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Datasheet for the decision of 13 November 2025

Case Number: T 0133/24 - 3.2.05

Application Number: 16730943.4

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Language of the proceedings: EN

Title of invention:

Enhanced Barrier Performance via Blends of Poly(ethylene Furandicarboxylate) and Poly(ethylene Terephtalate)

Patent Proprietor:

Covation Inc.

Opponents:

Furanix Technologies B.V.
ALPLA Werke Alwin Lehner GmbH & Co. KG

Relevant legal provisions:

EPC Art. 56
RPBA 2020 Art. 13(2)

Keyword:
Inventive step (no)
Amendment after notification of Art. 15(1) RPBA communication - exceptional circumstances (no)

Decisions cited:
T 1190/17, T 1869/18, T 0227/19

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Case Number: T 0133/24 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 13 November 2025

Appellant I: (Opponent 1)	Furanix Technologies B.V. Zekeringstraat, 29 1014 BV Amsterdam (NL)
Representative:	EP&C P.O. Box 3241 2280 GE Rijswijk (NL)
Appellant II: (Opponent 2)	ALPLA Werke Alwin Lehner GmbH & Co. KG Allmendstrasse 81 6971 Hard (AT)
Representative:	Bohest AG Holbeinstrasse 36-38 4051 Basel (CH)
Respondent: (Patent Proprietor)	Covation Inc. 800 Prides Crossing, Suite 201 Newark, DE 19713 (US)
Representative:	Mewburn Ellis LLP Aurora Building Counterslip Bristol BS1 6BX (GB)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 23 November 2023 concerning maintenance of the European Patent No. 3307515 in amended form.**

Composition of the Board:

Chairman	P. Lanz
Members:	T. Vermeulen
	M. Blasi

Summary of Facts and Submissions

I. Opponent 1 (appellant I) and opponent 2 (appellant II) filed an appeal against the interlocutory decision of the opposition division finding that European patent No. 3 307 515 as amended according to auxiliary request 0a met the requirements of the European Patent Convention.

II. The oppositions had been filed against the patent as a whole on the basis of the grounds for opposition under Article 100(a) together with Article 54(1) EPC (lack of novelty) and Article 56 EPC (lack of inventive step), under Article 100(b) EPC and under Article 100(c) EPC.

III. In the decision under appeal, the opposition division *inter alia* concluded that the subject-matter of claim 1 of auxiliary request 0a involved an inventive step when starting from document D35 or D35a.

IV. The following documents are relevant for the present decision.

D1	WO 2013/158582 A2
D18	E. de Jong et al, "Furandicarboxylic Acid (FDCA), A Versatile Building Block for a Very Interesting Class of Polyesters", Biobased Monomers, Polymers, and Materials, Chapter 1, ACS Symposium Series, American Chemical Society, 2012
D35	WO 2014/037094 A1
D35a	US 2015/0191269 A1

V. With their statements of grounds of appeal, appellants I and II filed new documents which, however, did not have to be considered by the board for reaching the present decision.

VI. The patent proprietor (respondent) did not reply to the statements of grounds of appeal.

VII. In a communication pursuant to Article 15(1) RPBA issued on 18 June 2025, the parties were informed of the board's provisional opinion that the subject-matter of claim 1 of the request held allowable by the opposition division appeared to be obvious when starting from document D35.

VIII. With letter dated 29 August 2025 the respondent filed a set of claims of auxiliary request 1 and set out its view on the issues of the case.

IX. Oral proceedings before the board were held on 13 November 2025.

X. The requests which the board had to consider for the present decision were as follows:

Appellants I and II requested that the decision under appeal be set aside and that the patent be revoked. Appellant I further requested that the respondent's submissions of 29 August 2025 including the claims of auxiliary request 1 not be admitted into the appeal proceedings.

The respondent requested that the appeals be dismissed (main request) or, alternatively, that the decision under appeal be set aside and that the patent be maintained as amended on the basis of the claims of

auxiliary request 1 filed with letter dated 29 August 2025.

XI. Claim 1 of the request held allowable by the opposition division has the following wording.

"1. A method of making a bottle comprising the steps of:
a) making a poly(ethylene furandicarboxylate)/ poly(ethylene terephthalate) (PEF/PET) blend, wherein the amount of PEF ranges from 0.1 % to 40% by weight based on the total weight of the blend;
b) injection molding the PEF/PET blend of step a) to form a blend preform under substantially similar processing conditions as used to make a standard PET preform;
c) stretch blow molding the blend preform of step b) in a standard PET mold to form a blend bottle under substantially similar processing conditions as used to make a standard PET bottle from the standard PET preform,
wherein the blend bottle made in step c) has improved shelf life as compared to the shelf life of a standard PET bottle."

XII. Claim 1 of auxiliary request 1 differs from claim 1 of the request held allowable by the opposition division by the following amendments to method step a).

"a) making a poly(ethylene furandicarboxylate)/ poly(ethylene terephthalate) (PEF/PET) blend, wherein the amount of PEF ranges from ~~0.1% to 40%~~ 5% to 30% by weight based on the total weight of the blend and the amount of PET ranges from 70% to 95% by total weight of the blend;".

XIII. The appellants essentially argued as follows.

Inventive step of the subject-matter of claim 1 of the request held allowable by the opposition division

The most relevant paragraph of document D35 was on page 12, lines 13 to 22 which, apart from the wrong translation of "Vorzugsweise", corresponded to paragraph [0040] of document D35a. It had to be interpreted in the sense that PET was a preferred material for the preform, but it might optionally be blended with a renewable bioplastic such as PEF. No further example of a bioplastic was mentioned in document D35. The last sentence of the paragraph provided the possibility that only a part of the plastic mixtures could be of renewable raw materials with the remainder being petrochemically obtained. The renewable part could be construed as a reference to the previously mentioned PEF and the petrochemically obtained remainder to the preferred material PET. Contrary to the opposition division's view, it was thus not necessary to make a selection of the blend materials when starting from document D35.

Regarding the claimed range, even if it was narrower than the range "less than 50%" implied by PEF being the minor component in the mixture disclosed by the last sentence of above-mentioned paragraph of document D35, the patent failed to disclose any technical effect, let alone a surprising technical effect, of the lower and upper endpoints of the range. The upper endpoint of 40% by weight of PEF was far removed from the known examples of 0% (pure PET) and 100% (pure PEF). In fact, the patent did not provide any data spanning 0.1% to 10% by weight of PEF. If the skilled person had opted to add PEF to the preferred PET material, then they

would have certainly added more than 0.1% by weight compared to the total weight of the blend. Nor did the patent disclose any comparative data for blends having more than 40% by weight of PEF. The endpoints of the claimed range were therefore arbitrary.

Starting from document D35 and faced with the problem of increasing the shelf life, the skilled person would have had an incentive to add PEF to the preferred PET material since it was part of common general knowledge that this polymer had good barrier properties (see also paragraphs [0002] and [0005] of the patent). Hence, the skilled person would have arrived at a PEF/PET blend having a relative amount of PEF within the range of 0.1% to 40% by weight.

As regards the respondent's comments on the processing conditions associated with PET, it was noted that claim 1 of the request held allowable by the opposition division did not require that processing conditions for the PEF/PET blend were identical as for pure PET; it merely required "substantially similar" processing conditions. Nor did claim 1 pose any requirements on the shape of the blend preform compared to that of a standard PET preform. The respondent had not elucidated which processing differences existed between bottles made from PET and bottles made from PEF. If there was no significant difference, then it was not surprising that PEF/PET blends could be processed with the same processing equipments and conditions as pure PET or PEF. Anyway, the normal procedure would not have been to start from substantially different processing conditions, and then to "surprisingly" find the conventional process. The skilled person tasked with providing a mixed PEF/PET composition using conventional processing methods might have incorporated

some optimisations in the process, but this would then be the end point rather than the starting point of their endeavours. Furthermore, no experimental data had been presented of bottles having relative amounts of PEF beyond 40% by weight, let alone any supporting evidence that there existed a relationship between this upper endpoint and any of the "suitable characteristics" mentioned in paragraph [0036] of the patent. There was also no evidence in the patent that bottles lacking a continuous phase of PET would display inferior barrier or other properties.

In reply to the respondent's argument that the barrier properties of polymer blends were unpredictable, it was submitted that, since PEF crystallised slower than PET (see *inter alia* document D18) it could be reasonably expected that a PEF/PET blend in a stretch blown bottle, with PET being predominant and the blowing process occurring under standard PET conditions, would be heterogeneous with an at least mainly crystalline continuous PET phase and a discontinuous PEF phase dispersed therein (see also paragraph [0073] of the patent). Essentially, the PEF formed lacunes or isolated domains within the continuous domain of PET. There was no reason to believe that a PEF phase dispersed in a mainly crystalline continuous PET phase would not behave as pure PEF which had been long and undisputedly known to have much better barrier properties than PET. Blending the PET material with PEF thus imparted on the bottle wall a barrier property increasing approximately linearly with increasing content of the dispersed heterogeneous PEF phase. This was what the patent appeared to demonstrate in Tables 7 and 8: samples made from PEF/PET blends with a relative amount of PEF of up to 40% by weight had a shelf life of 12.4 to 18.6 weeks, which was an improvement

compared to two samples made from pure PET, but a deterioration compared to the 33.8 weeks shelf life observed for a sample made from pure PEF. In fact, the data presented in these tables failed to demonstrate an effect in barrier properties that could not have been foreseen based on the already known properties of PEF and PET.

All in all, the patent set out to prove that a limited set of PEF/PET blends prepared using a common injection stretch blow moulding process had been tested for their barrier properties in view of the self-expressed desire formulated in paragraph [0006]. The subsequent discovery that under these conventional processing conditions blending limited amounts of PEF would lead to predictable barrier properties was exactly that: a discovery - and not an achievement demonstrating any inventive step.

The subject-matter of claim 1 of the request held allowable by the opposition division did not involve an inventive step.

Admittance of auxiliary request 1

Auxiliary request 1 should not be admitted into the appeal proceedings. The limitation of the claimed range to 5 % to 30% by weight of PEF and its alleged benefit of making the bottle lighter than an equivalent PET bottle had not been part of the decision under appeal and would alter the factual and legal framework of the proceedings. Auxiliary request 1 was also not a reaction to new issues raised by the board. In fact, its claims were identical to those of auxiliary request 3 submitted for different reasons in the proceedings before the opposition division but not submitted in

reply to the appeal. The lack of merits of this request had also already been discussed in appellant I's statement of grounds of appeal. Nevertheless, the respondent chose not to reply to the statement of grounds of appeal and not to pursue the request until after the board issued its communication under Article 15(1) RPBA. No issues were raised in the communication that were new or unforeseeable. The board merely proposed to reformulate the objective technical problem, it did not come up with a completely new problem. Furthermore, the claims of auxiliary request 1 did not prima facie resolve the objections raised by the board in its communication. For example, claims 1 and 11 did not include the further limitation related to the lightweight bottle as was apparent from the bottom paragraph on page 15 of the application as filed. Hence, it seemed that the requirements of Article 123(2) EPC were not met.

XIV. The respondent essentially argued as follows.

Inventive step of the subject-matter of claim 1 of the request held allowable by the opposition division

Document D35 was not a suitable starting point for assessing inventive step because its aim was remote from that of the patent. It was specifically concerned with problems relating to preform design, notably to reduce the amount of plastic used in the production of bottles, both for cost and environmental reasons, see paragraphs [0006] and [0008] of the patent family member D35a. Document D35 mentioned a range of possible materials for its preforms, including PEF, but it was not specifically concerned with the material. Moreover, there was no direct and unambiguous disclosure of a PEF/PET blend.

Even if document D35 was considered to be the starting point, the subject-matter of claim 1 would involve an inventive step, for the following reasons.

Compared to the pure PET preform of document D35, the distinguishing features of claim 1 were that a PEF/PET blend was used and that the amount of PEF in the blend was 0.1 to 40% by weight relative to the total weight of the blend. The technical effects associated with the claimed range were, on the one hand, that bottles could be made using standard PET stretch blow moulding processes and, on the other hand, that the bottles had an improvement in gas barrier properties, and hence shelf life, compared to PET bottles. For the first effect, reference was made to paragraphs [0098] and [0100] of the patent which explained that the inherently different material properties associated with PEF, such as reduced strain hardening and different strain ratio, made it more difficult to use PEF/PET blends with the processing conditions associated with PET. The difficulty increased with higher PEF loading. At PEF loadings below 50%, however, the processing conditions associated with the injection moulding of the preforms and the stretch blow moulding of the bottles surprisingly fell within the ranges common for the production of the standard PET bottles (see also paragraphs [0036], [0051] and [0095] of the patent). The upper endpoint of 40% by weight of PEF and the lower endpoint of 0.1% by weight of PEF were not arbitrary but they limited the relative amount of PEF in view of the processing conditions. The line had to be drawn somewhere. Making PET/PEF blends within the claimed range provided a straightforward way of producing bottles since it allowed the use of existing injection stretch blow moulding equipment. For the

second effect, reference was made to Table 8 and paragraph [0104] of the patent, in which the comparative data were limited to pure PET and pure PEF since those were known from the prior art. Surprisingly, the incorporation of 0.1% to 40% by weight of PEF led to an improvement in gas barrier properties and hence shelf life compared to pure PET (see also paragraph [0052] of the patent). The improvement in gas barrier properties of PEF allowed the production of bottles having relatively thinner walls, meaning that it was possible to produce useful bottles which were lighter than equivalent PET bottles (see paragraph [0059] of the patent).

The objective technical problem was to provide bottles that could be made using standard PET stretch blow moulding processes and that had improved gas barrier properties, and hence shelf life, compared to PET bottles.

The skilled person starting from the pure PET preform of document D35 and faced with the objective technical problem would not have arrived at the subject-matter of claim 1. Firstly, document D35 did not provide any motivation to select a blend comprising PEF. A combination of PEF with PET was not singled out by paragraph [0040] of document D35a. This was only one of many possible combinations derivable from the paragraph, the final sentence of which referred to the origins of the raw materials of the plastics or plastic mixtures and not to the identity of the raw materials. From paragraph [0049] of document D35a it followed that PET, PET-G, HDPE, PP, PVC or filled plastics could be obtained from or might be the renewable part of paragraph [0040]. There was no direct reference to bioplastics such as, for example, PEF in this context.

Furthermore, the opposition division was correct that, although it was generally accepted at the time of the patent application that pure PEF had better barrier properties, no information had been available concerning the barrier properties of PEF/PET blends and no reasonable expectation existed for these blends because it was not possible to predict the behaviour of the barrier properties of a mixture of different polymers. If this had indeed been part of common general knowledge, then the evidence filed by the appellants would have mentioned this.

As regards the claimed range, there was no implicit disclosure in document D35 of a PEF/PET blend comprising less than 50% by weight of PEF. Even if it was assumed that the "renewable raw materials" of paragraph [0040] of document D35a only referred to PEF, this polymer would by no means have to form the minor part of the blend since the relative amounts were only put in terms of "a portion" and "the remaining portion". It was further noted that document D35 was not concerned with processing conditions. Thus, the skilled person would not have had any motivation to foresee a blend in accordance with claim 1.

The subject-matter of claim 1 of the request held allowable by the opposition division involved an inventive step.

Admittance of auxiliary request 1

Auxiliary request 1 was filed in direct response to new issues raised in the board's communication under Article 15(1) RPBA. In particular, the board's preliminary opinion in points 23 and 25 of the communication that there was no technical effect over

the blends of document D1 and that the objective technical problem needed to be reformulated was a new issue. Moreover, in point 37 of the communication, the board referred to paragraph [0059] of the patent to deny the technical effect of PEF/PET blend bottles being lighter compared to PET bottles and to reformulate the objective technical problem starting from document D35. Auxiliary request 1 directly addressed this by increasing the value of the lower endpoint of the claimed range to 5% by weight, thus associating the described technical effect with the claimed range. It was important to note that auxiliary request 1 was identical to auxiliary request 3 filed in the proceedings before the opposition division. From the many auxiliary requests filed then, only this one was resubmitted in appeal proceedings. The appellants had already considered the claims of this request during the proceedings before the opposition division and in their statements of grounds of appeal. No new circumstances relevant for the assessment of patentability had to be addressed by the appellants. The main focus of the present case was the significance of the relative amount of PEF in a PEF/PET blend lying in a specific range. Since claim 1 of auxiliary request 1 merely narrowed this range, the amendments did not change the main focus of discussion. Thus, there were exceptional circumstances justifying the admittance of auxiliary request 1.

Reasons for the Decision

Inventive step of the subject-matter of claim 1 of the request held allowable by the opposition division - Article 56 EPC

1. In the following, the abbreviations 'PEF' (polyethylene furandicarboxylate and 'PET' (polyethylene terephthalate) are used in accordance with the wording of claim 1 of the request held allowable by the opposition division.

2. In its inventive step assessment starting from document D35, the opposition division referred alternately to 'D35' and 'D35a' (see points 29 to 33 of the reasons for the decision under appeal). Document D35 is a PCT publication in German and is undisputedly prior art within the meaning of Article 54(2) EPC. Document D35a, in contrast, is a US patent family member of document D35, which was published after the earliest priority date of the contested patent. Appellant II took issue with the translation in document D35a of the term "Vorzugsweise" on page 12, line 18 of document D35, but did otherwise not dispute that the contents of documents D35 and D35a were identical. In the following, the board will exclusively refer to document D35.

3. Document D35 concerns preforms for producing plastic containers in a stretch blow moulding method (page 1, lines 5 to 6). Throughout the document, plastic bottles are mentioned as the preferred application. The third paragraph on page 12 of document D35 discloses various examples of materials suitable for obtaining a preform, as follows.

"*Beispielsweise sind dies PET, PET-G, HDPE, PP, PS, PVC, Copolymere der angeführten Kunststoffe, Biokunststoffe, wie beispielsweise PEF, gefüllte Kunststoffe und Mischungen der genannten Kunststoffe*" (in the board's translation: "These are, for example, PET, PET-G, HDPE, PP, PS, PVC, copolymers of the cited plastics, bioplastics, such as for example PEF, filled plastics and mixtures of the mentioned plastics").

The same paragraph indicates that, preferably, the preform is produced from PET in an injection moulding method ("*Vorzugsweise ist der Preform in einem Spritzgiessverfahren* [...] *aus PET hergestellt*").

4. It follows from the above that document D35 is a suitable starting point for assessing inventive step of the method of claim 1. Though mainly concerned with the structural design of the preform, and despite not proposing a concrete blend or mixture or plastics for producing the preform, it discloses subject-matter conceived for the same purpose as the method of claim 1 and having several technical features in common with the claim. Whether another prior art disclosure - such as document D6, as proposed by the respondent - might be closer to the claimed invention by sharing a greater number of features is not of relevance. The claimed subject-matter must be shown to involve an inventive step even in regard of document D35.

5. The subject-matter of claim 1 differs from the disclosure of document D35 by the step of making a PEF/PET blend, wherein the amount of PEF ranges from 0.1% to 40% by weight based on the total weight of the blend.

6. Paragraph [0052] of the patent (or: page 12, line 32 to page 13, line 8 of the application as filed) indicates that the use of a PET/PEF blend with 0.1% to 40% by weight of PEF leads to an improvement in shelf life compared to a standard PET bottle. This is confirmed by the test results summarised in Tables 7 and 8 of the patent or the application as filed, according to which each of Examples 1 to 3 (samples having a relative amount of 10%, 20% and 40% by weight of PEF, respectively) has a higher shelf life compared to the corresponding Counterexample B made from pure PET and each of Examples 4 to 6 (samples having a relative amount of 10%, 20% and 40% by weight of PEF, respectively) has a higher shelf life compared to the corresponding Counterexample C also made from pure PET.

7. Contrary to what the opposition division stated in point 29 of the reasons for the decision under appeal, it cannot be derived from paragraph [0052] of the patent that the PEF/PET bottle of the invention can be made lighter than an equivalent PET bottle. A remark to that effect is included in paragraph [0059] of the patent, but only in the context of a PEF/PET blend with 1% to 40% by weight of PEF. The lower endpoint of 0.1% is not mentioned in this context. Regardless, the patent does not contain any test results that corroborate such an effect in respect of the claimed range.

8. The respondent argued with reference to paragraphs [0036], [0051], [0095], [0098] and [0100] of the patent that the distinguishing feature had the further technical effect that bottles can be made using standard PET stretch blow moulding processes. For the

reasons given below, the board does not consider this argument convincing.

Paragraph [0036] of the patent (page 8, lines 23 to 29 of the application as filed) includes the following statement.

> "*Though blends of PEF and PET with higher than 40% by weight of PEF can be formed, however, the blend may not have suitable characteristics with relation to the natural stretch ratio and strain hardening behavior to be able to mold bottles using the standard PET preform, mold, and injection molding conditions.*"

In the board's view, this is a mere assertion which is not supported by experimental data. The test results provided in the description of the examples in the patent (and the application as filed) do not provide any comparison between bottles produced at different processing conditions, let alone between bottles made from PEF/PET blends having "higher than 40% by weight of PEF" and the examples having 40% or less by weight of PEF. In fact, the highest amount of PEF in the blends of the tested sample bottles is 40% by weight (see Examples 3 and 6 in Tables 7 and 8). The only counterexample in which the amount of PEF is higher than 40% by weight is Comparative Example A, a sample made entirely from PEF and, thus, not from a blend.

This view of the matter likewise extends to paragraphs [0095] and [0098] of the patent (page 31, line 23 to page 32, line 13 and page 35, lines 10 to 30 of the application as filed), which include the following identical statements.

> "*Due to the use of blends of PEF in PET at low loadings (<50%) the process conditions associated both with preform molding and bottle blowing fall within the ranges common for production of PET bottles*".

No experimental data were provided to support the assertion that, at PEF loadings below 50%, the effect of the processing conditions would be achieved. Moreover, this statement implies that the critical amount of PEF, if at all, lies at 50% and not at 40% by weight of the total weight of the blend.

Also the statement in paragraph [0051] of the patent (page 12, lines 6 to 31 of the application as filed) that

> "*surprisingly, at loading in the range of 0.1% to 40% by weight of PEF in the PEF/PET blends, the process conditions associated both with the preform molding and stretch blow molding fall within the ranges common for the production of the standard PET bottles*".

is not corroborated by any evidence. Without any counterexample showing that a PEF/PET blend with a relative amount of, for example, 0.05% or 45% by weight of PEF falls short of the suitable characteristics required to mould bottles using the standard PET stretch blow moulding process, such a sweeping statement is not sufficient to establish the alleged technical effect of the distinguishing feature. Incidentally, it is noted that the patent (as also the application as filed) is silent about the reasons behind the selection of 0.1% by weight of PEF as the lower endpoint of the claimed range. As appellant I

pointed out, the example section of the patent (and the application as filed) does not provide any data for the range spanning 0.1% and 10% by weight of PEF (the latter corresponding to Examples 1 and 4, see Tables 7 and 8).

9. The objective technical problem is thus to provide a method for making bottles with improved shelf life.

10. The opposition division's reasons for concluding that the method of claim 1 was not obvious when starting from document D35 were threefold. Firstly, the skilled person would have had to make two selections: one for the materials of the blend and one for the amount of each material. Secondly, the PEF/PET blend was not described as being particularly preferred in document D35. Thirdly, even if the skilled person had opted for a blend of PEF/PET by routine trial-and-error, there was no information in document D35 regarding the specific amounts of PET and PEF. The improved gas barrier properties associated with a blend lying within the claimed range would have been unexpected based on what was disclosed in document D35.

11. The board considers that, starting from the preferred example of document D35, which uses PET as building material for the preform, the skilled person would have been encouraged to mix or blend the PET with a certain amount of PEF. Not only was it well-known at the time - a fact undisputed by the opposition division and the respondent - that, compared to PET, PEF has very good barrier properties, a mixture of PET and PEF is actually hinted at in the third paragraph on page 12 of document D35 (see point 3. above).

12. The respondent is correct in pointing out that the paragraph on page 12 of document D35 does not single out the specific mixture of PET and PEF. Nor is this mixture described as being particularly preferred. Otherwise the distinguishing feature starting from document D35 would have been reduced to the relative amount of PEF falling within the claimed range. Nevertheless, it cannot be ignored that the drafter of document D35 deliberately added the possibility that "mixtures of the mentioned plastics" were used, i.e. that also bioplastics such as PEF could be mixed with, for example, PET.

13. In the board's view, it is not pertinent that the list of materials presented in the second paragraph on page 16 of document D35 (the respondent referred to paragraph [0049] in document D35a) omits any reference to bioplastics. This paragraph is part of the detailed description and concerns the preform of the specific embodiment shown in Figure 1. It does in no way diminish or alter the general disclosure on page 12 of document D35. In the same vein, the board is not convinced that the absence of any information on the barrier properties of PEF/PET blends in document D35 would have dissuaded the skilled person from mixing PET with PEF in spite of the general disclosure on page 12 of document D35 and the known barrier properties of PEF.

14. In arriving at this conclusion, the board also considered appellant II's argument that, based *inter alia* on document D18, it could be reasonably foreseen that a PEF/PET blend in a stretch blown bottle, with PET being predominant and the blowing process occurring under standard PET conditions, would be heterogeneous, with an at least mainly crystalline continuous PET

phase and a discontinuous PEF phase dispersed therein. Under such circumstances, which are also confirmed in the last three sentences of paragraph [0073] of the patent, the barrier properties of pure PEF would progressively manifest themselves in the PEF/PET blend as the proportion of PEF increased. Considering the test results in Tables 7 and 8 of the patent and in the absence of evidence of the contrary, this argument is found to be persuasive.

15. In sum, the skilled person would have had reason to expect that the addition of PEF to the PET material known from document D35 provided a solution to the objective technical problem of improving the shelf life of the resulting bottle.

16. The question that remains is in which amount the skilled person would have added PEF to the PET material known from document D35. It is uncontested that the claimed range of 0.1% to 40% by weight based on the total weight of the blend is very broad. Not only is the lower endpoint of 0.1% by weight very close to zero and, hence, to the unblended PET material of document D35, the upper endpoint of 40% by weight is far removed from the lower endpoint. Moreover, both endpoints are arbitrary. No effect or advantage has been made credible or has been shown to exist in respect of the relative amounts of 0.1% or 40% by weight (see point 8. above). To use the words of the respondent: the line had to be drawn somewhere. The parties did not dispute that the lower endpoint is so low that, had the skilled person opted for a PEF/PET blend, they would have added PEF in an amount greater than 0.1% by weight of the total weight of the blend. Against this background, it must be concluded that the simple act of selecting one among equally obvious alternative blending ratios

within a broad range defined by arbitrary endpoints, one of which is very close to the preferred material of the starting point D35, would have been within the routine abilities of the skilled person when looking for a solution to the objective technical problem.

17. For the above reasons, the subject-matter of claim 1 of the request held allowable by the opposition division does not involve an inventive step within the meaning of Article 56 EPC.

Admittance of auxiliary request 1 - Article 13(2) RPBA

18. The respondent filed a set of claims of auxiliary request 1 with letter dated 29 August 2025, i.e. more than two months after notification of the board's communication under Article 15(1) RPBA. It is thus an amendment of the respondent's appeal case the admittance of which is governed by Article 13(2) RPBA.

19. Article 13(2) RPBA provides that such an amendment is, in principle, not taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned. As mentioned in the Explanatory remarks on Article 13(2) RPBA (OJ EPO 2020, Supplementary Publication 2, page 60), exceptional circumstances may, for example, arise if the board raised an objection for the first time in a communication. However, in such a case, the exceptional circumstances only exist for amendments which specifically respond to the new objection raised by the board (see also, for example, T 1869/18, Reasons 3.10, T 227/19, Reasons 3.1 and T 1190/17, Reasons 8).

20. In the present case, the respondent argued that the exceptional circumstances were triggered by several issues raised for the first time by the board in its communication pursuant to Article 15(1) RPBA. They specifically referred to points 23, 25 and 37 of the communication.

21. In points 23 and 25 of the communication, the board reviewed the opposition division's formulation of the objective technical problem starting from document D1. It was found that the technical effect of improved barrier properties associated with the claimed range was not convincing seen that document D1 already disclosed a PEF/PET blend having a relative amount of 75% by weight of PEF. Thus, the 'new issue' exclusively concerned the technical effect and the objective technical problem starting from document D1. A new objection was not raised by the board in these points. In fact, the board did not even reach a (preliminary) conclusion in this respect: point 25 of the communication merely indicates that the formulation of the objective technical problem and the question of obviousness "may have to be discussed at the oral proceedings".

22. A further consideration which speaks against exceptional circumstances triggered by points 23 and 25 of the communication is that, by narrowing the claimed range, the amendments to claim 1 of auxiliary request 1 further constrain the relative amount of PEF to a value well below the 75% by weight disclosed by document D1. How these amendments specifically respond to the board's preliminary assessment in points 23 and 25 of the communication is not apparent to the board.

23. In point 37 of the communication, the board reviewed the opposition division's formulation of the objective technical problem starting from document D35. The board took the preliminary view that the opposition division was wrong in relying on paragraph [0052] of the patent to derive the further technical effect that a bottle made from a PEF/PET blend could be made lighter than an equivalent PET bottle. In passing, it added that the effect was included in paragraph [0059] of the patent, but only in the context of a PEF/PET blend with 1% to 40% by weight of PEF. Also here, the board raised no new objection. The discussion on the technical effects of the distinguishing features and the formulation of the objective technical problem was a necessary part of the problem-solution approach which ultimately led the board, on a preliminary basis, to agree with appellant II that the subject-matter of claim 1 did not involve an inventive step when starting from document D35.

24. Furthermore, the board is not persuaded that the amendments of auxiliary request 1 specifically respond to the issues raised in point 37 of the communication. Firstly, the respondent's own formulation of the objective technical problem starting from document D35 does not include the aspect of making bottles lighter compared to an equivalent PET bottle. This implies that the respondent endorsed the board's preliminary view that the effect mentioned in paragraph [0059] of the patent had to be denied for the distinguishing feature. It is then all the more surprising that the respondent justified the amendment to claim 1 of auxiliary request 1 by the need for "associating the described technical effect with the claimed range". Secondly, on pages 8 and 9 of the letter dated 29 August 2025, the respondent discussed in detail the passages of the patent from which it derived the technical effects

associated with the claimed range. The respondent did so by citing an excerpt from its reply to the notices of opposition in which both paragraphs [0052] and [0059] of the patent were referenced. The respondent had thus considered the content of these paragraphs and their relevance for determining the technical effect of the claimed range. The board's comment in point 37 of the communication can thus not have come as a surprise to the respondent. Thirdly, insofar as the respondent intended the amendments to claim 1 of auxiliary request 1 to be a direct reaction to the lower endpoint of 1% by weight mentioned in paragraph [0059] of the patent, of which the board allegedly made them aware, it did not convincingly explain why this led to the change in lower endpoint from 0.1% to 5% and, much less, the change in upper endpoint from 40% to 30%, especially considering that none of the new endpoints are mentioned in paragraph [0059]. Hence, even if exceptional circumstances had been justified by the new issues raised in point 37 of the board's communication, these did not exist for the proposed change in endpoints.

25. The respondent further submitted in favour of admitting the claims of auxiliary request 1 that these were identical in wording to the claims of auxiliary request 3 filed in the proceedings before the opposition division. This argument is not convincing either. By refraining from replying to the statements of grounds of appeal and waiting instead for the board's preliminary opinion before submitting the auxiliary request, the board and the appellants were placed in the position of having to consider a fresh case at a very late stage in the appeal proceedings. This contravened procedural economy and was not commensurate with the purpose of the RPBA.

26. In view of the above considerations, it must be concluded that no cogent reasons have been brought forward that justify exceptional circumstances for the amendments carried out in auxiliary request 1. The board, exercising its discretion under Article 13(2) RPBA, did not take into account auxiliary request 1.

Conclusion

27. As there are no allowable requests, the decision under appeal must be set aside and the patent be revoked.

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:

N. Schneider P. Lanz

Decision electronically authenticated