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Datasheet for the decision of 24 October 2017

Case Number: T 1624/14 - 3.3.03

Application Number: 08759681.3

Publication Number: 2147026

IPC: C08F210/06

Language of the proceedings: EN

Title of invention:
SOFT 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 (yes)

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Case Number: T 1624/14 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 24 October 2017

Appellant: (Patent Proprietor)	Basell Poliolefine Italia S.r.l. Via Soperga, 14/A 20127 Milano (IT)
Representative:	Giberti, Stefano Basell Poliolefine Italia S.r.l. Intellectual Property P.le G. Donegani 12 44100 Ferrara (IT)
Respondent: (Opponent)	Borealis AG IZD Tower Wagramerstrasse 17-19 1220 Wien (AT)
Representative:	Maiwald Patentanwalts GmbH Elisenhof Elisenstrasse 3 80335 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 6 June 2014 revoking European patent No. 2147026 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	D. Semino
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 6 June 2014 revoking European patent No. 2 147 026.

II. 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.

III. The contested decision was *inter alia* based on a first auxiliary request (amended set of claims filed as second auxiliary request on 21 March 2014), claims 1 and 4 of which read as follows:

"1. A propylene polymer composition having a Flexural modulus lower than 500MPa, a total ethylene content from 9 to 30% by weight, a xylene soluble fraction at room temperature higher than 32% by weight, a melting temperature measured by DSC (Tm°C) from 130 to 150°C and a ratio between the weight of xylene soluble fraction at 25°C and the **hexane soluble fraction determined on plaque (100µm)** of higher than 5." (emphasis by the Board).

"4. The polypropylene polymer composition of claim 1 having hexane extractability determined on film (100 µm) of lower than 6% by weight."

IV. In the present decision the parameter "hexane soluble fraction determined on plaque (100µm)" mentioned in claim 1 of the above first auxiliary request is referred to as **"HSF(100 µm plaque)"**.

V. The following documents were *inter alia* cited in the opposition division's decision:

D1: WO 03/046021
D5: EP 1 681 315
D6: Experimental report of Borealis on examples 22 and 23 of D5
D7: Experimental report of Borealis on the determination of ethylene content by Fourier Transform Infrared Spectroscopy (FTIR)
D8: Experimental report of Borealis on the determination of flexural modulus
D9: Experimental report of Borealis on the determination of hexane solubles
D19: FDA method: CFR - Code of Federal Regulations, Title 21, Chapter 1, Part 177, section 1520, Annex B

In that decision, the opposition division *inter alia* held that the requirements of sufficiency of disclosure were satisfied but that claim 1 of the first auxiliary request was anticipated by example 23 of D5 in view of D6. Regarding sufficiency of disclosure it was in particular indicated that the patent in suit contained at least three working examples for which the parameters mentioned in the operative claims were measured so that the skilled worker, when in doubt as to which method should be used for a given parameter, could rework the examples and determine by trial and error the correct method of determination. Also, the respondent had determined those parameters in D7 to D9 and measured them on a specific sample in D6. Therefore, the repetition of the examples of the patent in suit did not amount to an undue burden (see paragraph bridging pages 4 and 5 of the decision).

VI. The patent proprietor (appellant) appealed the above decision and requested that the decision of the opposition division be set aside and the patent be maintained on the basis of the main request filed therewith, which was identical to the first auxiliary request on which the contested decision is based.

VII. With its rejoinder to the statement of grounds of appeal the opponent (respondent) requested that the appeal be dismissed.

VIII. A communication dated 3 May 2017 was issued by the Board in preparation of the oral proceedings. It was in particular indicated in section 9.1 thereof that the respondent's objections pursuant to Article 100(b) EPC *inter alia* appeared to be related to the question whether or not the patent failed to provide fundamental technical information on how to measure the feature of operative claim 1 which is related to HSF(100 µm plaque), in particular in respect of:

- the preparation of the required 100 µm thick plaques by compression moulding;

- the cooling method to be applied.

IX. With letter of 22 September 2017 the respondent submitted

D23: Declaration of Mr. Gahleitner, dated 7 August 2017

X. Oral proceedings before the Board were held on 24 October 2017 in the presence of both parties.

XI. The appellant's arguments in respect of sufficiency of disclosure, insofar as relevant to the present decision, may be summarised as follows:

(a) It was indicated in paragraph 47 of the patent in suit that the feature HSF(100 µm plaque) was determined using a modified version of D19. The only modification resided in the fact that the parameter was determined on a plaque prepared by compression moulding instead of on a film. D19 mentioned that the measurement was to be made on 1 g of material consisting of polymeric samples having a dimension of 25.4x25.4 mm which were cut out a film. However, it was not specified in D19 that all samples should be cut out of a single film. Therefore, the measurement could be made using about 12 to 15 small plaques of 25.4x25.4x0.1 mm which had been made individually, for which it was not disputed that they could be made without difficulty.

(b) In D7 and D9 the respondent had been able to prepare by compression moulding thick films or plaques having a thickness of 50 µm and 170 µm, respectively, which was not that different from the required thickness of 100 µm. Also, the respondent had indicated in D23 that large plaques of 100 µm thickness were indeed prepared, although they did not exhibit a constant thickness. Nevertheless, the skilled person could cut out of such a large plaque with varying thickness several smaller plaques having a size of 25.4x25.4x0.1 mm so as to get a sample of 1 g as required by D19. The difference in thickness among the samples was not important for determining HSF(100 µm plaque). In that respect, no specific apparatus was required for preparing such

large plaques having a thickness of 100 µm as shown e.g. in D23.

(c) The results shown in D9 were related to the question of the reliability of the determination method of HSF(100 µm plaque), which was a question of clarity, not of sufficiency of disclosure.

(d) In view of the above the parameter HSF(100 µm plaque) could be determined either by preparing by compression moulding several small plaques with dimensions of 2.54x2.54x0.1 mm or by preparing a larger plaque as in D23 from which sufficient samples with dimensions of 2.54x2.54x0.1 mm and having a suitable thickness were cut out. The latter method had been used in the examples of the patent in suit.

(e) For those reasons the requirements of sufficiency of disclosure in respect of the feature HSF(100 µm plaque) were satisfied.

XII. The respondent's arguments in respect of sufficiency of disclosure, insofar as relevant to the present decision, may be summarised as follows:

(a) Although it was indicated in the patent in suit that the parameter HSF(100 µm plaque) was measured using a modified version of D19, no indication was provided regarding which modification(s) had indeed been made. Considering the wording of the sentence of paragraph 47 of the patent in suit and operative claim 4 (which corresponded to granted claim 5), it was not derivable from the patent in suit that said modification only resided in the fact that D19 was to be performed on plaques made by compression

moulding instead of on films.

(b) In order to determine HSF(100 µm plaque) according to D19, a large plaque having dimensions of e.g. 200x200x0.1 mmm was required. However, the respondent had not been able to prepare so large plaques by compression moulding using soft polymers as defined in operative claim 1. The fact that the appellant indicated during the opposition proceedings that a specific apparatus was required to prepare such plaques showed that essential information was missing in the patent in suit.

(c) The feature HSF(100 µm plaque) measured the amount of products that were extracted from a sample when it was contacted with hexane. Said process was directly related to the dimensions of the sample and the thickness played a crucial role. For that reason, the plaques prepared in D23 were not suited for the determination of HSF(100 µm plaque).

(d) It was indicated in D19 that small samples of 1 inch-square had to be cut out of film. Therefore, a method according to D19 had to be made accordingly and it was not allowable to perform a measurement using several small samples of 1 inch-square which had been made individually. In doing so, the skilled person would further increase the variability, which was not desirable.

(e) The thick films prepared in D7 were intended for FTIR measurements and had a dimension of 10x10x0.1 mm, which was much smaller than the dimensions of the plaque required for determining HSF(100 µm plaque).

(f) It was shown in D9 that the conditions under which the samples were prepared, in particular the cooling conditions after preparation, had a significant impact on the determination of HSF(100 µm plaque). Considering the lack of information in the patent in suit on how D19 was modified, the results of D9 were related to a lack of sufficiency of disclosure and not merely to a lack of clarity.

(g) Considering that the feature HSF(100 µm plaque) was, according to the appellant, the sole distinguishing feature over D5, it was extremely important that that parameter be sufficiently disclosed. In addition, since that feature was an unusual parameter, the appellant had the duty to make a full and complete disclosure of how that parameter had to be determined, which was not done.

(h) For those reasons the requirements of sufficiency of disclosure in respect of feature HSF(100 µm plaque) were not satisfied.

XIII. 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 the main request filed with the statement of grounds of appeal.

The respondent requested that the appeal be dismissed.

Reasons for the Decision

Sufficiency of disclosure

1. In order to meet the requirements of sufficient disclosure, an invention has to be disclosed in a manner sufficiently clear and complete for it to be carried out by the skilled person, without undue burden, on the basis of the information provided in the patent specification, if needed in combination with the skilled person's common general knowledge. This means in the present case that the skilled person should be in particular able to prepare a polypropylene polymer composition according to claim 1.

2. The polypropylene composition according to claim 1 is characterised by a combination of five parameters, *inter alia* by the ratio between the weight of xylene soluble fraction at 25°C and the HSF(100 µm plaque) and one of the respondent's objection was based on the argument that the patent in suit does not provide adequate information for the measurement of HSF(100 µm plaque).

3. In that respect the sole information provided by the patent in suit is that said feature is determined according to "modified FDA method (federal registration, title 21, Chapter 1, part 177, section 1520, s. Annex B) on polymer formed into 100 µm thick plaque or film. The plaque is prepared by compression molding..." (paragraph 47).

3.1 From said information it is derivable that the feature HSF(100 µm plaque) has to be determined on a plaque with a thickness of 100 µm which was prepared by

compression moulding and using a modification of the method taught in D19.

3.2 However, no information is provided in the patent in suit regarding the kind of modification of D19 which has to be made.

3.3 The appellant argued that the sole modification made was that the method was carried out on a plaque made by compression moulding instead as on a film as taught in D19.

3.3.1 However, said information is not derivable from the patent in suit itself. It was further not shown that that information belonged to common general knowledge. Considering that the question whether or not the requirements of sufficiency of disclosure are fulfilled must be answered on the basis of the content of the patent in suit if needed completed by common general knowledge, any further information cannot be relied upon to heal any deficiencies in the patent in suit (Case Law of the Boards of Appeal of the EPO, II.C.4.1).

3.3.2 Besides, the appellant's argument is not in line with the wording of paragraph 47 of the patent in suit which, according to its literal reading and giving to the words their ordinary meaning, indicates that the parameter HSF(100 µm plaque) is determined using a modification of D19 carried out on either a 100 µm plaque or a 100 µm film made of a polymeric material. Also, the interpretation of paragraph 47 of the patent in suit proposed by the appellant would not make sense for the feature of hexane extractability "on film (100 µm)" mentioned in operative claim 4 since D19 is already performed on samples taken from a film (page 4,

section (d) below the Table).

3.3.3 Therefore, the appellant's argument does not convince.

3.4 During the proceedings the respondent constantly argued that, for the soft polymers defined in operative claim 1 (which are *inter alia* characterised in that they have a flexural modulus lower than 500 MPa) it was not possible to prepare by compression moulding a plaque of 100 µm which is large enough to carry out the method taught in D19.

3.4.1 It was agreed by the parties that according to D19

- "The film to be tested shall be cut into approximately 1-inch squares..." (page 4: section (d), below the Table); and

- the procedure of determination of the hexane soluble fraction is performed using 1 g of sample (page 4: point (3), section "(c) Procedure", first sentence).

3.4.2 Therefore, in order to carry out the method according to D19 on a plaque of 100 µm the skilled person must be able to prepare a plaque of 100 µm thickness which is large enough in order to cut sufficient smaller samples having dimensions of 2.54x2.54x0.1 mm (surface of 1 square-inch; thickness of 100 µm) to get a total amount of 1 g thereof. During the oral proceedings before the Board the appellant indicated that about 12 to 15 smaller samples would be needed.

In that respect, the appellant argued that D19 did not teach that the smaller samples having dimensions of 2.54x2.54x0.1 mm should be cut out of a single larger

sample.

However, that argument is neither in line with the teaching of D19 cited above "The film ... shall be cut into ..." nor with the indication in paragraph 47 of the patent in suit that the modified method of D19 is to be carried out on "polymer formed into 100 µm plaque or film", wherein plaque and film are used in the singular form (i.e. not a plural). Also, it is agreed with the respondent that using several smaller plaques which have each been made individually is likely to increase the variability of the determination method as compared to the measurement carried out on the same amount of plaques cut out of a single, larger plaque, which is not desired. Besides, there is no indication in the patent in suit that D19 should be modified in that sense as argued by the appellant. For those reasons, the appellant's argument is rejected.

3.4.3 Although the respondent had constantly argued during the opposition proceedings (decision: page 3, section II.i)) and during the appeal proceedings that it was not possible to prepare a large plaque of 100 µm thickness using soft polymers in order to follow the instructions given in D19, the appellant has not provided any information how this could be done, in particular not in reply to the respondent's rejoinder to the statement of grounds of appeal or to the Board's communication in which said issue was identified (sections 9.1.1 and 9.1.2).

In particular, it had been noted in said communication that it appeared from the last paragraph on page 2 of the appellant's letter of 23 December 2011, that a specific apparatus may be needed to prepare such plaques. Should that statement, which was never

contested by the appellant until the oral proceedings before the Board, be correct, there would be no information in that respect in the patent in suit so that the skilled person would not be in a position to prepare the large plaques required to determine the feature HSF(100 µm plaque).

3.4.4 During the oral proceedings before the Board the appellant for the first time argued that no specific apparatus was required for making a large plaque of 100 µm thickness and that the skilled person could well use a large plaque as prepared by the respondent in D23 which was undeniably feasible although it led to problems of reproducibility and homogeneity in terms of sample thickness (D23: top of page 2).

In that respect, it is noted that the HSF(100 µm plaque) feature is a parameter related to the measurement of the extractable fraction of a polymer sample when contacted with hexane. Such a measurement is known to characterise the diffusion of the extractables out of the tested sample and to depend on the thickness of said sample. Therefore, a lack of reproducibility and constant sample thickness, as found by the respondent in D23 (top of page 2) and which was not contested by the appellant, is not adequate to allow a proper determination of the parameter HSF(100 µm plaque). For that reason, the appellant's argument according to which that feature could be determined on plaques prepared as in D23 is not persuasive.

3.4.5 The appellant submitted that the respondent had no difficulty to produce thick films with a thickness of 50 µm in D7.

However, the respondent explained that D7 was directed to FTIR measurements which were made on small samples having dimensions of 10x10 mm (respondent's letter of 25 February 2015: section 6.7; D23: last paragraph on page 1), which was not contested by the appellant. Therefore, the fact that it is possible to prepare thick films having dimensions of 10x10x0.05 mm with soft polymers as in D7 is not sufficient in order to demonstrate that the skilled person may prepare without difficulties larger plaques of 100 µm thickness as required by D19.

3.4.6 The appellant further argued that the respondent had no difficulty to produce plaques with a thickness of 170 µm in D9, which was not so different from 100 µm.

However, the respondent constantly argued that for soft polymers as defined in operative claim 1, it was particularly difficult to prepare large plaques which were as thin as 100 µm. In that respect, a difference of thickness of 170 µm to 100 µm is significant and, in the Board's view, the fact that it is possible to prepare large plaques of 170 µm thickness with soft polymers is not sufficient in order to demonstrate that the skilled person may prepare with those polymers large plaques of 100 µm as required by D19.

3.4.7 In view of the above it is concluded that essential technical information is missing in order to prepare by compression moulding and using the soft polymers according to operative claim 1 the plaques having a thickness of 100 µm which are necessary to determine the feature HSF(100 µm plaque) specified in claim 1 according to the method of D19.

3.5 The respondent further argued that it was shown in D9 that the determination of the parameter HSF(100 µm plaque) was affected by the method of cooling used.

In D9 compression moulded plaques of two different soft heterophasic ethylene-polypropylene copolymers were measured on plaques with dimensions 240x240x0.17 mm using three different cooling procedures (standard cooling at 15°C/mn; fast cooling at about 100°C/mn; quenching in cold water). It was shown in the Table on page 2 that different cooling rates had a significant impact on the determination of the HSF(100 µm plaque) feature, which was not contested by the respondent.

In the present case, keeping in mind that it is indicated in paragraph 47 of the patent in suit that the method of D19 has to be modified and that no information is provided in how said modification consists in, the absence of information regarding the cooling procedure is a severe deficiency which amounts to a further fundamental lack of technical information concerning the determination of the feature HSF(100 µm plaque) specified in operative claim 1.

3.6 It was further neither shown nor argued by the appellant that the parameter HSF(100 µm plaque) was usual in the art and/or that the skilled person could rely on common general knowledge in order to determine said parameter or to compensate the lack of information of the patent in suit regarding either the preparation of large plaques having a thickness of 100 µm or the cooling method to be used as indicated in sections 3.4 and 3.5 above.

In that respect, it is noted that the sole other

document cited in the proceedings which discloses that parameter is D1 (page 10, middle of the page and page 13, Table 1), whereby reference is only made therein to D19 (unmodified). Therefore, D1 does not contain any supplementary information regarding the determination of HSF(100 µm plaque) as compared to the patent in suit, in particular neither regarding the modification of D19 indicated in paragraph 47 of the patent in suit nor regarding the determination of the hexane soluble fraction on a 100 µm plaque.

3.7 In the contested decision, the opposition division was of the opinion that any lack of information regarding the parameters mentioned in operative claim 1 could be compensated by reworking, without undue burden, the examples of the patent in suit and that the respondent had determined the feature HSF(100 µm plaque) in D6.

3.7.1 However, in view of the lack of information regarding

- the kind of modification to be done to D19 as indicated in paragraph 47 of the patent in suit;

- the preparation of large plaques as required by D19 having a thickness of 100 µm; and

- the cooling procedure to be adopted;

neither can it be concluded nor was it shown by the appellant that the skilled person may find out, by trial and error and without undue burden, which working conditions and which apparatus were used in order to obtain the results in terms of HSF(100 µm plaque) indicated in Table 2 of the patent in suit. No further information in that respect may further be derived from D7 (see section 3.4.5 above), D8 (which does not deal

with the preparation of 100 µm plaques) or D9 (see section 3.4.6 and 3.5 above), which were further referred to by the opposition division.

3.7.2 Also, in D6 the feature HSF(100 µm plaque) was determined by the respondent on a 100 µm cast film and not on a 100 µm plaque made by compression moulding according to paragraph 47 of the patent in suit (see D6: page 4, "hexane extractable fraction").

3.7.3 For those reasons, the opposition division's conclusion is not adhered to.

3.8 In view of the above it is concluded that essential technical information is missing in order to enable the skilled person to determine the feature HSF(100 µm plaque) mentioned in operative claim 1.

Further considering that the appellant has deliberately decided to define the subject-matter of operative claim 1 by the way of a parameter using a method which is not commonly used in the art, it was its duty to provide full information how said method should be carried out. Since, as explained above, that requirement is in the present case not satisfied, there is a fundamental lack of technical information concerning the determination of the feature HSF(100 µm plaque) mentioned in operative claim 1.

Such a fundamental lack of technical information results in the skilled person not being able to reproduce the examples of the invention and verify whether the conditions relating to the critical parameter is met, nor to carry out the invention under conditions different from the exemplified ones.

3.9 For those reasons, the main request does not comply with the requirements of sufficiency of disclosure.

3.10 The appellant's sole request being not allowable, the appeal is to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

N. Schneider D. Semino

Decision electronically authenticated