

Internal distribution code:

- (A) [-] Publication in OJ
- (B) [-] To Chairmen and Members
- (C) [-] To Chairmen
- (D) [X] No distribution

**Datasheet for the decision
of 20 February 2024**

Case Number: T 0469/22 - 3.3.03

Application Number: 17762459.0

Publication Number: 3260497

IPC: C08L67/02, C08L67/04, C08L3/02,
C08L25/14, C08K5/1535,
C08K5/07, C08K13/02, C08K3/34,
C08K3/26, C08J5/18

Language of the proceedings: EN

Title of invention:
BIODEGRADABLE POLYESTER COMPOSITION

Patent Proprietor:
Kingfa Sci. & Tech. Co., Ltd.

Opponents:
BASF SE
NOVAMONT SPA

Relevant legal provisions:
EPC Art. 54, 56, 111(1)
RPBA 2020 Art. 11, 12(3), 12(4), 12(5), 12(6), 13(2)

Keyword:

Late-filed evidence - admitted in first-instance proceedings (no) - circumstances of appeal case justify admittance (yes)
Late-filed evidence - should have been submitted in first-instance proceedings (no/yes)
Amendment after summons - exceptional circumstances (no)
Novelty - implicit disclosure (no)
Inventive step - improvement not credible - obvious alternative
Remittal - special reasons for remittal (no)
Discretion not to admit submission - requirements of Art. 12(3) RPBA 2020 met (no) - submission admitted (no)

Decisions cited:

T 0971/11, T 1731/19



Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0469/22 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 20 February 2024

Appellant: NOVAMONT SPA
(Opponent 2) Via G. Fauser 8
28100 Novara (IT)

Representative: Maiwald GmbH
Elisenhof
Elisenstraße 3
80335 München (DE)

Respondent: Kingfa Sci. & Tech. Co., Ltd.
(Patent Proprietor) No.33 Kefeng Road
Science City
Guangzhou Hi-tech Industrial Development Zone
Guangzhou, Guangdong 510663 (CN)

Representative: dompatent von Kreisler Selting Werner -
Partnerschaft von Patent- und Rechtsanwälten mbB
Deichmannhaus am Dom
Bahnhofsvorplatz 1
50667 Köln (DE)

Party as of right: BASF SE
(Opponent 1) Carl-Bosch-Str. 38
67056 Ludwigshafen (DE)

Representative: Reitstötter Kinzebach
Patentanwälte
Sternwartstraße 4
81679 München (DE)

Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 21 December
2021 rejecting the oppositions filed against
European patent No. 3260497 pursuant to Article
101(2) EPC.**

Composition of the Board:

Chairman D. Semino
Members: M. Barrère
 W. Ungler

Summary of Facts and Submissions

I. The appeal of opponent 2 lies against the decision of the opposition division rejecting the oppositions against European patent No. 3 260 497.

II. The following documents were *inter alia* cited in the decision of the opposition division:

D1: EP 3 260 496 B1

D3: EP 3 260 498 B1

D22: Experimental report, "Polymer composition according to WO 2011/054896 A1", dated 17 June 2020

D23: WO 2011/054896 A1

D30: "Supplemental Experimental Report 1 in response to OP1", dated 13 November 2020

D31: "Supplemental Experimental Report 2 in response to OP2", dated 13 November 2020

D31a: "Supplemental Experimental Report 2 in response to OP2", dated 12 August 2021

D32: "Supplemental Experimental Report 3 of EP 3 260 497 B1", dated 13 November 2020

D41: "Supplemental Polymer composition according to WO 2011/054896 A1", dated 27 August 2021

D42: Supplemental Experimental Report, "Reproduction of section 1.2 of Annex A of D31 and section 2.1 of D32", dated 27 August 2021

D45: "Supplemental Experimental Report IV of EP 3 260 497 B1", dated 19 October 2021

III. The contested decision, as far as it is relevant to the present appeal, can be summarised as follows:

- Document D45 was not admitted into the proceedings.

- The subject-matter of granted claim 1 was novel in view of document D23 and involved an inventive step over this document as the closest prior art.

IV. Both opponent 1 and opponent 2 filed an appeal against said decision.

V. The following documents were *inter alia* submitted by the opponents during the appeal proceedings:

D48: EP 3 260 494 B1

D49: EP 3 260 495 B1

D50: Experimental report, "Polymer composition according to EP 3 260 497 B1", dated 1 May 2022

D56: Experimental report, "Versuchsbericht: Trocknungsversuche"

D42a: Supplemental Experimental Report, "Comparing drying conditions", dated 19 January 2024

D48 to D50 were filed by opponent 2 with its statement of grounds of appeal.

D56 was filed by opponent 1 with letter of 15 December 2023.

D42a was filed by opponent 2 with letter of 19 January 2024.

VI. In the rejoinder to the statements of grounds of appeal, the patent proprietor (respondent) maintained auxiliary requests I to IX, Xa and Xb filed during the opposition proceedings. With letter dated 16 November 2023, the respondent filed a further set of claims as auxiliary request Ia.

VII. On 20 February 2024 oral proceedings were held before the Board. At the beginning of the hearing, opponent 1

withdrew its appeal, announced that it did not intend to make any further oral submissions and left the oral proceedings (see minutes of the oral proceedings, page 2, fourth paragraph and corresponding letter of opponent 1 dated 20 February 2024). As a result, opponent 1 is a party as of right under Article 107 EPC and opponent 2 is the sole appellant.

VIII. 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 respondent requested that the appeal be dismissed (main request), in the alternative that the case be remitted to the opposition division on the basis of one of auxiliary requests I, Ia, II to IX, Xa and Xb , whereby

auxiliary requests I to VII were filed on 25 August 2021 (with letter dated 3 August 2021),

auxiliary request Ia was filed with letter dated 16 November 2023 and

auxiliary requests VIII, IX, Xa and Xb were filed with letter dated 26 October 2021.

As a party as of right, opponent 1 did not file any request.

IX. Claim 1 as granted (main request of the respondent) read as follows:

"1. A biodegradable polyester composition, characterized in that, it comprises following components in parts by weight:

i) 60 to 100 parts of biodegradable aliphatic-aromatic polyester;

ii) 0 to 40 parts of polylactic acid;

iii) 0 to 35 parts of an organic filler and/or an inorganic filler;

iv) 0 to 1 part of a copolymer which contains epoxy group and is based on styrene, acrylate and/or methacrylate;

wherein, based on a total weight of the biodegradable polyester composition, a weight content of tetrahydrofuran is 3ppm-200ppm;

and based on the total weight of the biodegradable polyester composition, a weight content of cyclopentanone is 0.5ppm-85ppm."

Claim 1 of auxiliary request I corresponded to granted claim 1 in which the methods for the determination of the weight content of tetrahydrofuran and cyclopentanone were specified.

Claim 1 of auxiliary request Ia was identical to claim 1 as granted.

Claim 1 of auxiliary request II corresponded to granted claim 1 in which the weight content of tetrahydrofuran was limited to 8ppm-100ppm.

Claim 1 of auxiliary request III corresponded to granted claim 1 in which the weight content of cyclopentanone was limited to 5ppm-50ppm.

Claim 1 of auxiliary request IV corresponded to claim 1 of auxiliary request II in which the weight content of cyclopentanone was limited to 5ppm-50ppm.

Claim 1 according to auxiliary requests V, VI and VII corresponded to claim 1 according to auxiliary requests II, III and IV respectively, in which the methods for the determination of the weight content of tetrahydrofuran and cyclopentanone were specified.

Claim 1 of auxiliary request VIII corresponded to granted claim 1 further limited by the sentence:

"wherein the biodegradable aliphatic-aromatic polyester is one or more of poly(butyleneadipate-co-terephthalate) (PBAT), poly(butylenesuccinate-co-terephthalate) (PBST) and poly(butylenesebacate-co-terephthalate) (PBSeT) and wherein the total amount of biodegradable aliphatic aromatic polyester is 60 to 100 parts by weight".

Claim 1 of auxiliary request IX corresponded to granted claim 1 further limited by the sentence:

"wherein the biodegradable aliphatic-aromatic polyester is poly(butylenesuccinate-co-terephthalate) (PBST) and wherein the total amount of biodegradable aliphatic aromatic polyester is 60 to 100 parts by weight".

Claim 1 of auxiliary request Xa read as follows:

"1. Use of tetrahydrofuran and cyclopentanone in a biodegradable polyester composition, comprising the following components in parts by weight:

- i) 60 to 100 parts of biodegradable aliphatic-aromatic polyester;
- ii) 0 to 40 parts of polylactic acid;
- iii) 0 to 35 parts of an organic filler and/or an inorganic filler;
- iv) 0 to 1 part of a copolymer which contains epoxy group and is based on styrene, acrylate and/or methacrylate;

wherein, based on a total weight of the biodegradable polyester composition, a weight content of tetrahydrofuran is 3ppm-200ppm;

and based on the total weight of the biodegradable polyester composition, a weight content of cyclopentanone is 0.5ppm-85ppm,

for preventing ink from stripping off a film material during a printing process and for preventing excessive ink from adhering to the film material, wherein the film material is the biodegradable polyester composition."

Claim 1 of auxiliary request Xb read as follows:

"1. Use of tetrahydrofuran and cyclopentanone in a biodegradable polyester composition being used for making films, for preventing ink from stripping off the film material during a printing process and preventing

excessive ink from adhering to the film material, wherein the biodegradable polyester composition comprises the following components in parts by weight:

- i) 60 to 100 parts of biodegradable aliphatic-aromatic polyester;
- ii) 0 to 40 parts of polylactic acid;
- iii) 0 to 35 parts of an organic filler and/or an inorganic filler;
- iv) 0 to 1 part of a copolymer which contains epoxy group and is based on styrene, acrylate and/or methacrylate;

wherein, based on a total weight of the biodegradable polyester composition, a weight content of tetrahydrofuran is 3ppm-200ppm;

and based on the total weight of the biodegradable polyester composition, a weight content of cyclopentanone is 0.5ppm-85ppm."

The wording of the dependent claims of these requests is not relevant to this decision.

X. The opponents' submissions, in so far as they are pertinent to the present decision, may be derived from the reasons for the decision below. They were essentially as follows:

(a) Late-filed documents

Documents D42, D48 to D50, D56 and D42a should be admitted into the proceedings.

Document D45 should not be admitted into the proceedings.

(b) Main request (patent as granted) and auxiliary request Ia

(i) Novelty

The subject-matter of claim 1 of the main request and of auxiliary request Ia was not novel over the disclosure of document D23.

(ii) Inventive step

The subject-matter of claim 1 of the main request and of auxiliary request Ia lacked an inventive step over document D23 as the closest prior art.

(c) Auxiliary requests I, II to IX, Xa and Xb

Auxiliary requests I, II to IX, Xa and Xb should not be admitted into the proceedings.

(d) Remittal

The present case should not be remitted to the opposition division for a decision on the auxiliary requests.

XI. The respondent's submissions, in so far as they are pertinent to the present decision, may be derived from the reasons for the decision below. They were essentially as follows:

(a) Late-filed documents

Documents D42, D48 to D50, D56 and D42a should not be admitted into the proceedings.

Document D45 should be admitted into the proceedings.

(b) Main request (patent as granted) and auxiliary request Ia

(i) Novelty

The subject-matter of claim 1 of the main request and of auxiliary request Ia was novel over the disclosure of document D23.

(ii) Inventive step

The subject-matter of claim 1 of the main request and of auxiliary request Ia involved an inventive step over document D23 as the closest prior art.

(c) Auxiliary requests I, II to IX, Xa and Xb

Auxiliary requests I, II to IX, Xa and Xb should be admitted into the proceedings.

(d) Remittal

The present case should be remitted to the opposition division for a decision on the auxiliary requests.

Reasons for the Decision

1. Admittance of late-filed documents
 - 1.1 Document D50
 - 1.1.1 D50 is an experimental report describing experiments and compositions according to the opposed patent (D50, page 2, point 1). It was filed by the appellant with its statement of grounds of appeal. The admission of D50 to the proceedings, which is contested by the respondent, is subject to the discretionary power of the Board in accordance with Article 12 paragraphs (4) to (6) RPBA.
 - 1.1.2 According to the appellant, D50 was filed in response to the contested decision, in which the opposition division had no doubt that a technical problem (improved printing performance) had been solved over the whole scope of the claims (statement of grounds of appeal of opponent 2, section 7 on pages 2 and 3). Moreover, in reaching this conclusion, the opposition division took into account document D32 filed by the respondent but ignored the experimental evidence and arguments provided by the appellant during the opposition proceedings. D50 was therefore also filed in reaction to the fact that previous submissions in relation to the effect of the claimed invention had not been taken into consideration (letter of the appellant dated 19 January 2024, page 6, section 27).
 - 1.1.3 The admittance of D50 is contested by the respondent for the following reasons (rejoinder, page 10, first

paragraph and arguments put forward during the oral proceedings before the Board):

there was no well-founded reasoning as to why D50 could not have been submitted during the opposition proceedings;

the question of the effect of the claimed invention was discussed from the onset of the opposition proceedings;

document D32 had been addressed by the opposition division in the communication attached to the summons to oral proceedings (page 11, section 4); hence D50 should have been filed at the latest in reaction to that communication and not during appeal proceedings;

admitting D50 would be incompatible with the purpose of the appeal proceedings which is to review the decision under appeal in a judicial manner but not to continue the opposition proceedings (Article 12(2) RPBA);

D50 is not *prima facie* relevant.

- 1.1.4 The Board first notes that document D50 relates amongst others to the properties of compositions falling within the scope of granted claim 1 (D50, page 13, table 4 and page 14, table 6). Therefore, *prima facie*, D50 is relevant to the question of whether the claimed invention solves a technical problem.
- 1.1.5 It is further acknowledged that the alleged effect of the claimed invention was discussed from the onset of the opposition proceedings. In that respect, the

opposition division came to the conclusion that a technical effect (improved printing performance) could be derived from embodiments 1 to 16 of the patent and document D32 (contested decision, page 26, fourth paragraph). Moreover, the opposition division pointed out that "*no contradicting data has be [sic] filed by the Opponents*". This statement is, however, at odds with the fact that the appellant had submitted experimental report D42 (originally filed as document D34) to show, *inter alia*, that the test protocol described in D32 could not be reproduced and that no technical effect could be derived from that document (letter of the appellant dated 27 August 2021, page 23, section 105).

- 1.1.6 The Board therefore holds that the decision of the opposition division, which considered that the opposed patent and D32 could be used to recognise an effect of the claimed invention but did not take into consideration the counter-evidence of D42, must have come as a surprise to the appellant. The filing of D50 addressing that issue is therefore regarded as a legitimate and timely reaction to the contested decision.
- 1.1.7 While the Board acknowledges that the appeal proceedings is primarily a judicial review of the contested decision, it does not mean that any new submission filed in appeal should necessarily be rejected. In the present case, a key issue was decided by the opposition division without explicitly addressing all the facts and arguments presented by the losing parties. The filing of evidence in relation to this omission is therefore under the present circumstances admissible.

- 1.1.8 In view of this, the Board finds it appropriate to exercise its discretion under Article 12(4) RPBA by admitting document D50 into the proceedings.
- 1.2 Document D42
 - 1.2.1 Document D42 was filed by the appellant with letter dated 27 August 2021, within the time limit under Rule 116(1) EPC for filing written submissions (27 August 2021). The opposition division did not take this document into consideration in the contested decision and did not decide on its admittance (page 31, point 5.4.1).
 - 1.2.2 According to the appellant, a purpose of D42 is to provide evidence that the test protocol described in D32 cannot be reproduced and that no technical effect may be derived from that document (letter of the appellant dated 27 August 2021, page 23, section 105).
 - 1.2.3 The respondent argued that D42 was late-filed and that the appellant did not address this document during the oral proceedings before the opposition division. Consequently, it should not be admitted into the proceedings.
 - 1.2.4 The Board notes that D42 has been submitted for reasons similar to those for D50, i.e. to show that the problem addressed in the opposed patent was not solved over the whole scope of granted claim 1. Moreover D42 was filed in direct response to experimental report D32 provided by the patent proprietor as evidence of a technical effect. For this reason alone, the Board considers that D42, as a rebuttal to D32, is *prima facie* relevant to the matter in dispute and a timely response to a new submission (D32) from the patentee.

- 1.2.5 It is true that the minutes of the oral proceedings before the opposition division do not mention that D42 was addressed by the parties. However, D42 was discussed in the written submissions of the appellant (letter of the appellant dated 27 August 2021, page 23, section 105). Therefore, in the absence of any indication to the contrary, there is no reason for the Board to consider that D42 and the written arguments relating to this document were withdrawn or abandoned by the appellant.
- 1.2.6 Under these circumstances, the Board finds it appropriate to exercise its discretion under Article 12(4) RPBA by admitting document D42 into the proceedings.
- 1.3 Document D45
 - 1.3.1 Document D45 was filed by the patent proprietor but not admitted into the proceedings by the opposition division (point 5.3 of the contested decision).
 - 1.3.2 According to established case law, the fact that the opposition division did not admit a late-filed document and did not exceed the proper limits of its discretion does, in principle, not prevent the Board from admitting the document in particular if the circumstances of the appeal justify this decision (Case Law of the Boards of Appeal, 10th edition 2022, in the following "Case Law", V.A.3.4.2.b and V.A.3.4.3.a; Article 12(6) RPBA). In particular, a submission which would have been admitted into the appeal proceedings if it had been filed for the first time at the outset of those proceedings should not be held inadmissible under Article 12(4) RPBA, for the sole reason that it was

already filed before the department of first instance and not admitted (T 971/11, section 1.3 of the reasons).

1.3.3 In the present case, D45 relates to the same issue as D42 and D50, i.e. whether or not a technical effect can be recognised for compositions according to granted claim 1. As mentioned above, D42 and D50 were submitted by the appellant in order to show that the subjective problem to be solved in the opposed patent was not solved over the whole scope of granted claim 1. Given that D42 and D50 were admitted by the Board in the appeal proceedings, D45 (promptly filed as counter-evidence to D42) should be admitted for the same reasons. Consequently, although D45 was not admitted by the opposition division, the circumstances of the appeal case justify its admittance.

1.3.4 Therefore, the Board finds it appropriate to exercise its discretion under Article 12(6) RPBA by admitting document D45 into the proceedings.

1.4 Documents D48 and D49

1.4.1 D48 and D49 were filed by the appellant with its statement of grounds of appeal. Their admittance to the proceedings, which is contested by the respondent, is subject to the discretionary power of the Board in accordance with Article 12 paragraphs (4) to (6) RPBA.

1.4.2 According to the appellant, these documents were filed in response to the contested decision, in which the opposition division had no doubt that a technical problem had been solved over the whole scope of the claims (see statement of grounds of appeal of opponent 2, page 2, section 6). At the oral proceedings, the

appellant further pointed out that D48 and D49 had been considered relevant by the Board in its communication under Rule 15(1) RBPA. For these reasons, D48 and D49 should be admitted into the proceedings.

- 1.4.3 The admittance of D48 and D49 is contested by the respondent for the following reasons (see rejoinder, page 10, first paragraph):

the appellant did not explain why these documents could not have been submitted in the opposition proceedings,

D48 and D49 were not *prima facie* relevant.

- 1.4.4 The Board notes that the main purpose of D48 and D49 is to show that the examples in the opposed patent (EP 3 260 497 B1) had similarities with those of the parallel patents D48 (EP 3 260 494 B1) and D49 (EP 3 260 495 B1). During opposition proceedings, a similar line of attack was put forward by the opponents based on a comparison of the opposed patent with parallel patents D1 (EP 3 260 496 B1) and D3 (EP 3 260 498 B1). The Board considers that the purpose of D48 and D49 does not differ from that of D1 or D3 and makes no discernible additional contribution to the case. Moreover, D48 and D49 belong to a set of at least five patents (together with D1, D3 and the opposed patent) with the same proprietor, inventors and priority date. Thus the Board sees no reason why D48 and D49, if relevant, could not have been filed together with D1 and D3 (i.e. with the notices of opposition).

- 1.4.5 Under these circumstances, the Board finds it appropriate to exercise its discretion under Article

12(6) RPBA by not admitting documents D48 and D49 into the proceedings.

1.5 Documents D56 and D42a

1.5.1 D56 and D42a were filed by the opponents with letters dated 15 December 2023 and 19 January 2024 respectively and therefore after notification of the Board's communication under Article 15(1) RBPA (dated 10 October 2023). The purpose of these documents is to show that, under normal drying conditions, the levels of tetrahydrofuran (THF) and/or cyclopentanone (CP) in a polyester composition decrease significantly (letter dated 15 December 2023, page 9, first three paragraphs; letter dated 19 January 2024, page 8, section 38).

1.5.2 The respondent requested that D56 and D42a not be admitted into the proceedings.

1.5.3 The admittance of these documents is subject to the provisions of Article 13(2) RPBA, which provide that amendments made after the communication under Article 15(1) RBPA shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

1.5.4 According to the opponents, D56 and D42a were filed in response to the Board's preliminary view that the criticisms raised by the party as of right against document D32 were speculative (letter dated 15 December 2023, page 2, third paragraph with reference to the communication under Article 15(1) RBPA, page 32, first full paragraph). The opponents addressed the Board's concerns by providing evidence of

the effect of drying on the levels of THF and CP in a polyester composition.

- 1.5.5 The respondent argued that these documents could and should have been filed at an earlier stage of the proceedings.
- 1.5.6 The Board takes the view that the effect of drying on the volatile organic content (VOC) of polyester compositions was discussed on several occasions during the opposition and appeal proceedings (see minutes of the oral proceedings before the opposition division, page 4, penultimate paragraph; rejoinder to the statements of grounds of appeal, page 29, third full paragraph). If the opponents had intended to support their arguments with experimental data, they should have done so at an earlier stage of the proceedings. In any event, the preliminary opinion of the Board, which discusses the submissions already on file on the degree of VOC reduction due to drying, does not qualify as an exceptional circumstance justifying the admission of D56 and D42a.
- 1.5.7 Under these circumstances, documents D56 and D42a are not taken into account (Article 13(2) RPBA).

Main request (patent as granted)

2. Preliminary remarks

Granted claim 1 is directed to a biodegradable polyester composition, characterised in that, it comprises the following components in parts by weight:

- i) 60 to 100 parts of biodegradable aliphatic-aromatic polyester;

- ii) 0 to 40 parts of polylactic acid;
- iii) 0 to 35 parts of an organic filler and/or an inorganic filler;
- iv) 0 to 1 part of a copolymer which contains epoxy group and is based on styrene, acrylate and/or methacrylate;

wherein, based on a total weight of the biodegradable polyester composition, a weight content of tetrahydrofuran (THF) is 3ppm-200ppm (emphases here and below added by the Board);

and based on the total weight of the biodegradable polyester composition, a weight content of cyclopentanone (CP) is 0.5ppm-85ppm.

In relation to novelty and inventive step, the main points of dispute between the parties were whether:

- i) document D23 disclosed a polyester composition comprising THF and CP in amounts as defined in granted claim 1 (dealt with under point 3.4 below);
- ii) any technical effect could be attributed to the levels of THF and CP in the polyester compositions in particular within the ranges specified in claim 1 (dealt with under point 4.3 below).

3. Novelty over document D23

3.1 According to the appellant, the subject-matter of granted claim 1 is not novel in view of example 1 of D23.

3.2 In the contested decision, the opposition division came to the conclusion that a truly representative

reproduction of example 1 of D23 was not possible. Hence it could not be said that the polyester of example 1 inevitably contained amounts of CP and THF within the ranges of claim 1 (decision, page 19, third paragraph).

- 3.3 The appellant argued that the respondent did not provide sound evidence for the allegation that the product of example 1 would not contain THF and CP in the amounts required by claim 1. On the contrary it would be shown in D41 and D22 that products representing the composition of example 1 were according to claim 1.
- 3.4 In this respect, the Board agrees with the opposition division and the respondent for the following reasons:
- 3.4.1 An explicit disclosure of the content of CP and THF in the compositions of D23 is not present in this document.
- 3.4.2 It was not disputed between the parties that CP and THF are VOCs which are by-products formed during the esterification reactions involving 1,4-butane diol (BDO) and adipic acid (ADA) (see summary presented under point III of the statement of grounds of appeal of opponent 2). Therefore a polyester derived from BDO and ADA (such as the PBAT of example 1 of D23) is expected to contain CP and THF as so-called non-intentionally added substances (NIAS).

However it was also not disputed that the levels of CP and THF present implicitly in said polyester depend on the synthesis process, polyester processing and storage conditions.

- 3.4.3 It was also not contested among the parties that the experimental conditions to prepare the polyester of example 1 are not disclosed in D23.
- 3.4.4 According to established case law, it is a prerequisite for the acceptance of lack of novelty that the claimed subject-matter is "directly and unambiguously derivable from the prior art". In other words, it has to be "beyond doubt - not merely probable - that the claimed subject-matter was directly and unambiguously disclosed in a patent document" (Case Law, I.C.4.1). Furthermore contrary to the appellant's view, the burden of proof lies initially with the opponents to provide evidence that all the features of claim 1 were directly and unambiguously disclosed in the prior art (Case Law, III.G.5.1.1).
- 3.4.5 In the present case, the experimental conditions to prepare the polyester of example 1 are not disclosed in D23. Moreover, the general part of the description specifies that any process known to the state of the art may be used (D23, page 5, lines 11-12). As a non limiting example, a process based on a polycondensation reaction is mentioned (D23, page 5, lines 12-13). Likewise any suitable catalyst can be chosen (D23, page 5, lines 14-15). Thus any known process and catalyst could have been used to prepare the polyester of example 1. It is, however, notorious that the preparation method has an effect on the content of volatiles present in the final polymer. As a matter of example, D31/D31a shows that conditions may be found in which the VOCs of the final composition are above the required levels (D31, page 3, table 2 and D31a, page 4, table 3). Conversely, D41 shows that under different experimental conditions, the content of CP and THF can be within the ranges defined in present claim 1 (D41,

tables 3 and 4). This is further in line with the skilled person's common general knowledge. For example, the arbitrary decision to apply (or not) vacuum for a certain period of time and at a certain reduced pressure at the end of the polymerisation will obviously have an effect on the volatile content of the polyester. In this regard, reference is made to sections 8 and 14 on pages 6 and 7 of the statement of grounds of appeal of opponent 2 reporting the boiling points as well as the vapour pressures at different temperatures of CP and THF.

3.4.6 In conclusion, although the appellant provided D41 and D22 to show that under certain experimental conditions the composition of example 1 could be characterised by a content of by-products as defined in claim 1, it is not credible (let alone beyond any reasonable doubt) that any process within the ambit of D23 will lead to the same result.

3.5 Therefore the Board has no reason to depart from the opposition division's findings that:

it has not been established beyond any reasonable doubt that the composition of example 1 of D23 anticipates the subject-matter of claim 1, and

the contents of CP and THF are distinguishing features (relevant for the assessment of inventive step).

4. Inventive step over document D23

4.1 Closest prior art

It was not disputed by the parties that document D23 (and in particular example 1 thereof) could be selected as the closest prior art for the subject-matter of granted claim 1.

The Board has no reason to deviate from that view.

4.2 Distinguishing features

With respect to novelty (see point 3.5), the Board concluded that the subject-matter of claim 1 differed from example 1 of D23 in that the polyester composition comprised:

- (i) 3ppm-200ppm of THF and
- (ii) 0.5ppm-85ppm of CP

based on the total weight of the biodegradable polyester composition (whereas the levels of CP and THF in the composition of example 1 of D23 are unknown). No other possible distinguishing feature was identified by the respondent.

4.3 Problem to be solved

4.3.1 The respondent relied on the experimental data in the patent and in documents D32 and D45 to show that polyester compositions having CP and THF contents as defined in claim 1 would be characterised by an improved printability (rejoinder to the statements of grounds of appeal, page 35, last paragraph to page 37, second paragraph).

4.3.2 The opponents held that the experimental evidence provided in the opposed patent did not allow to draw

any conclusion as to the effect of the distinguishing features (i) and (ii). Moreover, the party as of right contended that the supplementary experiments of D32 and D45 could not be reproduced due to missing information and were not credible (letter dated 10 March 2023, pages 12 and 13 and letter dated 15 December 2023, page 7, point 5.2.1). In addition, even if some examples provided by the respondent would be characterised by an improved printability, it was argued that this effect could not be achieved over the whole scope of granted claim 1 (statement of grounds of appeal of opponent 2, page 35, sections 128 to 129; letter dated 15 December 2023 of the party as of right, page 12, point 5.2.3). For these reasons, the objective problem to be solved should be formulated as the provision of an alternative biodegradable composition.

4.3.3 As regards the definition of the problem to be solved, the Board agrees with the opponents for the reasons set out below. In this respect, the experimental data relied upon by the parties are dealt with separately.

4.3.4 Examples of the opposed patent

(a) The opponents argued that the experimental results provided in the opposed patent were identical to those of parallel patents D1 and D3 albeit the polyester compositions were different. This cast doubts on the credibility of the data in the opposed patent (statement of grounds of appeal of opponent 1, page 12, point 4.2.2.5).

(b) The respondent considered that the criticisms of the opponents were mere allegations and that D1 and D3 were irrelevant for the opposed patent as these documents pertained to different inventions

(rejoinder to the statements of grounds of appeal, page 11, last paragraph).

- (c) It should first be noted that documents D1 and D3 are European patents claiming the same priority date, and sharing the same patent proprietor and inventors as the opposed patent. D1 and D3 pertain to polyester compositions comprising 3ppm-200ppm of THF or 0.5ppm-85ppm of CP respectively (but not both as in the opposed patent). Furthermore, in addition to THF or CP, the compositions of D1 and D3 contain 100ppm-950ppm of a cyclic diester compound referred to as cBA in the following (see D1, claim 1 and D3, claim 1).

As pointed out by the opponents, the experimental section of the opposed patent includes embodiments 1 to 7 and 9 to 16 disclosing compositions according to granted claim 1 with various amounts of CP and THF (no cBA is mentioned). Tables 1 and 2 of the patent report selected properties of these compositions such as the "level of printing performance", the "range of film thickness" or the "relative deviation of film thickness". The levels of printing performance of embodiments 1 to 7 and 9 to 16 are identical to those of embodiments 1 to 6 and 8 to 16 of D1 respectively, although these compositions contain cBA and THF but no CP (at least not explicitly). Likewise the film forming properties of embodiments 1 to 7 and 9 to 16 of the patent (i.e. "range of film thickness" and "relative deviation of film thickness") are identical to the third digit to the film forming properties of embodiments 1 to 5 and 7 to 16 of D3 respectively, although these compositions contain cBA and CP but no THF (at least not explicitly). To

illustrate the similarities between the embodiments of the opposed patent and those of D1 and D3, reference is made to tables 2a-2f of the statement of grounds of appeal of opponent 2 (pages 11 to 16). Therefore, the Board concludes that the properties of embodiments 1 to 7 and 9 to 16 of the patent are identical to those of compositions of D1 and D3 which, however, are defined as containing different impurities.

- (d) The opponents took the view that the compositions tested in the opposed patent were identical to those of D1 and D3 but that certain constituents had been omitted (such as cBA in the opposed patent, CP in D1 and THF in D3; in that respect, reference is made to the table on page 13 of the statement of grounds of appeal of opponent 1). The respondent did not provide any explanation for the similarities of the experimental results and rejected the opponents' criticisms as allegations.
- (e) In the absence of any explanation for the similarities in properties, the Board is faced with two possibilities. The first is that the compositions tested in D1, D3 and the opposed patent were identical, but one (or more) component was omitted in each case. In this situation, the Board cannot rely on the examples in the opposed patent to identify a technical effect because at least one component is missing that could explain the observed differences in properties. In the alternative, the compositions tested in D1, D3 and the opposed patent were different. However, in that case it is not plausible that a set of fifteen different compositions are characterised by

identical properties (to the third digit as far as the film forming properties are concerned).

- (f) Thus, in both cases, the Board must conclude that the experimental data of the opposed patent are not credible and cannot be relied upon to recognise a technical effect related to the above distinguishing features.

4.3.5 The experimental reports D32 and D45 (submitted by the respondent)

- (a) The opponents argued that D32 would not disclose the conditions under which the biodegradable polyester compositions and the films derived therefrom were produced. The party as of right also considered that the experimental data presented in D32 were not credible. In particular, it would not be plausible that the volatile compounds CP and THF remain almost completely in the composition during melting, extrusion, granulation and subsequent drying. For these reasons, the results reported in D32 would be neither reproducible nor credible. The same would apply to D45 (letter of 10 March 2023, pages 12 to 14, point 4.3; letter of 15 December 2023, pages 7 and 8, point 5.2.1).
- (b) The respondent considered that documents D32 and D45 showed that the printability of polyester compositions was improved when the levels of CP and THF were within the ranges defined in claim 1. The opponents' criticisms of D32 and D45 were speculative (letter dated 16 November 2023, page 10, first paragraph). During the oral proceedings before the Board, the respondent further argued that the levels of THF and CP in a polyester

composition could be maintained even during a heat treatment or drying process. In particular, it was considered that THF and CP could be formed during the drying step. The respondent further contended that the particle size of the pellets influenced the drying performance.

- (c) The Board notes that D32 and D45 are experimental evidence from the respondent showing different compositions in which the levels of CP and THF were varied while the content of the other components (including cBA) was kept constant (D32, page 3, table 2 and D45, page 3, table 2). These compositions were prepared by blending the different ingredients followed by melting, extruding and pelletising each composition (D32, pages 7 to 9). In a final step, the compositions were dried "4 hours at 75°C in air with a dew point of -50°C to -60°C". However, as pointed out by the party as of right, the amounts of THF and CP initially added to the compositions and the amounts present after melting, pelletising and drying are almost unchanged. As a matter of example, in comparative embodiment 5 of D32, 210 ppm of CP and 110 ppm of THF were added to the composition while, even after compounding and drying, the amounts of CP and THF remaining in the composition were respectively 208 ppm and 108 ppm (i.e. a loss of about 1-2%, see table 2). Similar results are observed in D45 (see pages 7-8, comparative embodiment 1 and table 2).
- (d) It was, however, not contested by the parties that CP and THF are volatile organic compounds having a boiling point of respectively 131°C and 66°C (statement of grounds of appeal of opponent 2, page

6, section 8 and page 7, section 14). In particular, the appellant provided experimental data showing that, after 3 months of storage, the levels of CP and THF in a polyester composition decreased drastically (D22, page 9, table 2 and page 10, table 3). Moreover, as noted by the appellant, further evidence submitted by the respondent suggests that the step of compounding alone leads to a significant loss of THF in the composition. During the oral proceedings before the Board, reference was made to D30 in which the composition of embodiment 2 initially contained a calculated amount of THF of about 52 ppm (based on the THF content of polyester D11-PBSeT) while the compounded product contained only 33 ppm of THF corresponding to a loss of about 36%. For these reasons, the Board considers that it is not credible that, after compounding and an intensive drying step (4 hours at 75°C in air with a dew point of -50°C to -60°C), the levels of CP and THF in the compositions of D32 and D45 remain almost constant.

It should also be noted that the respondent initially supported the Board's preliminary view (in a discussion on D30) that drying had an effect on the content of CP and THF (letter of 16 November 2023, page 9, last paragraph, with reference to the communication pursuant to Rule 15(1) RPBA, page 29, first paragraph). The arguments to the contrary put forward at the oral proceedings are therefore not convincing, especially as the respondent did not submit any evidence on the effect of drying alone or the alleged formation of THF and CP during drying.

(e) Consequently, the Board takes the view that it is not credible that the experimental set up disclosed in D32 and D45 can lead to polyester compositions with the amounts of CP and THF disclosed in table 2 of these documents. It follows that the Board cannot rely on these experimental reports to acknowledge any technical effect related to the amounts of CP and THF (corresponding to distinguishing features (i) and (ii)) in the polyester compositions.

4.3.6 Experimental reports D42 and D50

(a) In view of the fact that the experimental data relied upon by the respondent are not considered credible, the Board cannot identify a technical effect related to the levels of CP and THF in polyester compositions. Therefore, the counter-evidence submitted by the appellant in the form of documents D42 and D50 need not, in principle, be taken into account.

Nevertheless, for the sake of completeness, the following is noted:

(b) D42 was provided to show *inter alia* that polyester "PBAT P1" of D32 cannot be reproduced and that this polymer was not suitable to obtain a film. The Board is, however, not convinced that D42 discloses a true reproduction of "PBAT P1" of D32 since the drying step of D32 appears to have been omitted in D42 (D32, pages 5 and 6, item 2.1 vs. D42, page 5, point 3.4).

(c) D50 was submitted to provide evidence that embodiments falling under the scope of granted

claim 1 were not characterised by improved printing performance (D50, page 2, point 2). The respondent argued that the starting materials (such as the epoxy copolymer) used in D50 were different from the ones used in D32 or D45. Therefore D50 would not be suitable to cast doubt on the experimental evidence provided by the respondent. However, the Board considers that the relevant question for the intended purpose of D50 is not whether the starting materials in D50 and D32/D45 are the same but whether the compositions of D50 are embodiments according to the claimed invention. In this respect, it was not disputed that the materials used in D50 corresponded to components defined in granted claim 1. Consequently, the Board considers that compositions 1 to 3 of D50 correspond to polyester compositions according to claim 1 as granted (D50, tables 1 and 4). Moreover, the level of printing performance of composition 2 was shown to be insufficient (D50, Table 6).

(d) Therefore, the Board concludes that D50 provides evidence that the problem formulated by the respondent (improvement of the printability) is not solved over the whole scope of claim 1 as granted.

4.3.7 For these reasons, the Board cannot acknowledge an improvement of the printing performance in relation to the levels of CP and THF in polyester compositions. The objective problem to be solved over example 1 of document D23 is therefore formulated as the provision of an alternative polyester composition.

4.4 Obviousness

It remains to be evaluated whether it was obvious for a skilled person wishing to provide an alternative to the polyester composition of example 1 of D23 to adjust the contents of CP and THF within the ranges defined in granted claim 1.

- 4.4.1 According to the opponents, the skilled person wishing to put the teaching of D23 into practice would have obtained a polyester composition according to claim 1 simply by applying ordinary process conditions (statement of grounds of appeal of opponent 2, page 37, paragraph 141).
- 4.4.2 The respondent argued that, in view of the cited prior art, it was not obvious to adjust the levels of CP and THF within the ranges defined in granted claim 1. THF and CP were known impurities of polyesters derived from BDO and ADA such as the PBAT of example 1 of D23. The skilled person would have no reason to maintain these impurities at levels according to the claimed invention.
- 4.4.3 As noted by the parties, the polyester PBAT of example 1 of D23 and the composition derived therefrom comprise implicitly THF and CP as impurities which are formed during the synthesis of the polyester. The exact contents thereof are, however, unknown since the conditions of synthesis of the PBAT are not disclosed in D23. The appellant provided evidence that, under normal process conditions, a composition comprising 3 to 200 ppm of THF and 0.5 to 85 ppm of CP could be obtained (D41, pages 2 to 5, sections 2 to 3.3 and page 11, tables 3 and 4). Therefore, the Board considers that the skilled person wishing to simply reproduce example 1 of D23 would have automatically obtained a composition according to granted claim 1 by merely

using ordinary process conditions. Contrary to the respondent's view, it is not considered to be necessary that the skilled person had any intention to adjust the levels of CP and THF as impurities to arrive at the subject-matter of claim 1. Instead it is only required that s/he has the willingness to provide an alternative composition. It follows that selecting usual process conditions which result in levels of impurities present in the composition derived therefrom according to granted claim 1 was an obvious option for a person skilled in the art wishing to provide an alternative composition.

- 4.4.4 With regard to the respondent's argument that the skilled person would have no reason to maintain a certain level of impurities (i.e. of unwanted substances) in the polyester composition of D23, the following is noted:

The respondent's argument might have some persuasive power if the levels of CP and THF defined in granted claim 1 were relatively high. However, it has not been shown that these levels were unusual in the present technical field. In fact, contrary to the respondent's view, the evidence provided by the opponents suggests that these levels are not uncommon (see for example D22, page 9, table 2; D42, page 10, table 2; D41, page 11, tables 3 and 4; D50, page 13, table 4). In any event, the problem to be solved is merely to provide an alternative composition, so that the arbitrary choice of specific impurity levels that can be obtained under normal process conditions cannot involve an inventive step.

- 4.5 For these reasons, the subject-matter of granted claim 1 lacks an inventive step over example 1 of D23 as the closest prior art.

Auxiliary request Ia

5. As claim 1 of auxiliary request Ia is identical to granted claim 1, its subject-matter does not involve an inventive step over document D23 as the closest prior art for the same reasons (point 4. of the present decision).

Auxiliary requests I to IX, Xa and Xb

6. Remittal- prerequisite
- 6.1 The respondent requested that the case be remitted to the opposition division to deal with auxiliary requests I to IX, Xa and Xb. The Board understands from the respondent's submissions that the request for remittal should be dealt with before a decision is made on the admittance of the auxiliary requests. However, a decision whether a case is remitted to the first instance can be taken only if there are pending requests which are in (or are admitted into) the proceedings. Therefore the status of the requests and a decision on their admittance are to be assessed first. Furthermore it is noted that there is no right of the parties to choose in which form the Board should exercise its competencies under Article 111(1) EPC. Thus, the Board is entitled to decide on the issue of admittance of the auxiliary requests without being bound to the respondent's request for prioritisation of the request for remittal (see T 1731/19, Reasons 8.2).
7. Admittance

- 7.1 Auxiliary requests I to IX, Xa and Xb were filed during the opposition proceedings (auxiliary requests I to VII: two months before oral proceedings; auxiliary requests VIII, IX, Xa and Xb: two days before the oral proceedings). The opponents requested that these requests not be admitted into the proceedings due to a lack of substantiation.
- 7.2 As regards auxiliary requests I to IX, Xa and Xb, the respondent merely referred to "the written procedure in the opposition procedure" and requested a remittal (rejoinder to the statement of grounds of appeal, page 37, last paragraph; minutes of the oral proceedings before the Board, page 4, second paragraph).
- 7.3 According to Article 12(3) RPBA the statement of grounds of appeal and the reply shall contain a party's complete appeal case. They shall set out clearly and concisely the reasons why it is requested that the decision under appeal be reversed, amended or upheld, and should specify expressly all the requests, facts, objections, arguments and evidence relied on.
- 7.4 It follows that a patent proprietor who submits sets of claims with the reply to the appeal in order to define fall-back positions must also explicitly set out the substantive arguments for these auxiliary requests ("substantiation requirement"). This requires statements indicating which objections raised in the appeal against the main requests are overcome by the amendments made in the auxiliary requests and for what reasons the respondent considers that this is the case.
- 7.5 According to the case law, non-specific references to the submissions made at first instance are generally

not sufficient and will not be taken into account (Case Law, V.A.2.6.5.). The same principle applies to requests; a non-specific reference to submissions made at first instance is incompatible with the requirement of Article 12(3) RPBA (Case Law, V.A.4.3.5 b)).

7.6 Neither the other party, nor the Board can be expected to search for the respondent's arguments for eleven auxiliary requests in its first instance submissions. It should also be noted that, in the case of a non-specific reference, it remains unclear which arguments in relation to the objections raised in the statement of grounds of appeal would be pursued in the appeal proceedings.

7.7 According to Article 12(5) RPBA, the Board has the discretion not to admit a party's submissions if they do not comply with the requirements of Article 12(3) RPBA. In exercising this discretion, the Board decided not to admit auxiliary requests I to IX, Xa and Xb into the proceedings because they were not substantiated.

8. Remittal - conclusion

In view of the fact that auxiliary requests I to IX, Xa and Xb have not been admitted to the proceedings, there is nothing left to discuss and the request for remittal must be rejected.

9. Since none of the requests of the respondent is either allowable or admitted, there is no need to deal with any other issue and the patent is to 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:



D. Hampe

D. Semino

Decision electronically authenticated