.

As illustrated in the rejoinder of opponent 2 (points 6 to 9) the only exemplified process of the patent specification for which the HLMI relationship is satisfied is that for the preparation of example B3. It is not the case for example B2, since the measured value of $HLMI_{comp}$ is 22 g/10 min and the calculated value based on the measured $HLMI_{pcr}$ and $HLMI_{vr}$ is 23 g/10 min, despite the fact that the composition fulfills all the other requirements of operative claim 1. This demonstrates that fulfilling the HLMI relationship is not the automatic consequence of satisfying the other requirements of claim 1. A methodology on how to adjust the VR and PCR components and their amount so as to fulfil said HLMI relationship was not shown to emerge from the specification, let alone indicated by the patent proprietor. The remaining exemplified processes indicated to be in accordance with the teaching of the granted patent, i.e. those of examples B1 and B4, are of no help for gathering relevant information in order to fulfil the HLMI relationship. The reason is that those exemplified processes use a VR with a HL275A value for the polyethylene fraction A which is outside the range now defined in claim 1. They are therefore not in accordance with the invention presently claimed. Moreover, the processes of examples B1 and B4 do not

fulfil the HLMI relationship, even if one takes into account the corrected measured HMLI value for the blend of PCR and VR in example B4 indicated in the tables on page 2 of declaration D38.

The existence of a common general knowledge with the help of which the skilled person would fill any gap of information in the patent in suit so as to find without an undue amount of experimental work appropriate PCR and VR fulfilling the HLMI relationship was not indicated by the patent proprietor either. Consequently, the sole information in the patent in suit concerning the achievement of the HLMI relationship is to be found in example B3.

Conclusion concerning sufficiency

6. It is undisputed that the subject-matter of operative claim 1 is not meant to be restricted to the sole process example B3 which indubitably meets that relationship. Claim 1 is rather meant to be directed to other processes using the PCR and VR and their proportions as defined in operative claim 1, but which in addition lead to compositions meeting the HLMI relationship. Claim 1 is in particular not restricted to the use of specific PCR employed in the compositions exemplified in the patent in suit. However, the patent in suit, alone or supplemented by the common general knowledge, does not provide a teaching on how to produce compositions which fulfill the HLMI relationship other than the very specific example B3, as explained under point 5., above.

It is, however, a general legal principle relevant in the analysis of sufficiency of disclosure that, as outlined in landmark decision T 435/91 (OJ EPO 1995,

188), "the protection conferred by a patent should correspond to the technical contribution to the art made by the disclosure of the invention described therein, which excludes the patent monopoly from being extended to subject-matter which, after reading the patent specification, would still not be at the disposal of the skilled person". (point 2.2.1 of the reasons, fourth paragraph).

It follows from the above that the subject-matter of claim 1 which extends beyond the process of example B3 to processes which at the filing date of the patent in suit are not at the disposal of the skilled person lacks sufficiency of disclosure.

Burden of proof

7. With regard to the submissions of the patent proprietor that an objection of lack of sufficient disclosure presupposes that there are serious doubts, substantiated by verifiable facts, the Board observes that each of the parties to the proceedings carries the burden of proof for the facts it alleges. Who bears the burden of proof may be determined by the legal cases which the respective parties are trying to make. Whether it is discharged or not is assessed by the board based on all the relevant evidence put before it, including the teaching or lack of teaching in the patent in suit, in the present case in relation to the choice of suitable PCR and VR and their relative proportions for producing a polyethylene composition meeting the HLMI relationship.

In the context of the opposition ground of sufficiency of disclosure, the weight of the submissions required to rebut the legal presumption that the patent meets

that requirement of the EPC depends on its strength (T 63/06 of 24 June 2008, point 3.3.1 of the reasons). A strong presumption requires more substantial submissions than a weak one. In the present case the existence of an undue burden to provide a process for the preparation of the polyethylene compositions over the whole scope of claim 1 results from the absence of a teaching in the patent in suit as to how to select in an appropriate and straightforward manner the PCR and VR components within the definition of claim 1 so as to meet the HLMI relationship and the clear evidence in the examples that the relationship is not necessarily met if the other conditions in claim 1 are met (which evidence in the patent itself makes the legal presumption a weak one and provides verifiable facts substantiating serious doubts). As a consequence, the onus of proof to demonstrate that carrying out the present invention over the whole breadth of claim 1 does not necessitate an undue amount of work for the skilled person rests on the patent proprietor, who has not provided such a proof in the present case.

8. On that basis, the patent cannot be maintained on the basis of the claims of auxiliary request 1 submitted during the oral proceedings on 21 Mai 2019. The main request is therefore not allowable.

Auxiliary request

9. The auxiliary request of the patent proprietor (dismissal of the appeal of opponent 1) is based on the same claims as for the main request, but with a different version of the description. It is undisputed that the assessment and conclusion given in respect of the main request equally apply to this auxiliary request.

Auxiliary request 1 filed with the letter of 12 June 2018

10. Auxiliary request 1 was filed before the opposition division, but not relied upon during the whole appeal proceedings until the patent proprietor filed it anew during the oral proceedings after the Board had announced their conclusion that claim 1 of auxiliary request 1 submitted during the oral proceedings on 21 Mai 2019 did not fulfil the requirements of sufficiency of disclosure. The filing of this claim request constitutes therefore an amendment of the patent proprietor's appeal case, the admittance of which has to be considered at the Board's discretion under Article 13(2) RPBA 2020.

According to Article 13(2) RPBA 2020, any amendment to a party's case after notification of a summons to oral proceedings shall in principle not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned. Such reasons have not been indicated by the patent proprietor which accepted at the oral proceedings that no justification existed for submitted anew that claim request at such a late stage of the proceedings. The Board, exercising its discretion under Article 13(2) RPBA 2020, decided therefore not to admit the claim request corresponding to auxiliary request 1 filed with the letter of 12 June 2018 into the appeal proceedings.

Auxiliary request 1 filed with letter of 29 March 2020

11. Auxiliary request 1 was submitted by the patent proprietor with their reply to the statement of grounds of appeal of opponent 1. Its admittance into the

proceedings, which is contested by opponents 1 to 3, has to be decided on the basis of Article 12(4) RPBA 2007 (Article 25(2) RPBA 2020).

11.1 Claim 1 of that auxiliary request corresponds to claim 1 of auxiliary request 1 submitted during the oral proceedings on 21 Mai 2019 on the basis of which the claimed subject-matter was found to be patentable except that the last part of the claim feature defining the HLMI relationship is removed. It represents therefore an intermediate process between that defined in the main request underlying the contested decision (patent as granted) which does not comprise that relationship and that defined in auxiliary request 1 underlying the contested decision which includes among other amendments the introduction of said HLMI relationship. The present auxiliary request 1 has been indicated to be in response to the objection raised by opponent 1 regarding sufficiency of disclosure (reply to the statement of grounds of appeal of opponent 1, page 2, first paragraph).

11.2 Opponents 1 and 2 submit that this auxiliary request is inadmissible, because the patent proprietor would not be entitled to improve their position relative to the allowed claims. It is submitted that the patentee did not appeal against the decision of the opposition division to maintain the patent on the basis of the claims of auxiliary request 1 filed during the opposition proceedings on 21 Mai 2019.

This argument *per se* cannot convince, since the patentee was adversely affected by the decision to reject the main request, i.e. maintenance of the patent in its granted form, and filed an appeal against such a decision, so that it is in principle entitled to

improve its position by seeking protection for a subject-matter whose scope is intermediate between the rejected main request and the auxiliary request found to be allowable. As a consequence the principle of the prohibition of *reformatio in peius* does not apply (cf. G 9/92, OJ EPO 1994, 875). The question nevertheless arises whether present auxiliary request 1 which represents such an intermediate position can be admitted into the proceedings taking into account the procedural principles underlying Article 12(4) RPBA 2007.

In this respect, the primary object of the appeal proceedings is to review the decision under appeal, as now explicitly indicated in Article 12(2) RPBA 2020. It is not to bring a substantial change in the subject of the proceedings, the discretion given to the boards of appeal pursuant to Article 12(4) RPBA 2007 serving the purpose of ensuring a fair and reliable conduct of appeal proceedings, avoiding an undue delay which would result from the procedural strategy chosen by the parties. The admission of auxiliary requests into the proceedings under Article 12(4) RPBA 2007 hinges on the question whether a party to appeal proceedings was in a position to make their submission earlier, and whether it could have been expected to do so under the circumstances of the specific case (Case Law of the Boards of Appeal of the EPO, 10th edition 2022, V.A.5.11.1, reference being in particular made to T 23/10 of 18 January 2011, point 2.4 of the reasons).

- 11.3 In the present case, according to the patent proprietor (reply to the statement of grounds of appeal of opponent 1, page 2, first paragraph) operative auxiliary request 1 was filed "*in response to the objection raised by the Opponent regarding the*

sufficiency of disclosure". This request in which the HLMI relationship has been removed obviously aims at overcoming the objection that the process of claim 1 of auxiliary request 1 underlying the contested decision would lack sufficiency of disclosure, as far as the achievement of the HLMI relationship is concerned. This objection of sufficiency of disclosure due to the presence in process claim 1 of the HLMI relationship was raised by opponent 2 in a letter submitted one day before the final date fixed for making written submissions in preparation for the oral proceedings (letter of 20 March 1019, items 34 to 38).

12. In order to answer the question whether auxiliary request 1 should have been filed before the opposition division, it is also appropriate to consider that opponent 2 waited for about 14 months after the filing of its notice of opposition and nearly four months after the communication of the opposition division sent in preparation for the oral proceedings to submit the objection of sufficiency of disclosure concerning the achievement of the HLMI relationship. A reason as to why that objection was not raised earlier is not apparent to the Board.

It is also apparent that this specific objection of sufficiency of disclosure was only briefly debated during the oral proceeding before the opposition division, the opponents referring in this respect to their written submissions (minutes, points 2 to 6, 17 and 18). Since the opposition division was not convinced during the oral proceedings that a process defined on the basis of the HLMI relationship lacked sufficiency of disclosure, there was no apparent necessity for the patent proprietor to replace such

claim request by another in which said relationship was deleted.

Considering that the issue was taken up by opponent 1 when filling their statement of grounds of appeal and having regard to the lateness of that objection before the opposition division and the need to properly address this complex issue, it is considered therefore a legitimate reaction of the patent proprietor to have filed with their reply to the statement of grounds of appeal of opponent 1 a claim request, which addresses that objection by deleting the contentious feature defining the HLMI relationship.

Consequently, the Board decided not to make use of its discretionary power under Article 12(4) RPBA 2007 to hold auxiliary request 1 submitted with letter of 29 March 2020 inadmissible. Auxiliary request 1 is therefore in the proceedings.

Remittal

13. Although the EPC does not guarantee the parties an absolute right to have all the issues in the case considered by two instances, it is well recognised that any party may be given the opportunity of two readings of the important elements of a case (Case Law, *supra*, V.A.9.2.1). Moreover, the essential function of an appeal is to consider whether the decision issued by the first-instance department is correct.

In the present case, it can be seen having regard to points 3.5.3, 3.5.4.1 and 3.5.4.2 of the Reasons for the contested decision, that the formulation of the problem taking into account the HLMI relationship was the essential factor leading the opposition division to

decide that the claimed subject-matter was inventive over the teaching of D16 or D1, both considered to represent a suitable starting point for assessing inventive step.

However, as shown in the above cited passages of the contested decision and the minutes, many prior art documents were cited by the parties for arguing against the presence of an inventive step starting from the teaching of D1 or D16, namely documents D2, D3, D7, D9, D11, D16, D20, D25, D26 and D29 to D31, whose teaching is not at all addressed in the reasons for the contested decision. There is also no apparent consideration of document D33 and experimental report D34. An analysis of the other features of the claim 1 as to their relevance for the assessment of inventive step is also not given in the reasons for the contested decision, which as already indicated above predominantly relies on the HLMI relationship.

Since it is not the function of the boards to consider and decide upon issues which have not been examined at all by the department of first instance, the present situation is seen by the Board to constitute "special reasons" within the meaning of Article 11 RPBA 2020 to remit the case for further prosecution to the department whose decision was appealed.

Accordingly, exercising its discretion under Article 111(1), second sentence, EPC, the Board decides to remit the case to the opposition division for further prosecution on the basis of the claims of auxiliary request 1 submitted with letter of 29 March 2020.

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 for further prosecution

The Registrar:

The Chairman:



D. Hampe

D. Semino

Decision electronically authenticated