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Datasheet for the decision of 6 February 2025

Case Number: T 1269/23 - 3.3.06

Application Number: 17749424.2

Publication Number: 3494201

IPC: C11B3/04, C11B3/00

Language of the proceedings: EN

Title of invention:
PURIFICATION OF FEEDSTOCK BY HEAT TREATMENT

Patent Proprietor:
Neste Oyj

Opponents:
Alfa Laval Corporate AB
UPM-Kymmene Corporation

Headword:
Neste/Purification

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
Novelty - after amendment
Inventive step - (no)

Decisions cited:
G 0002/21

Catchword:

Europäisches Patentamt
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Beschwerdekammern

Boards of Appeal

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Case Number: T 1269/23 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 6 February 2025

Appellant: (Patent Proprietor)	Neste Oyj Keilaranta 21 02150 Espoo (FI)
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Appellant: (Opponent 2)	UPM-Kymmene Corporation Alvar Aallon katu 1 00100 Helsinki (FI)
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Party as of right: (Opponent 1)	Alfa Laval Corporate AB P.O. Box 73 221 00 Lund (SE)
Representative:	Alfa Laval Attorneys Alfa Laval Corporate AB Group Patent P.O. Box 73 221 00 Lund (SE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 24 May 2023 concerning maintenance of the European Patent No. 3494201 in amended form.**

Composition of the Board:

Chairman	J.-M. Schwaller
Members:	S. Arrojo
	C. Heath

Summary of Facts and Submissions

I. The patent proprietor and opponent 2 both filed an appeal against the decision of the opposition division to maintain European Patent No. 3 494 201 in amended form, based on the claims of auxiliary request 26 submitted with a letter dated 7 March 2023. Claim 1 thereof reads as follows:

"1. A process for purifying a feedstock, the process comprising the steps of;
a) providing a feedstock, the feedstock comprises any lipids containing phosphorous and/or metals,
b) adding to the feedstock phosphoric acid or sulphuric acid forming a separate phase with impurities present in the feedstock,
i) adjusting the water content of the feedstock in step b) to 0.05 wt%-10 wt% by weight of the mixture capable of forming a separate phase with the impurities present in the feedstock,
c) heating the admixture b) to a temperature of 200°C -280°C,
d) optionally removing water,
e) removing the separated phase from the heat treated feedstock to obtain a purified feedstock."

II. In its grounds of appeal, the proprietor requested that the decision under appeal be set aside and the patent be maintained on the basis of the claims according to the main request or, as an auxiliary measure, on the basis of the claims according to any one of auxiliary requests 1 to 25 filed therewith.

III. In its grounds of appeal, opponent 2 (hereinafter 'the opponent') requested that the patent be revoked in its

entirety, arguing that the claims upheld by the opposition division did not meet the requirements of Articles 84 and 123(3) EPC. Additionally, the claimed invention was insufficiently disclosed, not novel over D13 and not inventive starting from D13 as the closest prior art. Furthermore, it requested that documents D20 and D21, submitted as annexes to its statement of grounds, be admitted into the appeal proceedings.

IV. With its reply, the proprietor requested that the appeal be dismissed, filed auxiliary requests 26 to 57 and requested that documents D20 and D21 not be admitted into the appeal proceedings.

Claim 1 according to **auxiliary request 27** corresponds to that of auxiliary request 26, with the following additional restriction: *"... wherein the separate phase is a gel, precipitate or a liquid phase that is immiscible with the purified feedstock, allowing it to be separated from the feedstock."*

Claim 1 according to **auxiliary request 28** reads as follows:

"1. A process for purifying a feedstock, the process comprising the steps of;
a) providing a feedstock, wherein the feedstock comprises one or more of animal fat, tall oil pitch, sludge palm oil or used cooking oil or any combinations thereof,
b) adding to the feedstock phosphoric acid or sulphuric acid forming a separate phase with impurities present in the feedstock,
i) adjusting the water content of the feedstock in step b) to 0.1 wt%-5 wt% by weight of the mixture

capable of forming a separate phase with the impurities present in the feedstock,
c) heating the admixture b) to a temperature of 200°C - 280°C,
d) optionally removing water,
e) removing the separated phase from the heat treated feedstock to obtain a purified feedstock."

Claim 1 according to **auxiliary requests 29 and 50** corresponds to that of auxiliary request 28, *"wherein the amount of acid is 2000-4000 ppm".*

V. In its reply, the opponent requested that the proprietor's appeal be dismissed. Additionally, in a submission dated 30 August 2024, it filed document D20A (a complete version of D20) and requested that auxiliary requests 20-49 and 51 not be admitted into the appeal proceedings.

VI. In its preliminary opinion, the board concluded that neither the main request nor auxiliary requests 1 to 25 appeared to meet the requirements of Article 123(2) EPC. It also indicated that documents D20 and D21 should be admitted into the proceedings, that auxiliary request 26 appeared to lack novelty over D13, and that auxiliary request 27 appeared to meet the requirements of the EPC.

VII. In response to this opinion, opponent 2 filed additional arguments against the patentability of auxiliary request 27.

VIII. At the oral proceedings, held on 6 February 2025, the proprietor withdrew its appeal and became respondent. The present decision is thus based on the following requests:

The appellant requests that the decision under appeal be set aside and the patent be revoked in its entirety.

The respondent requests that the opponent's appeal be dismissed (main request) and that the patent be maintained on the basis of the version upheld by the opposition division (corresponding to auxiliary request 26 filed with the reply to the appeal) or, as an auxiliary measure, on the basis of one of auxiliary requests 27 to 57, also filed with the reply to the appeal.

Reasons for the Decision

1. Admittance of D20, D20a and D21

1.1 The opponent submitted documents D20 and D21 in response to the conclusion that there was insufficient evidence to establish that the palm kernel oil in D13 had a moisture content within the claimed range. The admittance of these documents is governed by Article 12(4) RPBA.

1.2 Document D20a was filed after the reply to the appeal but before the notification of the summons to attend oral proceedings; therefore, its admittance is governed by Article 13(1) RPBA.

1.3 The proprietor argued that D20 and D21 should have been submitted earlier in the proceedings. These documents from the opponent were purportedly filed in response to the conclusion that D15 did not provide sufficient evidence of the water content of the palm kernel oil in D13, as it was post-published evidence filed 40 years after D13 and thus not representative of the palm kernel oil disclosed in that document. According to the

proprietor, this conclusion was foreseeable, meaning there was no justification for admitting the new evidence into the appeal proceedings. Additionally, the proprietor contended that D20 and D21 were not suitable to resolve the outstanding issues, as they were also not representative of the palm kernel oil used in Example 22 of D13.

1.4 According to Article 12(4) RPBA, the board shall exercise its discretion "*in view of, inter alia, the complexity of the amendment, the suitability of the amendment to address the issues which led to the decision under appeal, and the need for procedural economy*".

1.5 The board has concluded that admitting D20 and D21 would not be detrimental to procedural economy. On the contrary, considering that these newly filed documents would shed light on the key question of the expected moisture content in conventional palm kernel oil, and so potentially simplify rather than complicate the discussion on patentability. Furthermore, the board considers that D20 and D21 constitute a legitimate response to the reasons brought forward by the opposition division for disregarding the information in D15. In particular, since these documents were published in the 1970s, they directly address the argument that crude palm kernel oil described in a 2019 publication (D15) would not be representative of the oil extracted using processes from 40 years earlier. Given that D13 was also published in the 1970s, D20 and D21 appear relevant in assessing the historical context of palm kernel oil production.

1.6 In view of the above considerations, the board thus admitted documents D20 and D21 into the proceedings.

1.7 Since document D20a is simply a complete version of D20, the board sees no reason to disregard it, and so it is admitted pursuant to Article 13(1) RPBA.

2. Main request (auxiliary request 26) - Novelty

2.1 Document D13 discloses (claim 1) a process for purifying unrefined vegetable oils comprising the steps of adding 0.1 to 1.0 % of phosphoric acid, 0.1 to 6.0 % of acid activated clay, heating the mixture to a temperature of 163°C to 260°C and filtering the resulting product. In example 22 (see col. 8), the refining process is applied to crude palm kernel oil and the heat treatment is carried out at 420°F (216°C).

2.2 The proprietor argued that the process described in D13 did not include a step for adjusting the water content to a concentration of 0.05 wt.% to 10 wt.%. Moreover, the palm kernel oils referenced in D15, D20, and D21 were not representative of the oil used in example 22 of D13, as they were extracted in geographically distant locations and had different free fatty acid concentrations. The proprietor further noted that the description of palm kernel oils in D21 as "pale yellow" or "dark dirty brown" (see right col. on page 594) differed from the characterisation in D13, which referred to the oil as being "relatively clean" (see col. 2, lines 17–18). Moreover, since moisture in the oil of D13 was clearly considered undesirable, even if the original palm kernel oil contained some water, it would have been removed during processing. In particular, the heating under vacuum in example 22 would eliminate any residual moisture, resulting in a feedstock with a water content outside the claimed range. The proprietor also noted that the comparatively high free fatty acid content of the palm kernel oil in

example 22 of D13 suggested that residual moisture in the oil had reacted during storage, thereby reducing the water content of the feedstock.

2.3 According to the proprietor, D13 did also not disclose the formation and removal of a separate phase containing impurities as a result of adding acid to the feedstock. Instead, in D13 the separation of impurities into a separate phase was achieved by adding a clay adsorbent.

2.4 The board disagrees with the proprietor for the following reasons:

2.4.1 Throughout the proceedings, it has been assumed that the claim encompasses scenarios where no water is actively added or removed, provided the feedstock already contains a water content within the claimed range of 0.05 wt.% to 10 wt.%. Given that the lower limit of this range (0.05 wt.%) is rather low, the question arose as to whether the expected moisture levels in the oils of D13 would inherently fall within the claimed range. Document D15 (see Table 2) reports that the water content of palm kernel oil typically ranges from 0.1 to 0.21 wt.%. However, the opposition division disregarded D15 on the grounds that it was published in 2019, thus postdating both the patent's filing and D13 by 40 years. Therefore, D15 was not considered to accurately reflect the moisture content of the crude palm kernel oil according to Example 22 of D13.

2.4.2 In response to this reasoning, the opponent submitted D20 and D21, which provide data on crude palm kernel oils extracted using conventional methods in the 1970s (D13 is dated 1975). According to Table II of D21, the

water content of crude palm kernel oil at that time ranged from 0.11 to 3.22 wt.% depending on the method used to extract the oil. This aligns with the expectation that more recent crude oils would contain lower moisture levels due to advancements in extraction processes.

2.4.3 The board notes that, despite the fact that palm kernel oil is a well known product, the proprietor has not produced any evidence indicating that, at least in some instances, the residual moisture would fall outside the claimed range. Instead, it has simply questioned the representativity of the oils described in the sources cited by the opponent. The board was therefore presented, on the one hand, with clear evidence supporting the conclusion that crude palm kernel oil contains moisture within the claimed range (0.1 to 3.22 wt.%) and, on the other hand, speculative arguments suggesting that the water content of the palm kernel oil in D2 might differ. Under these circumstances, the board concludes that the available evidence sufficiently establishes that crude palm kernel oil contains water in an amount within the claimed range.

2.4.4 The board is also not convinced by the argument that the heating under vacuum in example 22 of D13 would reduce the moisture content to values outside the claimed range. The adjustment of water content in claim 1 occurs in step b), which corresponds to the pretreatment of the feedstock with phosphoric acid in D13. As noted during the oral proceedings, claim 1 does not discard the removal of water after step b), and in fact explicitly defines it as an optional step d). It is therefore irrelevant to the question of novelty whether water is removed after the pretreatment step in D13.

2.4.5 The board also notes that the subject-matter of claim 1 does not exclude the presence of an adsorbent clay. Although step b) in claim 1 requires the addition of phosphoric or sulphuric acid and the formation of a separate phase with impurities, this step can be read in the addition of phosphoric acid to the feedstock in D13. As the opponent pointed out, in D13 this is preferably carried out as a pretreatment step before the addition of the adsorbent clay (see col. 2, line 67 to col. 3, line 4), which would inevitably lead to the formation of a separate aqueous phase with the impurities, as defined in step b) of claim 1. Moreover, according to claim 15 at issue, the separation step e) in claim 1 (i.e. removing the separated phase to obtain a purified stock) can be carried out by "bleaching", a process that would normally involve the addition of an adsorbent clay to remove the impurities. It is thus apparent that the patent encompasses embodiments in which the separate phase is removed by adsorption onto an adsorbent clay.

2.4.6 The board thus concludes that the process according to D13 includes both the formation of a separate phase with the acid and the impurities, and a step of adjusting the water content of the feedstock to 0.05 to 10 wt.%, as defined in claim 1 at issue.

2.5 The subject-matter of claim 1 is therefore not considered to be novel in view of D13, contrary to Article 54 EPC.

3. Auxiliary request 27 - Novelty

3.1 The subject-matter of claim 1 of this request differs from that of auxiliary request 26 in that the separate phase is further specified as being "*a gel, precipitate*

or a liquid phase that is immiscible with the purified feedstock, allowing it to be separated from the feedstock."

3.2 The proprietor argued that when the subject-matter of this claim was interpreted as a whole, it was apparent that the requirement to provide the "separate phase" as a gel, precipitate or liquid form did not only apply to the phase formed in step b), but also to the phase removed in step e). This was also clear in view of the indication that this phase was immiscible with the "purified stock", a term which was only used in step e). Since in D13 the impurities were removed by incorporating and separating a solid adsorbent clay, this document did not anticipate the removal of phase in the form of a gel, precipitate or liquid. The subject-matter of claim 1 was therefore novel over Example 22 of D13.

3.3 The board disagrees because the feature in question undisputedly requires that "the separate phase" formed in step b) of claim 1 be provided as a gel, precipitate, or liquid. However, nothing in the wording of this feature suggests that this form must be maintained when the separate phase is removed from the feedstock. The requirement that this phase be immiscible with the purified feedstock or that this property enables its separation from the feedstock is in itself irrelevant, as it merely defines the physical properties of the separate phase formed in step b).

More specifically, while the claim stipulates that the phase formed in step b) must have physical properties allowing it to be separated directly as a gel, precipitate, or liquid, it does not impose any specific restriction on how step e) should be carried out in

practice. This aspect is explicitly addressed in dependent claim 15, which enumerates multiple separation alternatives. These include methods that involve directly removing the separate phase as a gel, precipitate, or liquid (e.g. By gravitational sedimentation, filtration, centrifugation) but also the alternative of "bleaching", which within this technical context refers to the adsorption of the separated substances onto a clay, i.e. the same method disclosed in Example 22 of D13.

The counter-argument of the proprietor that claim 15 should be interpreted as referring to a subsequent step after the removal step e) cannot be followed, as this claim directly and unambiguously refers to the removal of the separate phase in step e).

3.4 The subject-matter of claim 1 at issue is therefore not novel over Example 22 of D13 either.

4. Auxiliary request 28 - Inventive step

4.1 Claim 1 of this request differs from that in auxiliary request 26 in that the feedstock comprises animal fat, tall oil pitch, sludge palm oil, used cooking oil or combinations thereof (instead of lipids containing phosphorous and/or metals).

4.2 The board agrees with the proprietor in that this represents a differentiating feature with respect to example 22 of D13, as the crude palm kernel oil does not clearly fall within any of the categories defined in claim 1 at issue.

4.3 Closest prior art

4.3.1 The proprietor argued that the feedstock defined in claim 1 at issue was comparatively more challenging, as it would be expected to include higher proportions of impurities when compared to the "relatively clean" (see col. 2, lines 17-18 of D13) crude palm kernel oil in example 22 of D13. The skilled person would thus not choose example 22 as the starting point, but would rather select any of the examples in D13 dealing with more challenging feedstocks.

4.3.2 The board notes, as indicated during the oral proceedings, that there is no reason to disregard embodiments in the prior art as a starting point unless they are technically far removed from the underlying invention and/or presented as disadvantageous. Since neither of these situations applies to example 22 of D13, the inventive step argumentation will be formulated starting from this embodiment as representing the closest prior art.

4.4 Problem solved by the invention

4.4.1 The proprietor argued that when starting from any of the examples in D13 dealing with more challenging feedstocks, the working temperature would be lower than that proposed in claim 1 at issue. Since the examples in the patent demonstrated that higher temperatures led to better yields (i.e. to a lower amount of oil being lost during the process), the problem solved would be to provide a process with an improved yield.

4.4.2 As concluded above, starting from example 22 of D13, there is no difference in terms of temperature, but only with regard to the feedstock used. Since the defined group of feedstocks has not been associated with any specific technical effect, the board concludes

that the only problem successfully solved by the alleged invention is the provision of an alternative process for purifying a feedstock.

4.5 Obviousness

4.5.1 The proprietor argued that there would be no incentive in D13 to substitute the relatively clean crude palm kernel oil in example 22 by a more impure or challenging alternative. Moreover, since this example intended to reduce the free fatty acid concentration, there would also be no incentive to improve the yield of the process.

4.5.2 The board disagrees because, once it has been established that the only problem solved by the invention is the provision of an alternative process for purifying feedstock, the key question is whether a skilled person would consider implementing the process of example 22 in D13 to other feedstocks falling within the scope of claim 1.

In this regard, the feedstock alternatives defined in claim 1 are rather broad. Specifically, the category "animal fat" encompasses a wide range of options, including "inedible tallow," which is explicitly mentioned in D13 (col. 1, line 67 and col. 2, line 5). Additionally, "sludge palm oil" originates from the same plant as the crude palm kernel oil used in example 22 of D13, and the term "used cooking oil" covers alternatives that are virtually indistinguishable from unused cooking oil, such as the crude palm kernel oil in example 22 of D13. In fact, since the only problem solved is that of proposing an alternative process, the skilled person would contemplate applying this

purifying process to any feedstock similar to those proposed in D13.

Given that there are numerous known feedstocks similar to those described in D13, which fall within the broad categories defined in claim 1 and have a moisture content within the claimed range, the board concludes that a skilled person seeking alternative processes would arrive at the subject matter of claim 1 without exercising inventive skills.

4.6 Accordingly, the requirements of Article 56 EPC are not met for claim 1 of this request.

5. Auxiliary requests 29 or 50 - Inventive step

5.1 The subject-matter of claim 1 of these requests differs from that in auxiliary request 28 in that:
i) the acid content is specified to be within the range of 2000 to 4000 ppm, and
ii) the water content in step b) is adjusted to 0.1 to 5 wt.% (instead of 0.05 to 10 wt.%).

5.2 Closest prior art

5.2.1 The board still regards example 22 of D13 as the closest prior art. Since the water content of the feedstock in this example still falls within the narrower moisture range of 0.1 wt.% to 10 wt.% (see D15, Table 2 and and D21, Table II), the only additional distinguishing feature is the provision of a higher amount of acid.

5.2.2 The subject-matter of claim 1 thus differs from example 22 of D13 in that the feedstock comprises animal fat, tall oil pitch, sludge palm oil, used cooking oil or

combinations thereof; and in that the amount of acid is 2000 to 4000 ppm.

5.3 Problem solved by the invention

5.3.1 The patent includes multiple examples of feedstock purification processes. Since the distinguishing feature purportedly responsible for the decisive technical effect is the acid concentration, the discussion focused on comparable tests conducted with acid concentrations both within (2000 ppm) and outside (1000 ppm) the claimed scope, as presented in Tables 1, 2 and 4 of the patent:

i) The results obtained in the processes "HT 2000 ppm PA" and "HT 1000 ppm PA" in Table 1 indicate that increasing the amount of acid led to better results in the removal of Na (<1 mg/kg vs. 8 mg/kg) and to slightly better results in the removal of Ca (<0.3 mg/kg vs. 0.5 mg/kg), but to worse results in the removal of phosphorus (73 mg/kg vs. 17 mg/kg);

ii) Similarly, the results in tests "HT 1000 ppm PA" and the HT 2000 ppm PA" in Table 2 indicate that increasing the amount of acid to 2000 ppm led to a slightly worse removal of Fe (1.6 mg/kg vs. 1.2 mg/kg), similar removal of Na (<1.0 mg/kg vs. 0.9 kg/mg), improved removal of Ca (2.7 mg/kg vs. 6.3 mg/kg), slightly worse removal of Mg (0.5 mg/kg vs. 0.3 mg/kg) and worse removal of phosphorus (170 mg/kg vs. 54 mg/kg);

iii) Finally, in Table 4 a comparison between the results of the tests "HT 2000 ppm PA, 220C" and "HT 1000 ppm PA, 220C" indicates that the removal of Fe is slightly worse when using 2000 ppm of acid (0.25 mg/kg

vs. 0.18 mg/kg), Na removal is improved (8 mg/kg vs. 19 kg/mg), the removal of Ca remains the same (<0.3 mg/kg in both), the removal of Mg remain the same (<0.3 mg/kg in both) and that of phosphorus is significantly worse (31 mg/kg vs. 11 mg/kg).

5.3.2 The proprietor argued that the cited examples in Tables 1, 2, and 4 of the patent demonstrated that increasing the acid concentration to values between 2000 and 4000 ppm led to improved removal of certain impurities. While higher acid concentrations led to a less effective removal of other impurities, a clear trend was observed in the reduction of calcium levels and the overall metal content. Moreover, a skilled person would recognise that the key process parameters (i.e. water content, temperature, and acid concentration) should be adjusted on a case-by-case basis in order to optimise the removal of the different impurities. Therefore, the problem solved by the invention was to provide a process to enhance the removal of calcium and/or metals from the feedstock. This reformulation of the problem was allowable, as both the removal of metal impurities in general and the specific removal of calcium were encompassed by the technical teaching and embodied in the originally disclosed invention, as required by G 2/21 (see point II of the order).

5.3.3 As explained by the board at the oral proceedings, the claims are not limited to the removal of specific impurities or to feedstocks containing such impurities. Therefore, there is no basis for concluding that the observed improvements in removing certain impurities would be achieved across the entire scope of the claims. Furthermore, since the improved removal of some impurities is accompanied by worse results for others,

the only problem solved by the invention appears to be that of providing an alternative purification process.

5.3.4 However, as also noted during the oral proceedings, even if it were assumed that the observed improvements apply across the entire scope of the claims, the conclusions on inventive step would be the same. The reasoning on obviousness will therefore be formulated under the assumption (in the proprietor's favour) that the problem solved by the invention is to provide a process with an improved removal of certain impurities.

5.4 Obviousness

5.4.1 The proprietor argued that a skilled person starting from D13 would have no incentive to explore higher acid concentrations, as there was no indication in this document that this would lead to an improved removal of metals in general or calcium in particular. Moreover, D13 explicitly taught that when higher concentrations of phosphoric acid were used, the temperatures to be applied should be correspondingly lower. This was also reflected in the temperatures of most of the examples, which were under the range defined in claim 1. The skilled person would therefore have no incentive to select both a high acid concentration and a high temperature as defined in claim 1 at issue when starting from example 22 as the closest prior art.

5.4.2 The board disagrees therewith because, as concluded in the inventive step argumentation for claim 1 of auxiliary request 28, the board regards the implementation of the process in Example 22 of D13 to feedstocks falling within the scope of claim 1 as an obvious alternative. From this starting point and in view of the additional differentiating feature, the

relevant question is whether the addition of higher acid concentrations to enhance the removal of certain impurities constitutes an inventive contribution.

In this regard, the board notes that D13 explicitly states (see col. 2, lines 32-35) that the amount of acid used in feedstock purification processes should range from 1000 ppm to 10000 ppm, and that the specific concentration depends on the nature of the feedstock. The range of 2000 to 4000 ppm falls entirely within this broader range and in several examples of D13, including one involving inedible tallow (see Examples 14, 15, 16, and 18), the proposed phosphoric acid amount is 2000 ppm. Therefore, document D13 explicitly teaches using acid amounts between 2000 and 4000 ppm for certain feedstocks.

In light of these teachings, a skilled person starting from Example 22 of D13 and aiming to improve the removal of certain impurities in different feedstocks would be naturally led to test higher acid concentrations, such as 1,000 to 10,000 ppm or 2,000 ppm, as suggested in several examples. Thus, arriving at the defined range of 2,000 to 4,000 ppm is regarded as a matter of routine optimisation.

The board is also not convinced that the combination of high acid concentrations and high temperatures would provide a non-obvious contribution over D13. Firstly, this document explicitly teaches acid treatment at temperatures ranging from 121 to 260°C or 163 to 260°C (see 250°F to 500°F in col. 1, lines 45-47, and 325°F to 500°F in claim 1), so that arriving at the defined values would simply involve working within the upper portion of the ranges proposed therein. Moreover, Example 18 of D13 already combines acid concentrations

and temperatures within the claimed ranges (2000 ppm of phosphoric acid and 200°C) for purifying oleic acid.

While the proprietor correctly points out that D13 teaches (col. 2, lines 38-39) that "*lower treating temperatures can be used where more phosphoric acid is used in the pre-treatment stage*," this merely indicates that since both acid concentration and temperature contribute to impurity removal, a higher acid concentration may reduce the need for higher temperatures (or the other way around). D13 does not suggest that combining these factors is undesirable or problematic, but simply that it may be unnecessary.

Moreover, the results in the opposed patent appear to align with the observations in D13, as none of its exemplary embodiments proposes using both acid concentrations and temperatures at the upper end of the defined ranges. In this regard, Table 4 of the patent shows that when either acid concentration or temperature is sufficiently high, impurity removal remains effective without the need to increase the other factor, which is consistent with the teachings in D13.

Ultimately, both the opposed patent and D13 implicitly acknowledge that higher acid concentrations and temperatures enhance purification (at least for some impurities/feedstocks). Therefore, it would be within the capabilities of a skilled person to recognise that operating within the upper portions of the temperature and acid concentration ranges may further improve purification when dealing with particularly challenging feedstocks.

All in all, the board concludes that, starting from Example 22 of D13 and applying the general teachings of this document, a skilled person would arrive at the subject matter of claim 1 through routine optimisation, without the need for inventive skills.

5.5 The subject-matter of claim 1 of these requests is thus obvious in view of D13 alone. The requirements of Article 56 EPC are therefore not met.

6. Auxiliary requests 30-49 and 41-57 - Inventive step

6.1 The subject-matter of claim 1 according to these auxiliary requests merely explores different permutations of the same features (or broader versions) discussed so far, namely that:
i) the feedstock comprises lipids containing phosphorous and/or metals, or animal fat, tall oil pitch, sludge palm oil, used cooking oil or any combination thereof;
ii) amounts of acid of 1000-5000 ppm, 500-4000 ppm or 2000-4000 ppm;
iii) the separate phase being provided as a gel, precipitate or liquid phase;
iv) the water content being 0.1 to 5 wt.%;

6.2 Since claim 1 according to auxiliary requests 29 and 50, based on the narrowest version of these amendments, is obvious in view of D13, it follows that the same argumentation and conclusions apply *mutatis mutandis* to the subject-matter of claim 1 according to any one of auxiliary requests 30-49 and 51-57. This was also not contested by the proprietor.

6.3 Therefore, none of these auxiliary requests meets the requirements of Article 56 EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

A. Wille J.-M. Schwaller

Decision electronically authenticated