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**Datasheet for the decision
of 16 May 2014**

Case Number: T 0722/10 - 3.3.03

Application Number: 03808147.7

Publication Number: 1554319

IPC: C08F10/06, C08L23/10

Language of the proceedings: EN

Title of invention:
Highly Crystalline Polypropylene With Low Xylene Solubles

Patent Proprietor:
Braskem America, Inc.

Relevant legal provisions:
EPC Art. 54, 111(1)

Keyword:
Remittal to the department of first instance

Decisions cited:
G 0009/92, G 0004/93, G 0001/99, T 0856/92, T 0149/02



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Case Number: T 0722/10 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 16 May 2014

Appellant: Braskem America, Inc.
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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
5 February 2010 concerning maintenance of the
European Patent No. 1554319 in amended form.**

Composition of the Board:

Chairman F. Rousseau
Members: D. Marquis
C. Brandt

Summary of Facts and Submissions

- I. The appeal by the patent proprietor lies against the interlocutory decision of the opposition division posted on 5 February 2010 to maintain in amended form European patent EP 1 554 319 (based on European patent application number 03 808 147.7).
- II. Notice of opposition to the patent was filed on 16 Mai 2007, requesting revocation of the patent on the grounds that the subject-matter of claim 11 lacked novelty and inventive step (Article 100(a) EPC) and was insufficiently disclosed (Article 100(b) EPC). The notice of opposition also dealt with inventive step of dependent claims 12 to 15.
- III. With the decision under appeal the patent was maintained in amended form on the basis of the second auxiliary request constituted of claims 1 to 10 as granted and an description adapted thereto submitted on 20 January 2010 during the oral proceedings, the main request (patent as granted) and the first auxiliary request (submitted with letter of 13 November 2009) being rejected for lack of novelty over D1 (EP 0 651 014 A1).
- IV. Claim 11 of the patent as granted, the only claim relevant to the present decision, read:
- "1. A polyolefin composition, comprising:
(a) a polypropylene resin characterized by the following relationship:
 $FM / ((XS - 0.74\%E) * MWD) \geq 207 \text{ MPa (30,000 p.s.i.)};$
 $XS \leq 2 \text{ wt}\% + \%E;$
and
 $MWD \leq 6;$

wherein: FM is the 1% secant flexural modulus;
%E is the weight percent of units derived from ethylene
in the polypropylene;
XS is the weight percent of the xylene soluble content
of the resin; and MWD is defined as M_w/M_n ; and
(b) less than 40% by weight of an impact modifier"

- V. According to the contested decision, D1 taught on page 6 a polyolefin composition (A-1) comprising 79 wt.-% of polypropylene resin having an XS of 0,9 wt.-% and an MND of 3,5 and 21 wt.-% of an elastomer which was seen as an impact modifier in the sense of the patent in suit. Comparative example 19 of D1 disclosed a composition comprising 68 wt.-% of the same polypropylene resin and 32 wt.-% of a mixture of two elastomers considered to be impact modifiers within the meaning of the patent in suit. From the value of the flexural modulus (FM) of the composition of comparative example 19 disclosed in D1, the opposition division estimated "*the FM of the propylene resin part of (A-1)*" and concluded on the basis of that estimated value that the first relationship defined in claim 11 of the patent in suit was fulfilled for the polyolefin composition (A-1) and the composition of comparative example 19 of D1. The polyolefin composition (A-1) in Table 1 of D1 and that of comparative example 19 of D1 anticipated claim 11. Although late filed documents D7 (WO-A-00/68315) and D9 (correlation between $SHI_{(0/50)}$ and MWD) which had been submitted to demonstrate that claim 11 of the granted patent lacked novelty over the example 2 of D7 were admitted into the proceedings as prima facie relevant, the contested decision did not give any conclusion with respect to that objection.

- VI. By letter of 7 April 2010, the patent proprietor (appellant) lodged an appeal against the decision of the opposition division. With the statement of grounds of appeal received on 15 June 2010, the appellant requested that the decision of the opposition division be set aside and that the case be remitted to the opposition division with an order to maintain the patent on the basis of the main request (claims as granted) or on the basis of the first auxiliary request (submitted with letter of 13 November 2009).
- VII. By letter of 25 October 2010, the respondent (opponent) filed comments on the statement of grounds of appeal and requested that the appeal be dismissed or that the case be remitted to the opposition division for further examination of the inventive step.
- VIII. By letter of 10 January 2011, the respondent withdrew the opposition against the patent in suit.
- IX. In a communication issued on 7 January 2014 for the preparation of the oral proceedings, the Board issued a preliminary opinion in which it was held that the contested decision was based on a misinterpretation of claim 11. Accordingly, the finding of lack of novelty based on composition (A-1) and comparative examples 19 of D1 failed to convince.
- X. By letter of 15 April 2014, the appellant requested that the case to be remitted to the opposition division for further prosecution and the request for oral proceedings was withdrawn.
- XI. Oral proceedings originally scheduled for 13 Mai 2014 were cancelled by communication of 30 April 2014.

XII. The appellant's arguments regarding the main request concern only claim 11 and its dependent claims. They may be summarised as follows:

Novelty

D1 did not disclose the value of the flexural modulus of the crystalline propylene moiety of (A-1) in Table 1. Therefore, the claims of the patent in suit were novel over the disclosure of (A-1). The opposition division took the view that comparative example 19 of D1 taught a composition containing 68 wt% of the polypropylene resin (being crystalline polypropylene moiety) and 32 wt% of a rubber component (being a mixture of two elastomers). This conclusion was reached by adding the amounts of component (B-2) present in the composition to that of the ethylene propylene random copolymer moiety taken in isolation from the crystalline ethylene propylene block copolymer (A-1). There was however no way of guessing the value of the flexural modulus of the polypropylene resin represented by the isolated crystalline polypropylene moiety. D1 did not disclose a polypropylene component that met the requirements set out in claim 11 of the patent in suit.

XIII. The respondent, opponent before the opposition was withdrawn, had presented arguments regarding claim 11 of the main request which in essence may be summarised as follows:

Novelty

It was incorrect to assume that the crystalline propylene moiety of the crystalline ethylene propylene block copolymer (A-1) shown in Table 1 of D1 was the polypropylene resin (a) according to claim 11 of the

opposed patent and the ethylene propylene random copolymer moiety in Table 1 of D1 was the impact modifier (b) according to the opposed patent. In D1, the whole polypropylene resin (A) or (A-1) was the "crystalline ethylene propylene block copolymer" and had to be compared with the polypropylene resin (a) of claim 11. As the additional compound (B) and the optional component (C) of the compositions of D1 could only reduce the flexural modulus of resin part of (A-1) its value could be estimated to be greater than 710 MPa in the final composition of (A-1) and greater than 910 MPa in the final composition of comparative example 19. These estimated low values of FM would show that the equations of claim 11 were satisfied by these compositions of D1. Even if it were assumed that the crystalline propylene moiety of the crystalline ethylene propylene block copolymer (A-1) shown in Table 1 of D1 was polypropylene resin (a) according to claim 11 of the opposed patent and the ethylene propylene random copolymer moiety was the impact modifier (b), the FM of the crystalline component of (A-1) had to be higher than the FM of the combined crystalline and rubbery part that build (A-1) because the (B-1) and the (C-1) component reduced the FM of the total composition of Example 1.

Example 2 of D7 was also novelty destroying for claim 11. Based on reworks of the composition of this example (D14 and D14a), it could be determined that it disclosed a propylene homopolymer composition having a xylene soluble fraction of 1,2 wt.-%, a 1% secant flexural modulus according to ASTM D 790-00 of 2080 MPa and a MWD determined by GPC of 4,9. This composition would satisfy the equations of claim 11 and take away the novelty of that claim.

XIV. The appellant (patent proprietor) requested that the decision under appeal be set aside and that the case be remitted to the opposition division for further prosecution.

Reasons for the Decision

1. The appeal is admissible.

Main request (claims 1 to 15 as granted)

2. Extent of scrutiny

The present main request comprises claims 1 to 10 constituting the claims of the second auxiliary request on the basis of which the opposition division decided that the patent could be maintained in amended form. In decisions G 9/92 and G 4/93 (OJ EPO 1994, 875; confirmed in G 1/99, OJ EPO 2001, 381, point 4.1), the Enlarged Board of Appeal decided that in cases where the patent proprietor is the sole appellant, neither the Board of Appeal, nor the non-appealing opponent as a party to the proceedings as of right under Article 107, second sentence, EPC, may challenge the maintenance of the patent as amended in accordance with the interlocutory decision (principle of prohibition of *reformatio in peius*). Hence, in application of that principle and considering that the meaning of claims 1 to 10 of the second auxiliary request underlying the contested decision has not been changed by the presence of additional original claims 11 to 15 in the present main request, the Board has no power to consider the validity of claims 1 to 10 of the main request, in line with decisions T 856/92 (8 February 1995) and T 149/02 (25 July 2003). Consequently, the claims of the main

request open to scrutiny by the Board are claims 11 to 15.

3. Novelty of claims 11 to 15

3.1 The sole objection of lack of novelty dealt with in the decision of the opposition division was that the polyolefin composition (A-1) in Table 1 of D1 and that of comparative example 19 of D1 anticipated claim 11.

3.2 According to Table 1 of D1, the polyolefin composition (A-1) on the basis of which the opposition division concluded that claim 11 of the patent as granted lacked novelty is described in view of the header of that table to be a crystalline ethylene propylene block copolymer (A-1). It is made of (i) a crystalline propylene moiety with 0,9 wt.-% of xylene solubles (XS) and a molecular weight distribution (Q) of 3,5 and (ii) an ethylene propylene random copolymer moiety in an amount of 21 wt.-% in copolymer (A-1). In the reasons for the decision, the opposition division took the view that the crystalline ethylene propylene block copolymer (A-1) could be seen as a composition comprising 79 wt.-% of a crystalline polypropylene resin with 0,9 wt.-% of xylene solubles (XS) and a molecular weight distribution (Q) of 3,5 and 21 wt.-% of an ethylene propylene random copolymer as impact modifier (point 3.1 of the decision).

3.3 Also, comparative example 19 in Table 8 of D1 discloses a composition of polymers comprising the above mentioned crystalline ethylene propylene block copolymer (A-1) in an amount of 86 wt.-% and an ethylene propylene copolymer rubber (B-2) in an amount of 14 wt.-%. The opposition division saw the composition of comparative example 19 comprising

copolymers (A-1) and (B-2) as a composition comprising the crystalline polypropylene resin moiety of (A-1) in a mixture with two ethylene propylene random copolymers corresponding to the the ethylene propylene random copolymer moiety of (A-1) and the ethylene propylene copolymer rubber (B-2). In the reasons for the decision, the opposition division calculated fictitious amounts of these components based on the data available in Tables 1 and 8 and arrived at a polyolefin composition comprising 68 wt.-% of a polypropylene resin with 0,9 wt.-% of xylene solubles (XS) and a molecular weight distribution (Q) of 3,5 (corresponding to the crystalline polypropylene resin moiety of (A-1)) and 32 wt.-% of two elastomers as impact modifier (point 3.2 of the decision). The value of 809 MPa for the flexural modulus (FM) of the crystalline polypropylene was that estimated for the resin moiety of (A-1) (points 3.3 and 3.4 of the decision).

3.4 It follows from the above, that the reasoning of the opposition division was based on the premise either (1) that the two moieties of the crystalline ethylene propylene block copolymer (A-1) were two different polymeric entities of a composition or (2) that the wording of claim 11 would encompass the crystalline ethylene propylene block copolymer (A-1) of D1, the blocks of which would correspond to the polypropylene resin (a) and the impact modifier (b).

3.5 D1 (claim 1) discloses polypropylene resin compositions comprising 30 to 92 wt.-% crystalline ethylene propylene block copolymer (A), 5 to 30 wt.-% ethylene- α olefin copolymer rubber (B), 3 to 20 wt.-% ethylene-butene-1 copolymer (C) having specific characteristics and 0 to 20 wt.-% inorganic filler (D).

3.6 The crystalline ethylene propylene block copolymer (A) is defined in claim 2 as having a crystalline polypropylene moiety and a specific ethylene-propylene random copolymer moiety. The crystalline ethylene propylene block copolymer (A) may usually be produced by two-step polymerization of propylene and then a mixture of ethylene and propylene in the presence of Ziegler-Natta catalyst, a combination of titanium chloride and an alkyl aluminum compound (page 3, lines 8 to 12). It follows from the above that the crystalline ethylene propylene block copolymer (A) is not a composition of two polymeric entities formed by a crystalline polypropylene moiety and an ethylene-propylene random copolymer moiety but is actually a copolymer made of these two moieties. This information is also provided in the title of Table 1 which defines various "crystalline ethylene propylene block copolymers A" (see point 3.2 above), in particular (A-1) on the basis of which the opposition division came to the conclusion that novelty of the subject-matter of claim 11 should be denied.

3.7 Also, the interpretation of claim 11 of the main request of the patent in suit made by the opposition division is not supported by the wording of that claim nor by the description of the patent. Claim 11 pertains to a polyolefin composition comprising (a) a polypropylene resin and (b) less than 40 wt.-% of an impact modifier. Such a composition cannot be seen as encompassing the crystalline ethylene propylene block copolymer (A) of D1 as a block copolymer is by definition not a blend or mixture of the blocks from which it is constituted. Furthermore, paragraph [0016] of the patent in suit confirms that the polypropylene resin (a) and the impact modifier (b) differ from one another as it is disclosed that the impact modified

polypropylene copolymer composition is composed of the first polymer component comprising a high crystalline homopolymer or copolymer resin (component (a)), blended with an impact modifier (component (b)). Accordingly, the impact modified polypropylene compositions of examples 4 and 6 of the patent in suit comprise a polypropylene homopolymer (example 4) or copolymer (example 6) to which 18% by weight of a commercial rubber Affinity PL 1880 was added as impact modifier.

3.8 As a result, the Board understands the impact modifier (b) of operative claim 1 to be in admixture with resin (a), i.e. in the form a blend. On that basis the reasoning of the opposition division which is based on a calculation of the xylene solubles (XS), the molecular weight distribution (Q in D1 or MWD in the patent in suit) and the flexural modulus of the sole crystalline propylene moiety of the block copolymer (A-1) but not on the whole copolymer (A-1) of D1 does not show that the whole copolymer (A-1) would meet the requirements set out in claim 11 of the main request. As a consequence, neither the block copolymer (A-1), nor the composition of the comparative example 19 of D1 have been shown to take away the novelty of claim 11. Hence, the sole reason invoked by the opposition division for rejecting the claims as granted fails to convince.

3.9 Remittal

3.10 Since the opposition division had not ruled on the other objections raised by the former opponent which have been maintained on appeal (letter of 25 October 2010), and the sole appellant has requested the case to be remitted to the first instance for further prosecution, the Board considers it appropriate

in the circumstances of the present case to exercise its power under Article 111(1) EPC, to remit the case to the Opposition Division for further prosecution, if the latter first decides to continue the opposition proceedings of its own motion pursuant to Rule 84(2) EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance for further prosecution on the basis of the claims as granted.

The Registrar:

The Chairman:



E. Goergmaier

F. Rousseau

Decision electronically authenticated