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**Datasheet for the decision  
of 18 June 2019**

**Case Number:** T 1345/16 - 3.3.03

**Application Number:** 10716341.2

**Publication Number:** 2432833

**IPC:** C08L23/14

**Language of the proceedings:** EN

**Title of invention:**  
PROPYLENE POLYMER COMPOSITIONS

**Patent Proprietor:**  
Basell Poliolefine Italia S.r.l.

**Opponent:**  
Borealis AG

**Relevant legal provisions:**  
EPC Art. 100(b)

**Keyword:**  
Grounds for opposition - insufficiency of disclosure (all requests: yes)



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Case Number: T 1345/16 - 3.3.03

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.03**  
**of 18 June 2019**

**Appellant:** Basell Poliolefine Italia S.r.l.  
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**Decision under appeal:** **Interlocutory decision of the Opposition**  
**Division of the European Patent Office posted on**  
**12 April 2016 concerning maintenance of the**  
**European Patent No. 2432833 in amended form.**

**Composition of the Board:**

**Chairman** D. Semino  
**Members:** O. Dury  
C. Brandt

## Summary of Facts and Submissions

- I. The appeals by the patent proprietor and the opponent lie from the interlocutory decision of the opposition division posted on 12 April 2016 concerning maintenance of European Patent No. 2 432 833 in amended form according to the claims of the second auxiliary request filed during the oral proceedings before the opposition division and a description adapted thereto.
- II. A notice of opposition to the patent was filed requesting revocation of the patent in its entirety.
- III. In the contested decision the following documents were *inter alia* cited:
- D3: Polypropylene Handbook, 2nd Edition, N. Pasquini (Ed.), 2005, page 312 and Figure 5.6
  - D5: WO 03/046021
  - D7: WO 2008/141934
  - D11: WO 2008/012144
- IV. The contested decision was based on the patent as granted as main request, on the first auxiliary request filed with letter of 15 January 2016 and on the second auxiliary request filed during the oral proceedings of 16 March 2016.

Claim 1 of the **main request (granted patent)** read as follows:

"1. A propylene composition comprising (percent by weight):

A) 60%-90%, of a crystalline propylene copolymer containing from 3.5% to 10.0% of ethylene derived units and having a melting temperature  $T_m$  (measured by DSC on the as-reactor polymer) ranging from 146°C to 160°C;

B) 10%-40%, of a copolymer of propylene containing from 15.0% to 30.0%, of ethylene derived units."

Claim 1 of said **first auxiliary request** differed from granted claim 1 in that the range of melting temperature  $T_m$  was modified to "from 147.0°C to 156.0°C" (instead of "from 146°C to 160°C").

Claim 1 of said **second auxiliary request** differed from claim 1 of the first auxiliary request in that the following features were added at the end of the claim:

", said composition having a MFR L (Melt Flow Rate according to ISO 1133, condition L, i.e. 230°C and 2.16 kg load) ranging from 15 to 25 g/10 min."

- V. According to the contested decision, the main request (patent in suit) satisfied the requirements of sufficiency of disclosure but lacked novelty over D5. The same was valid for the first auxiliary request. However, the second auxiliary request satisfied the requirements of Article 123(2) EPC, was novel over D5 and inventive starting from D5 as closest prior art.

Regarding sufficiency of disclosure, although reference was made to arguments submitted by both parties regarding the question whether or not the invention could be carried out over the whole breadth of the claims (contested decision: page 4, second and third full paragraphs), whereby reference was made to documents D3, D7 and D11, no reasoning was indicated in

support of the decision reached by the opposition division.

- VI. The patent proprietor (appellant 1) lodged an appeal against the above decision and, in its statement of grounds of appeal, requested that the decision of the opposition division be set aside and the patent be maintained as granted (main request) or, alternatively, that the patent be maintained in amended form on the basis of the first to third auxiliary requests filed therewith, whereby the first and second auxiliary requests were identical to the first and second auxiliary requests dealt with in the contested decision.
- VII. The opponent (appellant 2) lodged an appeal against the above decision and requested that the decision of the opposition division be set aside and the patent be revoked. With the statement of grounds of appeal, documents D16 and D17, which are not relevant for the present decision, were filed.
- VIII. In its reply to appellant 2's statements of grounds of appeal, appellant 1 requested that D16 and D17 not be admitted into the proceedings.
- IX. In its reply to appellant 1's statements of grounds of appeal, appellant 2 requested that the melting temperature data filed by appellant 1 together with its statement of grounds of appeal not be admitted into the proceedings and further submitted document D18 (which is not relevant for the present decision).
- X. In a communication issued by the Board, issues to be discussed at the oral proceedings were specified. In respect of sufficiency of disclosure, it was in

particular indicated that it would have to be discussed whether or not the skilled person was effectively in the position to prepare a propylene composition according to granted claim 1 over the whole scope of the claim, in particular a composition comprising a copolymer A) having an ethylene content in the range of 6 to 10 % while simultaneously fulfilling the melting temperature condition defined therein (section 5.3 of the communication).

- XI. With letter of 4 April 2019, appellant 2 further filed documents D20 to D26 (which are not relevant for the present decision).
- XII. With letter of 15 May 2019, appellant 1 withdrew the third auxiliary request filed with its statement of grounds of appeal and filed an **amended second auxiliary request**, claim 1 of which was identical to claim 1 of the second auxiliary request filed with its statement of grounds of appeal. It was further requested that D20 to D26 not be admitted into the proceedings.
- XIII. During the oral proceedings, which were held on 18 June 2019 in the presence of both parties, appellant 1 further requested that document D18 not be admitted into the proceedings.
- XIV. The arguments of appellant 1, as far as relevant to the present decision, were essentially as follows:

**Main request - Sufficiency of disclosure**

- (a) The objection of appellant 2 according to which the skilled person was not in a position to prepare a copolymer A) as defined in granted claim 1 and exhibiting an ethylene content in the range of 6 to

10 % together with a melting temperature of 146-160°C was purely speculative and not supported by any evidence. In that respect, it was not necessary to build a complete plant to prepare a composition according to granted claim 1. Therefore, the decision of appellant 2 not to reproduce the invention amounted to a deliberate choice and the arguments put forward justifying that decision (expensive technology, risk of infringement in view of appellant 1's numerous patents in the present technology) should be rejected.

- (b) It was derivable from the information provided in the patent in suit that copolymers A) having an ethylene content in the range of 6 to 10 % together with a melting temperature of 146-160°C could be produced using the specific process indicated in paragraphs 26 and 27 and illustrated in example 1 of the patent in suit. Said process was characterised in that the gas feeds for downer and riser were controlled independently of each other, whereby a high ethylene content in the polymer was achieved by higher ethylene content in the riser, while, at the same time, a high melting temperature was achieved by low ethylene content in the downer. The copolypropylene so prepared did not behave typically and showed higher melting temperature at a given ethylene comonomer content than usual copolypropylenes, e.g. those illustrated in Figure 5.6 of D3. Therefore, in order to produce a copolypropylene A) having an ethylene content between 6 and 10 wt.% and a melting temperature between 146°C and 160°C, the skilled person could work according to example 1 of the patent in suit and merely increase the content of ethylene fed in

the riser according to the teaching of paragraph 26 of the patent in suit. Using said approach, appellant 1 had been able to prepare copolymers A) having an ethylene content in the range of 6-6.5 wt.% associated to a melting temperature in the range of 148-149°C.

(c) It was not contested that the technology used in the processes disclosed in D11 was the same as the one used to prepare the propylene copolymers A) according to granted claim 1. However, D11 was specifically directed to the preparation of copolypropylene having at most 6 wt.% ethylene and was, therefore, not a proper reference in support of appellant 2's objection, which was directed to an alleged lack of information for preparing copolypropylene comprising between 6 and 10 wt.% ethylene. Therefore, D11 was not suitable to refute appellant 1's argumentation according to which controlling the ethylene feed in the downer, as in example 1 of the patent in suit, was essential.

(d) For these reasons, appellant 2's objection regarding sufficiency of disclosure in respect of the preparation of copolymer A) over the whole scope of the claims should be rejected.

**Auxiliary requests - Sufficiency of disclosure**

(e) The same arguments regarding sufficiency of disclosure as outlined for the main request were equally valid for the operative first and second auxiliary requests.

XV. The arguments of appellant 2, as far as relevant to the present decision, may be summarised as follows:



**Main request - Sufficiency of disclosure**

- (a) The skilled person was not in a position, on the basis of the information provided in the patent in suit or in D11, to prepare a copolymer A) as defined in granted claim 1 and exhibiting an ethylene content in the range of 6 to 10 % together with a melting temperature of 146-160°C. In that respect, such a combination of features was unusual as shown in D3 and no evidence was on file that such copolymers A) had ever been prepared by appellant 1.
  
- (b) To the contrary, document D11 contained strong indications that, even using the specific process taught in the patent in suit, such a combination of ethylene range and melting temperature was not achievable. In that respect, example 1 of D11 did not support the argument of appellant 1 according to which such a combination of features could be obtained by using the process taught in the patent in suit and controlling the gas feeds for downer and riser independently, in particular the ethylene feed in the downer.
  
- (c) Instead of reworking the invention, appellant 2 had been obliged to rely on appellant 1's own documents, such as D11, because the preparation of a polypropylene composition according to granted claim 1 following the teaching of the patent in suit would be extremely expensive and would involve high risk of infringement in view of the number of patents dealing with the technology of that polymerisation method owned by appellant 1. Therefore, in the circumstances of the present

case, carrying out own experiments was unreasonable.

- (d) For these reasons, the requirements of sufficiency of disclosure were not satisfied, in particular because the skilled person was not in the position to prepare a copolymer A) over the whole scope of granted claim 1.

**Auxiliary requests - Sufficiency of disclosure**

- (e) The same arguments regarding sufficiency of disclosure as outlined for the main request were equally valid for the operative first and second auxiliary requests, whereby the lack of sufficiency of disclosure was even more severe since the lower end of the range for the melting temperature had been increased as compared to the main request.

XVI. Appellant 1 requested that the decision under appeal be set aside and the opposition be rejected, i.e. that the patent be maintained as granted, or, alternatively, that the patent be maintained in amended form according to either the first auxiliary request filed with the statement of grounds of appeal, or the second auxiliary request filed with letter dated 15 May 2019.

It also requested that documents D16, D17, D18 and D20 to D26 filed by appellant 2 not be admitted into the proceedings.

Appellant 2 requested that the decision under appeal be set aside and that European patent No. 2 432 833 be revoked.

It also requested that the melting temperature data

submitted by appellant 1 with its statement of grounds of appeal not be admitted into the proceedings.

## **Reasons for the Decision**

### **Main request (patent as granted)**

1. Sufficiency of disclosure
  - 1.1 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 and, possibly, common general knowledge. This means in particular in the present case that the skilled person should be able to prepare a propylene composition according to granted claim 1, which is directed to a propylene composition comprising two components, one of which being a crystalline propylene copolymer A) containing from 3.5 to 10.0 wt.% of ethylene comonomer and having a melting temperature (as defined therein) ranging from 146 °C to 160 °C.
  - 1.2 In that respect, the patent in suit teaches that the propylene polymer compositions of the invention can be prepared either
    - by sequential polymerization in at least two stages, with each subsequent polymerization stage being conducted in the presence of the polymeric material formed in the immediately preceding polymerization reaction, wherein the copolymer A)

is normally prepared in at least one first polymerization stage and the copolymer B) is normally prepared in at least one second polymerization stage (paragraph 15; see also paragraphs 29-30); or

- by separately preparing copolymers A) and B) and subsequently mechanically blending said copolymers in the molten state using conventional mixing apparatuses, like twin-screw extruders (paragraph 31).

Therefore, independently of which of both methods of preparation of the composition according to granted claim 1 taught in the patent in suit is used, the skilled person must be able to prepare a copolymer A) as defined therein.

1.3 Appellant 2's objection is that the skilled person was not in a position, on the basis of the information provided in the patent in suit and common general knowledge, to prepare such a copolymer A) exhibiting an ethylene content in the higher range (6 to 10 %) of the domain specified therein together with a melting temperature of 146 to 160°C.

1.4 In that respect, it was not in dispute between the parties that the variation of the ethylene comonomer content is known to have a strong influence on the melting temperature of propylene copolymers, whereby the melting temperature decreases with increasing ethylene content (see e.g. paragraph 9 of the patent in suit; Figure 5.6 of D3). Also, it may be derived from Figure 5.6 of D3 that the copolymers A) defined in granted claim 1 exhibit, for a given ethylene (comonomer) content, much higher melting temperature

than usual polypropylene copolymers. Therefore, it makes no doubt that the combination of ethylene range and melting temperature as defined in granted claim 1 is at least unusual and was even constantly argued throughout the proceedings by appellant 1 as conferring novelty to granted claim 1.

- 1.5 It was also not disputed by the parties that there is no evidence on file showing the preparation of a copolymer A) according to granted claim 1 and exhibiting an ethylene content in the higher range of the domain specified therein, e.g. 7 to 10 wt.%, together with a melting temperature of 146 to 160 °C. In that respect, copolymer A prepared in example 1 of the patent in suit exhibits an ethylene content of 4.5 wt.% and a melting temperature of 147.8 °C and D11 is limited to propylene copolymers containing a maximum of 6.0 wt.% comonomer, such as ethylene (see e.g. D11: claims 1 and 4 as well as Table 1, page 17). In addition, appellant 1 has not provided any evidence showing that the skilled person could prepare copolypropylene A) as defined in granted claim 1 and comprising an ethylene comonomer content in the range of e.g. 7 to 10 wt.% on the basis of the information provided in the patent in suit or, should it be necessary, by relying on common general knowledge. To the contrary, in its latest submission filed in reply to the Board's communication in which that issue was specifically addressed, appellant 1 only indicated that they had been able to prepare copolymers A) having an ethylene content in the range of 6-6.5 wt.% associated to a melting temperature in the range of 148-149°C, which does not help to refute appellant 2's objection.

In addition, it was agreed by appellant 1 during the oral proceedings before the Board that the general

information provided in D11 regarding the preparation process of the copolypropylenes using a reactor with two interconnected polymerisation zones in which a gas phase separation is provided was very similar, if not identical, to the one provided in the patent in suit, in particular regarding the importance of a separation zone and/or the fact that the composition of the mixture fed into the downer should have an appropriate composition, different from the one of the gas mixture present in the riser (D11: page 5, lines 4-14; page 15, lines 11-12; paragraphs 26-27 of the patent in suit). Under such circumstances, neither is it understandable why the process according to D11 may only lead to ethylene contents of at most 6 wt.% while the process according to the patent in suit should allow to achieve higher ethylene contents of up to 10 wt.%, nor was any evidence or convincing argument submitted in that respect.

1.6 Appellant 1 argued that copolymers A) as defined in granted claim 1 and exhibiting an ethylene content in the higher part of the range indicated therein could be prepared according to the teaching of the patent in suit and further controlling the gas feeds for downer and riser independently, as shown by the comparison of example 1 and comparative example 1 of the patent in suit. In particular, example 1 of the patent in suit showed that the amount of ethylene in the downer should be extremely low.

1.6.1 However, no evidence was submitted showing that copolypropylene according to granted claim 1 having an ethylene amount higher than e.g. 7.0 wt.% and up to 10 wt.% may effectively be so prepared.

1.6.2 Also, the line of argumentation submitted by appellant 1 is not supported by the experimental data contained in D11, whereby it was explicitly acknowledged by appellant 1 during the oral proceedings before the Board that the technology disclosed in particular in the examples of D11 to prepare copolypropylene comprising ethylene comonomers was the same than the one used in the patent in suit to prepare copolymer A) according to granted claim 1. In particular, example 1 of D11 deals, as the patent in suit, with a reactor with two interconnected polymerisation zones in which gas phase separation between the riser and the downer is provided (D11: claim 5 and pages 4-6). Therefore, as argued by appellant 2 and not contested by appellant 1 in particular during the oral proceedings before the Board, example 1 of D11 is carried out using a process which is in line with the argument of appellant 1, namely a process in which an increased amount of ethylene is fed to the riser (as compared to example 1 of the patent in suit) under feeding conditions of ethylene and propylene (see Table 1 of D11: although the  $C_2/(C_2+C_3)$  ratio is not indicated therein, it is derivable from the data of Table 1 related to the feed of ethylene and propylene in the riser that said ratio is 0.108) which are according to the teaching of both the patent in suit (end of paragraph 26) and D11 (page 6, lines 3-9), while a strong propylene barrier feed is used before the downer (D11: page 15, lines 11-12). However, the copolypropylene so produced exhibits an ethylene content of only 4.7 wt% (D11: Table 1), which is not in the higher end of the ethylene content range according to granted claim 1 as would have been expected from appellant 1's argumentation.

In that respect, although it is correct that D11 is primarily directed at producing copolypropylene exhibiting an ethylene content of 4.5 to 6 wt.% (D11: claims 1 and 4), as argued by appellant 1, it remains that its teaching was shown by appellant 2 not to support the line of defence of appellant 1 regarding the measures that should be taken by the skilled person aiming at preparing a copolypropylene A) as defined in granted claim 1 and having an ethylene in the higher part of the range defined therein. Therefore, the Board is satisfied that the teaching of D11 may be taken into account to evaluate sufficiency of disclosure, contrary to appellant 1's view.

- 1.7 It is correct that, as argued by appellant 1, according to EPO case law, 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 appellant 2 (Case Law of the Boards of Appeal of the EPO, 8<sup>th</sup> edition, 2016, II.C.8).

In that respect, the Board is, for the reasons outlined in sections 1.4 to 1.6 above, satisfied that appellant 2's objection satisfies these requirements since it is based on the information provided in the patent in suit and on the teaching of D11, in particular an example contained therein. Therefore, the objection is not a mere allegation but is effectively based on experimental facts. Besides, D11 is a document in the name of appellant 1 itself and it was acknowledged during the oral proceedings before the Board that D11 disclosed the same technology of preparation of propylene copolymer A) according to granted claim 1 as in the patent in suit. In addition, in the circumstances of the present case, not only no



evidence were submitted by appellant 1 showing that it is effectively possible to prepare a copolymer A) exhibiting the unusual combination of ethylene content and melting temperature as defined in granted claim 1 on the basis of the information contained in the patent in suit and/or common general knowledge, but there are also strong indications in D11, both in view of the general teaching of that document as of its examples, that the explanation provided by appellant 1 regarding the measures to be taken in order to prepare such copolymers are not necessarily correct.

For these reasons, appellant 1's objection according to which appellant 2's objection was not supported by evidence is rejected.

- 1.8 In view of that conclusion, there is no need for the Board to address the further issue in dispute between the parties, namely whether or not appellant 2 could/should have reworked the invention of its own.
- 1.9 For the sake of completeness, it is noted that, as indicated by appellant 2 (statement of grounds of appeal: page 6, section 3.9), it is not derivable from the contested decision how the opposition division reached its conclusion according to which the patent in suit satisfied the requirements of sufficiency of disclosure, in particular in respect of appellant 2's objection already put forward during the opposition proceedings according to which the invention could not be carried out over the whole breadth of the claims (see section V above). Therefore, under such circumstances, there is no need for the Board to explain why it deviates from the conclusion of the opposition division in that respect.

- 1.10 In view of the above, granted claim 1 does not satisfy the requirements of sufficiency of disclosure and the main request, as a whole, is not allowable.

**Auxiliary requests**

2. Claim 1 of each of the operative first and second auxiliary requests was amended *inter alia* by limiting the range of melting temperature of copolymer A) to 147.0°C to 156 °C (instead of "from 146°C to 160°C"), i.e. by defining a higher lower limit in terms of melting temperature than for granted claim 1.

No further argument was submitted by appellant 1 to explain why the amendments made would overcome the objection of lack of sufficiency of disclosure retained against the main request. In addition, it is agreed with appellant 2 that the amendments made render the lack of sufficiency even more severe since it imposes that the skilled person should be in the position to prepare a copolypropylene A) having an even higher melting temperature at ethylene contents of e.g. 7 to 10 wt.%, which is even more unusual than for the main request (since melting temperature decreases with increasing ethylene comonomer content, as explained in section 1.4 above). Therefore, the Board is bound to arrive at the same conclusion, namely that the operative first and second auxiliary requests do not satisfy the requirements of sufficiency of disclosure for the same reasons as outlined above for the main request.

3. Considering that none of appellant 1's requests satisfies the requirements of sufficiency of disclosure, the patent is to be revoked.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.
2. The patent is revoked

The Registrar:

The Chairman:



B. ter Heijden

D. Semino

Decision electronically authenticated