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D E C I S I O N
of 18 November 2004

Case Number: T 0206/02 - 3.3.9

Application Number: 96931634.8

Publication Number: 0854890

IPC: C08J 5/18

Language of the proceedings: EN

Title of invention:
Shrink films from propylene polymers

Applicant:
ExxonMobil Chemical Patents Inc.

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 54

Keyword:
"Novelty - yes"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0206/02 - 3.3.9

D E C I S I O N
of the Technical Board of Appeal 3.3.9
of 18 November 2004

Appellant: ExxonMobil Chemical Patents Inc.
5200 Bayway Drive
Baytown, TX 77520-5200 (US)

Representative: van Westenbrügge, Andries
Nederlandsch Octrooibureau
P.O. Box 29720
NL-2502 LS The Hague (NL)

Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 23 July 2001 refusing European application No. 96931634.8 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: P. Kitzmantel
Members: J. Jardon Alvarez
M.-B. Tardo-Dino

Summary of Facts and Submissions

I. The appeal lies from the decision of the Examining Division, dated 23 July 2001, refusing European patent application No 96 931 634.8, published as WO-A-97/11115.

II. The decision under appeal was based on claims 1 to 9 filed on 22 August 2000, Claim 1 reading as follows:

"1. A film comprising one or more layers of shrink film comprising metallocene catalyzed, substantially isotactic propylene polymer having hexane extractables of less than 3 weight percent as determined by 21 CFR 177.1520(d)(3)(i) and (ii), said substantially isotactic propylene polymer having a percentage of isotactic pentads as determined in homopropylene of greater than about 70% and said film having a shrink tension of at least 10%."

This decision referred *inter alia* to documents:

D1: WO-A-95/00333,

D2: WO-A-95/32242,

D6: WO-A-97/10300 and

D7: EP-A-0 318 049

and held that the claimed subject-matter lacked novelty over the disclosure of D2 which was to be considered as prior art according to Article 54(3)(4) EPC.

III. The Notice of Appeal was filed on 17 September 2001 and the appeal fee was paid simultaneously. The statement setting out the Grounds of Appeal was filed on 23 November 2001 together with sets of claims of a main and an auxiliary request. The Statement of Grounds was accompanied by the following new document:

D10: J.H. Briston, "Plastics films", second edition, New York (1983), pages 76-79 and 274-281.

IV. In a communication pursuant to Article 11(1) of the Rules of procedure of the Boards of Appeal issued on 18 October 2004 the Board expressed doubts as to whether Claim 1 of both requests fulfilled the requirements of Article 84 EPC.

V. In reply thereto, the Appellant submitted on 12 November 2004 an amended set of claims in replacement of all previous requests on file. He also submitted two new documents:

D11: Film Extrusion Manual, Process, Materials Properties, TAPPI Press 1992, pages 501 - 505 and

D12: Speciality Plastics Conference '88 "Polyethylene and polypropylene resins markets and applications", 1988, pages 427 - 433.

VI. During oral proceedings held on 18 November 2004 the Appellant maintained the previously filed set of claims as its main request and submitted a further set of claims as its first auxiliary request.

Claim 1 of the main request reads as follows:

"1. A shrink film comprising one or more layers of biaxially oriented film comprising a metallocene catalyzed, substantially isotactic propylene copolymer having hexane extractables of less than 3 weight percent as determined by 21 CFR 177.1520(d)(3)(i) and (ii), said substantially isotactic propylene polymer having a percentage of isotactic pentads as determined in homopropylene of greater than 70% by using ^{13}C NMR and comprising 0.5 to 6 weight percent of comonomer, based on the total weight of the substantially isotactic propylene polymer, wherein the comonomer has 2, 4, 5, 6 or 8 carbon atoms."

VII. The arguments put forward by the Appellant in its written submissions and at the oral proceedings concerning its main request can be summarized as follows:

(i) Document D2 was silent about shrink films; it discloses oriented films which might be uniaxially or biaxially oriented. However, it was clear from documents D11 and D12 that not all biaxially oriented films were necessarily shrink films (see D11 page 503, left column, last full paragraph and D12 page 430, penultimate paragraph). The disclosure of a biaxially oriented film must not be equated with the disclosure of a shrink film.

(ii) Furthermore D2 did not restrict the amount of hexane extractables of the isotactic propylene copolymer used to a maximum of 3 weight percent. Moreover, according to examples 7 and 8 of D7 the amount of xylene extractables measured at 20 °C

for very similar metallocene catalysed polypropylene copolymers was above 5 weight percent, which in view of the similar solvent properties of xylene and hexane led to the conclusion that, at the higher extraction temperature used according to Claim 1 of the present application the amount of hexane extractables would even be higher. Thus, this amount was a further feature distinguishing the subject-matter of Claim 1 from the disclosure of D2.

VIII. The Appellant requested that the decision under appeal be set aside and that the case be remitted to the first instance for further prosecution on the basis of the following points:

Claims 1 to 11 of the new main request filed with the letter dated 12 November 2004 or alternatively on the basis of Claims 1 to 10 of the auxiliary request as filed during the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

Main request

2. *Amendments (Article 123(2) EPC)*

2.1 Amended Claim 1 is based on Claim 6 as originally filed including the features of Claim 11 (amount of comonomer)

and Claim 12 (class of comonomer used). It has further been amended as follows:

– Claim 1 is now directed to a shrink film comprising one or more layers of biaxially oriented film as disclosed on page 13, lines 20 to 31, especially, lines 20, 29 and 30, of the description.

– It specifies how the percentage of hexane extractables is determined as disclosed on the paragraph bridging pages 1 and 2.

– The propylene copolymer has been defined as "substantially isotactic ... having a percentage of isotactic pentads as determined in homopropylene of greater than about 70 % by using ^{13}C NMR" as disclosed on page 2, lines 15 to 20 and line 29.

2.2 The remaining claims are also supported by the original disclosure:

– Claims 2 and 3 are based on page 2, lines 20 to 29;

– Claims 4 and 5 are supported by the disclosure on page 3, lines 7 to 9 and page 4, lines 10 to 13;

– Claims 6 and 7 are based on Claim 13 as originally filed and on page 3, lines 29 to 30;

– Claims 8 to 10, insofar as they are not repeating features of Claim 1, are based on page 13, lines 20 to 31 and

– Claim 11 is based on original Claim 15.

2.3 The Board is therefore satisfied that the amendments do not introduce subject-matter which goes beyond the contents of the application as originally filed.

3. *Novelty (Article 54 EPC)*

3.1 Document D2, which is based on the International Patent application PCT/US95/06576 filed on 24 May 1995, has been published on 30 November 1995, i.e. after the valid priority date claimed by the present application (18 September 1995). It is to be considered as state of the art according to Article 54(3),(4) EPC.

3.2 Claim 1 of the present application comprises the following features:

(a) a shrink film,
(b) comprising one or more layers of biaxially oriented film prepared from a propylene copolymer,

the propylene copolymer being characterized by:

(c) having been prepared using a metallocene catalyst,
(d) being substantially isotactic (percentage of isotactic pentads greater than 70%),
(e) having hexane extractables of less than 3 weight percent,
(f) comprising 0.5 to 6 weight percent of comonomer and
(g) the comonomer having 2, 4, 5, 6 or 8 carbon atoms.

3.3 Document D2 is directed to articles made from an isotactic copolymer of propylene and at least one á-olefin having 5 or more carbon atoms in an amount of 0.2 to 6 mole percent produced using a metallocene catalyst system (see Claim 1). The term "isotactic copolymer" is intended to mean a polymer having more than 90% of pentads (page 7, lines 3 to 13). Document D2 also contemplates the preparation of oriented propylene films (either uniaxially or biaxially oriented) and its preparation by either post extruder manipulation of the blown film through heating and orientation or by longitudinal stretching of an extruded sheet followed by tentering techniques (see page 9, third paragraph and page 12, last paragraph).

Thus, D2 explicitly discloses features (b), (c), (d), (f) and (g) of Claim 1 of the application.

3.4 However, D2 discloses neither shrink films (feature (a)) nor the amount of hexane extractables of propylene copolymer constituting biaxially oriented films (feature (e)).

3.5 The Board disagrees with the conclusion of the Examining Division (see Reasons 5.3) that these features were implicitly disclosed in D2 because

- in view of the relationship between biaxial orientation and shrinkability the method of film manufacture disclosed in D2 (page 9, third paragraph) inevitably resulted in shrink films, and because

- in view of the relationship between the amount of hexane extractables and the amount of comonomer, the

overlap of the respective comonomer amounts used in D2 and according to the present application established that the amount of hexane extractables achieved according to D2 was in the range required by Claim 1 of the application in suit.

3.6 However, contrary to the position of the Examining Division, there is no clear and unmistakable disclosure of shrink films in D2. The Appellant has convincingly shown that the processes for the manufacture of oriented films disclosed in D2 can also result in films which do not possess shrink properties, depending on the desired use of the films (see D11, page 503, left, column, lines 34 to 38 and right column, last paragraph; D12, page 430, last two paragraphs).

3.7 An analogous conclusion applies to the feature in present Claim 1 concerning the amount of hexane extractables, because this property depends not only on the amount of comonomer in the copolymer but also on other factors like the catalyst used and the polymerization conditions. D2 is silent about the amount of hexane extractables in polypropylene copolymers used for biaxially oriented films and therefore the feature concerning the presence of hexane extractables in an amount of less than 3 weight percent cannot be inferred directly and unequivocally from the disclosure of D2.

3.8 Thus, features (a) and (e) are not disclosed in D2, and consequently, this document does not directly and unambiguously disclose the subject-matter of Claim 1 of the main request.

3.9 The novelty of Claim 1 with respect to the other documents cited during the proceedings is also acknowledged.

– Thus, documents D6 and D7 do not disclose shrink films comprising one or more layers of biaxially oriented film (features (a) and (b) of Claim 1 of the application).

– Document D1 discloses multiple layer films, including molecularly oriented heat shrinkable films comprising a layer of a polymer of polypropylene formed using a metallocene catalyst (see claims 2, 4 and 9 and the abstract) but it does not disclose either the amount of comonomer employed or the amount of hexane extractables (features (e) and (f) of Claim 1).

3.10 In view of the above findings, the subject-matter of Claim 1 of the main request is novel over the available prior art.

3.11 The subject-matter of dependent Claims 2 to 7 which relates to particular embodiments of the shrink film according to Claim 1 and the subject-matter of Claims 8 to 11 which comprises the features of Claim 1 which establish its novelty is also novel.

4. *Inventive step (Article 56 EPC)*

4.1 Since the Examining Division has not yet considered inventive step, the Board exercising its power under Article 111(1) EPC decides to remit the case to the

first instance to ensure that this issue will be fully investigated.

Auxiliary request

5. Since the subject-matter of the main request is novel, there is no need to comment on the auxiliary request, at this stage.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance for further prosecution.

The Registrar: The Chairman:

G. Röhn P. Kitzmantel