

Internal distribution code:

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

**Datasheet for the decision
of 29 August 2024**

Case Number: T 1798/22 - 3.3.03

Application Number: 15719695.7

Publication Number: 3149077

IPC: C08L23/06, C08L23/12,
C08L23/16, C08F2/00

Language of the proceedings: EN

Title of invention:

ETHYLENE POLYMER COMPOSITION AND USE THEREOF IN POLYOLEFIN
COMPOSITIONS

Patent Proprietor:

Basell Polyolefine GmbH

Opponent:

Borealis AG

Relevant legal provisions:

EPC Art. 54(2), 56, 100(b)
RPBA 2020 Art. 12(6)

Keyword:

Late-filed facts - admitted (yes and no)
Grounds for opposition - insufficiency of disclosure (no)
Novelty - (yes)
Inventive step - (yes)

Decisions cited:

T 0065/82, T 0644/97



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0

Case Number: T 1798/22 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 29 August 2024

Appellant: Borealis AG
(Opponent) Trabrennstrasse 6-8
1020 Vienna (AT)

Representative: Dehns
St. Bride's House
10 Salisbury Square
London EC4Y 8JD (GB)

Respondent: Basell Polyolefine GmbH
(Patent Proprietor) Brühler Strasse 60
50389 Wesseling (DE)

Representative: LyondellBasell
c/o Basell Poliolefine Italia
Intellectual Property
P.le Donegani 12
44122 Ferrara (IT)

Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 13 May 2022
rejecting the opposition filed against European
patent No. 3149077 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman D. Semino
Members: O. Dury
M. Millet

Summary of Facts and Submissions

I. The appeal of the opponent lies from the decision of the opposition division rejecting the opposition lodged against European Patent No. 3 149 077.

II. The following documents were *inter alia* cited in the decision under appeal:

D2: EP 1 375 584 A1

D3: EP 1 333 044 A1

D4: WO 03/076508 A1

D5: WO 2011/023440 A1

D15: Declaration of A. Buryak, dated
20 January 2022

III. As far as relevant to the present case, the following conclusions were reached in the decision under appeal:

- The patent in suit met the requirements of sufficiency of disclosure.
- The subject-matter of the claims as granted was novel over each of documents D2 to D5. In that respect, D15 could not be considered a clear and unambiguous reproduction of D2 without any serious doubt.
- The subject-matter of the claims as granted involved an inventive step when document D3 was taken as the closest prior art. The same conclusion was valid when starting from document D2 as the document constituting the closest prior art.

For these reasons and since none of the other objections of the opponent were successful, the opposition was rejected.

IV. The opponent (appellant) filed an appeal against the above decision and, together with the statement of grounds of appeal, filed the following documents:

- D16: Declaration of A. Albrecht, dated
7 September 2022
- D17: J. U. Starke et al., *Polymer*, Vol. 39, No. 1,
pages 75-82, 1998
- D18: C. Grein et al., *J. Appl. Polym. Sci.*,
Vol. 87, pages 1702-1712, 2003
- D19: A. Albrecht et al., *J. Appl. Polym. Sci.*, 133,
43089, 2016
- D20: Declaration of A. Albrecht, dated
5 September 2022
- D21: T. Garoff et al., *J. Appl. Polym. Sci.*,
Vol. 115, pages 826-836, 2010
- D22: I. Mingozi and S. Nascetti, *Int. J. Polym.
Anal. & Character.*, Vol. 3, pages 59-73, 1996
- D23: US 8 546 499 B2
- D24: A. Boborodea and F. M. Mirabella, *Int. J.
Polymer Anal. Character.*, Vol. 19,
pages 468-473, 2014
- D25: F. M. Mirabella and A. Bafna, *J. Poly. Sci.*,
Part B: *Poly. Phys.*, Vol. 40, pages 1637-1643,
2002
- D26: H. L. Wagner, *J. Phys. Chem. Ref. Data*,
Vol. 14, No. 2, pages 611-617, 1985
- D27: Declaration of V. Kanellopoulos,
dated 7 September 2022
- D28: M. A. Bashir et al., *Macromol. React. Eng.*,
1900029, 2019
- D29: V. Kanellopoulos et al., *Ind. Eng. Chem.*

Res., 43, pages 5166-5180, 2004

D30: G. Dompazis et al., Macromol. Mater. Eng.,
290, pages 525-536, 2005

- V. Together with their rejoinder to the statement of grounds of appeal, the patent proprietor (respondent) filed 19 sets of claims as auxiliary requests 1 to 19.
- VI. The parties were summoned to oral proceedings and a communication pursuant to Article 15(1) RPBA was then issued by the Board.
- VII. With letter of 1 August 2024, the respondent filed a document D31 (identical to D26).
- VIII. Oral proceedings were held on 29 August 2024 in the presence of both parties.
- IX. **The final requests of the parties were as follows:**
- (a) The appellant requested that the decision under appeal be set aside and that European Patent No. 3 149 077 be revoked.
- (b) The respondent requested that the appeal be dismissed (main request) or, in the alternative, that the patent be maintained in amended form according to any of auxiliary requests 1 to 19 filed with their rejoinder to the statement of grounds of appeal.
- X. Claims 1, 8 and 10 of the **main request (patent as granted)** read as follows:
- "1. An ethylene polymer composition comprising, all per cent amounts being by weight:

A) 30-60% of an ethylene polymer containing 10% or less, referred to the weight of A), of a fraction XS_A soluble in xylene at 25°C;

B) 40-70% of a copolymer of ethylene with at least one olefin of formula $HC_2=CHR$, where R is an alkyl radical, linear or branched, having from 1 to 8 carbon atoms, containing 65-90% of ethylene and 55-15% of a fraction XS_B soluble in xylene at 25°C, both ethylene and XS_B amounts being referred to the weight of B), the intrinsic viscosity $[\eta]$ of the XS_B fraction ranging from 0.8 to 3.2 dl/g;

wherein the amounts of A) and B) are referred to the total weight of A) + B); XS_A and XS_B are measured by adding 2.5 g of polymer into 250 cm³ of o-xylene, raising the temperature in 30 minutes from room temperature up to 135°C, keeping under reflux and stirring for further 30 minutes, then in a thermostatic water bath at 25 °C for 30 minutes; $[\eta]$ is measured in tetrahydronaphthalene at 135 °C with a capillary viscometer."

"8. A polyolefin composition comprising the ethylene polymer composition of claim 1 and at least 50% by weight, referred to the total weight of the polyolefin composition, of one or more additional polyolefins."

"10. Formed articles comprising the polyolefin composition of claims 8 and 9".

Claim 9 as granted was dependent on claim 8 as granted. The remaining claims as granted are not relevant to the present decision.

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

- (a) Documents D16 to D30 should be admitted into the proceedings.
- (b) The patent in suit did not meet the requirements of sufficiency of disclosure.
- (c) The subject-matter of claim 1 as granted was not novel over the disclosures of D2 (taking D15 into consideration, as well as D20 to D30, should they be admitted), D3, D4 and D5.
- (d) The subject-matter of claim 1 as granted did not involve an inventive step when document D3 was taken as the closest prior art. The same conclusion was valid when either D2 or D5 was taken as the document constituting the closest prior art.

XII. The respondent's arguments, in so far as they are pertinent, may be derived from the reasons for the decision below. They are essentially as follows:

- (a) Documents D16 to D25 and D27 to D30 should not be admitted into the proceedings.
- (b) The patent in suit met the requirements of sufficiency of disclosure.
- (c) The subject-matter of claim 1 as granted was novel over the disclosures of D2 (even taking D15 and any of D16 to D30, should they be admitted, into account), D3, D4 and D5.

- (d) The subject-matter of claim 1 as granted involved an inventive step having regard to document D3. The same conclusion was valid having regard to either D2 or D5.

Reasons for the Decision

1. Admittance of documents
- 1.1 Together with their statement of grounds of appeal, the appellant filed for the first time documents D16 to D30 and requested that they be admitted into the proceedings.

Document D26

- 1.2 At the oral proceedings before the Board, the parties agreed that document D26 was identical to document D31. The latter was filed by the respondent with their last written submission, whereby the respondent relied upon that document in order to refute some arguments of the appellant and addressed - implicitly - the question of its admittance into the proceedings (letter of 1 August 2024: page 3, line 12ff; page 4, last three lines). At the oral proceedings before the Board, the respondent explicitly stated that they did not object any more to the admittance of D26/D31 (see minutes: page 2, fifth paragraph). Under these circumstances, considering that both parties relied on D26 and none of them eventually objected to the admittance of that document, there was no reason for the Board to disregard it. For that reason, D26 was admitted into the proceedings.

1.2.1 Regarding documents D16 to D25 and D27 to D30, the filing of these documents and of the submissions based thereon with the statement of grounds of appeal constitute an amendment to the opponent's case (Article 12(2) and (4) RPBA), the admittance of which undergoes the stipulations of Article 12(4) to (6) RPBA.

Documents D16 to D19

1.2.2 According to the appellant, D16 to D19 were filed to refute the opposition division's view that the XS feature mentioned in claim 1 as granted was a usual parameter (statement of grounds of appeal: points 6 and 13). Also, in their opinion these documents were highly relevant and were filed in reaction to the decision under appeal, whereby the question whether the XS feature was a usual parameter was a central point (appellant's letter of 3 May 2023: points 24, 25, 30 and 31).

a) In that regard, the respondent held that D16 to D19 were not relied upon by the appellant in their submissions (rejoinder: page 8, last two paragraphs). However, D16 was mentioned in the statement of grounds of appeal (point 13) and D17 to D19 are further discussed in D16, as pointed out by the appellant (letter of 3 May 2023: end of point 31). Therefore, the respondent's view is not correct.

b) As indicated by the respondent (rejoinder: page 8, section 2.1, third paragraph), it is derivable from the line of argument put forward in their reply to the notice of opposition (pages 3 and 4, in respect of the "second reason") that the patent proprietor argued already at the outset of the opposition proceedings

that the XS feature was usual in the art and could be controlled on the basis of the disclosure of the patent specification, if needed complemented by common general knowledge. In any case, it makes no doubt that the issue of sufficiency of disclosure in relation to the XS feature was at least addressed at that stage of the proceedings and was further mentioned as a relevant issue in the preliminary opinion of the opposition division, which was sent well ahead of the oral proceedings (22 June 2021 vs. 22 March 2022; see e.g. sections 6.1.2, 6.2.2 and 6.3.2 of the opinion). Under these circumstances, the appellant would have had good reasons to file any of D16 to D19 and the submissions based thereon (in particular the ones according to which the XS feature was an unusual parameter for polyethylenes according to claim 1 as granted) already during the opposition proceedings, i.e. these documents should have been filed earlier. In addition, it cannot be concluded that the circumstances of the present case may justify the filing of these documents with the statement of grounds of appeal.

c) In the Board's view, the question of the relevance of D16 to D19, which was mentioned by the appellant, is rather related to the probative value of these documents than to their admittance. Therefore, that argument did not convince.

d) For these reasons, the Board made use of its discretion and decided not to admit any of D16 to D19 into the proceedings (Article 12(6) RPBA, second sentence).

Documents D20 to D25 and D27 to D30

1.2.3 According to the appellant, D20 to D25 and D27 to D30 were filed in response to the opposition division's view regarding the probative value of D15, whereby the latter had been filed during the opposition proceedings to address novelty of the claims as granted in view of each of D2, D3 and D5 (statement of grounds of appeal: points 7, 8, 54, 61 and 75). At the oral proceedings before the Board, the appellant pointed out that the latter document had been filed within the deadline set by the opposition division in their preliminary opinion and counter-arguments in that respect were first filed in writing by the patent proprietor shortly before the oral proceedings in front of the opposition division took place. Therefore, since the question of the validity of the rework made in D15 was raised at a very late stage of the opposition proceedings, the opponent had no reason to file any of D20 to D25 and D27 to D30 earlier. In addition, these documents were highly relevant and were filed in reaction to the decision under appeal (appellant's letter of 3 May 2023: points 26, 27 and 33-36). For these reasons, according to the appellant, documents D20 to D25 and D27 to D30 should be admitted because their filing was a legitimate development of the case in reaction to a late issue that was first discussed in depth at the oral proceedings before the opposition division.

a) However, the Board considers that D15 was filed by the appellant with their letter of 21 January 2022, i.e. at a late stage of the opposition proceedings, namely two months ahead of the oral proceedings before the opposition division (22 March 2022). Therefore, the fact that the probative value of D15 was contested by the patent proprietor with their last written

submissions in opposition (letter of 14 March 2022: page 3, lines 2-3 and section 2) and addressed for the first time by the opposition division and the parties at the oral proceedings (minutes: points 5.2.2 and 5.2.3) is not surprising. Although the objections of the appellant eventually did not succeed because D15 was held not to be a fair reproduction of D2 (see decision under appeal: page 11, first paragraph), the Board cannot recognise that the appellant was unexpectedly confronted at a late stage of the opposition proceedings with a new procedural situation (which could have justified the filing of D20 to D25 and D27 to D30 with the statement of grounds of appeal), apart from a situation that they created themselves (by filing D15 at a late stage of the opposition proceedings). Therefore, the Board considers that these documents and the arguments based thereon could and should have been submitted during the opposition proceedings.

b) For these reasons, the Board made use of its discretion and decided not to admit any of D20 to D25 and D27 to D30 into the proceedings (Article 12(6) RPBA, second sentence).

- 1.3 In view of the above, while document D26 is in the proceedings, documents D20 to D25 and D27 to D30 are not.

Main request (patent as granted)

2. Article 100(b) EPC
- 2.1 In order to meet the requirements of sufficiency of disclosure, an invention has to be disclosed in a manner sufficiently clear and complete for it to be

carried out by the skilled person, without undue burden, on the basis of the information provided in the patent specification, if needed in combination with the skilled person's common general knowledge. This means in the present case that the skilled person should in particular be able to prepare an ethylene polymer composition according to claim 1 as granted, which was contested by the appellant (statement of grounds of appeal: points 9-33 on pages 3 to 8). In that regard, the appellant's objections were twofold, namely they considered that the patent in suit did not provide sufficient teaching on how the XS and intrinsic viscosity parameters mentioned in claim 1 as granted could be controlled.

XS parameter

2.1.1 In the Board's view, independently of whether or not the XS parameter that is specified in claim 1 as granted is a usual parameter (as was considered by the opposition division but which was in dispute between the parties), it is derivable from paragraphs 50 and 51 of the patent in suit (see in particular the reference to the "crystallization of the insoluble (XI) part of the sample" on page 5, lines 44-45) that said parameter is related to crystallinity. Also, it was not disputed that it is known in the art that crystallinity decreases with increasing comonomer content. Therefore, it is agreed with the respondent that the skilled person would expect in view of the disclosure of the patent specification and common general knowledge that the XS parameter specified in claim 1 as granted may be controlled by adjusting the comonomer content.

2.1.2 The appellant put forward that in examples 1 and 2 of the patent in suit, component (A) prepared therein

exhibited the same density but different comonomer content. Therefore, according to the appellant, these examples showed that the opposition division's view was not correct (statement of grounds of appeal: points 18-20 on page 5).

a) However, the respondent argued that the value of density indicated in table I of the patent in suit for component (A) of examples 1 and 2 were not mandatorily identical, i.e. the value of 0.94 g/cm^3 indicated for both examples could amount to rounded values (rejoinder: page 6, third paragraph from the bottom).

In that regard, the Board agrees with the respondent that it cannot be excluded that the density of component (A) of example 1 (which has a comonomer content of 2.7 wt.%) can well be lower than the one of component (A) of example 2 (which has a comonomer content of 2.9 wt.%), albeit both densities values were rounded to the same value of 0.94 g/cm^3 when only two digits are used.

b) In addition, as discussed at the oral proceedings before the Board, in claim 1 as granted, reference is only made to the feature XS fractions (of both components (A) and (B)) but not to the density of component (A). Therefore, the appellant's argument related to the density values of component (A) prepared in examples 1 and 2 of the patent in suit cannot show that the skilled person would have any difficulty to prepare a composition as defined in claim 1 as granted. The fact that it is accepted in the art (and remained undisputed between the parties) that comonomer content, density and XS fraction are somehow interrelated does not affect the above finding. Indeed, the Board is satisfied that the data contained in

table I of the patent in suit support the expectable variation of the XS fraction as a function of the comonomer content of component (A) prepared in examples 1 and 2. Also, it is agreed with the respondent that these data further tend to show that the density parameter may be less sensible to comonomer content variation as compared to the XS feature (as put forward at the oral proceedings before the Board).

c) For these reasons, the appellant's arguments related to examples 1 and 2 of the patent in suit did not convince.

- 2.1.3 The appellant further argued that components (B) of example 2 and comparative example 1C of the patent in suit had same comonomer content but different XS values. Therefore, also these examples showed that the opposition division's view was not correct (statement of grounds of appeal: points 21-22 on pages 5-6).

However, the Board agrees with the respondent (rejoinder: page 6, last paragraph) that components (B) of example 2 and comparative example 1C of the patent in suit cannot be fairly compared since they were prepared using different comonomers (see paragraph 98 and table I, page 10, lines 7-9 of the patent in suit). Therefore, that argument is rejected.

- 2.1.4 The appellant also considered that the patent in suit taught in a general manner that many kinds of Ziegler-Natta catalysts could be used to prepare the compositions being claimed but only disclosed one very specific catalyst in the examples. Considering that claim 1 as granted did not specify the nature of the catalyst to be used, it lacked an essential feature to prepare the composition being claimed and, for that

reason, the patent lacked sufficiency of disclosure. For the same reason, the patent either lacked sufficiency of disclosure or novelty over each of D2, D3 and D5 (for which novelty was acknowledged by the opposition division only in view of the different kind of catalyst being used therein - as compared to the examples of the patent in suit), so the appellant (statement of grounds of appeal: points 24-30 on pages 6-7; oral proceedings before the Board).

a) In that regard, the appellant's objection that XS values according to claim 1 as granted cannot be obtained with catalysts different from the one used in the examples of the patent in suit is not supported by any evidence and, for that reason, cannot succeed.

b) The fact that the description of the patent in suit discloses in a general manner that different kinds of catalysts can be used (see e.g. paragraph 23 of the patent in suit) does, in the Board's view, not mean that each of these catalysts must lead, under any conditions, to the compositions being claimed. Rather, it only means that such catalysts can be used and may lead, under certain experimental conditions, to the compositions being claimed. In that regard, the Board is further satisfied that the patent in suit provides further information how to choose a suitable catalyst (paragraphs 24-40), should it be necessary. Also, it makes no doubt that the skilled person could rely on common general knowledge in order to adjust the experimental conditions, if necessary. In the absence of any evidence by the appellant that compositions according to claim 1 as granted cannot be obtained on the basis of the disclosure of the patent in suit, if needed complemented by common general knowledge, the appellant's objection is not persuasive. In particular,

the objection related to a lack of an essential technical feature in claim 1 as granted (namely the nature of the catalyst) is to be rejected, as put forward by the respondent (rejoinder: page 7, starting from the fourth paragraph and top of page 8).

c) In view of the above, also the appellant's objection that either sufficiency of disclosure or novelty over D2, D3 or D5 was not given is not convincing. Indeed, should a different catalyst be used in any of these prior art documents (as compared to the examples of the patent in suit), it would then have been the duty of the appellant to show that the relevant passages of these documents effectively amounted to a direct and unambiguous disclosure of a composition as defined in claim 1 as granted, which was not done. This issue will be dealt with in more details in section 3.2 below (regarding novelty).

- 2.1.5 In addition, the fact that other factors (in addition to the comonomer content and nature of catalyst) may also influence XS values (statement of grounds of appeal: point 14) is not a valid reason to deviate from the above conclusion.

Intrinsic viscosity parameter

- 2.2 The appellant further argued that the patent in suit failed to provide sufficient teaching how to control the intrinsic viscosity parameter specified in claim 1 as granted (statement of grounds of appeal: points 31-32 on pages 7-8).
- 2.2.1 In the decision under appeal, the opposition division indicated that the intrinsic viscosity was a standard parameter which was known to the skilled person. Also,

it was known in the art that the intrinsic viscosity was dependent on the molecular weight of the polymer, which was related to the melt flow rate and the hydrogen ratio (reasons: point 15.3).

2.2.2 The appellant disagreed with that view because it was not valid in view of the comparison of intrinsic viscosity and hydrogen ratio reported for components (B) of examples 1-2 with comparative example 1C of the patent in suit (table I).

2.2.3 However, the Board agrees with the respondent (rejoinder: page 7, third and fourth paragraphs) that components (B) of examples 1-2 and comparative example 1C of the patent in suit may not be fairly compared since they were prepared using different comonomers (see paragraph 98 and table I, page 10, lines 7-9 of the patent in suit). For that reason, the appellant's objection is not persuasive.

2.3 In view of the above, the appellant's arguments provide no cause for the Board to overturn the decision of the opposition division regarding sufficiency of disclosure.

3. Article 54 EPC

3.1 The appellant pursued in appeal their objections of lack of novelty in view of each of documents D2 to D5.

Documents D2, D3 and D5 - Alleged implicit disclosure in view of the nature of the catalyst

3.2 Regarding documents D2, D3 and D5, the appellant considered that the following features specified in claim 1 as granted were - although not explicitly

disclosed - implicitly disclosed in each of examples 2 and 3 of D2, examples 1 to 7 of D3 and examples 1, 2 and 4 of D5:

- Polymer A) should contain an amount of a fraction XS_A soluble in xylene at 25 °C of 10% or less;
- The amount of ethylene in polymer B) should be 65-90%;
- Polymer B) should contain an amount of a fraction XS_B soluble in xylene at 25 °C of 15-55%;
- The intrinsic viscosity of the XS_B fraction should be from 0.8 to 3.2 dl/g.

3.2.1 Regarding the issue of implicit disclosure, it is established case law that a prior art document takes away the novelty of a claimed subject-matter if the latter is directly and unambiguously derivable from that document, including any features implicit to a person skilled in the art, whereby an alleged disclosure can only be considered "implicit" if it is immediately apparent to the skilled person that nothing other than the alleged implicit feature forms part of the subject matter disclosed (Case Law of the Boards of Appeal of the EPO, 10th edition, 2022, I.C.4, I.C.4.1 and I.C.4.3).

3.2.2 That issue was already addressed in the decision under appeal, in particular in respect of D3. In that decision, the opposition division held that since the catalyst system used in examples 1 to 7 of D3 was different from the one used in the examples of the patent in suit, it could not be concluded that the polymer compositions prepared in these examples were

mandatorily according to claim 1 as granted (in view of the similarity of the preparation processes).

- (a) In that regard, the respondent's view that the catalyst system used in D3 was different from the one used in the examples of the patent in suit was not disputed by the appellant. In particular, the respondent's argument that the differences in terms of support and electron donor would be expected to have an impact on some of the missing features of claim 1 as granted was not rebutted by the appellant (rejoinder: page 10, lines 1-24). Under these circumstances, the Board has no reason to deviate from the opposition division's conclusion.

- (b) The appellant noted that the catalyst system used in D3 was a Ziegler-Natta catalyst, which was indicated to be a suitable catalyst in the patent in suit. Therefore, according to the appellant, should the patent in suit be held to be sufficiently disclosed, novelty over D3 should not be acknowledged (statement of grounds of appeal: point 60).

However, as indicated above (section 2.1.4), although it is indicated in a general manner in the patent specification that Ziegler-Natta catalysts can be used (paragraph 23), it is also specified that further components should preferably be used in combination therewith (paragraphs 26-40), as was further done in the examples of the patent in suit. However, it was not shown that the catalyst system used in examples 1 to 7 of D3 is in accordance with that latter teaching of the patent in suit. For that reason, the appellant's argument does not

convince.

- (c) The appellant further argued that D20 to D26 showed that the choice of the Ziegler-Natta catalyst would have no significant impact on the XS parameters (statement of grounds of appeal: point 61; appellant's letter of 3 May 2023: point 33 and point 34, first sentence). However, documents D20 to D25 were not admitted into the proceedings. In addition, D26 was only referred to in that respect in a general manner without indicating any specific passages in particular and no further arguments were provided in that respect at the oral proceedings before the Board. In that respect, it is not clear to the Board how the appellant reached their conclusion from the disclosure of D26 alone. Furthermore, these documents only addressed the issue of the implicit disclosure of the XS features but were not relied upon in order to show that the requirements of claim 1 as granted in terms of the ethylene content of component B) and/or the intrinsic viscosity of the XS_B fraction were directly and unambiguously disclosed in D3.
- (d) For these reasons, there is no reason for the Board to deviate from the conclusion of the opposition division that the four features of claim 1 as granted indicated in point 3.2 above are not implicitly met in examples 1 to 7 of D3 in view of the nature of the catalyst system used.

3.2.3 It remained common ground, in particular at the oral proceedings before the Board, that also the catalyst systems used in the examples of D2 and D5 considered by the appellant to anticipate the subject-matter of claim 1 as granted were different from the ones used in

the examples of the patent in suit. Therefore, for the same reasons as the ones indicated above in respect of examples 1 to 7 of D3, it can also not be concluded that the four features of claim 1 as granted indicated in point 3.2 above are implicitly met in examples 2 and 3 of D2 or in examples 1, 2 and 4 of D5 (in view of the nature of the catalyst systems used).

- 3.2.4 For these reasons, the appellant's objections of lack of novelty related to implicit disclosures in view of the nature of the catalyst systems used in some examples of D2, D3 and D5 are rejected.

Document D2 - Implicit disclosure in view of D15

- 3.3 Document D2

- 3.3.1 Regarding novelty over D2, the appellant additionally put forward that they had shown in D15 that the four features specified in point 3.2 above were implicitly satisfied by the compositions prepared in examples 2 and 3 of D2 and explained why they considered that D15 was a fair rework of these examples of D2, contrary to the opposition division's view.

- 3.3.2 In that regard, the Board agrees with the appellant that it is explicitly indicated in D15 (page 1, fourth paragraph) that the reworks done therein were made using the same catalyst as in examples 2 and 3 of D2. Therefore, the opposition division's view that D15 did not mention that the catalyst of D2 was used (decision: page 10, last line) is not correct. This point was not disputed any further by the respondent in appeal (contrary to what was done in opposition: see reasons of the decision under appeal, point 20, penultimate

line).

3.3.3 In the decision under appeal, the opposition division considered that since the process conditions reported in D15 (comonomer and hydrogen concentration; MFR values) were so different from the ones indicated in D2, D15 was not a fair reproduction of D2 and this was the case, even if the resulting polymer properties might be identical to the few properties mentioned in D2 (reasons: page 11, first paragraph).

a) According to the appellant, it had been necessary to use the process conditions reported in D15, which were indeed different from the ones disclosed in D2, in order to match the density and melt flow rate of the polymers reworked in D15 with the ones reported in D2, i.e. to ensure that the same products were obtained (statement of grounds of appeal: points 43-49; letter of 27 June 2024: points 7-11).

b) In that respect, the appellant has provided some explanations why they considered that some discrepancies in process conditions should be expected in the specific case of reworking a continuous process (D15: page 1, end of the paragraph above table 1). In the Board's view, even if the appellant's view were to be adhered and could e.g. explain the (smaller) variability in process conditions shown within the three reworks of each of examples 2 and 3 of D2 made in D15 (table 1: A5878/A5879/A5880 for the reworks of example 2 of D2; A5906/A5909/A5910 for the reworks of example 3 of D2), they cannot justify the much larger differences in process conditions reported for the reworks of D15 as compared to the relevant examples of D2 (see tables 1 and 2 of D15, e.g. the hydrogen to ethylene ratio in loop reactor higher by about 70 % in the

reworks; see also higher 1-butene to ethylene ratio in the loop reactor and higher hydrogen to ethylene ratio in the gas phase reactor). In that respect, it can in particular not be excluded - and in the Board's view it can even be expected - that such differences in the preparation processes of the polymer will have an impact on the internal structure of the polymeric components prepared in both reactors and in particular on the four features specified in point 3.2 above.

c) In that regard, the respondent considered that the polymer compositions prepared in the reworks of D15 were *per se* different from the ones according to examples 2 and 3 of D2 in view of the different process conditions used for their preparation (rejoinder: bottom of page 11 to middle of page 12).

In that respect, the Board shares the respondent's view that it cannot be excluded, in view of the differences in process conditions indicated above, that the products prepared in the rework of D15 *per se* are different from the ones prepared in examples 2 and 3 of D2 although they exhibit, according to D15, at least very similar densities (which is known in the art to primarily depend on crystallinity, i.e. comonomer content) and melt flow rate (D15: tables 1 and 2, data contained in a box/rectangle).

3.3.4 In view of the above, the appellant's arguments based on D15 do not justify that the decision of the opposition division regarding novelty of claim 1 as granted over the disclosure of examples 2 and 3 of D2 be overturned.

3.4 Document D4

3.4.1 The appellant disagreed with the decision of the opposition division according to which the subject-matter of claim 1 as granted was novel over the composition prepared in example 3 of D4 (reasons: point 22; statement of grounds of appeal: points 63-68). In that respect, the appellant's objection was reached considering that the ethylene-propylene copolymer prepared in the 1st stage and the ethylene-butene copolymer prepared in the 3rd stage according to example 3 of D4 (see table 1 on page 13) corresponded to components A) and B) according to claim 1 as granted, respectively.

3.4.2 In that respect, the decision of the opposition division was drawn considering that the skilled person would read the term "ethylene polymer" according to component A) of claim 1 as granted as referring to a polymer "comprising ethylene monomers in major amounts", which was not the case of the ethylene-propylene copolymer (1) according to example 3 of D4.

(a) In that regard, the Board agrees with the opposition division's view that the skilled person working in the field of polymers would understand the term "ethylene polymer" as a polymer in which a majority of monomers is ethylene.

(b) Paragraph 8 of the patent in suit specifies that the ethylene polymer A) may preferably be a copolymer of ethylene with one or more comonomers defined therein. However, the fact that such a copolymer may comprise comonomers does not affect the fact that it should remain an "ethylene polymer", i.e. a polymer having a majority of

ethylene monomers. Therefore, the Board also agrees with the opposition division that paragraph 8 of the patent in suit provides no cause to read the term "ethylene polymer" as encompassing any polymer comprising ethylene - even in tiny amounts - as put forward by the appellant.

3.4.3 For these reasons, the appellant's arguments are rejected.

3.5 In view of the above, there is no reason for the Board to overturn the decision of the opposition division regarding novelty of the claims as granted over the disclosure of any of D2, D3, D4 and D5.

4. Inventive step

4.1 Closest prior art

4.1.1 In the decision under appeal, the opposition division considered that D3 was the most suitable document to be taken as the closest prior art (reasons: point 29). Some reference was further made in some instance to D2 as the closest prior art, which had also been relied upon by the opponent (reasons: points 29 and 32, in which it is in particular indicated that a similar argumentation applies to D2).

4.1.2 In their statement of grounds of appeal, the appellant substantiated an objection of lack of inventive step in view of D3 as the closest prior art and further indicated that the same arguments applied equally to D2 and D5 (statement of grounds of appeal: point 18 on page 16).

a) However, the appellant confirmed at the oral

proceedings before the Board that they had no different line of attack starting from D2 and D5, so that only the attack starting from D3 had to be decided upon, the same conclusion being bound to be equally valid for the objections starting from D2 and D5 (minutes of the oral proceedings, page 3, second paragraph). For that reason, only the objection based on D3 as the document constituting the closest prior art needs to be dealt with in the present decision.

b) Also, in view of the (for the respondent) positive decision on inventive step reached by the Board, there is no need to address the issue of the admittance into the proceedings of the objection of lack of inventive step starting from D5 as the closest prior art, which was mentioned in the Board's communication (point 7.1.2.a).

4.1.3 Regarding the selection of D3 as the document constituting the closest prior art, the respondent put forward that D3 would not be reasonably considered as a suitable starting point for the analysis of inventive step because it did not deal with the technical problem addressed by the patent in suit, namely to provide an ethylene polymer composition to be used as an impact modifier (rejoinder: page 19, section 4.2).

a) In the Board's view, it makes no doubt that such an objection was already put forward by the respondent during the opposition proceedings (see e.g. reasons: point 28). However, although the opposition division addressed that concern in their reasoning (reasons: point 29), it is not clear to the Board why they eventually decided to consider that D3 was a suitable document to be taken as the closest prior art. The fact that D3 "discloses at least similar technical effects

mentioned" (reasons, point 29, first sentence) appears in that respect in contradiction with the fact that "D3 does not mention the use of similar compositions for use as an impact modifier" (reasons, point 29, second sentence) or with the fact that the patent in suit discloses the use of the compositions according to claim 1 as granted as impact modifier for another polymer (reasons: page 18, first paragraph).

b) In view of that passage of the decision and of the appellant's arguments (statement of grounds of appeal: points 19-24 on pages 16-18), the question arose if the selection of D3 as the closest prior art was reasonable or if it should be rejected because it was based on hindsight.

c) In that regard, according to established case law (Case Law, *supra*, I.D.3.3), a document serving as the starting point for evaluating the inventive merits of an invention should relate to the same or a similar technical problem or, at least, to the same or a closely related technical field as the patent in suit.

d) In the present case, it remained undisputed that the main problem addressed in the patent in suit, namely the preparation of an ethylene polymer composition that can be suitably used as impact modifier (patent in suit: paragraphs 1-5; see also claims 1, 8 and 10 as granted) is not addressed at all in D3, which is rather directed to the preparation of films that already have high impact strength (D3: all claims; paragraphs 1 and 9; examples 5 and 8). In the Board's view, the appellant's argument that the skilled person would consider the compositions of D3 as potential impact modifiers, even without a specific disclosure to this effect in D3 (statement of grounds of appeal: point 22

on page 17, last sentence; oral proceedings before the Board), is not supported by any evidence and for that reason, is not convincing.

e) Additionally according to the case law (Case Law, *supra*, I.D.3.3, see in particular the paragraph on T 644/97) a technical problem arising from a "closest prior art" disclosure which is irrelevant to the claimed subject-matter (in the sense that it did not mention a problem that was at least related to that derivable from the patent specification) had a form such that its solution could practically never be obvious, because any attempt by the skilled person to establish a chain of considerations leading in an obvious way to the claimed subject-matter was bound to fail. In the Board's view, the latter case law is applicable to the present case: since the (relevant) problem addressed in the patent in suit is not derivable from D3, nor is a problem mentioned in D3 which is at least related to it, the measures for its solution cannot be derivable in an obvious manner therefrom.

- 4.1.4 The appellant further put forward (also at the oral proceedings before the Board) that, considering that claim 1 of the patent in suit was directed to an ethylene polymer composition *per se* and not to a blend of polymers, the consideration whether D3 pointed towards the combination of two or more polymers was not relevant. Rather, what was to be considered was whether it would have been obvious, based on D3, to develop a polymer composition as defined in claim 1 of the patent in suit, with the aim of providing a composition which had good impact strength and optical properties, so the appellant (statement of grounds of appeal: point 23 on page 17).

a) With regard to that argument, the Board considers that, as was indicated in the Board's communication (section 7.1.5), the established case law regarding inventive step of intermediate products (Case Law, *supra*, 9.9.4) is relevant to the present case, as the polymer composition of claim 1 can be seen as the intermediate of the final impact modified composition. In that respect, the findings of decision T 65/82 (OJ 1983, 327) are particularly relevant. They may be summarised as follows (see Headnotes II-IV of T 65/82):

As state of the art in relation to intermediates there are two different areas to be taken into account. One is the "close-to-the-intermediate" state of the art. These are all compounds identified from their chemical composition as lying close to the intermediates. On the other hand the "close-to-the-product" state of the art must also be taken into account, i.e. those compounds identified from their chemical composition as lying close to the subsequent products. With respect to the "close-to-the intermediate" state of the art, the question is whether or not the skilled man could have deduced from it the need to carry out certain purposive modifications to known compounds in order to obtain that intermediate which alone could enable him to solve the problem of making the subsequent products by means of a specific analogy process. With respect to the "close-to-the product" state of the art, a further question then was whether or not the skilled man could have derived from it the claimed intermediate in an obvious fashion.

b) In that regard, the Board considers that D3 does not constitute a relevant "close-to-the-product" state of the art (since it does not address at all the use as

impact modifier and impact modified compositions) but rather that it could at most constitute a "close-to-the-intermediate" state of the art. However, since the problem of providing an impact modifier is not derivable from D3 itself, the answer to the question whether or not the skilled man could have deduced from it the need to carry out certain purposive modifications to known compounds in order to obtain that intermediate which alone could enable him to solve the problem of making the subsequent products can only be in the negative (see point 12 of the reasons of T 65/82).

c) Although that analysis was communicated to the parties in the Board's communication (section 7.1.5), no counter-arguments were put forward by the appellant to refute that view (either in their written submission dated 27 June 2024 or at the oral proceedings before the Board). Therefore, there is no reason for the Board to deviate from its preliminary considerations.

- 4.1.5 Under these circumstances, the Board considers that D3 does not constitute a suitable document to be taken as the closest prior art. As a consequence, the appellant's objection based on D3 as the document constituting the closest prior art is to be rejected already for that reason.
- 4.1.6 Although the Board arrived at the conclusion that even if D3 were considered as a reasonable document to be taken as the closest prior art, the subject-matter of claim 1 as granted would not be obvious (for the reasons indicated in sections 7.2 to 7.4 of the communication of the Board, even considering the arguments put forward by the appellant in their further written submissions or at the oral proceedings before

the Board), there is no need for the Board to provide any reasoning in that regard in view of the above conclusion that D3 does not constitute a reasonable starting point for the analysis of inventive step.

- 4.1.7 For these reasons, the Board is satisfied that claim 1 as granted involves an inventive step having regard to document D3. In addition, as indicated above (section 4.1.2), that conclusion is equally valid having regard to either D2 or D5.
- 4.1.8 In view of the above, the subject-matter of claim 1 as granted involves an inventive step over the available prior art.
- 5. As none of the objections put forward by the appellant against the main request is successful, the appeal is to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



N. Schneider

D. Semino

Decision electronically authenticated