Internal distribution code:

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

Datasheet for the decision of 7 December 2017

Case Number: T 1833/14 - 3.3.03

Application Number: 10170455.9

Publication Number: 2243803

IPC: C08L23/10, C08L23/08, C08L23/16

Language of the proceedings: EN

Title of invention:
Tough composition for food applications

Patent Proprietor:
Borealis AG

Opponent:
INEOS Europe AG

Headword:

Relevant legal provisions:
EPC Art. 54, 56
RPBA Art. 13(1), 13(3)

Keyword:
Novelty - public prior use (no)
Inventive step - (yes)
Late-filed document - admitted (no)

Decisions cited:
G 0001/92, T 0977/93, T 0301/94, T 0370/02, T 2045/09, T 0023/11

Catchword:
Public prior use - reproducibility (see points 1.3 to 1.10)

Europäisches Patentamt
European Patent Office
Office européen des brevets

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 1833/14 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 7 December 2017

Appellant: (Opponent)	INEOS Europe AG Avenue des Uttins 3 Rolle CH-1180 Vaud (CH)
Representative:	Smith, Julian Philip Howard Mathisen & Macara LLP Communications House South Street Staines-upon-Thames, Middx TW18 4PR (GB)
Respondent: (Patent Proprietor)	Borealis AG IZD Tower Wagramerstraße 17-19 1220 Vienna (AT)
Representative:	Lux, Berthold Maiwald Patentanwalts GmbH Elisenhof Elisenstraße 3 80335 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 25 June 2014 rejecting the opposition filed against European patent No. 2243803 pursuant to Article 101(2) EPC.**

Composition of the Board:

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

Summary of Facts and Submissions

I. The appeal by the opponent lies from the decision of the opposition division rejecting the opposition filed against European patent No. 2 243 803.

II. The patent in suit is based on an European patent application which was filed as a divisional application of the parent application 08 167 852.6 on the basis of which European patent 2 182 030 was granted. That patent was maintained in amended form during first instance proceedings and the patent proprietor lodged an appeal against that decision (T 1776/14). None of the two opponents, one of which was the same opponent as in the present case, filed an appeal. The patent proprietor's appeal was eventually withdrawn before the oral proceedings had taken place and after receipt of the Board's preliminary opinion.

III. The patent in suit was granted on the basis of 12 claims, of which claim 1 read as follows:

"1. Heterophasic polypropylene composition comprising

- 73 to 98 wt.-% of a polypropylene matrix (M) and
- 2 to 27 wt.-% an elastomeric copolymer (E) being dispersed in the matrix (M), based on the polypropylene matrix (M) and the elastomeric copolymer (E),
  wherein the elastomeric copolymer (E) comprises units derived from
- propylene and
- ethylene and/or C4 to C20 α-olefin,
  and wherein further,

- Mz/Mn of the xylene cold soluble fraction (XCS) of the heterophasic polypropylene composition is below 15.2, wherein Mz is the z-average molecular weight measured according to ISO 16014-4:2003 and Mn is the number average molecular weight measured according to ISO 16014-4:2003,
- the Mz of the xylene cold soluble fraction (XCS) of the heterophasic polypropylene composition is at least 950 kg/mol,
- the intrinsic viscosity of the xylene cold soluble fraction (XCS) of the heterophasic polypropylene composition is above 2.1 dl/g measured according to ISO 1628-1 (at 135 °C in decaline), and
- the MFR_2 (230°C) of the heterophasic polypropylene composition measured according to ISO 1133 is more than 25 g/10 min."

Claims 2 to 10 were dependent on claim 1. Claims 11 and 12 were directed to articles comprising a composition according to any of claims 1 to 10 and to a process for the preparation of a composition according to any of claims 1 to 10, respectively.

IV. In the present decision the "xylene cold soluble fraction" mentioned in granted claim 1 will be abbreviated as "XCS" and the features of granted claim 1 which are related thereto will be referred to a Mz/Mn(XCS), Mz(XCS) and IV(XCS).

V. A notice of opposition to the patent was filed requesting revocation of the patent in its entirety.

VI. In the contested decision the following documents were *inter alia* cited:

D1a: Invoice corresponding to the sale of

Rigidex®P450xHP60 to Groku Kunststoffe GmbH in August 2008

D2a: Datasheet Rigidex P 450xHP60, March 2008

D3: Production analysis of batch DHB1082 dated 9 February 2008

D4: Declaration of Gaetane Hallot dated 7 September 2012

D5: Polypropylene and other Polyolefins, Elsevier, 1990, pages 324-327

D6: WO 01/58970

D7: Vrachtbrief from Ineos Europe Ltd. to Groku Kunststoffe GmbH concerning polypropylene resin 450xHP60, lot number PHBE1082A, 13 August 2008

D8: Additional production data sheet, 450xHP60, dated 9 February 2008

D9: Declaration of Veerle Gonniseen, dated 17 January 2014

D10: US 6 759 475

In that decision the opposition division held that the patent in suit satisfied the requirements of sufficiency of disclosure and that an alleged public prior use (Rigidex®P450xHP60) supported by D1a, D2a, D3, D4 and D7 to D9 was not part of the state of the art. An inventive step was further acknowledged starting from D10 as closest prior art. Also, it was held that although D6 was not the closest prior art, the same conclusion would be reached when starting from D6 as closest prior art.

VII. The opponent (appellant) lodged an appeal against the above decision and requested that the decision of the opposition division be set aside and the patent be revoked. Together with its statement of grounds of appeal the following document was filed:

D11: Declaration of Hermann Böcker, dated 20 October 2014

VIII. In the reply to the statement of grounds of appeal the patent proprietor (respondent) requested that the appeal be dismissed (main request) or, alternatively, that the patent be maintained in amended form according to any of the first to the third auxiliary requests filed therewith. Also, the following documents were filed:

D12: Effect of xylene solubles in biaxially oriented polypropylene, S. Kim and V.M. DiNardo, ANTEC 2003, pages 258-262

D13: Gel Permeation Chromatography of Ethylene-Propylene Copolymerization Products, T. Ogawa and T. Inaba, J. Appl. Pol. Sci., Vol. 21, pages 2979-2990, 1977

IX. In a communication accompanying the summons to oral proceedings issued by the Board, issues to be discussed at the oral proceedings were specified.

Regarding novelty it was in particular indicated that it might have to be discussed whether or not the alleged public prior use constituted by a sample of "Polypropylene Granulat 450xHP60" with charge reference "PHBE1082A" could be held to belong to the state of the art, in particular taking into account the findings of decision G 1/92 (OJ EPO 1993, 277) according to which one of the necessary condition for a product to belong to the state of the art is that it may be reproduced without undue burden by the skilled person (see section 6.3 of the communication). In that respect, it was further noted that in its notice of opposition the appellant had argued that the combination of parameters

defined in granted claim 1 could only be obtained using a specific catalyst system.

X. With letter of 12 October 2017 the appellant further filed:

D14: EP-A-2 072 546

XI. With letter of 7 November 2017 third party observations pursuant to Article 115 EPC were filed, whereby documents D14 to D17 were submitted, of which only D14 is relevant for the present decision.

XII. Oral proceedings were held on 7 December 2017 in the presence of both parties.

XIII. The appellant's arguments, as far as relevant to the operative main request (patent as granted), were essentially as follows:

Alleged public prior use

(a) Claim 1 was anticipated by the public sale of Rigidex®P450xHP60 as shown by D1a, D2a, D3, D4, D7 to D9 and D11.

(b) Regarding the question of the reproducibility of Rigidex®P450xHP60, the skilled person had significant experience in preparing compositions such as those defined in granted claim 1. Therefore, making a composition having the features specified in granted claim 1 was not difficult. Although it would be more difficult to obtain the same mechanical properties as the Rigidex product, those properties were not specified in granted claim 1 and were, thus, not relevant to the

question of novelty.

Also, the product of granted claim 1 was very similar to those prepared in D6 and the skilled person would know how to adapt D6 in order to prepare such a product.

It was further not reasonable that a product according to granted claim 1 which was in the public's hands before the filing date of the patent in suit could be held not to anticipate the subject-matter of granted claim 1.

(c) For those reasons, granted claim 1 was anticipated by the public prior use Rigidex®P450xHP60.

Inventive step

(d) Contrary to the opposition division's view, D6 was a suitable starting point for the assessment of the inventive step.

The subject-matter of granted claim 1 differed from example 11 of D6 only in that it exhibited a higher Mz(XCS). In particular, the feature "Comp. B IV" disclosed in Table 1B on page 31 of D6 corresponded to the feature IV(XCS) specified in granted claim 1, as concluded by the opposition division.

Since no technical effect was shown in relation to that distinguishing feature, the problem to be solved was to provide an alternative composition. In that respect, the examples of the patent in suit were not related to the above identified distinguishing feature.

Considering that it was indicated in D6 and also known from D5 that high molecular weights were related to improved impact properties, the skilled person would obviously maximise the molecular weight of the rubber fraction to improve impact resistance. Increasing the molecular weight inevitably resulted in an increase in Mz(XCS). The value of at least 950 kg/mol in granted claim 1 was arbitrary and could not confer an inventive step. Besides, since each of Mn(XCS), Mz(XCS) and Mw(XCS) increased in a similar manner with increasing molecular weight, the ratio Mz/Mn(XCS) would not change significantly when Mz(XCS) increased. In that respect, it was well known in the art that the molecular weight could be increased merely by reducing the amount of hydrogen used during the polymerisation process.

(e) Alternatively, the subject-matter of granted claim 1 differed from the closest prior art constituted by example 17 of D10 only in that the feature Mz/Mn(XCS) could not be proven beyond reasonable doubt to be inside the range defined in granted claim 1. To arrive at that conclusion, it had to be taken into account that:
- it was derivable from D10 that component Y-7 of said example 17 did not contribute to the XCS component;
- applying the Mark-Houwink relationship using the parameters of polypropylene, the weight average molecular weight of the xylene cold soluble fraction of components BY-1 and X-7 were Mw(XCS/BY-1) = 1250 kDa and Mw(XCS/X-7) = 270 kDa, respectively, which led to a weight average molecular weight of the

xylene cold soluble fraction of the whole composition of Mw(XCS) = 600 kDa;
- a Mw(XCS) of 600 kDa whereby one third of the distribution has an Mw(XCS) of 1250 kDa had to result in a Mz(XCS) of at least 950 kDa;
- in a distribution in which two thirds of the molecules had a molecular weight of 270 kDa, Mn(XCS) had to be relatively close to this value.

Since no technical effect was shown in relation to said distinguishing feature (Mz/Mn(XCS)), the problem to be solved was to provide an alternative composition.

In order to arrive at the subject-matter of granted claim 1, one only had to reduce the ratio Mz/Mn(XCS) so as to be below 15.2. However, since that range constituted an arbitrary distinction, it would be easy for the skilled person following the teaching of D10 to make a composition similar to that of example 17 of D10 but in which the Mz(XCS) and Mn(XCS) values were slightly different such that Mz/Mn(XCS) was below 15.2.

(f) Should the arguments of the respondent that the subject-matter of granted claim 1 differed from that of example 17 of D10 in the Mz(XCS) value be agreed upon, then the same line of argumentation as in respect of D6 applied.

(g) For those reasons, the subject-matter of granted claim 1 was not inventive.

Admittance of the late-filed document D14

(h) Example CE1 of D14 satisfied all the features of granted claim 1 apart from Mz(XCS) and Mz/Mn(XCS). Since Mn(XCS) was indicated, only Mz(XCS) was missing. Considering that the process used in example CE1 of D14 was very similar to that of example E2 of the patent in suit, which was according to granted claim 1, the missing features Mz(XCS) and Mz/Mn(XCS) had to be implicitly satisfied by example CE1 of D14.

Since D14 was a document of the respondent, the missing feature Mz(XCS) was in the hand of the respondent and he should have provided it in order to clearly demonstrate novelty, which was not done.

Document D14 was well known to the parties and to the Board since it had been dealt with in details in the parallel case T 1776/14 (see section II above). Besides, in said parallel case, the same Board as in the present case had indicated in its preliminary opinion that the missing feature over D14 (which was also related to Mz(XCS)) appeared to be implicitly disclosed. Therefore, the same conclusion should be reached in the present case.

Under such circumstances, D14 was *prima facie* highly relevant and should be admitted to the proceedings.

XIV. The respondent's arguments, as far as relevant to the operative main request (patent as granted), may be summarised as follows:

Alleged public prior use

(a) The alleged public prior use in respect of Rigidex®P450xHP60 and supported by D1a, D2a, D3, D4, D7 to D9 and D11 was not proven "up to the hilt" as required by the case law of the EPO.

(b) The appellant's argument according to which it would not be difficult to reproduce a sample of Rigidex®P450xHP60 went against its objections of lack of sufficiency of disclosure put forward in the first instance proceedings. Besides, in the technical field of the patent, it was not possible to reproduce such a product if one neither knew the process and catalyst used to prepare it, nor the nature of the matrix and of the rubber. In that respect, those characteristics could not be deduced from the product itself.

(c) The question to be answered was if the skilled person was in a position to reproduce the commercial product *per se* with all its properties, not only a product exhibiting the combination of properties specified in granted claim 1. In that respect, the teaching of D6 was in particular not sufficient to ensure the reproducibility of the specific product Rigidex®P450xHP60, because, for instance, a different catalyst could be used in D6 and for the alleged public prior use.

(d) For those reasons, novelty over the alleged public prior use Rigidex®P450xHP60 was given.

Inventive step

(e) The subject-matter of granted claim 1 differed from the closest prior art constituted by example 17 of D10 in the specific ranges defined for features Mz(XCS) and Mz/Mn(XCS). In that respect, the appellant's view regarding the contribution of component Y-7 to the XCS component were contested on the basis of D12 and D13. Also, the calculations made by the appellant in respect of Mz(XCS) and Mn(XCS) were incorrect.

Comparative example CE1 differed from examples E1 and E2 of the patent in suit (illustrative of granted claim 1) in that the features Mz(XCS) and IV(XCS) were lower. It was shown in the patent in suit that those differences led to improved brittle/ductile transition temperature while maintaining good tensile and Charpy properties.

There was no hint in D10 to increase Mz(XCS) while simultaneously keeping Mz/Mn(XCS) below 15.2. Also, D6 neither provided an incentive to increase Mz(XCS) above the values disclosed in the examples of D6, nor provided a hint how to improve the brittle/ductile transition temperature.

(f) Alternatively, should D6 be considered as the closest prior art as argued by the appellant, the subject-matter of granted claim 1 differed from example 11 of D6 not only in the Mz(XCS) value but also in the specific range of intrinsic viscosity of the xylene cold soluble fraction. In that respect, the feature "Comp. B IV" disclosed in Table 1B on page 31 of D6 did not correspond to the feature IV(XCS) specified in granted claim 1,

contrary to the opposition division's view, but to the intrinsic viscosity of said component B, which was defined in D6 either as the whole rubber component (page 9, lines 25-26) or the high molecular weight portion of the xylene soluble portion (page 5, lines 19-25). It was further derivable from the data provided in D6 that the matrix (component A of D6) contributed to 13.5 wt.% of the xylene cold soluble fraction: therefore, said contribution should be taken into account. Consequently, component B of D6 could not be equated with the XCS fraction according to granted claim 1.

Since D6 neither disclosed Mz(XCS) values in the range of at least 950 kg/mol according to granted claim 1, nor provided a hint how to increase Mz(XCS) so as to be in the range of at least 950 kg/mol while keeping the ratio Mz/Mn(XCS) below 15.2, the subject-matter of granted claim 1 could not be arrived at in an obvious manner. In that respect, none of the examples of D6 exhibited a Mz(XCS) of at least 950 kg/mol as required by granted claim 1. Also, since the examples of D6 showed that increasing Mz(XCS) led to decreased melt flow rate corresponding to feature MFR_2 of granted claim 1, the skilled person would not be motivated to increase Mz(XCS). Besides, example 6 of D6 showed that increasing Mz(XCS) led to a ratio Mz/Mn(XCS) above 15.2. Finally, should the amount of hydrogen used during the polymerisation process be reduced so as to increase the molecular weight, as contemplated by the appellant, each of Mn(XCS), Mw(XCS) and Mz(XCS) would increase but not in the same way: therefore, it could not be predicted how the ratio Mz/Mn(XCS) would be modified.

Admittance of the late-filed document D14

(g) There was no reason justifying the filing of D14 at such a late stage of the proceedings, all the more since that document was well known to the parties since it had also been dealt with in the parallel case T 1766/14 (see section II above).

The features Mz(XCS) and Mz/Mn(XCS) according to granted claim 1 were not disclosed in D14 and the Mz(XCS) feature was not immediately recognisable from the information provided in D14.

In the parallel case T 1766/14, it had not been shown that example CE1 of D14 mandatorily satisfied the Mz(XCS) and Mz/Mn(XCS) features of claim 1 of the present patent. Besides, the same opposition division as that in charge of the present case had brought up D14 by itself in the parallel case. Should that document have anticipated the granted claims of the present patent, the opposition division would have also cited D14 in the present proceedings.

For those reasons, D14 was not *prima facie* highly relevant and should not be admitted to the proceedings.

XV. The appellant requested that the decision under appeal be set aside and that European patent No. 2 243 803 be revoked. The appellant further requested that documents D11, filed with the statement of grounds of appeal, and D14, filed with letter dated 12 October 2017, be admitted into the proceedings.

The respondent requested that the appeal be dismissed (main request), or, alternatively, that the patent be maintained in amended form on the basis of any of the first to the third auxiliary requests filed with the reply to the statement of grounds of appeal and that D11 and D14 to D17 be not admitted into the proceedings.

Reasons for the Decision

Main request (patent as granted)

1. Novelty

1.1 The sole novelty objection put forward in appeal by the appellant is against granted claim 1 in view of the alleged public prior use in respect of product Rigidex®P450xHP60.

1.2 Although all the concerns identified in the Board's communication (see section IX above) regarding the relationship between the documents relied upon by the appellant (sections 6.2.1, (a) to (e)) and/or the nature of the product disclosed in each of those documents (sections 6.2.2, (a) to (d)) were not removed by the appellant's arguments, it is not necessary for the Board to deal with those issues in details in view of the conclusion drawn in sections 1.3 to 1.9 below.

1.3 According to G 1/92 (see the headnote), one of the conditions for a product to belong to the state of the art is that it can be **reproduced** by the skilled person. In section 1.4 of the reasons it is in particular indicated that: "An essential purpose of any technical

teaching is to enable the person skilled in the art to manufacture or use a given product by applying such teaching. Where such teaching results from a product put on the market, the person skilled in the art will have to rely on his general technical knowledge to gather all information enabling him to prepare the said product. Where it is possible for the skilled person to discover the composition or the internal structure of the product **and to reproduce it without undue burden**, then both the product and its composition or internal structure become state of the art" (emphasis by the Board).

1.4 In the Board's view, those passages of G 1/92 also imply that a product put on the market is considered not to have been made available to the public within the meaning of Article 54(2) EPC if the skilled person had no means of establishing the composition or the internal structure of the product **or was not able to reproduce it**, in spite of the product being publicly available before the priority/filing date of the patent.

1.5 In the present case, independently of whether a sample of Rigidex®P450xHP60 was publicly available before the filing date of the patent in suit and whether it fulfilled each of the features specified in granted claim 1, a condition to be fulfilled is therefore that the skilled person knew how to prepare said product without undue burden.

1.6 In that respect, it is generally known in the field of polymers and it was not contested by the appellant that the nature of the catalyst system, the type of reacting system and the process conditions significantly affect the properties of the produced polymer and of any

product derived from it. Indeed, in the polymer field, in which products and compositions are often defined by means of parameters, the requirements of sufficiency of disclosure is analysed with particular care and is considered to be met in such cases if the application or the patent, when necessary supported by the common general knowledge, discloses the method of preparation of the polymers (in particular by means of the catalyst system, the type of reacting system and the process conditions) which results in products and compositions with the required parameters. The same criteria must therefore apply to the reproducibility without undue burden of a product on the market.

Considering that it was neither shown by the appellant that any information in that respect was available to the public before the filing date of the patent in suit for the product under scrutiny, nor that such information belonged to common general knowledge, it is concluded that the mere disposal of a sample of Rigidex®P450xHP60 was not sufficient for the skilled person to be able to prepare it.

It is further noted that in its notice of opposition (section on sufficiency of disclosure) the appellant argued that the combination of parameters defined in granted claim 1 could only be obtained using a specific catalyst system, which is in line with the above conclusion that without knowing among others which catalyst system was used for preparing Rigidex®P450xHP60, the skilled person would not be in a position to prepare said product without undue burden.

1.7 In its letter of 12 October 2017 (page 5: heading "6.3") the appellant argued that it would not have been difficult for the skilled person to prepare a

composition having the features of the public prior use product which were specified in claim 1. However, this is not the issue at stake. Rather, in order for the product to be state of the art, the question is whether or not the skilled person would have been in a position to prepare the product as such, i.e. a sample identical to Rigidex®P450xHP60 in all its properties (not only those specified in claim 1, but exhibiting e.g. also the same properties as indicated in D2a). It was however not shown by the appellant that this was the case. To the contrary, the appellant stated in the above identified passage of its letter dated 12 October 2017 (see last full paragraph) that "what may be more difficult (if the catalyst used for the original product is not known) is obtaining the same mechanical properties as the Rigidex product".

1.8 During the oral proceedings before the Board the appellant argued that Rigidex®P450xHP60 was very similar to the products prepared in D6 and that the skilled person could adapt the teaching of D6 in order to prepare a composition according to granted claim 1. However, there is no evidence on file that the specific product supporting the objection of public prior use, namely Rigidex®P450xHP60, was prepared according to the teaching of D6. There is also no evidence on file that a product prepared according to D6 may show the same combination of properties as Rigidex®P450xHP60 (see e.g. D2a). Therefore, the appellant's argument does not convince.

1.9 During the oral proceedings before the Board the appellant submitted that it would not be reasonable to consider that a product falling under granted claim 1 which was in the public's hands before the filing date of the patent in suit could be held not to anticipate

the subject-matter of said patent.

However, this is the conclusion reached in view of the condition which is derivable from decision G 1/92 (as explained in sections 1.3 and 1.4 above), namely that in order to be part of the prior art pursuant to Article 54(2) EPC, a public prior use must also amount to an enabling disclosure. A similar conclusion was already reached e.g. in T 977/93 (OJ EPO 2001, 84: sections 3, 4, 11 and 13 of the reasons), T 370/02 (sections 8.6 to 8.8 of the reasons), T 2045/09 (sections 29, 31 and 32-38 of the reasons) and T 23/11 (sections 2.1 to 2.5 of the reasons). The same line of argumentation was also adopted in T 301/94 (sections 3.3 to 3.5 of the reasons), albeit the conclusion in that case was that the alleged public prior use was part of the prior art because it could be reproduced without undue burden. Therefore, the appellant's argument is not persuasive.

1.10 In view of the above, it cannot be concluded that the skilled person was able to reproduce the product Rigidex®P450xHP60 without undue burden. Under those circumstances, a sample of Rigidex®P450xHP60 does not form part of the prior art pursuant to Article 54(2) EPC and cannot anticipate the subject-matter of the granted claims.

1.11 For those reasons, the appellant's sole objection pursuant to Article 54 EPC against granted claim 1 is rejected.

2. Inventive step

2.1 The sole objection of lack of inventive step put forward in appeal by the appellant is against granted

claim 1.

2.2 Closest prior art

2.2.1 Whereas the appellant considered D6 as closest prior art the respondent considered D10.

2.2.2 The patent in suit aims at providing heterophasic polypropylene compositions having a low brittle/ductile transition temperature while maintaining at a high level other properties such as stiffness, impact and processability in terms of fast throughput (paragraphs 11, 15 and 114; Table 2). The compositions are used for making moulded articles, in particular by injection moulding (paragraphs 111 and 114).

2.2.3 D6 deals with heterophasic polypropylene compositions (claim 1; page 1, lines 5-7 and 18-25) having good impact resistance (page 28, line 23 to page 29, line 23; Table 8, page 39). It is indicated at page 1, lines 13-16 that such heterophasic polypropylene compositions are less brittle than polypropylene homopolymers. In the examples melt flow rates are further determined (Tables 1-6, 7B, 8).

2.2.4 D10 also deals with heterophasic polypropylene compositions which are superior in the mechanical properties and in the flowability upon injection moulding (claims; column 1, lines 11-16; column 2, lines 8-16; column 28, lines 45-56). In the examples, the brittle temperature is further determined (see e.g. Table 6, footnote 10; Tables 16-17, footnote 7).

2.2.5 Even if the problems addressed in D10 appear to be closer to those posed in the patent in suit, it may be seen from the above that both D6 and D10 are related to

the same or a similar technical problem as the patent in suit. Moreover, the compositions disclosed in the two documents both come close to the composition of claim 1. On this basis, in the Board's view, there is no reason to disqualify D6 as closest prior art as compared to D10 and/or to consider that one of both documents constitutes "the" most promising springboard to the invention (see Case Law, *supra*, I.D.3.4.1 and 3.4.2). Therefore, in the circumstances of the present case, both documents D6 and D10 may be contemplated as suitable (i.e. promising) starting points for the assessment of the inventive step.

2.2.6 In particular example 11 of D6 and example 17 of D10 are particularly relevant.

2.3 Distinguishing feature(s)

2.3.1 Example 11 of D6 as closest prior art

It was not disputed between the parties that the subject-matter of granted claim 1 differs from the composition prepared in example 11 of D6 at least in that the feature Mz(XCS) of the xylene cold soluble fraction should be of at least 950 kg/mol, which was not the case for example 11 of D6 (see Table 6).

A point of dispute resided in the meaning of the parameter "Comp. B IV" indicated in Table 1B of D6, in particular whether or not it corresponds to the feature IV(XCS) according to granted claim 1. In that respect, the feature "Comp. B IV" of Table 1B of D6 was read by the opposition division as being identical to the feature IV(XCS) indicated in granted claim 1 (see section 4.4 on page 14 of the decision), which appears reasonable. The fact that different definitions of

component B are provided in D6 does not affect the opposition division's conclusion, which was based on the fact that the only teaching of D6 regarding determination of feature "IV" was the passage at page 27, lines 25-29 of D6, from which it was derived that the feature "Comp. B IV" mentioned in Table 1B of D6 was identical to the feature IV(XCS) specified in granted claim 1. Under those circumstances, also the respondent's argument regarding the contribution of the matrix to 13.5 wt.% of the xylene soluble fraction (as developed during the oral proceedings before the Board) is not relevant. Therefore, in view of the evidence on file, the Board has no reason to deviate from the opposition division's view, with the consequence that the intrinsic viscosity feature of granted claim 1 is satisfied (example 11 of D6: see Table 1B, IV(XCS) = 2.18 dl/g).

In view of the above, the subject-matter of granted claim 1 differs from that of example 11 of D6 in that it is required that Mz(XCS) is at least 950 kg/mol (vs. 544 445 g/mol in Table 6 of D6).

2.3.2 Example 17 of D10 as closest prior art

It was disputed between the parties whether or not the composition prepared in example 17 of D10 satisfies the features Mz(XCS) and Mz/Mn(XCS).

Even if the appellant's conclusion regarding the contribution to the xylene cold soluble fraction of component Y-7 and the determination of Mw(XCS) based on the Mark-Houwink relationship (see section XIII(e), first and second subsection) were to be accepted, the reasoning of the appellant is further based on the

assumptions that:

- a Mw(XCS) of 600 kDa whereby one third of the distribution has an Mw(XCS) of 1250 kDa had to result in a Mz(XCS) of at least 950 kDa;

- in a distribution in which two thirds of the molecules have a molecular weight of 270 kDa, Mn(XCS) had to be relatively close to this value.

However, no evidence, nor any argument how the appellant arrived at those conclusions were given. In particular no explanation was provided by the appellant during the oral proceedings before the Board, although those issues had been specifically identified in the Board's communication (section 7.3.3.c). Therefore, those arguments are rejected.

The respondent further argued that the Mark-Houwink parameters used by the appellant were not correct (letter of 10 March 2015: bottom of page 11) and that using more suitable constants would lead to a calculated Mw(XCS) of 422 kDa, which is lower than the value considered by the appellant to estimate the Mz(XCS) feature according to granted claim 1. Considering that said statements of the respondent were not objected to by the appellant, in particular during the oral proceedings before the Board, the Board has no reason to deviate from the respondent's view.

In view of the above, it cannot be concluded that for the heterophasic polypropylene composition of example 17 of D10, the features Mz(XCS) and Mz/Mn(XCS) are implicitly disclosed. Therefore, the subject-matter of granted claim 1 differs from that of example 17 of

D10 in the specific range(s) of Mz(XCS) and Mz/Mn(XCS) defined therein.

2.4 Problem effectively solved

2.4.1 The respondent argued that the problem to be solved resided in the provision of heterophasic polypropylene compositions having reduced brittle/ductile transition temperature while maintaining good tensile and impact (Charpy) properties.

2.4.2 However, no comparison between a composition according to granted claim 1 and a composition illustrative of either example 11 of D6 or example 17 of D10 is on file.

2.4.3 In that respect, the patent in suit comprises a comparison of two examples according to granted claim 1 (Tables 1 and 2: E1 and E2) with an example not according to claim 1 (Tables 1 and 2: CE 1). The composition of CE 1 differs from that of E1 and E2 in that it was prepared using a different catalyst and different working conditions. It may be seen in Table 2 of the patent in suit that whereas examples E1 and E2 illustrate the subject-matter of granted claim 1, example CE 1 results in a composition which fulfils all but one feature of granted claim 1, namely the Mz(XCS) parameter.

It can also be seen from the properties reported in the bottom part of Table 2 on page 15 of the patent in suit that as compared to example CE 1, the compositions of examples E1 and E2 show comparable mechanical properties (tensile test, flexural test and impact-Charpy) and reduced brittle/ductile transition temperature.

However, as already indicated in the contested decision (page 13, section 4.2, third paragraph), the composition of example CE 1 differs from those of examples E1 and E2 in other features than Mz(XCS), such as IV(XCS) and Mz/Mw(XCS) which are also known to influence the brittle/ductile transition temperature (see e.g. paragraphs 18-22 of the patent in suit).

In view of the above, the comparison of examples E1, E2 and CE 1 of the patent in suit cannot demonstrate the presence of an effect which is related to the above identified feature distinguishing granted claim 1 from the closest prior art, namely an increased Mz(XCS). Therefore, the technical problem formulated by the respondent was not shown to have been effectively solved and has to be reformulated.

2.4.4 In view of examples E1 and E2 of the patent in suit, the problem effectively solved over either example 11 of D6 or example 17 of D10 is seen as to reside in the provision of further heterophasic polypropylene compositions, which exhibit good brittle/ductile transition temperature while maintaining good tensile and impact (Charpy) properties.

2.5 Obviousness

2.5.1 The question has to be answered if the skilled person, desiring to solve the identified problem, would, in view of the prior art, have modified the disclosure of the closest prior art in such a way as to arrive at the subject matter of granted claim 1.

2.5.2 D6 as closest prior art

In order to arrive at the subject-matter of granted claim 1 when starting from example 11 of D6 as closest prior art, it would be necessary to increase significantly the feature Mz(XCS) above the highest value achieved in D6 while ensuring that the other parameters defined in granted claim 1 are also satisfied. In particular, it would be required to increase Mz(XCS) up to a value of at least 950 kg/mol while ensuring that Mz/Mn(XCS) remains below 15.2. As already concluded in the contested decision (page 15: last paragraph of section 4.4), there is no indication in the prior art that this could be achieved in an obvious manner.

The passage at page 29, lines 10-12 of D6 and of D5 relied upon by the appellant are related to increased molecular weight in general and not to increased Mz(XCS). Therefore, those passages can not by themselves provide a motivation for the skilled person to increase Mz(XCS). Even if the skilled person were to increase the molecular weight (e.g. by reducing the amount of hydrogen during the polymerisation process) in order to improve the impact strength as taught in D6 (page 29, lines 10-12), as argued by the appellant, there is no evidence on file that it would be possible to achieve an Mz(XCS) of at least 950 kg/mol while ensuring that the ratio Mz/Mn(XCS) remains below 15.2 as defined in granted claim 1. In this respect, the appellant's argument according to which Mz(XCS) and Mn(XCS) varied in a similar manner, which was contested by the respondent, can only be seen as being speculative and, consequently, cannot be taken into account. To the contrary, as argued by the respondent, example 6 of Table 6 of D6 shows that with the catalyst

system of D6, an increase in Mz(XCS) (as compared to example 11) may be accompanied by a decrease in Mn(XCS) such that the ratio Mz/Mn(XCS) gets higher than 15.2.

There is further no evidence on file that it would be possible at all to achieve the combination of features according to granted claim 1 using the specific catalyst system taught in D6.

Also, assuming that the skilled person were to concentrate on those features, there is no evidence on file that he would have known from other documents of the prior art and/or on the basis of common general knowledge how to achieve compositions fulfilling simultaneously all the requirements according to granted claim 1, not only in terms of Mz(XCS) and Mz/Mn(XCS) but also regarding the other features defined in granted claim 1 (IV(XCS), MFR_2).

2.5.3 D10 as closest prior art

It was not shown that starting from D10, the skilled person would have had any reason to concentrate on features Mz(XCS) and Mz/Mn(XCS) according to granted claim 1, which are not mentioned in D10. Also, it was not shown that it would have been obvious to modify those features so as to obtain a composition according to claim 1 in order to solve the posed problem. In that respect, in particular if one follows the argumentation of the parties that the composition of example 17 of D10 has a too low Mz(XCS), it would be necessary to increase Mz(XCS) while ensuring that Mz/Mn(XCS) remains below 15.2. As explained above in respect of D6 (section 2.5.2), it was not shown that this could be done in an obvious manner.

Finally, similarly to D6, if the skilled person were to concentrate on those features, it was not shown that he would have known how to achieve such compositions in an obvious manner.

2.6 In view of the above, the appellant's objections based on either D6 or D10 as closest prior art are rejected.

Admittance of the late-filed document D14

3. After the communication of the Board setting out its preliminary view of the case had been received, the appellant submitted with letter of 12 October 2017 the new document D14. Considering that the filing of that document represents an amendment to a party's case pursuant to Article 13(1) RPBA, the admission to the proceedings of D14 is subject to the Board's discretion (Article 13(1) RPBA) and underlies the additional stipulations of Article 13(3) RPBA.

3.1 Regarding the late-filing, it was not contested by the appellant that that document was available to the public and could have been retrieved earlier.

The appellant did not justify why D14 was only submitted at such a late stage. Considering that the appellant argued that D14 was well known to the parties involved in the current proceedings because it was also cited in the appeal of the parallel case T 1766/14 (see section II above), there can be no excuse for not having filed said document before. The fact that the document is known by the parties and the Board from separate appeal proceedings is not a valid reason to justify its submission at such a late stage and, to the contrary, even speaks against admitting it into the proceedings.

Also, it was not shown that any surprising development of the case had occurred, which could have justified the filing of D14 in response thereto.

3.2 There is no doubt that lack of novelty does not immediately appears from the document as such, as the appellant argues why the missing features (Mz(XCS) in particular) should be implicitly disclosed and should have been provided by the respondent (who was under no obligation to do so).

3.3 The fact that in the parallel case T 1766/14 (see section II above) the document was cited in the preliminary opinion of the Board for its relevance on either sufficiency of disclosure or lack of novelty (see sections 6.1.1.b and 7.2 of the Board's communication dated 18 July 2017 in T 1766/14) also does not speak in favour of the admittance of the document. Firstly the facts in both cases are different, e.g. the missing feature is not the same (Mz/Mw in T 1766/14). Secondly also the objections related to the document are different, as in T 1766/14 D14 (referred to as D10 therein) is pertinent also to sufficiency of disclosure. This means that, should D14 be admitted to the proceedings, a new and possibly complicated issue related to sufficiency of disclosure could have had to be dealt with for the first time in appeal (the findings on sufficiency of disclosure in the decision under appeal were never disputed by the appellant in the current appeal proceedings).

3.4 In view of the above, the admission to the proceedings of D14 would raise new issues, which would require to provide sufficient time for the respondent to prepare an appropriate line of defense. This, however, runs

counter to the need for procedural economy. Besides, it makes no doubt that those new issues could not reasonably be expected to be dealt with by the respondent or the Board without adjournment of the oral proceedings.

3.5 For those reasons, the Board does not admit D14 to the proceedings pursuant to Articles 13(1) and (3) RPBA.

Third party observations

4. The third party observations pursuant to Article 115 EPC which were filed after the communication of the Board setting out its preliminary view of the case had been received by the parties to the proceedings and about one month before the oral proceedings before the Board were held, are not considered by the Board due to their late filing. In that respect, the third party may not be accorded a more favourable treatment than would have been given to an actual party to the proceedings. Also in this case, should the third party observations be admitted, an adjournment of the oral proceedings would have been necessary, which runs counter the need of procedural economy.

5. Documents D11 and D15 to D17 are not relevant for the present decision. Therefore, there is no need for the Board to elaborate any further on their admittance, which was in dispute between the parties.

6. The respondent (patent proprietor)'s main request being allowable, it is not required to deal with the auxiliary requests.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

B. ter Heijden D. Semino

Decision electronically authenticated