

Internal distribution code:

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

**Datasheet for the decision
of 12 June 2018**

Case Number: T 0231/15 - 3.3.03

Application Number: 07791177.4

Publication Number: 2045274

IPC: C08F10/02, C08F4/654

Language of the proceedings: EN

Title of invention:

ETHYLENE POLYMER PARTICLE, METHOD FOR PRODUCING THE SAME, AND
MOLDED ARTICLE USING THE SAME

Patent Proprietor:

Mitsui Chemicals, Inc.

Opponents:

Celanese International Corporation
Asahi Kasei Chemicals Corporation

Relevant legal provisions:

RPBA Art. 12(4), 13(1), 13(3)
EPC Art. 83, 111(1), 123(2)

Keyword:

Amendments - added subject-matter (no)

Sufficiency of disclosure - (yes)

Late-filed facts - submitted with the statement of grounds of appeal

Late-filed document - admitted (no)

Late-filed argument - admitted (yes)

Appeal decision - remittal to the department of first instance (yes)

Decisions cited:

T 1380/04



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
Fax +49 (0)89 2399-4465

Case Number: T 0231/15 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 12 June 2018

Appellant:
(Patent Proprietor)

Mitsui Chemicals, Inc.
5-2, Higashi-Shimbashi 1-chome
Minato-ku
Tokyo 105-7117 (JP)

Representative:

Hoffmann Eitle
Patent- und Rechtsanwälte PartmbB
Arabellastraße 30
81925 München (DE)

Respondent 1:
(Opponent 1)

Celanese International Corporation
1601 West LBJ Freeway
Dallas, Texas 75234 (US)

Representative:

Schön, Christoph
Dr. Schön, Neymeyr & Partner mbB
Bavariaring 26
80336 München (DE)

Respondent 2:
(Opponent 2)

Asahi Kasei Chemicals Corporation
1-105 Kanda Jinbocho
Chiyoda-ku
Tokyo 101-8101 (JP)

Representative:

D Young & Co LLP
120 Holborn
London EC1N 2DY (GB)

Decision under appeal:

**Decision of the Opposition Division of the
European Patent Office posted on 19 November
2014 revoking European patent No. 2045274
pursuant to Article 101(3) (b) EPC.**

Composition of the Board:

Chairman D. Marquis
Members: O. Dury
 C. Brandt

Summary of Facts and Submissions

- I. The appeal by the patent proprietor lies against the decision of the opposition division posted on 19 November 2014 revoking European patent No. 2 045 274.
- II. Claims 1 and 2 of the application as filed read as follows:
- "1. Ethylene polymer particles having:
- (I) an intrinsic viscosity $[\eta]$ in the range of 5 dl/g to 30 dl/g,
- (II) a degree of crystallinity of 80% or more, and
- (III) a shape with a breadth of 0.1 μm to 3 μm and a length of 2 μm to 20 μm on the surface of the particles".
- "2. The ethylene polymer particles according to claim 1 wherein the proportion of particles with a particle diameter of 355 μm or more is 2 wt% or less of the total particles and the average particle diameter is 100 μm to 300 μm ."
- III. An opposition against the patent was filed, in which the revocation of the patent was requested on the grounds of Article 100(a) EPC (lack of novelty and lack of an inventive step) and Article 100(b) EPC.
- IV. The following documents were *inter alia* cited in the opposition division's decision:

D6: Experimental report: reproduction of Example 1

- of the patent in suit by opponent 1
- D7: Additional experimental report by opponent 1 regarding the reaction carried out in paragraph 127 of the patent in suit
- D8: Experimental report: reproduction of Examples 1 to 3 of the patent in suit by opponent 1
- D9: Ma et al., Polymer-Plastics Technology and Engineering, 2005, 44, pages 1475-1483
- D10: Jamjah et al., J. App. Pol. Sci., 2006, Vol. 101, pages 3829-3834
- P1: Reproductive Experiment for dissolving decane/2-ethylhexyl alcohol (EHA)/MgCl₂, performed on 29 August 2013 by the patent proprietor
- Q1: English translation of example 1 of JP-A H05-117318

V. The contested decision was based on a main request filed with letter of 20 December 2012 and on six auxiliary requests. Claim 1 of said main request, which is the only claim of those requests which is relevant to the present decision, read as follows:

"1. Ethylene polymer particles having:

(I) an intrinsic viscosity $[\eta]$ in the range of 5 dl/g to 30 dl/g,

(II) a degree of crystallinity of 80% or more, and

(III) a shape with a breadth of 0.1 μm to 3 μm and a length of 2 μm to 20 μm on the surface of the particles;

wherein the proportion of particles with a particle

diameter of 355 μm or more is 1.5 wt% or less of the total particles and the average particle diameter is 100 μm to 300 μm ."

VI. In the contested decision the opposition division held *inter alia* that the main request filed with letter of 20 December 2012 satisfied the requirements of Article 123(2) EPC but not those of Article 83 EPC. Regarding sufficiency of disclosure, the opposition division in particular considered that D6 to D8 showed that it was not feasible to prepare polyethylene particles according to claim 1 by attempting to reproduce the examples of the patent in suit, even when taking into account common general knowledge and the teaching of the patent in suit and/or of Q1 and P1.

VII. The patent proprietor (appellant) appealed the above decision. With the statement setting out the grounds for the appeal, the appellant requested that the decision under appeal be set aside and that the case be remitted to the department of first instance to deal with novelty and inventive step for the subject-matter of either the main request or any of the first to sixth auxiliary requests filed with the statement of grounds of appeal. In that respect, said main request was identical to the main request filed with letter of 20 December 2012 dealt with in the contested decision. In addition, the following document was filed:

P2: Experimental report dated 30 March 2015

Also, the following document was cited:

D17: EP 1 842 862 B1

VIII. With their rejoinders to the statement of grounds of appeal dated 24 August 2015 and 20 August 2015 opponents 1 and 2 (respondents 1 and 2, respectively) both requested that the appeal be dismissed. Opponent 2 further requested that in the event novelty and inventive step were to be discussed, the case be remitted to the department of first instance.

IX. With letter dated 11 March 2016 the appellant submitted further arguments and filed:

P3: Experimental report dated 3 March 2016

X. With letter dated 21 July 2016 respondent 2 requested that P3 be not admitted into the proceedings.

XI. With letter dated 15 December 2016 respondent 1 requested that P2 be not admitted into the proceedings.

XII. With a communication dated 1 December 2017, the Board set out its preliminary view of the case.

XIII. With letter dated 11 May 2018 the appellant inter alia submitted

D18: JP 2016-94554

together with two declarations including a partial English translation of D18 (paragraph 179) and of WO 2006/070886, which is the Japanese PCT application on which D17 is based.

XIV. During the oral proceedings before the Board, which were held on 12 June 2018 in the presence of all parties, respondent 2 requested that D18 be not

admitted into the proceedings.

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

Main request - Article 123(2) EPC

(a) The subject-matter of claim 1 was based on the combination of original claim 2 with paragraph 23 of the application as filed regarding the preferred range of particles with a particle diameter of 355 μm or more of 1.5 wt.% or less, which was a mere limitation of the range already specified in original claim 2. The amendment made neither amounted to a series of selections, nor to a combination from various lists. Therefore, the requirements of Article 123(2) EPC were fulfilled.

Admittance of P2, P3 and D18

(b) P2 was filed in direct reaction to the opposition division's negative decision on sufficiency of disclosure. Considering that the opposition division changed its mind on that issue during the oral proceedings as compared to its preliminary opinion, P2 was submitted at the first opportunity.

P3 was filed at the earliest possible timing after additional resources were allocated to the present case by the appellant. Besides, P3 had been filed early enough in the proceedings for the respondents to study the document and, if necessary, to conduct counter-experiments. P3 was further related to one of the crucial issues dealt with in the contested decision, namely whether or not the claimed ethylene polymer particles could be prepared by

using alternative catalysts under different reaction conditions than those used in the examples of the patent in suit. Finally, P3 was filed in reply to the argument that the skilled person would not know how all the features according to claim 1 could be achieved together, which was first submitted in respondent 2's reply to the statement of grounds of appeal.

D18 was not filed as evidence of common general knowledge but as a technical fact, showing that there was no difficulty to carry out the reaction according to paragraph 127 of the patent in suit. Therefore, the fact that it was post-published was not relevant.

For those reasons, P2, P3 and D18 should be admitted into the proceedings.

Main request - Sufficiency of disclosure

- (c) It was shown in the examples of the patent in suit how ethylene polymer particles according to claim 1 could be prepared, in particular using a catalyst support prepared according to paragraph 127 with a MgCl_2 :alcohol ratio of 1:3. It was not understandable why respondent 1 did not succeed in D6 and D8 to prepare a homogeneous solution as indicated in paragraph 127 of the patent in suit. It was derivable from D9, D10, D17, P1, P2 and Q1 that the skilled person knew, if necessary taking into account common general knowledge, how to prepare such a homogeneous solution using identical or similar conditions.

Since D6 and D8 departed from the conditions used

in the examples of the patent in suit, e.g. in that use was made of an excess of alcohol, D6 and D8 were not suited to show that the patent in suit lacked sufficiency of disclosure. In that respect, it was known from e.g. D9 and D10 that the ratio MgCl_2 :alcohol used to prepare the catalyst support had a major impact on the properties of the catalyst and on the ethylene polymer particles prepared therewith.

The results of D7 were not in agreement with the appellant's experiments carried out in P2 and no explanation was found to explain that discrepancy either. Again, it was derivable from the evidence on file that the skilled person knew which sequence of addition of the three components should be used to prepare a homogeneous solution according to paragraph 127 of the patent in suit.

Besides, during the oral proceedings before the Board, it was argued that in D6 and D8, no sieving according to the examples of the patent in suit (paragraph 129 of the patent in suit) was carried out. Since that argument was based on facts and evidence already on file, there was no reason that it should not be admitted into the proceedings, as requested by respondent 2. Therefore, also for that reason, D6 and D8 were no fair rework of the examples of the patent in suit.

In view of the above, there was no convincing evidence on file showing that the examples of the patent in suit could not be reproduced.

- (d) The examples of the patent in suit provided at least one way of preparing particles according to

operative claim 1. Variants of that process and of the ethylene polymer particles prepared therewith could be obtained from the teaching of the patent specification and based on the skilled person's common general knowledge. The respondents' objection according to which it was not possible to prepare such particles over the whole breadth of claim 1 was not supported by any evidence.

- (e) Respondent 2's objection related to the breadth of claim 1 and regarding the fact that it was essential that the claimed particles exhibited filaments at their surface was late-filed and should not be admitted into the proceedings. Besides, said objection was at most related to a clarity issue but not to sufficiency.
- (f) For those reasons, the requirements of Article 83 EPC were satisfied.

XVI. The respondents' arguments, insofar as relevant to the present decision, may be summarised as follows:

Main request - Article 123(2) EPC

- (a) The subject-matter of claim 1 was based on a combination of original claims 1 and 2, whereby the range of particles with a particle diameter of 355 μm or more was further amended. However, it was derivable from paragraphs 20-21 and 23-24 of the application as filed that the ranges of particles with a particle diameter of 355 μm or more and the average particle diameter specified in claim 1 were directed to different and unrelated properties of the ethylene polymer particles. Therefore, in the absence of any pointer to that specific combination

of features in the application as filed, the amendment made amounted to the combination of features related to different embodiments of the application as filed, which was not allowable.

Also, the combination of features now specified in claim 1 amounted to selecting ranges from two different lists, namely in respect of the average particle diameter and of the amount of particles with a particle diameter of 355 μm or more, which amounted to a novel and non-allowable selection.

For those reasons, claim 1 did not satisfy the requirements of Article 123(2) EPC.

Admittance of P2, P3 and D18

- (b) Considering that the issue of sufficiency of disclosure was at stake from the very beginning of the opposition procedure, the appellant should have submitted any necessary experimental report earlier. There was no justification for filing such experiments either with the statement of grounds of appeal (P2) or even later (P3).

Although P2 was filed together with the statement of grounds of appeal, its admission into the proceedings was at the Board's discretion. In that respect, it was derivable from T 1380/04, that P2 should only be admitted into the proceedings if it was *prima facie* more relevant than the documents already in the proceedings, which was not the case.

Regarding P3, there was no reason why it was filed so late. The fact that resources to carry out P3 were not allocated in time by the appellant was not

relevant since it was a deliberate choice of the appellant.

There was also no reason why D18 could not have been filed earlier. Also, since D18 was published after the priority date of the patent in suit, it neither represented common general knowledge, nor could it be taken into account to assess sufficiency of disclosure at the priority date.

For those reasons, P2, P3 and D18 should not be admitted into the proceedings.

Main request - Sufficiency of disclosure

- (c) It was shown in D6 to D8 that reworking the examples of the patent in suit as closely as possible did not lead to ethylene polymer particles according to operative claim 1.

It was in particular shown in D6 and D8 that it was not possible to prepare a homogeneous solution according to paragraph 127 of the patent in suit. A homogeneous solution was only obtained after a step by step addition of 127 % alcohol (as compared to the indication of the patent in suit) was done. It was further shown in D7 that the sequence of addition of the components mentioned in paragraph 127 of the patent in suit was critical for the obtention of a homogeneous solution, which was not indicated in the patent in suit. In that respect, P2 could not be relied upon because it was not available at the priority date of the patent in suit, which was relevant for assessing sufficiency of disclosure. In fact, the skilled person had no hint in the prior art that the sequence of addition

of the components was of any importance. During the oral proceedings before the Board, respondent 1 indicated that, according to them, the examples of the patent in suit were carried out using a MgCl_2 :alcohol ratio of 1:2.37 in the preparation step according to paragraph 127 of the patent in suit, and not of 1:3 as argued by the appellant and done in D9 or D10. The latter documents further both taught to increase the amount of alcohol if MgCl_2 was found not to dissolve completely. Therefore, when a homogeneous solution was not obtained, as in D6 or D8, it made sense to increase the amount of alcohol used as compared to the teaching of paragraph 127 of the patent in suit, which was done in D6 and D8.

The patent in suit further did not provide any information regarding the stirring speed and reaction vessel, which were known to be crucial, to be used to prepare the catalyst and its support according to paragraphs 127 and 128 of the patent in suit.

It was derivable from the information provided in sections 2 and 3.1 of D8 that the ethylene polymer particles prepared therein were sieved using a mesh of 355 μm according to paragraph 129 of the patent in suit. The same was valid for D6. Therefore, D6 and D8 were both carried out as closely as possible to the patent in suit.

Q1 was not relevant and could not show that the skilled person knew how to prepare a homogeneous solution according to paragraph 127 of the patent in suit since it was carried out under different conditions. The same was valid for D17. In

particular, since the passage of paragraph 70 thereof relied upon by the appellant was directed to a comparative example, it could not be ascertained that said example constituted an enabling disclosure.

- (d) Considering the very broad indications regarding the catalyst system and the polymerisation conditions to be used given in the patent specification, it was not credible that ethylene polymer particles according to operative claim 1 could be obtained under all the conditions encompassed therein. Besides, the examples of the patent in suit, even if they were to be considered as illustrating the subject-matter of operative claim 1, which was contested, only covered a very small portion of the scope of operative claim 1. The skilled person would not know how to prepare ethylene polymer particles over the whole scope of that claim, in particular particles different from those prepared in the examples of the patent in suit.

- (e) According to paragraphs 19 and 26 of the patent in suit it was essential for the invention that the claimed ethylene polymer particles exhibited filaments at their surface. The shapes defined by feature (III) of operative claim 1 were not limited to such filaments. Therefore, claim 1 failed to reflect at least one feature which was indicated as being essential in the patent specification. Said argument completed respondent 2's case put forward in writing and was not a surprising development. Therefore, although it was put forward for the first time during the oral proceedings before the

Board, it should be admitted into the proceedings.

(f) For those reasons, the requirements of Article 83 EPC were not satisfied.

XVII. The appellant requested that the decision under appeal be set aside and that the case be remitted to the department of first instance for further prosecution on the basis of either the main request or any of the first to sixth auxiliary requests, filed with the statement of grounds of appeal and that P2 and P3 be admitted into the proceedings.

Respondents 1 and 2 requested that the appeal be dismissed. Respondent 2 further requested that P2, P3 and D18 be not admitted into the proceedings and that in the event novelty and inventive step were to be discussed, the case be remitted to the first instance.

Reasons for the Decision

Main request

1. Article 123(2) EPC
 - 1.1 The opposition division's conclusion according to which claim 1 satisfied the requirements of Article 123(2) EPC were fulfilled is contested.
 - 1.2 The subject-matter of operative claim 1 corresponds to the one of original claim 2, in which the amount of particles with a particle diameter of 355 μm or more was modified from "2 wt.% or less" to "1.5 wt.% or less".

1.3 Considering that a support for that amendment is disclosed in paragraph 23 on page 10 of the application as filed in a general manner, it applies to any embodiment of the application as filed, in particular to the embodiment of original claim 2 (depending on original claim 1).

1.4 In that respect, the amendment carried out in original claim 2 amounts to limiting the range defining the amount of particles with a particle diameter of 355 μm or more already present in original claim 2, which is present in that claim in combination with the range of average particle diameter also specified in operative claim 1. Therefore, in order to arrive at the subject-matter of claim 1, there is neither need to combine two passages of the description of the application as filed, nor to select ranges from two different lists of the description as argued by the respondents. Those arguments are, thus, rejected.

1.5 In view of the above, there is no reason for the Board to overturn the opposition division's decision in respect of Article 123(2) EPC.

2. Admittance of P2, P3 and D18

2.1 Since P2 was submitted with the appellant's statement of grounds of appeal together with arguments why it was relevant, i.e. pursuant to the requirements of Article 12(1)(a) and (2) RPBA, its admittance into the proceedings undergoes the stipulations of Article 12(4) RPBA.

2.1.1 P2 is an experimental report related to the preparation of the catalyst according to the examples of the patent

in suit. Besides, P2 was filed in reply to the contested decision in which it was held that the claimed subject-matter was not sufficiently disclosed *inter alia* because the preparation of the catalyst according to some of the examples of the patent in suit could not be reproduced (section 3.1 of the decision). Therefore, the filing of P2 constitutes a legitimate and timely reaction of the appellant to the contested decision.

2.1.2 It is further noted that, in the present case, the opposition division changed its mind regarding sufficiency of disclosure during the oral proceedings as compared to its preliminary opinion (see page 1 thereof: paragraph 7). Therefore, P2 was filed at the first opportunity after the appellant was confronted with the negative decision of the opposition division. Under those circumstances, it cannot be concluded that the filing of P2 at the outset of the appeal proceedings amounts to a deliberate abuse of the procedure.

2.1.3 Respondent 2 argued that, according to decision T 1380/04 (point 6.1 of the reasons), P2 should only be admitted into the proceedings if it was more relevant than the other documents already on file. In that respect, respondent 2 merely stated that they were "not convinced" that P2 was any more relevant than P1 filed during the first instance but failed to provide any further argument in that respect. In the Board's view, P2 is the sole document on file (apart from D7, which was filed by respondent 1) in which the reaction according to paragraph 127 of the patent in suit was carried out under different conditions, which was in dispute between the parties as being relevant for assessing sufficiency of disclosure. Therefore, even

following the line of argumentation of respondent 2, P2 is more relevant than the other documents on file. For that reason, respondent 2's argument is rejected.

- 2.1.4 In view of the above, it was not justified, in the circumstances of the present case, that the Board made use of its power under Article 12(4) RPBA to hold P2 inadmissible. P2 is, thus, in the proceedings.
- 2.2 P3 was not submitted together with the appellant's statement of grounds of appeal (pursuant to Article 12(2) RPBA) but only in reaction to the respondents' rejoinder thereto. Therefore, its admittance into the proceedings undergoes the stipulations of Article 13(1) RPBA.
 - 2.2.1 In that respect, the appellant's argument that P3 was only submitted once additional resources were allocated to the present case cannot justify the late-filing of that document. In particular, it is the duty of each party to submit its facts and evidence as early as possible in the proceedings, which is reflected in Article 12(2) RPBA, according to which the appellant should submit its complete case together with the statement of grounds of appeal. Therefore, that argument is rejected.
 - 2.2.2 It is further noted that the issue of sufficiency of disclosure was at stake from the beginning of the opposition proceedings. In particular, the question of whether or not the patent in suit provided sufficient information to prepare particles according to operative claim 1 over the whole breadth of the claim and/or using a different preparation process than the one used in the examples of the patent in suit was already addressed during the first instance proceedings and

dealt with in the contested decision (section 3.2). Therefore, the appellant's argument according to which P3 was filed in reaction to an argument submitted for the first time in respondent 2's rejoinder to the statement of grounds of appeal does not convince. In particular, in the Board's view, it cannot be held that the submission of P3 is justified by a surprising development of the case.

2.2.3 In view of the above, there is no reason justifying the submission of P3 at such a late stage of the proceedings. Under those circumstance, the Board found it appropriate to exercise its discretion by not admitting P3 into the proceedings (Article 13(1) RPBA).

2.3 Since D18 was filed after the parties had received the communication of the Board setting out its preliminary view of the case, its admission into the proceedings is subject to the Board's discretion (Article 13(1) RPBA) and underlies the additional stipulations of Article 13(3) RPBA.

2.3.1 In that respect, the appellant provided no justification why D18 was filed so late and, considering that D18 is a Japanese patent document published on 26 May 2016 (see the declaration including a partial translation of D18 filed by the appellant with letter of 11 May 2018), there is no apparent reason why it could not have been filed earlier than with letter of 11 May 2018. Also, there was no surprising development of the case which may justify the late-filing of D18.

2.3.2 Under those circumstance, the Board found it appropriate to exercise its discretion by not admitting

D18 into the proceedings (Article 13(1) RPBA).

3. Sufficiency of disclosure

3.1 In order to meet the requirement of sufficiency, an invention has to be disclosed in a manner sufficiently clear and complete for it to be carried out by the skilled person in the whole area claimed without undue burden, on the basis of the information provided in the patent specification and, if necessary, using common general knowledge. This means in the present case that the skilled person should in particular be capable of preparing ethylene polymer particles according to operative claim 1, which is disputed by the respondents.

3.2 In order to prepare particles according to claim 1, the patent in suit provides information regarding:

- the nature of the (co)monomers (paragraphs 16, 94);
- the catalyst system, in particular regarding the catalyst systems comprising components [A] and [B] as defined in paragraphs 25 to 60 as well as the optional component [C] according to paragraphs 60 to 69 and 95 of the patent in suit. Further suitable catalyst systems are mentioned in paragraph 70;
- the preparation method (paragraphs 72 to 93, 95).

It is further noted that the description (paragraphs 57-59; page 9, lines 14-16) allows for a broad range of catalysts (page 4, line 53 to page 8, line 13; paragraph 70) and many options regarding the other components of the catalyst system (ratio halogen/Ti; nature and amount of internal electron donors, if present; ratio Mg/Ti; ratio internal electron donor/Ti;

use or not of component [C]). The patent in suit additionally provides a teaching regarding preferred components and options. Thus, it may be derived from paragraphs 32 and 52 of the patent in suit that specific ether components are recommended as electron donors, which was recognised by the author of D6 and D8 (D6: page 2, first sentence of section a) Diether synthesis; D8: page 1, first sentence of section 1. Catalyst synthesis).

Also, examples 1 to 5 of the patent in suit deal with the preparation of polymer particles according to operative claim 1, whereby use is made of the most preferred ether component indicated in paragraph 52 of the patent in suit.

3.3 In that respect, the respondents' first line of argumentation was that it was shown in D6 to D8 that it was not possible to prepare particles according to claim 1 when reworking examples 1 to 3 of the patent in suit, as was already decided by the opposition division (section 3.1 of the contested decision), in particular because it was not possible to reproduce the preparation of the catalyst support as was taught in the patent in suit, in particular the reaction according to paragraph 127 thereof. The second line of argumentation of the respondents was that it was not credible that any process carried out according to the teaching of the description mandatorily led to particles as defined in claim 1 (lack of technical guidance; undue burden), as was also decided by the opposition division (decision: section 3.2). Those two lines of argumentations are dealt with hereinafter.

3.4 Reworking the examples of the patent in suit

It was agreed by the parties that, as shown e.g. in D9 and D10, the preparation of the catalyst support (which is done in paragraphs 127 and 128 of the patent in suit) is crucial for the preparation of the catalyst and of the ethylene polymer particles prepared therewith and defined in operative claim 1. Therefore, in order to prepare the ethylene polymer particles according to operative claim 1, the skilled person should be provided with sufficient information on how to prepare, with a good chance of success, a suitable catalyst support and a suitable catalyst, as well as sufficient information on how to carry out the polymerisation process.

3.4.1 Preparation of the catalyst support

According to example 1 of the patent in suit, particles according to operative claim 1 are obtained using a catalyst prepared in two steps comprising first the preparation of a magnesium chloride (MgCl_2)/2-ethylhexanol adduct in decane (paragraph 127) and then reacting said adduct with TiCl_4 (paragraph 128).

The respondents argued that D6 to D8 showed that the first step of that reaction could not be reproduced with success.

In that respect, the first step of said process consists in the preparation of a homogeneous solution by reacting by heating at 130°C for 3 hours 75 g of anhydrous magnesium chloride, 280.3 g of decane and 308.3 g of 2-ethylhexyl alcohol (paragraph 127 of the patent in suit). It is undisputed that the preparation

process used in D6 and D8 is not identical to the one carried out in the examples of the patent in suit at least because, since the mixture of anhydrous magnesium chloride, decane and 2-ethylhexylalcohol according to paragraph 127 of the patent in suit when reacted by heating at 130°C was not a homogeneous solution, respondent 1 used an excess of 2-ethylhexylalcohol (as compared to the teaching of paragraph 127 of the patent in suit) in order obtain such a homogeneous solution. However, whereas the appellant argued that he had no difficulty to prepare such a homogenous solution when repeating the teaching of paragraph 127 of the patent in suit (P1: pages 14-15 and P2: page 1: first full paragraph), respondent 1 did not succeed (D6: bottom of page 1; D8: bottom of page 2). Since it could not be clarified during the appeal proceedings why respondent 1 was not in a position to obtain a homogeneous solution as indicated in paragraph 127 of the patent in suit, it has to be assessed on the basis of the overall balance of probabilities (Case Law of the Boards of Appeal of the EPO, 8th edition, 2016, III.G.4.3.1, first paragraph), whether or not the skilled person was, on the basis of the prior art and of common general knowledge at the priority date of the patent in suit, in a position to prepare a homogeneous solution according to paragraph 127 of the patent in suit.

In that respect, the following conclusions were drawn by the Board from the pieces of evidence relied upon by the parties:

- In document P1, the appellant showed that such a homogeneous solution may be prepared using - apparently - usual laboratory techniques. During the oral proceedings before the Board, respondent 2

argued that the heating step in P1 was carried out under very gentle conditions (heating to 130°C in 50 minutes), which was rather unusual and for which there was no teaching in the patent in suit. However, even if this were to be correct, to respondent 2's benefit, it was neither shown that said heating step had any impact on the achievement or not of a homogeneous solution, nor that it would not be a common and usual measure in the art. Therefore, respondent 2's argument is not persuasive;

- In example 1 of Q1, a similar reaction involving the same components and reaction conditions as in paragraph 127 of the patent in suit is disclosed, whereby the homogeneous solution was even reached in a shorter time than in paragraph 127 of the patent in suit (2 hours instead of 3 hours). In that respect, it is noted that Q1 was considered in the contested decision (bottom of page 6), whereby it was stated that Q1 differed from the patent in suit in that the homogeneous solution was obtained in by heating at 130°C for 2 hours instead of at 130°C for 3 hours. However, the opposition division did not draw any conclusion therefrom and in particular did not explain why Q1 was not considered to show that the skilled person was apparently in a position to carry out a similar kind of reaction to the one of paragraph 127 of the patent in suit. In that respect, in the Board's view, if a homogeneous solution is already obtained in 2 hours, it may be expected that the same holds true if the reaction lasts 3 hours. Under these circumstances, Q1 is held to show that, at the priority date of the patent in suit, the skilled person had no difficulty to prepare a homogeneous

solution according to paragraph 127 using common general knowledge;

- In D9, a similar reaction of an MgCl_2 /alcohol adduct in an unpolar solvent is disclosed (page 1476: section "Preparation of the Spherical MgCl_2 -Support"). According to that document, anhydrous MgCl_2 and ethanol (EtOH) in a molar ratio EtOH: MgCl_2 of 2.0 is first prepared and heated at 80°C , whereby another amount of ethanol is added in a ratio EtOH: MgCl_2 of 0.5-1.0. The reactor is then heated at 120°C and, if necessary, further ethanol is added if the MgCl_2 is not completely dissolved. When the mixture is homogeneous, the unpolar solvent is added at 120°C . It is shown in Tables 1 and 2 of D9 that the reaction was conducted, apparently without any difficulty, at a molar ratio EtOH: MgCl_2 of 2.8 or 3.0. Therefore, D9 also shows that the skilled person was in a position to carry out a similar kind of reaction to the one of paragraph 127 of the patent in suit;
- The same conclusion as for D9 is also reached when considering the teaching of D10 (page 3830: section "Preparation of spherical adducted MgCl_2 " and Table I; molar ratio EtOH: MgCl_2 of 2.8 to 3.5);
- Also in D17, which is in the name of respondent 2, a similar reaction as in paragraph 127 of the patent in suit is carried out (catalyst preparation A-3: paragraph 70) and leads to a homogeneous solution. In that respect, it was further clarified by letter of 11 May 2018 (top of page 4) that catalyst A-3 was prepared in D17 using decane as in the patent in suit and not decaline as indicated in D17 (a translation error was argued to have

occurred in D17), which was not contested by the respondents, also during the oral proceedings before the Board. During said oral proceedings, respondent 2 submitted that there was no evidence on file that the above passage of D17, which was directed to a comparative example, constituted an enabling disclosure. However, in the absence of any evidence in support of that argument, that argument fails to convince.

- Respondent 2 argued that it was shown in D7 that the order of addition of magnesium chloride, decane and 2-ethylhexyl alcohol played a role whether or not a homogeneous solution was obtained (see the table of D7 in which four different conditions, called A to D, for carrying out the reaction of paragraph 127 of the patent in suit are detailed). However, also in that respect, those results are in contradiction with those put forward in appeal by the appellant in P2 (page 1: first full paragraph; page 2: first full paragraph). Besides, if it may be concluded from D7 that no homogeneous solution was obtained when using reaction conditions A and B, it is to be noted that in those reactions, the three reactants were mixed at 25°C, which is not according to the teaching of paragraph 127 of the patent in suit. The reaction conditions C of D7 also did not lead to a homogeneous solution when adding MgCl₂ to decane first and then adding 2-ethylhexanol at 130°C but in an amount larger than in paragraph 127 of the patent in suit. However, it is derivable from D9 and D10, that the skilled person confronted with such a failure to prepare a homogeneous solution, could have contemplated using a different sequence of addition of the three components and different heating

conditions. And indeed, it is shown in D7 (reaction conditions D) that adopting reaction conditions similar to those of D9 eventually leads to a homogeneous solution. Reaction conditions D of D7 further show that the solution used by respondent 1 to obtain a homogeneous solution when confronted with an initial failure, namely the addition of more alcohol, was not the sole solution which could have been contemplated by the skilled person.

In view of the above, the Board arrives at the conclusion that, although respondent 1 was not able to prepare in D6 and D8 a homogeneous solution according to paragraph 127 of the patent in suit, the set of facts relied upon by the appellant, namely D9, D10, D17, P1, P2 and Q1, renders credible that the skilled person would have known how to proceed based on the teaching of prior art documents.

As indicated above, once confronted with the initial failure to obtain a homogeneous solution according to paragraph 127 of the patent in suit, respondent 1 chose in D6 and D8 to increase gradually the ratio MgCl_2 :alcohol up to the point where full dissolution was achieved, which was obtained when using 127 % of the alcohol volume disclosed in paragraph 127 of the patent in suit (see D6: bottom of page 1; D8: top of page 3). However, it is known from D9 and D10 that modifying the MgCl_2 :alcohol ratio may have a crucial impact on the properties of the catalyst thus prepared (D9: abstract; page 1477, paragraph below Table 1; page 1478: lines 3 to 6 from the bottom; page 1479: paragraph starting with "Table 2 shows..."; page 1482: section "Conclusions"; D10: paragraph bridging pages 3830 and 3831). Therefore, the experimental procedure used in D6 and D8 to prepare the catalyst

support, and hence, the whole catalyst, is not considered to be a fair reproduction of the teaching of the examples of the patent in suit. Under such circumstances, it cannot be concluded from D6 and D8 (even in combination with D7) that the respondents have convincingly shown that it was not possible to prepare ethylene polymer particles according to claim 1 by following the teaching of the patent in suit, in particular its examples, if necessary, further using common general knowledge.

3.4.2 Preparation of the catalyst

The respondents further argued that the information of the patent in suit regarding the conditions of mixing used in the second step of the preparation of the catalyst was insufficient to prepare successfully the particles according to operative claim 1.

In that respect, it was undisputed by the parties that it is known in the art that the conditions of mixing (reactor shape, type of blade, stirring speed) used for the preparation of the catalyst support are important since they determine the shape/structure of the catalyst support and hence the properties of the whole catalyst.

However, whereas respondent 2 considered that the fact that no information in that respect is provided in paragraph 128 of the patent in suit amounts to a lack of sufficiency the appellant considered that the skilled person could rely on common general knowledge to compensate for that lack of information.

In that respect, it is agreed with the appellant that it is derivable from D9 and D10 that the stirring speed

and the EtOH:MgCl₂ ratio used for preparing the catalyst support are the main factors influencing the catalyst's characteristics (see in particular the section "Conclusions" on page 1482 of D9). In particular, it is taught in D9 that varying the stirring speed had an impact on the particle size and on the particle size distribution of the support (page 1477: paragraph below Table 1) and specific stirring speeds are disclosed in Tables 1 and 2 of D9). Therefore, in the absence of further evidence, it is concluded that the skilled person would have known which conditions of mixing should be used to prepare the catalyst according to the teaching of the patent in suit and also how it should be varied if particles with dimensions outside the ranges defined in operative claim 1 were not obtained. Regarding the MgCl₂:alcohol ratio, it is agreed with the opposition division (see page 8 of the decision: lines 13-16) and with the appellant (letter of 11 May 2018: page 4, third paragraph) that a ratio of 1:3 is used in example 1 of the patent in suit. Although respondent 1 argued during the oral proceedings before the Board that, according to them, a MgCl₂:alcohol ratio of 1:2.27 was used in example 1 of the patent in suit, no explanation was provided in support of that argument and it was not explained why the opposition division (or the appellant) would be wrong. Therefore, that argument is not convincing. The ratio of 1:3 used in example 1 of the patent in suit further appears to be commonly used in the art (see the passages of D9 and D10 cited above). Under such circumstances, although it is correct that, as noted by the opposition division it is indicated in the patent in suit that other ratios may be used (decision: middle of page 8; paragraphs 58-59), the patent in suit contains some guidance regarding which ratio should be used, in particular if the

skilled person were to be confronted with an initial failure when using a MgCl_2 :alcohol ratio different from 1:3. In the absence of further evidence that particles according to operative claim 1 may not be prepared following that teaching, it is also concluded that the patent in suit in combination with common general knowledge provides enough information in respect of the MgCl_2 :alcohol ratio to be used.

3.4.3 Preparation of the ethylene polymer particles

a) During the oral proceedings before the Board, the appellant argued for the first time that in D6 and D8, the ethylene polymer particles were not prepared according to the teaching of the examples of the patent in suit because no sieving according to paragraph 129 of the patent in suit was carried out.

Respondent 2 requested that said objection be not admitted into the proceedings because it was late-filed and took the respondents by surprise.

Since that objection was first submitted during the oral proceedings before the Board, its admission into the proceedings undergoes the stipulations of Article 13(1) and (3) RPBA.

However, in the Board's view, although said objection could have been submitted earlier, it is only based on facts and evidence already on file. Besides, it had been explicitly indicated in the Board's communication sent in preparation of the oral proceedings that the issue would have to be discussed if D8 represented a fair rework of examples 1-3 of the patent in suit and if the skilled person confronted with the results of D8 (as compared to the patent in suit: too large particle

size; too low crystallinity) would know on the basis of the information provided in the patent in suit, if necessary complemented by common general knowledge, what had to be modified in order to prepare particles according to operative claim 1 (section 7.3.2.c). In that respect, the issue of the sieving had already been addressed during the first instance proceedings (see last two full paragraphs on page 8 of the contested decision). Under such circumstances, the appellant's argument does not amount to a surprising development of the case and it is not apparent that the oral proceedings would have had to be adjourned to allow the respondents to deal with that issue

(Article 13(3) RPBA). In that respect, it is further noted that respondent 1 did not contest the admittance of that argument into the proceedings. For those reasons, the Board found it appropriate to exercise its discretion pursuant to Article 13(1) RPBA by admitting into the proceedings the argument put forward by the appellant during the oral proceedings before the Board regarding whether or not a sieving step according to paragraph 129 of the patent in suit was carried out in D6 and D8.

In that respect, it is indicated in section 2 of D8 that the polymerisation was carried out according to the teaching of paragraph 129 of the patent in suit (which was cited in its totality), i.e. including the sieving of particles larger than 355 μm . In the second paragraph of section 3.1 of D8, it is further indicated that the ethylene particles produced therein contained a significant amount of coarse particles and that "even in the sieved fraction of powder, very large spans were measured" (whereby the "span" was indicated by respondent 1 during the oral proceedings before the Board to be related to the particle size distribution,

which is also derivable from D6: footnote 4 of Table 1 and second paragraph on page 3). Therefore, although it is not explicitly stated in section 3.1 of D8 how the particles were sieved, it is considered that it is plausible in view of D8 as a whole, when reading section 3 and 2 together, that the powder prepared in D8 and mentioned in section 3.1 thereof was sieved according to the teaching of paragraph 129 of the patent in suit. Further considering that it is stated in section 3.2 of D8, which is related to the viscosity determination, that the measurement was made "following example 1" (of the patent in suit), it is credible that the viscosity measurement of D8 was carried out on the ethylene polymer particles sieved with a mesh of 355 μm . The same holds true for the determination of crystallinity in D8, which has to be made on the same particles than those considered for the viscosity measurements. For those reasons, and further considering that D6 contains similar information than D8 in respect of the sieving issue, the appellant's objection does not convince.

b) According to the contested decision, the patent in suit was also not sufficiently disclosed because the skilled person was "not in a position, after having read the complete description, to know whether he should employ a specific catalyst and specific process conditions for preparing it so that the particle size of the polymer obtained directly with it is lower than 355 μm or if he should simply employ any type of catalyst and any type of conditions to prepare the ethylene polymer particles and, only after preparing them, use a sieve with an appropriate mesh" (decision: last two full paragraphs on page 8).

In that respect, it may be concluded from the above

(see in particular section 3.2, 3.4.1 and 3.4.2) that although the patent specification discloses many variants of the process that can be used to prepare ethylene polymer particles according to operative claim 1, example 1 provides at least one specific example on how to proceed. It is further derivable from Table 1 of the patent in suit that although the preparation process disclosed in the description as a whole may lead to amounts of particles having a particle diameter of 355 μm or more of larger than 1.5 wt% (see examples 6-8), i.e. not fulfilling at least one of the feature of operative claim 1, it is explicitly disclosed at page 15, lines 2-3 that a sieve with a mesh size of 355 μm was used e.g. in example 1 to eliminate the coarse particles and obtain an amount of particles having a particle diameter of 355 μm or zero (Table 1: examples 1-5). Besides, in the Board's view, such a sieving step is common in the art and would be contemplated by the skilled person to eliminate coarse particles, if necessary. In view of the above, it is concluded that the patent in suit provides sufficient guidance regarding the preparation process to obtain, with a good chance of success, ethylene polymer particles according to operative claim 1.

3.5 Whole scope

3.5.1 The respondents argued that it was not credible that ethylene polymer particles according to operative claim 1 could be obtained under all the conditions mentioned in the patent in suit and that the skilled person would not know how to prepare ethylene polymer particles over the whole scope of that claim, in particular particles different from those prepared in

the examples of the patent in suit.

- 3.5.2 In that respect, an objection of insufficient disclosure presupposes that there are serious doubts, substantiated by verifiable facts and the burden of proof is primarily on the opponent, here the respondents (Case Law, *supra*, II.C.8).
- 3.5.3 In the present case, although the description of the patent in suit is broad and allows for a large variety of modifications (e.g. regarding the choice of catalyst, the presence or not of an electron donor, the ratio electron donor/MgCl₂ and/or Mg/Ti), there is no evidence on file apart from D6 to D8 (which were dealt with in section 3.4 above) that working according to the teaching of the patent in suit does not lead to the preparation of particles as defined in operative claim 1. Therefore, the respondents' objection is not supported by the facts (apart from those dealt with in section 3.4). In particular, taken into consideration the conclusion drawn in section 3.4 above, it is concluded that the respondents' arguments do not allow the Board to conclude that the skilled person would not be in a position to prepare with a good chance of success ethylene polymer particles according to operative claim 1 on the basis of the information of the patent in suit, in particular in examples 1-5 thereof, if needed complemented by common general knowledge. In that respect, it is further credible that variants of that process and of the ethylene polymer particles prepared therewith may be obtained from the teaching of the patent specification and/or on the basis of the skilled person's common general knowledge.

The same conclusion applies to the line of argumentation put forward in section 3.2 of the

contested decision.

3.6 Breadth of claim 1 and filaments

3.6.1 During the oral proceedings before the Board, respondent 2 argued for the first time that it was derivable from paragraphs 19 and 26 of the patent in suit that operative claim 1 failed to reflect an essential feature mentioned in the description of the patent specification, namely that the claimed ethylene particles should have on the surface a shape in the form of filaments or pillars.

3.6.2 The appellant objected that said objection was late-filed and should not be admitted into the proceedings.

3.6.3 Since that objection was first submitted during the oral proceedings before the Board, its admission into the proceedings undergoes the stipulations of Article 13(1) and (3) RPBA.

3.6.4 In that respect, although it makes no doubt that the objection could have been filed earlier in the proceedings, the Board considers that, in the circumstances of the present case, the objection was not complicated to understand and that the appellant was in a position to reply to that objection without difficulty on the basis of the content of the patent specification. In particular, the issue raised did not require that the oral proceedings be adjourned in order to allow the appellant to be able to reply to it (Article 13(3) RPBA). For those reasons, the Board found it appropriate to exercise its discretion pursuant to Article 13(1) RPBA by admitting into the proceedings the objection raised by respondent 2 during the oral proceedings before the Board regarding the

feature that the claimed ethylene particles should have on the surface a shape in the form of filaments or pillars.

3.6.5 However, according to the case law, the question whether a claim contains all the essential technical features of the invention is a matter of clarity pursuant to Article 84 EPC (Case Law, *supra*, II.A.3.2, not sufficiency. Besides, in the present case, there is no evidence on file that following the teaching of the patent in suit, in particular of the examples thereof, the skilled person is not in a position to prepare ethylene polymer particles having on their surface a shape defined according to feature (III) of operative claim 1. Said feature further corresponds to the broadest disclosure at paragraph 18, first sentence, of the patent in suit, which is indicated therein as characterising a "shape in the form of so-called filament or pillar". In the Board's view, the objection according to which all the shapes encompassed by the features of "a breadth of 0.1 μm to 3 μm and a length of 2 μm to 20 μm " according to said feature (III) indeed define filaments or pillars, which is arguable (for a given geometry, the "length" should be larger than the "breadth"), is related to the question whether the skilled person knows unambiguously if he is working within or outside the claim, which is also at most a matter of clarity pursuant to Article 84 EPC, not of sufficiency of disclosure.

3.6.6 For those reasons, respondent 2's objection fails to persuade.

4. In view of the above, the respondents' objections in respect of sufficiency of disclosure regarding

operative claim 1 are rejected and the contested decision has to be set aside.

5. Remittal

The issues of novelty and inventive step were not addressed in the contested decision. Further considering that the appellant and respondent 2 both requested remittal to the first instance, it is appropriate to remit the case to the department of first instance for further prosecution (Article 111(1) EPC).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance for further prosecution.

The Registrar:

The Chairman:



L. Stridde

D. Marquis

Decision electronically authenticated