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Datasheet for the decision of 12 February 2015

Case Number: T 1702/13 - 3.3.09

Application Number: 97108609.5

Publication Number: 0810087

IPC: B32B27/32

Language of the proceedings: EN

Title of invention:
Heat-shrinkable multi-layer film

Patent Proprietor:
Kureha Corporation

Opponent:
LUDWIG, Gabriele

Headword:

Relevant legal provisions:
EPC Art. 87(1), 123(2), 56
RPBA Art. 13(1)
EPC Art 100(c)

Keyword:
Late submitted ground for opposition - not admitted
Priority - no
Main request - added subject-matter
Main request - no
Main request - Inventive step
Main request - yes

Decisions cited:
G 0009/91

Catchword:

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Case Number: T 1702/13 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 12 February 2015

Appellant: (Opponent)	LUDWIG, Gabriele Nadistrasse 10 80809 München (DE)
Representative:	Isarpatent Patent- und Rechtsanwälte Postfach 44 01 51 80750 München (DE)
Respondent: (Patent Proprietor)	Kureha Corporation 3-3-2, Nihonbashi-Hamacho, Chuo-ku Tokyo 103-8552 (JP)
Representative:	Beckmann, Claus Kraus & Weisert Patentanwälte PartGmbB Thomas-Wimmer-Ring 15 80539 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 23 May 2013 concerning maintenance of the European Patent No. 0810087 in amended form.**

Composition of the Board:

Chairman M. O. Müller
Members: J. Jardón Álvarez
E. Kossonakou

Summary of Facts and Submissions

I. This decision concerns the appeal filed by the opponent against the interlocutory decision of the opposition division that European patent No. 0 810 087 B1 in the name of Kureha Corporation and KUREHA PLASTICS Co. LTD (now Kureha Corporation) as amended meets the requirements of the EPC.

II. The opponent, LUDWIG, Gabriele, had requested revocation of the patent in its entirety on the grounds that the claimed subject-matter lacked novelty and inventive step (Article 100(a) EPC).

The documents cited during the opposition proceedings included:

D1: EP 0 476 836 A1;

D2: WO 94/09060 A1;

D6: EP 0 756 931 A2;

D9: Plastics Focus 25(18), 1993 (2 pages); and

D20: JP 8-156203 (certified translation of priority application).

III. The opposition division's decision, announced orally on 25 April 2013 and issued in writing on 23 May 2013, can be summarised as follows:

- The opposition division rejected the main request of the patent proprietor because in its view the subject-matter of claim 1 of the granted patent lacked novelty in view of the disclosure of D6.

- The opposition division maintained the patent in amended form on the basis of the then pending auxiliary request 1 because, in its view, the wording of the amended claims found support in the application as filed, was novel and involved an inventive step.

- Concerning inventive step the opposition division, starting from D1 as the closest prior-art document, saw the problem to be solved by the patent in suit in the provision of films with improved properties concerning sealability through contamination and low-temperature sealability, when compared to films having a heat-sealing layer of conventional very low density polyethylene (VLDPE). In its view the solution to this problem, namely the use of a linear ethylene-1-octene copolymer (a) as defined in claim 1 was not obvious in view of the cited prior art, namely documents D2 and D9.

Claim 1 of auxiliary request 1 maintained by the opposition division read as follows:

"1. A heat-shrinkable multi-layer film having a laminated structure consisting of the outermost layer (A)/adhesive layer/intermediate layer (D1)/core layer (B)/adhesive layer/innermost layer (C) in order from the outermost layer, wherein a thermoplastic resin layer is the outermost layer (A), a gas barrier resin layer is the core layer (B), and a sealing resin layer is the innermost layer (C), and further wherein

(1) the sealing resin layer of the innermost layer (C) is a layer formed of a resin

material (b) comprising a linear ethylene-1-octene copolymer (a) obtained by using a constrained geometry catalyst and having an 1-octene content not lower than 1 wt.% but lower than 20 wt.% and a density of higher than 0.885 g/cm^3 but not higher than 0.960 g/cm^3,
(2) the intermediate layer (D1) is formed of at least one resin (c) selected from the group consisting of polyamide resins and thermoplastic polyester resins, and
(3) the outermost layer (A) is formed of at least one resin (e) selected from the group consisting of thermoplastic polyester resins and polyamide resins."

Claims 2 to 16 were dependent claims.

IV. On 2 August 2013 the opponent (in the following: the appellant) lodged an appeal and on the same day paid the prescribed fee. The statement setting out the grounds of appeal and requesting revocation of the patent was filed on 2 October 2013.

V. In its reply dated 14 February 2014 the patent proprietor (in the following: the respondent) disputed the arguments submitted by the appellant and requested that the appeal be dismissed (main request), or, alternatively, that the patent be maintained in amended form with the claims according to auxiliary requests 1 to 13.

VI. On 12 August 2014 the board dispatched a summons to oral proceedings. In a communication issued on 24 September 2014 the board indicated the points to be discussed during the oral proceedings. The board also gave the preliminary view that the amendments fulfilled

the requirements of Article 123(2) EPC and that claim 1 of the main request was not entitled to the claimed priority.

VII. On 12 January 2015 further submissions in preparation for the oral proceedings were filed by both the appellant and the respondent. With its submission the respondent also filed a further auxiliary request, namely auxiliary request 14.

VIII. On 12 February 2015 oral proceedings were held before the board. At the end of the oral proceedings the main request of the respondent was allowed.

The claims of the main request, the only request relevant to this decision, are the claims of auxiliary request 1 before the opposition division (see point III above).

IX. The arguments of the appellant, insofar as they are relevant for the present decision, may be summarised as follows:

- The wording "consisting of" did not find support in the application as filed. The application as filed did not exclusively deal with the 6-layer structures now claimed. The wording "composed of" was used throughout the application as filed as meaning "comprising" in a non-limiting way and was not a direct and unambiguous basis for the term "consisting of" introduced into claim 1.

- Moreover, the claimed 6-layered film resulted from a multiple selection from different lists in the application as filed and for this further reason

the subject-matter of claim 1 extended beyond the content of the application as filed.

- The priority was not validly claimed and document D6 was pre-published prior art to be considered in the discussion of inventive step.

- The claimed subject-matter lacked inventive step in view of the disclosure of D6 alone which disclosed structurally closely related multilayer films having the same properties. No inventive step could be seen in the removal of the second sealing layer of the films of D6 to obtain alternative films having the same characteristics.

- Alternatively, the subject-matter of claim 1 lacked inventive step in view of the combined teaching of documents D1 and D2. It would have been obvious for the skilled person to replace the polyolefin layer of the films of D1 by the ethylene 1-octene copolymers known from D2 in order to improve the sealing properties.

X. The relevant arguments of the respondent may be summarised as follows:

- The claimed subject-matter did not extend beyond the content of the application as filed. The wording "composed of" in the application as filed was intended to mean "consisting of". The amendment of the granted claims was made only because the opposition division did not accept this argument. In any case the application as filed was directed to both 6-layered films and 7-layered films. The 6-layered films now claimed

were a preferred embodiment of the application as filed.

- The appellant's argument that the subject-matter of claim 1 further lacked support in the application as filed because several selections had been made was a new ground for opposition under Article 100(c) EPC, raised for the first time at the oral proceedings. This amendment of the appellant's case should not be admitted into the proceedings since it was filed extremely late. In any case, the respondent did not agree to the introduction of this new ground for opposition into the appeal proceedings.

- The priority was validly claimed, the specific layers of the film of claim 1 all being directly derivable from the content of the Japanese priority document, D20.

- The claimed subject-matter was inventive in view of D1 as the closest prior art. The invention aimed to improve the sealing properties of the films of D1, especially sealability through contamination over a wide sealing temperature range and low-temperature sealability. The examples and comparative examples showed that these properties were improved and D2 gave no hint to this effect. The comparison on page 46 of D2 as regards the superior hot tack performance through contamination was not relevant in this respect since this comparison was not made with the polymer of D1. Also starting from D6 as the closest prior-art document, the claimed subject-matter involved an inventive step especially

because the use of a second seal layer was an essential feature of the films therein described.

XI. The appellant requested that the decision under appeal be set aside and that European patent No. 0 810 087 be revoked.

XII. The respondent requested that the appeal be dismissed (main request), alternatively that the patent be maintained on the basis of one of auxiliary requests 1 to 14, auxiliary requests 1 to 13 having been filed with the reply to the grounds of appeal of 14 February 2014 and auxiliary request 14 with letter dated 12 January 2015.

Reasons for the Decision

1. The appeal is admissible.

MAIN REQUEST

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

2.1 Compared to granted claim 1, claim 1 of the main request has been amended by replacement of the word "composed" by the word "consisting". By this amendment it is ensured that the claimed multilayer film "consists of" (*i.e.* only contains) the six individual layers recited in claim 1, namely outermost layer (A)/ adhesive layer/intermediate layer (D1)/core layer (B)/ adhesive layer/innermost layer (C), and that further layers are excluded.

2.2 Although the wording "consisting" is not explicitly disclosed in the application as filed, it is evident

from the latter that the now claimed films made of six individual layers are a preferred embodiment of the invention. Thus, on page 24, lines 8 to 10 of the application as filed the six-layered film of claim 1 is explicitly disclosed as one of the preferred structures of a multilayer film. Moreover, examples 5 to 7 are specific examples of the six-layered structure now claimed.

2.3 Appellant's arguments that the requirements of Article 123(2) EPC are not satisfied because the application as filed was not exclusively limited to six-layer structures, but disclosed also seven-layer films as preferred structures cannot put the above finding into question. In fact, it is correct that the application as filed also disclosed seven-layer films and that these films are no longer covered by the present claim 1. Article 123(2) EPC, however, does not require that the claimed embodiment be the "exclusive" embodiment of the application as filed; it only requires that the amendment is "based" on the application as filed.

2.4 For these reasons the board is satisfied that the amendment in claim 1 fulfils the requirements of Article 123(2) EPC.

3. Admissibility of objections under Article 100(c) EPC

3.1 The appellant further argued that claim 1 of the main request was not supported by the application as filed because it resulted from a multiple selection from different lists for the resins used in the outermost layer and the intermediate layer, the combination of features not being directly and unambiguously derivable from the application as filed.

3.2 The appellant submitted this objection for the first time during the oral proceedings before the board. Even though the respondent requested maintenance of the patent in amended form, this new objection concerns features which were already present in granted claim 1 and it is therefore an objection under Article 100(c) EPC.

More specifically, as explained under point 2.1 above, the only amendment made to granted claim 1 was the replacement of the word "composed" by "consisting" in order to exclude the possibility of the film including further layers. However, the new objection affects the single layers (outermost layer and intermediate layer), the sequence of the layers being the same in granted claim 1 as in present claim 1.

3.3 Since the ground under Article 100(c) EPC was not invoked when the opposition was filed, the appellant's objection constitutes a new ground for opposition extending beyond the legal and factual framework of the opposition as filed. Taking into account that the respondent refused its consent for introduction of the new ground for opposition into the proceedings, it cannot be admitted into the appeal proceedings (see decision of the Enlarged Board of Appeal G 9/91, point 18 of the Reasons).

3.4 The appellant argued further that the objection was indeed related to the amendment made to granted claim 1 during the opposition proceedings because the objection also applied to the amended claim, not only to the granted claim. Thus, the objection was not a new ground for opposition but an objection to be examined under Article 123(2) EPC.

3.5 The board disagrees for the reasons above (see point 3.3), but notes for the sake of completeness that even if the objection had not constituted a new ground for opposition, it could not have been admitted into the proceedings. This objection was never raised in the opposition proceedings or in the written appeal proceedings. Thus, it amounts to an amendment of the appellant's case which neither the respondent nor the board could foresee. Therefore, in the board's judgement, the introduction of this new objection at such a late stage would also not be admissible under Article 13(1) RPBA.

3.6 The board therefore decided not to admit the appellant's new objection into the proceedings.

4. Validity of priority

4.1 The patent in suit was filed on 28 May 1997 and claims a priority date of 28 May 1996 (JP 15620396, D20).

4.2 Document D6 is an intermediate document published on 5 February 1997, after the priority date of the patent in suit and before its filing date. If the priority of the patent is not valid, D6 is prior art under Article 54(2) EPC and hence relevant to inventive step. It therefore has to be decided whether the claims of the patent are entitled to the claimed priority right. It needs to be examined in this respect whether the subject-matter of claim 1 is clearly and unambiguously derivable from the priority document D20.

4.3 It is undisputed that there is no literal disclosure of claim 1 in D20. The general definitions of the resins used in D20 for the outermost layer (page 19, line 15

to page 20, line 20) and the intermediate layer (page 22, line 1 to page 23, line 22) do not support the use of the specific resins now in claim 1 for these layers. The specific embodiment of claim 1 results from the selection of resins embraced by D20 but not derivable directly and unambiguously from it.

4.4 The respondent found support for claiming priority in the disclosure on page 25, lines 4 to 19 and the general definitions of the different layers given on pages 19 to 23. The board disagrees, in particular because the specific 6-layer film (3) on page 25, lines 8 to 9 of D20, which contains layers of Co-Pet, nylon 6-66 and EVOH, cannot support the broader disclosure of claim 1, which is not limited to these specific layers. Furthermore, the general disclosure of the layers on pages 19 to 23 does not support the specific resins now used for the intermediate layer and the outermost layer as explained in point 4.3 above.

4.5 For these reasons no priority has been validly claimed for the subject-matter of claim 1 of the main request with the consequence that document D6 is prior art pursuant to Article 54(2) EPC.

5. *Inventive step*

5.1 The invention concerns heat-shrinkable multilayer films having good sealing properties such as low-temperature sealability, sealability through contamination and hot tack property, low extraction property, heat shrinkability, heat resistance and gas barrier property (see paragraph [0006] of the patent specification).

Good sealing properties are obtained by using the six-layered films of claim 1 wherein the sealing layer (the

innermost layer) is a layer formed of a resin material comprising a specific linear ethylene-1-octene copolymer obtained by using a constrained geometry catalyst. Such films exhibit improved sealing properties when compared with films wherein the sealing layer is a polyolefin obtained using conventional metallocene catalysts (see results on table 5 of the patent in suit).

5.2 The appellant maintained that the subject-matter of claim 1 lacked inventive step in view of document D6 alone or, alternatively, in view of the disclosure of D1 combined with the teaching of D2.

5.3 D6 as closest prior-art document

5.3.1 D6 is directed to multilayer films including a seal structure and having good film formability or film processability and sealability (page 2, lines 51 to 52). D6 can therefore indeed be considered to represent the closest prior art.

The films of D6 include a first seal layer comprising principally a metallocene-catalyzed polyolefin, and a second seal layer comprising a copolymer of at least one oxygen-containing monomer and ethylene, said copolymer having a crystal melting point lower than that of the metallocene-catalyzed polyolefin (see claim 1).

Preferred structures of the films of D6 cited by the appellant are:

- Structure (2) on page 6, line 50, namely a film of the structure: surface layer (first seal layer)/ second seal layer/gas barrier layer/intermediate

layer/surface layer, wherein an adhesive layer may be disposed between any pair of adjacent layers (page 6, line 53); and

- Example 9 of Table 5-1, namely a seven-layer film consisting of: first seal layer comprising two metallocene-catalyzed ethylene-octene-1 copolymers formed by using a constrained geometry catalyst/ second seal layer of ethylene-vinyl acetate copolymer (EVA-2)/adhesive layer of carboxylic acid-modified ethylene-vinyl acetate-acrylic acid copolymer (M-EVA)/gas barrier layer of ethylene-vinyl alcohol copolymer/intermediate layer of two polyamide resins/adhesive layer of M-EVA/outermost layer of polyethylene terephthalate.

5.3.2 There is no comparison on file between the effects obtained with the films of D6 and the claimed films. Accordingly, the problem underlying the patent in the light of D6 is to provide films alternative to those of D6 having also good sealing properties.

5.3.3 As a solution to this problem, the patent in suit proposes the multilayer film of claim 1, which differs from that of D6 essentially in that it does not include the second seal layer of the films of D6, that is to say, the layer comprising a copolymer of at least one oxygen-containing monomer and ethylene and having a crystal melting point lower than that of the metallocene-catalyzed polyolefin (ethylene-vinyl acetate copolymer (EVA-2) in example 9).

5.3.4 It has not been disputed by the parties that this problem is credibly solved by the claimed films (see, for instance examples 5 to 7 of the patent specification).

5.3.5 The appellant maintained that this solution was obvious in view of D6 alone because the function of the second seal layer in D6 was not clear and the resins used had good adhesiveness and could have the function of an adhesive layer. It would be obvious to avoid such an adhesive layer since it was particularly preferred according to D6 (page 5, line 55) to "suppress the thickness".

5.3.6 The board disagrees for the following reasons:

- The function of the second seal layer is not unclear in D6. On the contrary, on page 3, lines 44 to 48 of D6 it is stated that "More specifically, the metallocene-catalyzed polyolefin constituting the first seal layer exhibits excellent sealability, hot tack and transparency, but shows insufficient extrudability and film-formability, and **a single layer thereof cannot readily exhibit a sufficient seal strength because of a narrow range of optimum sealing condition. Thus, the second seal layer should be disposed adjacent to the first seal layer** comprising a metallocene-catalyzed polyolefin alone." (emphasis added by the board).

- The skilled person looking for alternatives to the films of D6 would not consider omitting the second seal layer because D6 explicitly states that a single layer would not exhibit sufficient seal strength. In other words, the second seal layer would be one of the key features to be considered by the skilled person when designing films alternative to those of D6.

- Contrary to the appellant's assertion, the skilled person would therefore not omit this second sealing layer to reduce the thickness of the film.

5.3.7 In view thereof, the person skilled in the art starting from document D6 would not find any hint or suggestion in this document indicating that further films having good sealing properties could be obtained if the second seal layer were omitted. On the contrary, by omitting such an essential feature, the claimed invention is inventive over the disclosure of document D6.

5.3.8 Consequently, the appellant's first inventive step attack based on D6 as the closest prior art must fail.

5.4 D1 as closest prior-art document

5.4.1 Document D1 is directed to biaxially oriented laminated films which have excellent heat sealing properties (page 1, lines 1 to 2). Hence, D1, too, can be considered to represent the closest prior art.

The films of D1 comprise a surface layer of a polyester, an intermediate layer of polyamide and a heat-sealing layer of a polyolefin (see claim 1).

In the preferred embodiments according to examples 2 to 4 are disclosed six-layered films having a layer structure as follows:

outermost layer of polyethylene terephthalate copolyester/adhesive layer of acid-modified ethylene-α-olefin copolymer/intermediate layer of polyamide/ barrier layer of saponified ethylene-vinyl acetate copolymer/adhesive layer of acid-modified ethylene-α-olefin copolymer (M-PE)/innermost layer of polyolefin

(ethylene-butene-1 copolymer or propylene-ethylene copolymer).

As further polyolefins for the innermost layer, copolymers of ethylene and another α-olefin, such as 1-octene, are mentioned as preferred due to the excellent sealing strength during heat sterilization (page 3, lines 23 to 30).

5.4.2 According to the respondent the problem underlying the patent in the light of D1 is to provide a multilayer film having improved sealing properties, especially with respect to (i) sealability through contamination over a wide sealing temperature range and (ii) low-temperature sealability.

5.4.3 As a solution to this problem the patent in suit proposes the multilayer film of claim 1 which differs from that of D1 essentially in that a specific copolymer, namely a copolymer of ethylene 1-octene having an 1-octene content of from 1 to <20wt.%, a density of >0.885 to 0.960 g/cm^3 and obtained using a constrained geometry catalyst, is used for the sealing layer.

5.4.4 Although no direct comparison has been made between the films of D1 and the films now claimed, it was common ground that the sealing layer of the films of D1 could be categorized as being very low density polyethylene and therefore similar to those used in the comparative examples of the patent.

The examples and comparative examples in the patent show that the films of the invention having a sealing layer of a polyolefin as defined in claim 1 have improved sealability through contamination over a wide

sealing temperature range and low-temperature sealability when compared with similar films but having a sealing layer of a conventional very low density polyethylene as used in D1 (cf. examples 5 to 7 versus comparative example 7 in table 5 of the patent). This finding has not been disputed by the appellant.

The problem referred to by the respondent (point 5.4.2 above) thus has been credibly solved.

5.4.5 It remains to be decided whether the claimed solution, namely the multilayer films of claim 1, would have been obvious for the skilled person in view of the available prior art.

D1 itself cannot give any hint because it does not disclose anything about sealability through contamination and low-temperature sealability. Moreover, it is silent about the specific polyolefins obtained using a constrained geometry catalyst used as a sealing layer in the films of the invention.

Document D2, on which the appellant relied, gives no hint of the claimed solution either. D2 relates to films suitable for use in packaging and wrapping comprising one layer of at least one substantially linear ethylene/α-olefin copolymer characterized by having a given melt flow ratio, a molecular weight distribution and a critical shear at onset of surface melt fracture (see claims 1 and 18). The substantially linear ethylene polymers are preferably made using suitable constrained geometry catalysts (see page 20, lines 2 to 5). These polyolefins correspond to the resin material used for the innermost layer of the film according to claim 1.

D2 discloses several monolayer and multilayer structures using these specific polyolefins but there is no disclosure of six-layered films. The multilayer structures of the films disclosed in D2 are quite different from those according to D1 or to the patent in suit.

Although D2 generally deals with packaging and sealing, it does not focus on the problems underlying the patent in suit, that is to say improvement of the sealability through contamination over a wide sealing temperature range and low-temperature sealability.

The problem of sealability through contamination is only mentioned in passing in the example section. More specifically, in the examples on pages 43 to 50 of D2, three-layered films made of nylon, an adhesive layer and a sealant layer made with the polyolefins of D2 are compared with films made using resins made of conventional polyethylene olefins. The results in tables 17 and 18 show high hot tack strength for the films of D2 as compared with films using comparable prior-art polymers, even when sealed through contaminants (see page 46, lines 25 to 27).

The fact that the polyolefin components used in the patent for the innermost layer are already known from D2 is not equivalent to a hint to use them in the films of D1. In general when designing a useful multilayer film an appropriate layer sequence is necessary to achieve the intended properties. The fact that the individual resins are known does not automatically imply that they can be used for any multilayer film to improve its properties.

Even in view of the reference to high hot tack strength when sealed through contaminants in D2, there would be no motivation for the skilled person to use the polymers of D2 in the innermost layer of the films of D1 to solve the problem underlying the patent in suit. Firstly, the three-layered structure of the films of D2 is not at all related to the six-layered structure of the films of D1. Secondly, in tables 17 and 18 of D2, the sealant layer made with the polyolefins of D2 is not compared to the polymers used for the innermost layer in D1. Hence, it cannot be concluded from the results in tables 17 and 18 of D2 that by substituting the sealant layer made with the polyolefins of D2 for the innermost layer of D1, sealing through contamination would be improved.

5.4.6 For these reasons the subject-matter of claim 1 of the patent also involves an inventive step in view of the combined teaching of documents D1 and D2.

AUXILIARY REQUESTS

6. As the respondent's main request is allowed, there is no need for the board to deal with the auxiliary requests.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

M. Cañueto Carbajo M. O. Müller

Decision electronically authenticated