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Datasheet for the decision of 7 June 2024

Case Number: T 1323/21 - 3.3.06

Application Number: 12793761.3

Publication Number: 2714396

IPC: B32B27/20, B32B27/16, B32B15/08, B32B27/32, B32B7/12, B32B15/082, B32B27/30, B32B15/20, B32B27/08

Language of the proceedings: EN

Title of invention:
ALUMINIUM BARRIER LAMINATE

Patent Proprietor:
Essel Propack Ltd.

Opponents:
Kimpai Lamitube Co., Ltd.
Albéa Services

Headword:
ALUMINIUM BARRIER LAMINATE/Essel Propack

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step (no) - obvious alternative

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 1323/21 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 7 June 2024

Appellant: (Opponent 2)	Albéa Services 1 avenue du Général de Gaulle 92230 Gennevilliers (FR)
Representative:	Gevers & Orès Immeuble le Palatin 2 3 Cours du Triangle CS 80165 92939 Paris La Défense Cedex (FR)
Respondent: (Patent Proprietor)	Essel Propack Ltd. 10th Floor Times Tower Kamala City Senapati Bapat Marg Lowe Parel (West) Mumbai Maharashtra 400 013 (IN)
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Party as of right: (Opponent 1)	Kimpai Lamitube Co., Ltd. 1741 Chan Rd. Thungmahamek Sathorn, Bangkok 10120 (TH)
Representative:	Weickmann & Weickmann PartmbB Postfach 860 820 81635 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 4 June 2021 rejecting the opposition filed against European**

patent No. 2714396 pursuant to Article 101(2) EPC.

Composition of the Board:

Chairman	J.-M. Schwaller
Members:	P. Ammendola
	J. Hoppe

Summary of Facts and Submissions

I. The appeal of opponent 2 is against the decision of the opposition division to reject the opposition against European patent no. 2 714 396, claims 1 and 2 thereof reading:

"*1. A laminate comprising:*
an outer layer of 50% to 70% of a High Density Polyethylene (HDPE) and 50% to 30% of a Linear Low Density Polyethylene (LLDPE);
an aluminum core layer is sandwiched between Ethylene Acrylic Acid (EAA) layers that serve as tie layers; and
an inner layer of 50% to 70% of a High Density Polyethylene (HDPE) and 50% to 30% of a Linear Low Density Polyethylene (LLDPE) wherein the density of Linear Low Density Polyethylene (LLDPE) is in the range of 0.912 g/cc to 0.927 g/cc, and the density of High Density Polyethylene (HDPE) is in the range of 0.930 g/cc to 0.970 g/cc."

"*2. The laminate as claimed in claim 1, wherein the outer polyethylene layer and the inner polyethylene layer and the outer polyethylene layer are independently a multilayer film, preferably a three layer film.*"

II. In the contested decision, the opposition division concluded that the ground for opposition under Article 100(a) EPC in combination with Article 56 EPC did not prejudice the maintenance of the patent as granted. In particular, the objection of lack of inventive step based on **E4** (US 4,539,259) as closest prior art in combination with **E15** (EP 0 612 612 A1) was rejected.

III. With its statement of grounds of appeal, the appellant contested the above conclusion, arguing that the combination of the teachings in E4 and E15 lead in obvious manner to the claimed subject-matter.

IV. Since the patent proprietor (and respondent) did not reply, nor did it file any request or submission as to the substance of the case, let alone request oral proceedings, the board decided to cancel the already summoned oral proceedings and directly issue the written decision, since according to Article 12(1)a)-c) RPBA the case is now ready for a decision.

Reasons for the Decision

1. Patent as granted - Inventive step

1.1 Construction of granted claim 1

The board notes that the whole reasoning on inventive step in point 8 of the appealed decision, explicitly or implicitly acknowledges that in granted claim 1:

- the "*outer layer*" and "*inner layer*" (hereinafter also cumulatively referred to as **external layers**) refer to the two relatively more external portions (also) forming the opposite sides of the laminate;
- the percentages of HDPE and LLDPE can only reasonably be construed as referring to weight percentages;
- the "*outer layer*" as well as the "*inner layer*" can also be multi-layers, i.e. the HDPE and the LLDPE can also be present in distinct layers within the inner layer, as well as within the outer layer.

The board, further noting the content of granted claim 2 and the appellant in its submissions having not

disputed this construction, sees no reason to come to a different conclusion.

1.2 The closest prior art

1.2.1 From points 8.1.1 and 8.1.2 of the appealed decision, it is apparent that the opposition division has based its assessment on opponents' arguments that:

- the prior art disclosed in E4 represented a suitable starting point for the assessment of inventive step because it related, similarly to the opposed patent, to laminates suitable for tubes for toothpaste with excellent properties, and
- in particular Examples 3 to 5 of Table 1 of E4 (see also Figure 1 in combination with the corresponding disclosure from line 38 of column 1 to line 28 of column 2) disclose laminates with an outer layer (in Figure 1, layers 14 and 15 together) of HDPE (14) and LLDPE (15); an aluminum core layer (12) sandwiched between EAA layers (11, 13) that serve as tie layers; and an inner layer of LLDPE (10).

The Board follows appellant's arguments with respect to the cited examples as suitable starting point. However, it considers appropriate to stress that the disclosure in E4 of the laminates of the examples is incomplete, in particular because, whereas Table 1 of E4 reports the thickness of the HDPE layers, no thickness (or amount) is given for the LLDPE layers.

1.2.2 In the decision, the opposition division concluded that "t*he subject-matter of claim 1 differs from E4 not only by the polyethylene composition of the inner layer, i.e. that the inner layer comprises LLDPE and HDPE, but also in that the specific ratios of HDPE and LLDPE in*

the inner and outer layer is 50% to 70% of HDPE and 50% to 30% of a LLDPE."

The board agrees with this finding, which appears also undisputed by the appellant.

1.3 The technical problem solved

1.3.1 According to the reasoning of the opposition division, the technical problem underlying the claimed invention is that implied by the allegation in paragraph [0022] of the opposed patent, as to the properties of the patented laminate and the feature thereof responsible for such properties (third sentence in reason 8.1.2 of the appealed decision, reading "*By using a combination of HDPE and LLDPE in the outer layers, i.e. in both outer layers, the flexibility of the laminate is maintained, impact resistance is achieved, and drop test is complied with (see paragraph [0022] of the opposed patent*)").

The allegation in paragraph [0022] appears undisputed by the appellant.

1.3.2 The board finds however that the opposition division's erred in concluding that paragraph [0022] would attribute the relevant properties not just to the simultaneous presence of HDPE and LLDPE in the laminate, but specifically also to their presence in both external layers of the patented laminate.

Indeed, paragraph [0022] does not mention the location of HDPE and LLDPE in the laminate. Hence, the allegations in this paragraph leave undetermined whether or not it would also be essential for obtaining

the relevant properties e.g. that these two sorts of polyethylene are present in both external layers.

Nor could the board identify in the reminder of the patent in suit any other implicit or explicit allegation (not to mention some experimental evidence or theoretical explanation) that the relevant properties might only be achieved if the joint presence of LLDPE and HDPE occurred in both external layers.

Accordingly, as convincingly argued by the appellant (second and third sentence of point 2.2.1 of the statement of grounds of appeal), paragraph [0022] only clearly attributes the advantageous properties of the laminate of the invention to the presence of LLDPE and HDPE in the patented laminate.

1.3.3 The board considers it also appropriate to stress that neither paragraph [0022] nor the rest of the patent contain any implicit or explicit allegation (not to mention some experimental evidence or theoretical explanation) that the relevant properties may only be achieved when the two sorts of polyethylene are present in the external layers in the amount proportions recited in granted claim 1.

1.3.4 Hence, the board finds that the allegations in paragraph [0022] and the teachings of the reminder of the patent in suit leave undetermined whether or not it is also essential for obtaining the advantageous properties of the laminate of invention, that these two sorts of polyethylene are present in both external layers and/or in the claimed proportions.

Thus, the sole technical effect that paragraph [0022] can possibly teach is the achievement by the laminate

of granted claim 1 of the properties that this paragraph identifies as due to the mere presence of the two sorts of polyethylene HDPE and LLDPE (regardless of the precise locations of these two sorts of polyethylene in the laminate or of their proportions).

1.3.5 Accordingly, the board concludes that if, as implied by the reasoning of the opposition division and undisputed by the appellant, a skilled person would consider the allegations in paragraph [0022], then such allegations - which teach the achievement of certain properties by the laminate of granted claim 1 just as a consequence of the presence therein of HDPE and LLDPE - necessarily leads to the occurrence of the same properties in the laminates of the prior art of departure, as also the latter comprise HDPE and LLDPE.

1.3.6 Accordingly, the board finds that the technical problem solved by the subject-matter of granted claim 1 vis-à-vis the prior art disclosed in D4 must be reformulated in a less ambitious manner, namely in the provision of an alternative laminate with good properties suitable for tubes for toothpaste (i.e. an alternative to the closest prior art).

1.4 The solution and its obviousness

1.4.1 The solution to the posed technical problem offered by the subject-matter of granted claim 1 is a laminate with an aluminum core layer tied - via EEA layers - to two polyethylene external layers, characterised in that both these external layers comprise HDPE and LLDPE in the recited proportion ranges.

1.4.2 Hence, and considering the differences between the subject-matter of granted claim 1 and the examples in E4, the assessment of inventive step in the present case boils down to the question whether a skilled person searching for an alternative to the prior art of departure would have considered obvious (in view of the available prior art or the common general knowledge) to modify any of the laminates of Examples 3 to 5 of E4 so as to arrive at the patented laminate.

1.4.3 It is self-evident to the board, that a skilled reader of E4 would have considered that Table 1 thereof only discloses the thicknesses of the HDPE layers in these examples, but not those of the LLDPE layers.

Hence, a skilled person searching for an alternative to the laminates (incompletely) disclosed in the examples of E4 would have considered obvious to complete the incomplete disclosure of these examples in view of the further teachings in the same document, as this would have lead to further (previously undisclosed) embodiments of this prior art.

In particular, E4 discloses the most preferred ranges (of respectively 1 to 2 mils, or 1.25 to 2 mils; see column 1, lines 45 to 47 and column 2, lines 26 to 28) for the thickness of the two LLDPE layers in (the portions of the laminate of E4 corresponding to the portions of the patented laminate that claim 1 describes as) the inner and outer layers.

1.4.4 Hence, the further embodiments of this prior art that are obtainable by completing the incomplete disclosure of for instance Example 3 of E4 (in which the HDPE layer has thickness of 2.6 mils, see Table 1 of E4)

with the most preferred thickness ranges disclosed in the same document for the LLDPE layers, will comprise:
i) the LLDPE layer of the inner layer (already present in Example 3 of E4 but with unknown thickness), with the most preferred thickness of 1 mils to 2 mils;
ii) the HDPE layer (already present in the outer layer of Example 3 of E4) with the thickness of 2.6 mils indicated in Table 1 of E4, and
iii) the LLDPE layer of the outer layer (already present in Example 3 of E4 but with unknown thickness), with the most preferred thickness of 1.25 mils to 2 mils.

Corresponding further embodiments of the prior art disclosed in E4 may of course also be obtained by completing as indicated above the similarly incomplete disclosure of the other two relevant examples of E4 (i.e. Examples 4 and 5).

1.4.5 The board stresses in particular that in these further embodiments of the prior art which can be identified by completing the incomplete disclosure of Example 3 of E4, that the HDPE LLDPE proportions required in granted claim 1 for these components of the outer layer are always satisfied: as the HDPE layer (only present in the outer layer) is 2.6 mils thick, any thickness of the LLDPE layer of the outer layer encompassed by the most preferred range (see "iii)" above) of 1.25 mils to 2 mils, will result in a HDPE/LLDPE proportion between 70:30 and 50:50.

These proportions would also be satisfied for most (see Example 4) or a least for a substantial fraction (seefor Example 5) of the values embraced by thicknesses range of 1.25 mils to 2 mils of the LLDPE layer in the outer layer, in the further embodiments of

the prior art disclosed in E4 obviously obtainable starting from respectively Example 4 and 5 of E4.

1.4.6 The board considers further that a skilled person would also take into account the fact that E4 itself, as also stressed by the appellant, acknowledges the possibility to add further layers (E4;: column 2, line 29) and that the presence of HDPE favours useful properties (stiffness and deadfold) of the laminate (E4, column 1, lines 15-17).

Moreover, the broadest and the most preferred thickness ranges disclosed for the HDPE in the laminate of E4 are respectively from about 1 mils to 6 mils and from 3 mils to 4 mils (E4: column 2, lines 5 to 8). Hence, it is apparent that the teachings of E4 also encompass, for instance, the possibility to render even more thick (i.e. to add further HDPE to) the HDPE layers present in the examples of E4.

Also in view of these teachings in E4, in the board's view, the skilled person searching for an alternative to the prior art laminates of E4 would have consulted E15, which relates to the same sort of laminates (those suitable for tubes for toothpaste, see E15: page 1, lines 1-2) and also contemplate the presence therein of LLDPE and HDPE layers.

It is indeed undisputed that E15 discloses in Figure 2 and page 5, lines 8-10 a laminate material comprising HDPE layers (13 and 14) in both the inner and the outer polyethylene layers (whereby the inner layer also comprises LLDPE).

1.4.7 The board finds that the combination of the teachings in E4 and E15 summarised above renders manifestly

obvious for the skilled person to solve the posed technical problem by adding a HDPE layer to the inner layer (only made of LLDPE) of the laminate of E4.

The board notes that the opposition division concluded instead that the skilled person would not consider the possibility to add a HDPE layer to the inner layer disclosed in E15, also applicable to the laminate of E4, for the reason that "*the laminate of E4 already comprises a layer of HDPE in order to provide good stiffness*".

However this argument is found unconvincing because, as already indicated above, E4 not only explicitly mentions the possibility to add further layers in the laminate, but also implies for instance the possibility to add further HDPE in the laminates of examples 3 to 5. Thus, E4 contains no teaching deterring from the possibility to add a further layer of HDPE, possibility apparent from the content of E15.

1.4.8 Consequently, the skilled person searching for an alternative and combining E4 with E15 would consider obvious to add for instance in the laminate of Example 3 of E4 already containing a HDPE layer of 2.6 mils - and thus also in the further laminates obtainable by obviously completing, as indicated above, the incomplete disclosure of this example - a further HDPE layer with thickness up to 1.4 mils, so as to keep total thickness of the HDPE layers therein within the HDPE layer most preferred thickness range disclosed in E4, namely of 3 mils to 4 mils.

1.4.9 Hence the combination of documents E4 and E15 renders obvious to arrive at modifications of the prior art disclosed for instance in Example 3 of E4 (wherein the

outer layer already comprises an HDPE layer of 2.6 mils) having:
i) the LLDPE layer of the inner layer (already present in Example 3 of E4 but with unknown thickness), with the most preferred thickness of 1 mils to 2 mils;
ii) an additional HDPE layer in the inner layer, with a thickness of up to 1.4 mils;
iii) the HDPE layer of the outer layer (already present in Example 3 of E4) with the thickness of 2.6 mils indicated in Table 1 of E4, and
iv) the LLDPE layer of the outer layer (already present in Example 3 of E4 but with unknown thickness), with the most preferred thickness of 1.25 mils to 2 mils.

1.4.10 Since also these obvious modifications of the prior art will certainly comply with the HDPE/LLDPE proportions that granted claim 1 imposes in the outer layer, in order to arrive at a laminate having all the other claimed features it is only necessary that the thickness of the LLDPE layer and of the additional HDPE layer forming the inner layer should be such to also comply with the HDPE/LLDPE proportions that granted claim 1 imposes for the inner layer as well.

The board stresses that the above-identified thickness ranges of the LLDPE and HDPE layers of the inner layer certainly allow for combinations of values complying with these HDPE/LLDPE proportions. In particular, all those obvious modifications of Example 3 in accordance with 1.4.9 above, but in which the thickness of the LLDPE layer of the inner layer is lower or equal to that of the added HDPE layer, would inevitably satisfy the amount proportions set in granted claim 1 for the inner layer.

Hence, in order to arrive at the subject-matter of granted claim 1, starting from Example 3 of E4, the skilled person must only arbitrarily select within the obvious modifications of Example 3 in accordance with 1.4.9 above the thickness of the LLDPE layer of the inner layer **and** that of the HDPE layer added thereto, so that the former is not larger than the latter.

However, also such an arbitrary choice among modifications of the prior art of departure that the the teachings in E4 and E15 render equally obvious (for the skilled person searching for an alternative to the prior art) does not involve any inventive step.

1.5 In view of the above considerations, the board finds that the subject-matter of granted claim 1 is obvious in view of the prior art disclosed in E4 and E15, and so **lacks an inventive step under Article 56 EPC**.

2. The board considers it appropriate to additionally mention here that the board arrives at the same conclusion even if it is assumed, for the sake of argument, that the technical problem solved vis-à-vis E4 by the patented laminate was the one identified by the opposition division (on the basis of the allegations in paragraph [0022] of the opposed patent) in the fourth of paragraph 8.1.2 of the appealed decision, namely "*the provision of a laminate which is rigid, flexible and has good impact resistance as demanded by tubing with large diameter*".

2.1.1 This is because the board finds convincing the line of reasoning presented in the statement of grounds of appeal (lower half of page 9 and the upper half of page 10) according to which:

- the skilled person wishing to optimise the rigidity, flexibility and impact resistance of the laminate material of E14, will find in E15 a clear indication that an increase of the fraction of HDPE in the PE layers, reinforces the tubing (see E15, page 5 line 53 to page 6 line 4);
- the same document E15, after disclosing as advantageous in terms of easy of manufacture, that the HDPE is incorporated into the laminate either as a first layer that is inserted between the inner surface layer and the barrier layer, or a second layer of HDPE that is inserted between an outer layer and the barrier layer (see E15, page 3 lines 23 to 30), teaches as preferable the simultaneous presence of both the layers (see E15, page 3, lines 31 and 32);
- hence, and since, as already mentioned above, E4 already acknowledges the possibility to add further layers and that the presence of HDPE favours useful properties of the laminate, it would have been obvious to solve the posed technical problem by use of an inner layer comprising both HDPE and LLDPE.

2.1.2 That any way to carry out this modification would produce a laminate with the desired properties is apparent from the fact, already considered above, that the whole opposed patent does not contain any implicit or explicit allegation (not to mention some experimental evidence or theoretical explanation) that the desired properties may only be achieved when the two sorts of polyethylene are present in the external layers in the amount proportions recited in granted claim 1.

2.1.3 To arrive at the patented laminate, thus only requires to further arbitrarily select among the solutions of

the posed technical problem that are obvious in view of the combination of E4 with E15, one which also complies with the relative proportions of the two sorts of polyethylene recited in the claim at dispute.

As such arbitrary selection is deprived of inventive merits, the patented laminate represents a solution to the posed technical problem that is obvious in view of the combination of E4 with E15.

2.1.4 Hence, even in view of the technical problem identified as solved by the opposition division, the subject-matter of granted claim 1 would be obvious in view of the prior art disclosed in E4 and E15.

3. The board therefore concludes that the ground for opposition under Article 100(a) EPC in combination with Article 56 EPC prejudices the maintenance of the patent as granted.

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:

A. Pinna J.-M. Schwaller

Decision electronically authenticated