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**Datasheet for the decision
of 8 February 2024**

Case Number: T 1069/21 - 3.3.06

Application Number: 13783586.4

Publication Number: 2914423

IPC: B32B5/18, B32B27/36

Language of the proceedings: EN

Title of invention:

ARTICLE COMPRISING POLYLACTIC ACID LAYERS AND PROCESS OF
MAKING THE SAME

Patent Proprietors:

Compagnie Gervais Danone
Clariant International Ltd

Opponent:

Société des Produits Nestlé S.A.

Headword:

ARTICLE WITH POLYLACTIC ACID LAYERS/Gervais Clariant

Relevant legal provisions:

RPBA 2020 Art. 12(6)
EPC Art. 56

Keyword:

Inventive step- unexpected effect shown

Decisions cited:

T 1797/09, T 2514/16

Catchword:



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Case Number: T 1069/21 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 8 February 2024

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 14 May 2021
rejecting the opposition filed against European
patent No. 2914423 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 is against the decision of the opposition division to reject the opposition against European patent no. 2 914 423, claim 1 thereof reading:

"1. An article comprising a multilayer plastic material comprising at least:

A) one layer A of a non-foamed polylactic acid material A comprising polylactic acid,

B) one layer B of a foamed polylactic acid material B comprising polylactic acid and being free of expanded microspheres, wherein "free of expanded microspheres" refers to a content by weight of less than 0.1% or 0%, wherein material A comprises from 0.1% to 10% by weight of an impact modifier, and material B is free of impact modifier wherein "free of impact modifier" refers to a content by weight of less than 0.1% or 0%."

II. 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. Further, it decided not to admit **D18** (Liu et al., J. Pol. Sci., Part B: Pol. Phys. 49, 1051-1083, 2011) and **D19** (WO 2016/037918 A1) that had been filed after expiry of the opposition period.

III. In its statement of grounds of appeal, the **appellant** re-submitted D18 and D19, arguing that the opposition division erred in considering non relevant the data therein. Further, it argued that the subject-matter of claim 1 as granted would be obvious in view of **D2** (EP 1798029 A1) or **D13** (US 2009/179069 A1) in combination with the teachings in **D6** (Matuana et al., "Cell morphology of extrusion foamed poly(lactic acid)

using endothermic chemical foaming agent", Bioresource Technol. 100, 5947-54, 2009). It also referred *inter alia* to **D3** (WO 2011/119623 A1) and **D5** (EP 2065435 A1).

- IV. The patent proprietors (hereinafter **respondents**) rebutted these submissions with their reply dated 9 February 2022, enclosed with four sets of amended claims as **auxiliary requests 1 to 4**.
- V. With letter of 5 December 2022 the respondents filed a new **auxiliary request 3** replacing auxiliary request 3 then on file.
- VI. At the oral proceedings of 8 February 2024 the final requests of the parties were as follows:

The appellant requested that the decision under appeal be set aside and the patent be revoked.

The respondents requested that the appeal be dismissed (main request) or, as an auxiliary measure, that the patent be maintained in amended form based on one of auxiliary request 1 or 2 filed with the reply to the appeal, auxiliary request 3 filed with letter of 5 December 2022 or auxiliary request 4 filed with the reply to the appeal.

Reasons for the Decision

1. *Admittance of D18 and D19*
- 1.1 In the appellant's view, the opposition division failed to acknowledge the relevance of D18, as in this review of the prior art, the abstract and the section devoted to Biostrength® impact modifiers (page 1077, right-hand column) would be evidence of the skilled person's

common general knowledge that any material based on polylactic acid (**PLA**) not added with impact modifiers would be too brittle.

- 1.1.1 The board notes preliminarily that the opposition division did not exercise its discretion to admit this document according to wrong principles or in an unreasonable manner. Hence, its decision not to admit D18 did not suffer from an error in the use of discretion. Nor sees the board circumstances of the appeal case justifying its admittance.
- 1.1.2 In the board's view, the technical teachings possibly derivable from the cited passages of D18 at most imply, as correctly stressed by the opposition division in the impugned decision reason 4.3, that PLA (undisputedly known to be *per se* very brittle) "can be toughened by addition of impact modifiers" (emphasis added by the board). Thus, the board concurs with the finding of the opposition division that D18 refers to the same common general knowledge (further presented in reason 4.3 of the appealed decision) "*already shown by paragraph [0004] of D3 in general in combination with the introduction of D5, passages that clearly reflect common background knowledge*" (this manifestly referring in particular to paragraphs [0006] to [0011] of D5).
- 1.1.3 As D18 does not add new relevant information, the board decided not to admit it in the appeal proceedings under the provisions of Article 12(6) RPBA 2020.
- 1.2 As regards document D19, the appellant argued that the opposition division failed to acknowledge its relevance due to errors in the evaluation of the data contained therein. In particular, the information provided therein rendered apparent that the patented multilayer

article would achieve across the whole scope of claim 1 a level of snapability neither always superior to that achieved by compact single-layer articles nor an acceptable snapability, in particular for claimed embodiments with levels of impact modifier of up to 0.5% by weight.

1.2.1 The board notes however that the opposition division did not exercise its discretion to admit D19 according to wrong principles or in an unreasonable manner. Hence, its decision not to admit this document did not suffer from an error in the use of discretion. Nor sees the board circumstances of the appeal case justifying its admittance.

1.2.2 As to the argument that D19 would prove that the patented article would not achieve a level of snapability superior to that achieved by compact single-layer articles, the board notes that the opposition division also considered solved by the patented invention a particular aspect of the broader technical problem that the patent in suit presents as solved (see the end of the second paragraph on page 15 of the appealed decision, where it is stated: "*... in a three-layered structure with a core PLA foam layer and with compact PLA cover layers that comprise impact modifier, best snapability is obtained when no impact modifier is present in the foam layer, as shown by the comparison between examples 1.3 and 1.4 on the one hand and comparative example 1.5 on the other hand*").

As the solution offered by the patented article to this particular aspect of the broader technical problem addressed in the opposed patent does not imply the achievement of a level of snapability always superior to that achieved by compact (single-layer) articles,

and is also found (see below) based on an inventive step, the board finds of no relevance for the present case whether or not D19 would prove that the patented article did not achieve a level of snapability superior to that achieved by compact single-layer articles.

1.2.3 As to the remaining argument that D19 would also prove that the articles according to granted claim with a level of impact modifier of up to 0.5% by weight would not achieve acceptable snapability, the board reaches the same conclusion given by the opposition division in the appealed decision, namely that the relevant passage in D19 was *"related to solid monolayer PLA, not to the combination of such layers with foamed layer, and therefore insufficient as evidence that no effect would be obtained, even at only 0.5% impact modifier, in the context of claim 1 as granted"*.

1.2.4 It follows that D19 does not appear to provide information possibly relevant for the present decision, the board therefore decided not to admit this document in the appeal proceedings under the provisions of Article 12(6) RPBA 2020.

2. Main request - Inventive step

2.1 Claim 1 as granted defines an article comprising at least a layer ("A") of non-foamed material ("A") comprising polylactic acid and a layer ("B") of foamed material ("B") comprising polylactic acid. Hereinafter a layer of non-foamed material comprising polylactic acid is also referred to as **compact PLA layer**, whereas **foamed PLA layer** is used to denote a layer of foamed material comprising polylactic acid.

The claim further requires the compact PLA layer to comprise from 0.1% to 10% by weight of impact modifier and the foamed PLA layer to be "*free of impact modifier*", i.e. with a content of impact modifier of 0% or of less than 0.1 % by weight.

2.2 The appellant argued that the patented multilayer article would be obvious for the skilled person starting from either Example 3 of D2 **or** from any of Examples 6, 8 or 9 of D13, and taking also into consideration the teachings of D6.

2.3 Inventive step starting from D2

2.3.1 It is common ground between the parties that Example 3 of D2 - disclosing a three-layer film in which a foamed PLA layer is sandwiched between two compact PLA layers, and the thermoforming of this film into a bowl - represents a suitable starting point for the assessment of inventive step. It is also undisputed that the patented article only differs from this prior art in that the former requires the additional presence of "*from 0.1% to 10%*" by weight of impact modifier only in the compact PLA layer(s).

2.3.2 The technical problem

The appellant disputed the opposition division's finding (based on the statement in paragraph [0008] of the patent description that the articles of D2 "*are believed to present a poor snapability*", and on the comparison between the levels of snapability of the invention examples vs. comparative examples 1.1 and 1.2 each made of a compact PLA layer) that the patented invention plausibly achieved a level of snapability superior to that of the closest prior art and thus,

solved the technical problem underlying the patent in suit.

However, it is undisputed that the patent in suit also focuses in particular on the experimental comparison showing that the dishomogenous distribution of impact modifier among the foamed and non-foamed PLA layers in article described in granted claim 1, results in a particularly high snapability. Indeed, even the last paragraph of the patent description, which summarises the technical advantages proved by the patent examples, ends with the wording: *"with impact modifier in the expanded layer, the snapability is slightly altered because of the deformation of the expanded layer"*, which clearly refers on the fact that invention examples 1.3 and 1.4 had been found to display a snapability superior to that of comparative multilayer example 1.5, which only differed from the former for the additional presence of impact modifier also in the foamed (i.e. "expanded") PLA layer. The board stresses that such particularly high snapability, apparently the same referred to as "best snapability" in the last sentence of the second paragraph of page 15 of the decision under appeal, represents *per se* a relevant technical advantage, regardless as to whether the prior art multilayer plastic article of D2 would show superior, comparable or inferior snapability.

Thus, a skilled reader of the technical advantage over the prior art disclosed in D2 implied in paragraphs [0008] and [0014] of the patent (see in particular in the latter paragraph the passage reading: *"[i]t has been surprisingly found that introducing impact modifiers in non-foamed layers allows a better snapability"*) and of the experimental comparison between invention examples 1.3 and 1.4 and comparative

example 1.5 in the patent, would identify **the particular technical problem** of the broader technical problem that the patent in suit presented as solved, in the provision of a further article made of multilayer plastic material comprising foamed and non-foamed PVA layers and displaying a particularly high snapability.

Hence, and since for the reasons detailed below, the patented subject-matter is found to offer a non-obvious solution to this particular technical problem, it has turned out unnecessary for the board to come to a conclusion on the several appellant's arguments (also based on other documents and including an argument related to D1a presented for the first time at the oral proceedings before the board, whose admittance into the appeal proceedings was disputed by the respondents) that related to the other aspect of the broader technical problem addressed in the patent in suit (namely the achievement of a level of snapability superior to that of D2).

2.3.3 The solution and its success

The solution offered in granted claim 1 to the particular technical problem over D2, is an article made of multilayer plastic material comprising foamed and non-foamed PVA layers, wherein impact modifier is additionally present in specified amount in the compact PLA layer, whereas the foamed PLA layer contains no or less than 0.1 % by weight of impact modifier.

Since the patented article is characterised by the dishomogeneous distribution of impact modifier between the compact and foamed PLA layers, the board finds that the comparison of invention examples 1.3 and 1.4 with comparative example 1.5 in the opposed patent justifies

the conclusion that the technical effect of such dishomogenous distribution may also be fairly expected across the breadth of granted claim 1 and thus, that the patented article solves the particular technical problem identified above.

In the appellant's view, instead, this technical problem was not solved across the scope of granted claim 1, essentially because i) the particular technical problem would not even exist across the whole breadth of granted claim 1, as there were many possible embodiments of the patented article (such as films or sets of multi-cups that did not contain pre-cuts) that were not separable by snapping, and ii) the feature that would ensure the particularly good snapability (namely the dishomogeneous distribution of the impact modifier) would be so broadly defined in granted claim 1 to allow for a minimum amount of impact modifier in the compact "*material A*" that was almost the same as the maximum amount that was used to define foamed "*material B*" as "*free of impact modifier*".

As to argument (i), the board notes that even if granted claim 1 possibly embraces articles not separable by snapping, still the patented articles can be formed into articles that are separable by snapping (e.g. by adding pre-cuts). Hence, the technical problem of achieving a particularly good snapability is relevant also for the claimed articles that are *per se* not (yet) separable by snapping.

As to argument (ii), the board finds that to just point - without providing any experimental evidence or more detailed theoretical reasoning - to the proximity of the minimum amount of impact modifier in material "A" and of the maximum amount of impact modifier in

material "B", is insufficient to justify the allegation that the technical effect of the dishomogenous distribution of the impact modifier proved in the patent in suit would not plausibly occur across the whole scope of granted claim 1. In view of the evidence provided in the examples of the patent in suit, it would have been upon the opponent to at least provide specific and convincing arguments or evidence casting doubt on the alleged solution of the problem over the whole scope of the claim (see also T 1797/09, reasons 2.7 or T 2514/16, reasons 3.3.7).

Thus, in the absence of (in particular experimental) evidence to the contrary, the patented article is found to solve the particular technical problem identified above.

2.3.4 Inventive step

The appellant argued that the disclosure in D6 (page 5948, left column, lines 3 to 23) of significant improvements e.g. in toughness observed in foamed PLA materials, would render apparent that the addition of impact modifier to foamed PLA was superfluous. This would deprive of an inventive step the dishomogeneous distribution of impact modifier that characterises the patented article.

The board finds however that the cited passage of D6 does not imply that foamed PLA layers are already easily separable by snapping or other teachings suggesting to the skilled person that the addition impact modifier also in the foamed layer of Example 3 of D2 would be detrimental to snapability.

2.3.5 Since neither D2 nor D6 suggest that the snapability of multilayer articles made of foamed and non-foamed PVA layers would be favourably influenced by a dishomogeneous distribution of impact modifiers among the layers of the closest prior art, the effect shown in the patent by the comparison of invention examples 1.3 and 1.4 with comparative example 1.5 is surprising. Thus, the board comes to the conclusion that these documents do not render obvious the solution to the particular technical problem offered by the patented article.

2.4 The inventive step objection starting from D13

2.4.1 The appellant argued in essence that it would also be possible to consider the packaging films described in Examples 6, 8 or 9 of D13 as suitable starting point for the assessment of inventive step.

2.4.2 The board agrees with the appellant that in general several prior art documents might be used as "closest" prior art for the assessment of inventive step if the skilled person, confronted with the technical problem would have considered these documents as a suitable starting point. The board finds however that the prior art disclosed in D13 is not a suitable starting point for the assessment of inventive step, since this prior art is foremost concerned with barrier properties (see [0004] in D13) and fails to disclose (also in the referred Examples 6, 8 or 9) multilayer films comprising a foamed PLA layer.

Instead the patent in suit has a completely different aim, as it relates to a packaging multilayer material comprising foamed PLA, which can be used for making articles with good processability and good mechanical

properties, such as compression resistance and in particular improved snapability (paragraphs [0001], [0006]-[0014] and [0027] in the patent in suit).

The relevance of this difference in aim between the patent in suit and the prior art disclosed in D13 is further apparent when considering the convincing argument of the respondents that the modification of the prior art disclosed in the relevant examples in D13, required to arrive at the subject-matter of granted claim 1, necessarily implies to renounce to the essential features of these examples (namely the specific chemical composition and non-foamed structure that ensure the film barrier properties aimed in D13).

Hence, already for these reasons the arguments starting from D13 as closest prior art are found unconvincing.

- 2.5 In view of the above the board finds that the appellant did not render plausible that the subject-matter of granted claim 1 would be obvious in view of the prior art disclosed in D13 and D6. The board therefore concludes that the ground for opposition under Article 100(a) EPC in combination with Article 56 EPC does not prejudice the maintenance of the patent as granted.

Order

For these reasons it is decided that:

The appeal is dismissed

The Registrar:

The Chairman:



A. Pinna

J.-M. Schwaller

Decision electronically authenticated