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Datasheet for the decision of 8 January 2008

Case Number:	T 1119/05 - 3.3.03
Application Number:	98101248.7
Publication Number:	0841371
IPC:	C08L 23/10
Language of the proceedings:	EN

Title of invention:
Propylene polymer compositions

Patentee:
Mitsui Chemicals, Inc.

Opponent:
Basell Polyolefine GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 123(2), 114(2), 87(1)(4), 54(2)

Keyword:
"Late filed ground of opposition (Article 100(b) EPC) not admitted"
"Review of first instance discretionary decision (Article 100(b) EPC)"
"Priority (no)"
"Novelty (main request) - no"
"Disclaimer (auxiliary request) not allowable"

Decisions cited:
G 0009/91, G 0010/91, G 0001/03, T 0256/87, T 0299/97, T 0014/01, T 0387/01, T 1146/01, T 0252/02, T 0611/02

Catchword:
Reasons 3.2. - 3.5.

Case Number: T 1119/05 - 3.3.03

DECISION
of the Technical Board of Appeal 3.3.03
of 8 January 2008

Appellant: (Opponent)	Basell Polyolefine GmbH Intellectual Property Industriepark Hoechst - E413 D-65926 Frankfurt (DE)
Representative:	Reverzani, Cristina HASELTINE LAKE Theatinerstrasse 3 D-80333 Munich (DE)
Respondent: (Patent Proprietor)	Mitsui Chemicals, Inc. 5-2, Higashi-Shimbashi 1-Chome Minato-ku Tokyo (JP)
Representative:	Cresswell, Thomas Anthony J.A. KEMP & CO. 14 South Square Gray's Inn London WC1R 5JJ (GB)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office dated 1 June 2005 and posted 1 July 2005 rejecting the opposition filed against European patent No. 0841371 pursuant to Article 102(2) EPC.**

Composition of the Board:

Chairman:	R. Young
Members:	W. Sieber C. Brandt

Summary of Facts and Submissions

I. The mention of the grant of European patent No. 0 841 371, in respect of European patent application no. 98101248.7, in the name of Mitsui Chemicals, Inc., filed on 11 January 1994 and claiming a priority date of 11 January 1993 from five Japanese patent applications, was published on 20 November 2002 (Bulletin 2002/47). The granted patent contained only Claim 1 which read as follows:

"A propylene polymer composition comprising:

10 to 90% by weight of (A1) a propylene polymer which is characterized in that:

(1) the propylene polymer is obtained by polymerizing propylene in the presence of an olefin polymerization catalyst comprising:

(i)(a) a compound of a Group IVB transition metal in the periodic table coritaining [*sic*] a ligand having a cyclopentadienyl skeleton, and

(ii) at least one compound selected from the group consisting of

(b) an organoaluminum oxy-compound, and

(c) a compound which reacts with the transition metal compound (a) to form an ion pair,

(2) the propylene polymer has a melt flow rate (MFR), as measured at 230°C under a load of 2.16 kg, of 0.01 to 30 g/10 min, and

(3) the propylene polymer has a molecular weight distribution (M_w/M_n), as measured by gel permeation chromatography (GPC), of 2 to 3;

(4) the propylene polymer has a crystallinity as measured by X-ray diffractometry of not less than 40%, and
(5) the propylene polymer may contain constituent units derived from other α-olefins than propylene in an amount of not more than 10% by mol;

10 to 90% by weight of (A2) a propylene polymer which is characterized in that:

(1) the propylene polymer is obtained by polymerizing propylene in the presence of an olefin polymerization catalyst comprising:
  (i)(a) a compound of a Group IVB transition metal in the periodic table containing a ligand having a cyclopentadienyl skeleton, and
  (ii) at least one compound selected from the group consisting of
  (b) an organoaluminum oxy-compound, and
  (c) a compound which reacts with the transition metal compound (a) to form an ion pair,
(2) the propylene polymer has a melt flow rate (MFR), as measured at 230°C under a load of 2.16 kg, of 30 to 1,000 g/10 min, and
(3) the propylene polymer has a molecular weight distribution (M_w/M_n), as measured by gel permeation chromatography (GPC), of 2 to 4,
(4) the propylene polymer has a crystallinity as measured by X-ray diffractometry of not less than 40%, and
(5) the propylene polymer may contain constituent units derived from other α-olefin monomers than propylene in an amount of not more than 5% by mol;

a ratio ((A2)/(A1)) of the MFR of said propylene polymer (A2) to the MFR of said propylene polymer (A1) being not less than 30."

II. A notice of opposition was filed by Basell Polyolefine GmbH on 12 August 2003 requesting revocation of the patent in its entirety based on the grounds that its subject-matter was not patentable within the terms of Articles 54 and 56 EPC (Article 100(a) EPC).

The following documents were cited with the notice of opposition:

D1: EP-A-0 563 818;

D2: EP-A-0 516 018; and

D3. EP-A-0 485 822.

In the course of the opposition procedure, the Opponent raised a further objection under Article 100(b) EPC. In this context, the following documents were cited:

D4: Encyclopedia of Polymer Science and Engineering, vol. 17, 1989, John Wiley & Sons, New York Chichester · Brisbane · Toronto · Singapore, pages 952-955;

D5: ***D. Park et al***, Isothermal Crystallization Behaviour of Metallocene-catalyzed Isotactic Polypropylene, Journal of Applied Polymer Science, vol.95, 2005, pages 231-237;

D6: Encyclopedia of Polymer Science and Engineering, vol. 17, 1989, John Wiley & Sons, New York · Chichester · Brisbane · Toronto · Singapore, pages 961-964;

D7: Encyclopedia of Polymer Science and Engineering, vol. 4, 1986, John Wiley & Sons, New York · Chichester · Brisbane · Toronto · Singapore, pages 494-504; and

D8: Polypropylene, The Definitive User’s Guide and Databook, 1998, Plastics Design Library, pages 4-5.

III. By a decision which was announced orally on 1 June 2005 and issued in writing on 1 July 2005, the Opposition Division rejected the opposition.

(a) The Opposition Division found that the late filed ground of opposition under Article 100(b) EPC was ***prima facie*** not relevant and therefore did not admit this ground and the related documents into the proceedings.

(b) The Opposition Division held that the claimed subject-matter was novel over D1, particularly over Comparative Example 2 of D1, which was considered to be state of the art according to Article 54(3) and (4) EPC. The Opponent had not shown that the polymers disclosed in Comparative Example 2 of D1 had all the parameters required in granted Claim 1. Too many assumptions had to be made to arrive at the claimed invention.

The claimed subject-matter was also novel over D2. None of the examples referred to by the Opponent disclosed all the parameters of granted Claim 1 nor could the relevant parameters be deduced by combining D2 with the disclosure of D3.

(c) Further, the claimed subject-matter was not obvious from D2 which was considered to represent the closest prior art.

IV. On 30 August 2005, the Appellant (Opponent) filed a notice of appeal against the above decision with simultaneous payment of the prescribed fee.

With the statement of grounds of appeal the Appellant filed on 11 November 2005 the following documents:

D9: Polypropylene Handbook, 2nd edition, 2005, Carl Hanser Verlag Munich, page 130;

D10: Catalytic Olefin Polymerization, Keii, Soga Eds, 1990, pages 501-515;

D11: Declaration of Prof. Dr. Walter Kaminsky dated 28 October 2005;

D12: ***M.D. Baijal et al***, "Melt Flow Rate — Intrinsic Viscosity Correlation for Polypropylene", Journal of Applied Polymer Science, vol. 14, 1970, pages 1651-1653;

D13: Standard Test Method ASTM D-1238-04c; and

D14: ***B. Rieger et al***, "Anisotactic polypropylenes produced with a zirconocene-methylalumoxane catalyst: solid state properties and microstructure". Polymer Bulletin 21, 1989, pages 159-163.

The arguments of the Appellant as far as they are relevant to this decision may be summarized as follows:

(a) The Appellant questioned the reasons set forth by the Opposition Division not to admit the late filed ground of opposition under Article 100(b) EPC into the proceedings and requested that this late filed ground be admitted into the proceedings and its relevance be considered by the Board. As regards the question whether the late filed ground of opposition related to Article 84 or Article 83 EPC, the Appellant referred to T 256/887, T 387/01, T 252/02 and T 611/02.

(b) The Appellant argued that the polymer composition disclosed in Comparative Example 2 of D1 had all the parameters required by Claim 1 of the patent in suit. Although D1 did not explicitly disclose all the parameters, the relevant parameters were inherent to the composition of Comparative Example 2. In this context, documents D9-D14 were cited.

Further, it was argued that the reactor blend disclosed in Example 20 of D2 inherently had all the parameters required in granted Claim 1.

V. With its response dated 26 May 2006 the Respondent (Proprietor) filed an auxiliary request and the following documents:

D15: ***A. Nakajima et al***, "Chance in Molecular Weight Distribution Accompanying Thermal Degradation of Isotactic Polystyrene", Die Makromolekulare Chemie, 90 (1966), pages 229-242; and

D16: ***Th. E. Davis et al***, "Thermal Degradation of Polypropylene", J. of Polymer Science, vol. 56 (1962), pages 485-499.

The auxiliary request contained a single claim which differed from Claim 1 as granted in that at the end of the claim a disclaimer over Comparative Example 2 of D1 had been introduced ("…, the propylene polymer composition being other than a molding composition comprising ….").

The Respondent's arguments as far as they are relevant to this decision may be summarized as follows:

(a) The Respondent contended that documents D9-D14 were late filed as they could easily have been introduced at the time the notice of opposition was filed and requested that, as they were not more pertinent than those already on file, they should be refused admission to the proceedings.

(b) The late filed ground of opposition under Article 100(b) EPC had not been admitted by the Opposition Division and should not be introduced at the appeal stage which was now even later. The

Respondent did not consent to this new ground being discussed. Apart from that, the Appellant's attack under Article 100(b) EPC was in fact a disguised attack on the clarity of the claim. Further, the definition of crystallinity was extremely well known and, rather like melting points in chemistry, routinely adopted by those skilled in the art without need of further guidance.

(c) The Opposition Division had been correct to conclude that the disclosures of D1 and D2 did not prejudice the novelty of the claimed subject-matter because there was no clear and unambiguous disclosure in either document. That the Appellant had seen the need to support the arguments with yet further documents simply emphasized the failure of the basic documents to provide an anticipation. There had been ample time over the course of the proceedings to date for the Appellant to establish the case by experimental data but none had been forthcoming. This also emphasized the failure of the attack.

As regards the feature "production by metallocene based catalyst", ie requirement (1) in the granted claim, the Respondent noted that it was well known to those skilled in the art that degradation of high polymers led, as well as to a reduction in molecular weight, to a narrowing of the molecular weight distribution. Thus, it was possible to produce lower molecular weight material having narrow molecular weight distribution by melt kneading in an extruder. In this context, reference was made to D15 and D16.

Further, it had not been demonstrated that the polymers of D1 had a melt flow rate and a crystallinity as required in Claim 1 of the patent in suit.

VI. In the letter dated 7 December 2007, the Appellant submitted that a review of the five priority documents claimed by the patent in suit had revealed that the subject-matter of granted Claim 1 was not entitled to the priority date of 11 January 1993. Therefore, D1 was available as prior art under Article 54(2) EPC and the disclaimer over D1 contained in the Respondent's auxiliary request was not permissible. In this context, reference was made to G 1/03.

Further, the Appellant argued that Claim 1 as granted extended beyond the content of the application as filed, in violation of Article 123(2) EPC.

VII. On 8 January 2008, oral proceedings were held before the Board.

(a) The Respondent did not agree to the introduction of the fresh ground of opposition under Article 100(c) EPC.

(b) As regards the belatedly filed ground of opposition under Article 100(b) EPC, the discussion focussed on the question whether the Opposition Division had exercised its discretion not to admit this ground of opposition into the proceedings in a reasonable way. In this connection, the Board introduced D4-D8 into the proceedings. No objection was raised by the Respondent any more.

(c) The respondent maintained its request not to admit D9-D14 into the proceeding. In particular, it drew attention to the uncertain publication status of D10 (only a manuscript annotation to the provided copy) and to the publication dates of D9 and D13 which were after the publication date of the patent in suit.

(d) As regards novelty in view of Comparative Example 2 of D1, both parties basically relied upon their written submissions. The Respondent argued that the Appellant's evidence concerning the inherency of the relevant parameters of the components disclosed in Comparative Example 2 of D1 left considerable room for doubt. In view of this cumulative doubt, novelty over Comparative Example 2 of D1 should be acknowledged.

(e) Both parties agreed that the issue of priority had to be discussed in view of the relevance of the disclosure of D1.

(f) As regards the disclaimer in the claim of the first auxiliary request, the Respondent argued that the disclaimer was allowable because it restored novelty over an accidental anticipation. The fact that the novelty destroying disclosure of D1 was a comparative example qualified it as an accidental disclosure.

VIII. The Appellant requested that the decision under appeal be set aside and that the patent be revoked in its entirety.

The Respondent requested that the appeal be dismissed, or, in the alternative,

that the patent be maintained in amended form based on the first auxiliary request (Claim 1 (part) as granted and Claim 1 (part) as filed with letter dated 26 May 2006).

Reasons for the Decision

1. The appeal complies with Articles 106 and 108 EPC and Rule 99(1) EPC and is therefore admissible.

2. *Late filed ground of opposition - Article 100(c) EPC*

In the present case, Article 100(c) EPC was not a ground of opposition and the Appellant argued for the first time at the appeal stage that Claim 1 as granted extended beyond the application as filed (point VI, above).

The introduction of new grounds of opposition at the appeal stage is governed by G 9/91 (OJ EPO 1993, 408, points 16 and 18 of the reasons) and G 10/91 (OJ EPO 1993, 420, point 3 of the Headnote) where it is held that fresh grounds of opposition may be considered in appeal proceedings only with the approval of the proprietor of the patent.

Since the Respondent did not consent to this new ground being discussed, the new ground cannot be introduced into the proceedings and the issue concerning added subject-matter is dismissed without further consideration.

3. *Late filed ground of opposition - Article 100(b) EPC*

3.1 In contrast to the late filed objection under Article 100(c) EPC, the objection under Article 100(b) EPC was already raised, although belatedly, before the Opposition Division, which making use of the discretion given to it by Article 114(2) EPC decided not to admit this late filed ground or the documents associated therewith (D4-D8) into the proceedings.

The Appellant questioned the reasons set forth by the Opposition Division and requested that the late filed ground be admitted into the present proceedings and its relevance be considered by the Board.

3.2 If the way in which a department of first instance has exercised its discretion on a procedural matter is challenged in an appeal, it is not the function of a board of appeal to review all the facts and circumstances of the case as if it were in the place of the department of first instance, and to decide whether or not it would have exercised such discretion in the same way as the department of first instance. A board of appeal should only overrule the way in which a department of first instance has exercised its discretion if the board concludes it has done so according to the wrong principles, or without taking into account the right principles, or in an unreasonable way (see Case Law of the Boards of Appeal of the European Patent Office, 5th edition 2006, VII.D,6.6).

The question therefore arises whether the Opposition Division exercised its discretion properly according to the above stated criteria. For the assessment of this issue, the Board considered it appropriate to introduce D4-D8 into the present proceedings. No objection was raised by the Respondent in this respect.

3.3 The Opposition Division found the late filed ground and arguments ***prima facie*** not relevant and gave the following reasons (point 1 of the reasons in the decision under appeal): "(1) The submissions do neither contain experimental evidence that the claimed subject-matter cannot be reproduced nor evidence that different standard methods for the measurement of crystallinity would lead to different results. (2) The Opponents' arguments relate to the problem of the scope of the claim and therefore to a clarity argument rather than to an insufficiency argument. (3) The Opposition Division is aware of patent literature, wherein crystallinity has been indicated by the same wording as is done in the contested patent. The indication of "% crystallinity as measured by X-ray diffraction" appears therefore to be commonly used and to have a well accepted meaning in industry."

3.4 First of all the Board notes that the Appellant has indeed not provided any experimental evidence that those skilled in the art are unable to operate the claimed subject-matter on the basis of the information given in the specification. Documents D4-D8 demonstrate at best that the preparation of the sample (D4), the crystallisation temperature in the preparation of the sample (D5) or the mathematical method used to analyse the x-ray diffraction patterns (D8) may have an influence on the actual value for crystallinity. However, D4-D8 do not show that the claimed subject-matter is not workable or that an undue burden is associated with achieving the promised benefits of the claimed subject-matter.

As regards the inaccuracy of a parameter caused by the lack of indication of the exact measuring conditions it appears that the case law does not show such a clear direction as stipulated by the Appellant. There is indeed case law which stresses that, in order to carry out the invention, the skilled person must be in a position to establish whether a product falls within the area covered by the claim and reliably to prepare the claimed product (T 256/87 of 26 July 1988, T 387/01 of 13 January 2004, T 252/02 of 7 December 2004 and T 611/02 of 9 November 2004; none of these decisions published in OJ EPO). On the other hand, there is also case law which states that "the lack of the indication of certain measuring conditions is not detrimental to the sufficiency of the disclosure but could raise a clarity problem with the consequence that the particular value must be interpreted in a broad manner …" (T 299/97 of 6 June 2001, not published in the OJ EPO, point 1.2 of the reasons). This situation is in itself an indication that the relationship between Article 83 and Article 84 EPC is not simple. Further, it shows that the case law is not such as to confine the Opposition Division to one direction, namely exclusively to assign the Opponent's objection to sufficiency of disclosure. Hence, the Opposition Division's reasoning that the Opponent's arguments related to clarity rather than insufficiency is apparently not based on wrong principles.

As regards the Opposition Division's statement that it was aware of patent literature, wherein crystallinity had been indicated by the same wording as was done in the contested patent, this statement is indeed unsubstantiated and would certainly not justify the refusal of the belatedly filed ground of opposition if it were the only reason given. However, even if not convincing in itself, it does not invalidate the other two reasons given by the Opposition Division. Apart from that, the Opposition Division's personal view appears to be in line with the Respondent's submission that the definition of crystallinity is extremely well known and, rather like melting points in chemistry, routinely adopted by those skilled in the art without need of further guidance (point V(b), above).

3.5 In summary, the Board sees no indication that the Opposition Division has exercised its discretion not to admit the belatedly filed ground of opposition division relating to sufficiency of disclosure according to the wrong principles, or without taking into account the right principles or in an unreasonable way and consequently sees no reason to reverse the decision of the first instance in this respect.

4. *Admissibility of documents D9-D14*

4.1 The Respondent contended that documents D9-D14 were late filed as they could easily have been introduced at the time the notice of opposition was filed and requested that, as they were not more pertinent than those already on file, their admission to the proceedings be refused. At the oral proceedings of 8 January 2008, the Respondent drew attention in particular to the uncertain publication status of D10 (only a manuscript annotation on the provided copy) and the publication dates of D9 and D13 which were after the publication date of the patent in suit.

4.2 However, as pointed out by the Appellant, D9-D14 were filed in response to the finding in the decision under appeal at the earliest possible stage, ie together with the statement of grounds of appeal. Further, D9, D10 and D13 were only relied upon as "witness documents" in relation to the inherent properties of the polymers disclosed in D1. Thus, the Board rejected the Respondent's request.

5. *Priority*

5.1 D1, a published European application designating ***inter alia*** all states designated in the patent in suit and claiming a priority date of 31 March 1992 was published on 6 October 1993. Thus, D1 was published between the claimed priority date (11 January 1993) and the filing date (11 January 1994) of the patent in suit. Obviously it has never been challenged in the opposition procedure that the granted claim was not entitled to a priority date of 11 January 1993 so that the opposition division considered D1 to be state of the art under Article 54(3) and (4) EPC without commenting on the entitlement to priority (point 2.2 of the reasons of the decision under appeal).

In its letter dated 7 December 2007 (point VI, above) the Appellant argued for the first time that the subject-matter of the granted claim was not entitled to the priority date of 11 January 1993. As agreed by both parties at the oral proceedings of 8 January 2008, the priority issue is indeed relevant to the present case and has to be considered by the Board since the finding on priority determines whether D1 is a document to be considered under Article 54(3) EPC (if the priority is valid) or under Article 54(2) EPC (if the priority is not valid) which in itself has implications for the determination of the closest piece of prior art in the assessment of inventive step and for the allowability of the disclaimer in the claim of the auxiliary request.

5.2 The patent in suit relies on the following priority documents (copies thereof have been submitted by the Respondent to the EPO at the examination stage):

P1: JP-A-1938293 filed 11 January 1993;

P2: JP-A-1938393 filed 11 January 1993;

P3: JP-A-1938493 filed 11 January 1993;

P4: JP-A-1938593 filed 11 January 1993; and

P5: JP-A-1938693 filed 11 January 1993.

5.2.1 A review of the five priority documents reveals that, if any, only P1 could support the claimed priority date. The various propylene polymer compositions disclosed in P2-P5 clearly differ from the claimed subject-matter in the patent in suit and therefore cannot support the priority of granted Claim 1, a fact which has not been disputed by the Respondent. Thus, P2 and P4 disclose propylene polymer compositions comprising three components, namely propylene polymer [A], propylene polymer [B] and a soft polymer [C] having a crystallinity, as measured by X-ray diffractometry, of less than 30%. P3 discloses a propylene polymer composition comprising propylene polymer [A] and propylene polymer [B] whereby component [A] (which would correspond to component (A1) of granted Claim 1) is obtained from a catalyst containing a solid titanium catalyst component (not a metallocene-type catalyst) and has ***inter alia*** a M_w/M_n of 4-15. P5 discloses a propylene copolymer composition comprising a propylene polymer [I] which is obtained from a catalyst containing a solid titanium catalyst component (not a metallocene-type catalyst) and has ***inter alia*** a M_w/M_n of 4-15 and an ethylene/olefin random copolymer containing units derived from ethylene in an amount of 20-80% by mol.

5.2.2 P1 discloses in the claim in conjunction with the passages bridging pages 5 and 6 and page 6, lines 19-25 a propylene polymer composition comprising:

[A] a propylene polymer in an amount of 10-90 wt%, and
[B] a propylene polymer in an amount of 90-10 wt%.

As far as the catalyst system (except component (c)), M_w/M_n, MFR and monomer content are concerned, propylene polymers [A] and [B] correspond to propylene polymers (A1) and (A2) of Claim 1 of the patent in suit.

A crystallinity of the propylene polymers [A] and [B] of not less than 40% (ie requirement (4) for polymers (A1) and (A2) in Claim 1 of the patent in suit) is disclosed on page 5 and page 6, respectively. However, these passages disclose the crystallinity only in combination with other features. Thus, the passage on page 5, lines 22-27 states: "Further, the propylene polymer [A] has an intrinsic viscosity [η] of 1.3 to 5.0 dl/g, preferably 2.0 to 4.0 dl/g, a weight-average molecular weight of 12 x 10^4 to 100 x 10^4, preferably 20 x 10^4 to 70 x 10^4, and a crystallinity, as measured by X-ray diffractometry, of not less than 40%, preferably not less than 50%." A similar passage can be found on page 6, lines 13-18 for the propylene polymer [B]. The grammatical structure of these passages ("…, **and** a crystallinity …") makes it absolutely clear that the parameter crystallinity is presented only **in combination** with the two other parameters, namely intrinsic viscosity and weight average molecular weight. To associate only crystallinity with propylene polymers [A] and [B] as done in Claim 1 of the patent in suit and omitting the other two requirements disclosed in combination with crystallinity creates a new embodiment at a different level of generality which is not present in P1. Or, in other words, the subject-matter of Claim 1 of the patent in suit is broader than the actual embodiment disclosed in P1. Consequently, P1 does not disclose the same subject-matter as claimed in Claim 1 of the patent in suit. Since, furthermore, the concept of "the same invention" referred to in Article 87(1) EPC is equated with the concept of "the same subject-matter" referred to in Article 87(4) EPC (G 2/98, OJ EPO 2001, 413, point 8.2 of the reasons) granted Claim 1 is not entitled to a priority date of 11 January 1993 from P1.

5.2.3 The consequence of the finding on priority is that D1 is citable against granted Claim 1 under Article 54(2) EPC.

6. *Novelty (main request)*

6.1 The Appellant raised a novelty objection against granted Claim 1 in view of D1, particularly Comparative Example 2 of D1.

D1 relates to polyolefin moulding compositions essentially comprising a) a polyolefin wax, b) a high-molecular-weight (HMW) polyolefin or, instead of b), c) a high-molecular-weight olefin copolymer. The preparation of the polyolefin wax is demonstrated in Examples 1-3 of D1 and the preparation of the HMW polyolefin in Examples 4-6 whereby in each example a metallocene based catalyst system as required in Claim 1 of the patent in suit is used.

Comparative Example 2 of D1 discloses a propylene polymer composition comprising two components in an amount of 50% by weight each, namely a HMW isotactic polypropylene according to the invention of D1 and, instead of a polyolefin wax, a low molecular weight (LMW) propylene polymer. The HMW propylene polymer corresponds to component (Al) of the patent in suit and the LMW propylene polymer to component (A2). The HMW and the LMW propylene polymer of Comparative Example 2 of D1 have the following properties (page 6, lines 47-58 in combination with page 5, lines 50-56):

HMW isotactic polypropylene:

Viscosity number (VZ) = 370 cm^3/g
MFI (230/5) = 2.0 dg/min (≡MFR)
M_w = 467 000 g/mol
M_w/M_n = 2.3
Melting point = 155°C
Isotacticity Index by ^{13}C NMR (II) = 98.0%
Average isotactic chain length by ^{13}C NMR (n_{iso}) = 80.

LMW polypropylene:

VZ = 111 cm^3/g
MFI (230/2.16) = 93 dg/min
M_w = 108 500 g/mol
M_w/M_n = 2.1
Melting point = 146°C
II = 95.0%
n_{iso} = 34.

6.2 A comparison between Comparative Example 2 of D1 and granted Claim 1 as granted (point I, above) reveals that Comparative Example 2 of D1 does not, at least not explicitly, disclose all the parameters required in granted Claim 1 of the patent in suit. The question therefore arises whether the HWM and the LMW component of Comparative Example 2 of D1 implicitly have the relevant parameters, particularly the parameters (1) to (5) of components (A1) and (A2) of granted Claim 1.

6.3 Production by metallocene based catalyst

6.3.1 Although the materials of Examples 1-6 of D1 are said to be produced using metallocene catalysts, most of the subsequent examples, including Comparative Example 2, are silent as to the production method. However, the Appellant provided a declaration of Professor Kaminsky (D11) according to whom, although not expressly mentioned in D1, it would be readily apparent to a person skilled in the art that the HMW and the LMW components of Comparative Example 2 of D1 were obtained in the presence of a metallocene catalyst as defined in Claim 1 of the patent in suit. Thus, it is stated in paragraph 5 of D11 that "There would have been no other catalyst systems, known at the time the invention of D1 was made, that could have produced the polymers having the features reported in comparative example 2, in particular the narrow molecular weight distribution and the low melting point." It is conspicuous to the Board that Professor Kaminsky comes to this conclusion in view of the combination of the properties disclosed for Comparative Example 2 of D1. Paragraph 6 of D11 says that the molecular weight distribution values in terms of M_w/M_n for the HMW component (2.3) and the LMW component (2.1) are ***per se*** a clear indicator of polymers obtained by a metallocene catalyst. Then paragraph 7 states: "When combining the foregoing values with the reported values for the melting point, **any possible doubts are dispelled** (emphasis by the Board). In fact, for the high-molecular-weight component, a polypropylene with an isotacticity index (II) of 98%, having a melting point of 155°C, is **unequivocally** (emphasis by the Board) obtained by a metallocene catalyst. The same applies to the low-molecular-weight component, which is a polypropylene with an isotacticity index (II) of 95%, having a melting point as low as 146°C."

6.3.2 The Respondent argued that D11 did not make it inevitable that the polymers of Comparative Example 2 of D1 were necessarily derived from metallocene catalysts. For example, it was well known to those skilled in the art that degradation of high polymers led, as well as to a reduction in molecular weight, to a narrowing of the molecular weight distribution. As evidenced by D15 and D16, it was possible to produce lower molecular weight material having narrow molecular weight distribution by melt kneading in an extruder. However, this argument cannot cast any doubt on D11 as it does not address the basic message of D11, namely that it is the **combination** of molecular weight distribution and melting point which makes it unequivocally apparent to those skilled in the art that a metallocene catalyst as defined in Claim 1 of the patent in suit was used in Comparative Example 2 of D1.

Further, the Respondent pointed out that the reference in paragraph 5 of D11 "both the high-molecular-weight and the high-molecular-weight components of the composition of comparative example 2" was confusing and could cast doubt on D11. However, it is immediately clear from the reference to "comparative example 2" in this passage itself and from the following paragraphs 6 and 7 of D11 that the passage contains an obvious error and should of course refer to the high molecular weight and the low molecular weight component of Comparative Example 2 of D1. Hence, such an obvious error cannot challenge the significance of D11.

6.3.3 Thus, D11 alone is, in the Board's view, unequivocal evidence that the HMW and the LMW components of Comparative Example 2 of D1 meet requirement (1) of granted Claim 1 of the patent in suit, ie were produced with a metallocene system as required in granted Claim 1.

Under these circumstances, it is not necessary to scrutinise the Appellant's further argument relied upon in this context, the quintessence of which is that because the HMW and the LMW propylene polymers of Comparative Example 2 fit the relationship between melting point and isotactic triads (mm) as disclosed in D9, these polymers must be produced by metallocene catalysts.

6.4 Melt flow rate

6.4.1 The LMW component of Comparative Example 2 has a melt flow rate measured at 230°C under a load of 2.16 kg of 93 dg/min (or g/10 min) (MFR/2.16 kg)which falls within the range of 30 to 1,000 g/10 min required in granted Claim 1 of the patent in suit for component (A2). This has never been disputed.

6.4.2 The HMW component of Comparative Example 2 has a MFR of 2.0 dg/min measured at 230°C under a load of 5 kg (MFR/5 kg). The question therefore arises whether this value corresponds to a MFR/2.16 kg of between 0.01 and 30 g/10 min as required in granted Claim 1 of the opposed patent.

The Appellant has submitted with the notice of opposition an empiric diagram for MFR/2.16 kg ***versus*** MFR/5 kg (measured at 230°C) for polypropylene with narrow molecular weight distributions, namely M_w/M_n of 2, 3, and 4. It can be deduced from this diagram that a MFR/5 kg of 2.0 dg/min for a polypropylene with a Mw/Mn of 2.3 (ie the HMW propylene polymer of Comparative Example 2 of D1) corresponds to a MFR/2.16 kg of between 0.3 and 0.4 dg/min, a value which falls within the range indicated in granted Claim 1.

It has been argued by the Respondent that there was no indication that this diagram was applicable to the particular polymers of D1. However, the Appellant pointed out that the melt flow rate is a rheological measure done on the polymer melt which is not influenced by any property of the polymer melt other than its molecular weight, molecular weight distribution and chain branching. Since the propylene polymers of D1 are propylene homopolymers (as will be shown in point 6.7, below) and chain branching is absent in this kind of propylene homopolymers, the Board accepts that the diagram is applicable to the propylene polymers of Comparative Example 2 of D1. The Respondent has not provided any argument as to why the Appellant's explanation with respect to the applicability of the empiric diagram to the propylene polymers of Comparative Example 2 of D1 would be wrong. Since, furthermore, the Appellant' explanation is obviously based on rather general principles of polymer chemistry and no reasoned doubt has been brought forward by the Appellant, the Board sees no reason to doubt this explanation.

Further, the following general considerations corroborate the finding that the HMW component must have a MFR/2.16 kg falling within the range defined in granted Claim 1. Firstly, as pointed out by the Appellant, an MFR measurement under a load of 2.16 kg will always give a lower value than the corresponding MFR measurement under a load of 5 kg. Hence, the MFR/2.16 kg for the HMW component of Comparative Example 2 of D1 must be below 2. Secondly, granted Claim 1 sets an extremely low lower limit of 0.01 g/10 min for the MFR/2.16 kg. The value deducible from the empiric diagram is not only below 2, it is also more than an order of magnitude away from the lower limit in granted Claim 1. Hence, even if there were an uncertainty associated with the value deducible from the empiric diagram, there cannot be any reasonable doubt that the MFR/2.16 kg for the HMW component of Comparative Example 2 is within the range of 0.01 and below 2.0 g/10 min and therefore falls within the range indicated in granted Claim 1 for component (A1), ie requirement (2).

The Appellant also tried to calculate the MFR/2.16 kg from the formula $MFR = 76.6\ (1/[\eta]_{DEC})^{4.20}$ disclosed in D12 whereby $[\eta]_{DEC}$ is the intrinsic viscosity measured in decalin at 135°C using a capillary viscometer. However, Comparative Example 2 of D1 indicates only the viscosity number and only the extrapolation of the concentration dependent viscosity number to a hypothetical "zero concentration" would provide the intrinsic viscosity, the calculation cannot be done with the available data.

6.4.3 Granted Claim 1 of the patent in suit contains a further requirement relating to MFR, namely that the ratio of the MFR of the propylene polymer (A2) to the MFR of the propylene polymer (A1) is not less than 30. With the above finding that the MFR/2.16 kg of the HMW component of Comparative Example 2 of D1 is in the range of 0.3-0.4 g/10 min or at least falls within the range of 0.01 to below 2.0 g/10 min, this requirement is automatically met. The ratio of 93 g/10 min (ie the MFR/2.16 kg of the LMW component of Comparative Example 2) to any value in the range of 0.01 to below 2 g/10 min (including 0.3-0.4 g/10 min) is greater than 30.

6.5 Molecular weight distribution (M_w/M_n)

The HMW component of Comparative Example 2 of D1 has a M_w/M_n of 2.3 and the LMW component has a M_w/M_n of 2.1 both of which a clearly within the ranges indicated in granted Claim 1 of the patent in suit for components (A1) and (A2). Thus, no further discussion is necessary in this matter.

6.6 Crystallinity

Comparative Example 2 of D1 gives no values for the crystallinity of the HMW and the LMW component.

It is conspicuous to the Board that also the patent in suit does not indicate the crystallinity values for the polymers of the working examples. Nor is there any particular discussion in the patent specification which measures have to be taken in order to reach a crystallinity of at least 40%. In fact, the crystallinity requirement has been added during examination proceedings to distinguish the claims over a cited reference disclosing non-crystalline polymers. This must mean that the Applicant itself considered that polypropylenes made with the specific metallocene catalysts used in the examples of the patent in suit would have a crystallinity of higher than 40%. In other words, the required crystallinity is automatically reached when the polymers are prepared as indicated in Claim 1. Considering the similarity of the catalyst systems used in the patent in suit and in Comparative Example 2 of D1 and taking furthermore the low threshold of 40% into account, the only plausible conclusion is that the HMW and the LMW components of Comparative Example 2 of D1 meet the crystallinity requirement of Claim 1.

This finding is reinforced by the fact that the HMW and the LMW components of Comparative Example 2 of D1 are highly isotactic (isotacticity indices of 98.0% and 95.0%, respectively), which in itself is an indication that the components of Comparative Example 2 of D1 are highly crystalline. In fact, it was not contested that high values of isotacticity are associated with high crystallinity.

Finally, it was never directly disputed that the crystallinity requirement of Claim 1 was indeed fulfilled by the components of Comparative Example 2 of D1. Under the present circumstances, there is no doubt left that the HMW and the LMW components of Comparative Example 2 of D1 meet the crystallinity requirement.

Consequently, it is not necessary to address the issue as to whether or not D14 provides a further indication that the polymers of Comparative Example 2 must have a crystallinity of at least 40%.

6.7 Comonomer content

As regards the optional monomer content in granted Claim 1, namely requirement (5), it has never been contested by the Respondent that the HMW and the LMW component of Comparative Example 2 of D1 fulfil this requirement. In fact, it is apparent from D1 that whenever a comonomer is used this is indicated and the resulting polymer is called a "copolymer", eg Examples 5, 6, or 11. On the other hand, where propylene is the only monomer and the product is therefore a propylene homopolymer, D1 refers to "polypropylene" (Examples 2 and 4), "polypropylene wax" (Example 3). As regards the HMW and the LMW component of Comparative Example 2, D1 refers to the "high molecular weight isotactic polypropylene" (page 6, lines 45-46) and the "low molecular weight PP" (page 7, line 50). Thus, it is clear from D1 that the HWM and the LMW component of D1 are polypropylene homopolymers.

6.8 In summary, Comparative Example 2 of D1 discloses a propylene polymer composition which explicitly or implicitly has all the features required in granted Claim 1 of the patent in suit. As regards the implicit disclosure of the features, no reasonable doubt has been put forward to question the evidence of the Appellant. Thus, contrary to the Respondent's assertion there in no room for doubt.

6.9 Claim 1 of the main request being not novel, the main request had to be refused.

7. *First auxiliary request*

7.1 Claim 1 of the first (and only) auxiliary request has been modified to disclaim the content of Comparative Example 2 of D1. This disclaimer is not disclosed in the application as originally filed. The question therefore arises whether the disclaimer meets the criteria set out in G 1/03 (OJ EPO 2004, 413, Headnote) which have to be applied for assessing the allowability of a disclaimer which is not disclosed in the application as filed.

7.2 A consequence of the finding on priority is that D1 is comprised in the state of the art in the sense of Article 54(2) EPC. Thus, it is self evident that the disclaimer is not used in order to restore novelty by delimiting the claimed subject-matter against state of the art under Article 54(3) EPC.

7.3 Instead the Respondent argued that the disclaimer restored novelty by delimiting the claimed subject-matter against an accidental anticipation under Article 54(2) EPC. The novelty destroying disclosure of D1 was a comparative example which did not represent the teaching of D1 and therefore qualified as an accidental disclosure.

7.3.1 G 1/03 (***supra***, point 2.1 of the Headnote, second sub-item) states that "an anticipation is accidental if it is so unrelated to and remote from the claimed invention that the person skilled in the art would never have taken it into consideration when making the invention". A similar statement can be found in point 2.2.2 of the reasons: "What counts is that from a technical point of view, the disclosure in question must be so unrelated and remote that the person skilled in the art would never have taken it into consideration when working the invention." In other words, an anticipation is accidental only when it appears from the outset to have nothing to do with the invention (see also T 14/01 of 3 November 2004, not published in OJ EPO, point 1.5 of the reasons).

7.3.2 Document D1 deals with polypropylene compositions, ie D1 is in the same field as the patent in suit, and may even be regarded as the closest prior art when assessing inventive step. As regards Comparative Example 2, the Board concurs with the view of the Appellant that this example, although outside the invention claimed in D1, is still closely related to the invention of D1 and serves to elucidate the teaching of the document as a whole. In particular, the person skilled in the art would learn from D1 that the composition of Comparative Example 2 still has good mechanical properties. Thus, in the present case, Comparative Example 2 is closely connected with the disclosure in D1.

7.3.3 Hence, the Board comes to the conclusion that Comparative Example 2 of D1 is not a disclosure the skilled person would never have taken into account when making the present invention (in this context see also T 1146/01 of 2 September 2004, point 4.2 of the reasons, not published in the OJ EPO). Consequently, neither D1 itself nor its Comparative Example 2 meet the strict criteria for an accidental disclosure set out in G 1/03 (*supra*).

7.4 In view of the above, the disclaimer in Claim 1 of the first (and only) auxiliary request contravenes Article 123(2) EPC. Consequently, the first auxiliary request must also be refused.

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:

E. Görgmaier R. Young