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**Datasheet for the decision
of 28 April 2022**

Case Number: T 1326/17 - 3.3.02

Application Number: 06751491.9

Publication Number: 1877528

IPC: C10M169/04

Language of the proceedings: EN

Title of invention:

HIGH TEMPERATURE BIOBASED LUBRICANT COMPOSITIONS COMPRISING
BORON NITRIDE

Applicant:

Renewable Lubricants, Inc.

Headword:

Relevant legal provisions:

EPC Art. 56
RPBA Art. 12(4)
RPBA 2020 Art. 12(2), 25(2)

Keyword:

Inventive step
Late-filed request

Decisions cited:

Catchword:



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Case Number: T 1326/17 - 3.3.02

D E C I S I O N
of Technical Board of Appeal 3.3.02
of 28 April 2022

Appellant: Renewable Lubricants, Inc.
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 9 January 2017
refusing European patent application No.
06751491.9 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman M. O. Müller
Members: S. Bertrand
P. de Heij

Summary of Facts and Submissions

- I. The appeal lodged by the applicant ("appellant") lies from the examining division's decision to refuse European patent application No. 06 751 491.9 on the basis of the main request and the auxiliary request then on file.
- II. The following documents are used in the present decision:
- D2 JP 03 121197A, translation
D5 A. F. Hollemann, E. Wiberg, "Lehrbuch der Anorganischen Chemie", 1985, de Gruyter, Berlin, New York, ISBN: 3-11-007511-3, pages 857-859
- III. The examining division concluded that the subject-matter of claims 1 and 2 according to the main request and the auxiliary request did not involve an inventive step in view of D2 as the closest prior art.
- IV. In its statement setting out the grounds of appeal, the appellant contested the examining division's decision. It submitted sets of claims of a main request and first to fifth auxiliary requests.
- V. Oral proceedings before the board were held on 28 April 2022.

VI. The appellant's case, where relevant to the present decision, may be summarised as follows.

Main request - Admittance

- The feature of the "particle size" of the boron nitride, added to claim 1 of the main request and the fifth auxiliary request, had been discussed before the examining division and thus did not represent a "new case".
- The applicant's interest had shifted and the claim had been amended accordingly.
- The content of document D2 became clear only shortly before the oral proceedings when a full text translation became available.

First and second auxiliary requests - Inventive step

- D2 was the closest prior art.
- The claimed lubricant had excellent high-pressure performance at very high temperatures of up to 1 000°C and above.
- The features of claim 1 of the claim requests were not suggested by D2 and the skilled person would not have combined the claimed features.
- The subject-matter of claim 1 of the first and second auxiliary requests therefore involved an inventive step.

Third and fifth auxiliary requests - Admittance

- The feature "classified as either H-1 or H-2 under United States Department of Agriculture regulations" and the feature "food-grade" had an identical meaning. Claim requests relating to a

food-grade lubricant had been filed before the examining division.

- Therefore, the claims of the third auxiliary request, relating to a food-grade lubricant, did not represent a new case. In addition the same arguments as for the main request also applied to the third auxiliary request. The third auxiliary request should be admitted into the appeal proceedings.
- The fourth and fifth auxiliary requests should be admitted into the appeal proceedings.

VII. The appellant requested that the decision under appeal be set aside and that the application be granted on the basis of the set of claims of the main request or, alternatively, on the basis of the set of claims of any of the first to fifth auxiliary requests, all requests having been filed with the statement of grounds of appeal.

Reasons for the Decision

Admittance of the main request and the fifth auxiliary request filed with the statement of grounds of appeal

1. Admittance of the main request

1.1 Claim 1 of the main request reads as follows:

"1. A synthetic motor oil characterized by:

at least one polyol ester; and at least one hexagonal boron nitride, wherein the hexagonal boron nitride has a particle size of 1 micron or less,

wherein the lubricant is further characterized by: at least one base oil selected from the group comprising: group III petroleum oils, polyalphaolefins (PAOs), and mixtures thereof,

wherein the lubricant is further characterized by: at least one additive or combination of additives selected from the group comprising: anti-oxidants, corrosion inhibitors, pour point depressants, metal deactivators, friction reducers, viscosity modifiers, anti-wear inhibitors, friction modifiers, and extreme pressure additives." (emphasis added by the board)

The set of claims of the main request was filed with the statement of grounds of appeal.

1.2 Claim 1 of the application as filed reads as follows:

*"1. A lubricant characterized by:
at least one biobased oil selected from the group comprising: natural or synthetic vegetable oils, natural or synthetic animal oils, genetically modified vegetable oils, genetically modified synthetic vegetable oils, natural or synthetic tree oils, and mixtures thereof; and,
at least one boron nitride."*

1.3 During the examination proceedings, the appellant chose to file claim amendments as follows:

- defining properties to be achieved by the lubricant, incorporating an oleic content of the triglyceride oil of the lubricant, and restricting the biobased oil to food-grade oils for the method claims (claims filed on 19 September 2011)

- deleting the amendments regarding the properties of the lubricant, the oleic content of the triglyceride oil and the food grade of the biobased oil, and introducing amounts of the biobased oil and boron nitride (claims filed on 6 March 2013)
- introducing a further base oil and its amount, as well as additives and their amounts (claims of the main request filed on 4 August 2015), and further limiting the boron nitride content (claims of auxiliary request 1 filed on 4 August 2015)
- limiting the biobased oil, the further base oil and boron nitride to a food-grade component (claims of the main request filed on 6 October 2016), deleting the food-grade classification of the biobased oil and further limiting the content of the components (claims of the first auxiliary request filed on 6 October 2016), and restricting the boron nitride to hexagonal boron nitride (claims of the second auxiliary request filed on 6 October 2016)

During oral proceedings before the examining division, the first and second auxiliary requests filed on 6 October 2016 were renamed the main request and auxiliary request, respectively. Dependent claims 2 to 4 and 6 were deleted.

1.4 Consequently, none of the claim requests on file before the examining division contained any restriction as regards the specific particle size of the boron nitride. Moreover, the amounts of certain components had been limited from an early stage of the examination proceedings onwards. The main request filed on appeal, however, introduces a limitation of the particle size of the boron nitride for the first time while also

removing the previous restrictions as regards the amounts of the components.

1.5 The subject-matter of claim 1 consequently diverges towards subject-matter that is different from that which had been progressively pursued by way of limitations in independent claim 1 during the examination proceedings, as set out above. The board therefore concludes that filing the set of claims of the main request with the statement of grounds of appeal constitutes a "fresh case".

1.6 The admission of this "fresh case" is governed by Article 12(4) RPBA 2007, which applies to the case in hand as the statement of grounds of appeal was filed before the date of the entry into force of RPBA 2020; see Article 25(2) RPBA 2020.

1.7 The appellant argued that its interest had shifted and claim 1 of the main request had been amended accordingly.

This argument is not convincing. The shift in the applicant's interest cannot be a justification for amending the appeal case. Owing to the amendments made in claim 1 of the main request, the distinguishing features considered in the impugned decision (point 2.3) are no longer the same as those before the board, even if some features might have been discussed in the first instance proceedings. However, it is established case law (and has been explicitly confirmed in Article 12(2) RPBA 2020) that the primary object of appeal proceedings is to review the decision under appeal in a judicial manner. It is not the purpose of the appeal proceedings to offer the party adversely affected by the decision under appeal a second

opportunity to put forward a new case to be looked at for the first time by the board.

As the appellant has not been able to explain what differences between the abstract of document D2 and the full text translation had been reason for changes in the main request, the late availability of the full text translation cannot justify filing a new main request either.

Thus, the board could not see any valid reasons why the subject-matter of the claims of the main request in hand had not been filed before the examining division.

1.8 Therefore, the board decided not to admit the main request into the proceedings pursuant to Article 12(4) RPBA 2007.

2. Admittance of the fifth auxiliary request

2.1 Claim 1 of the fifth auxiliary request reads as follows:

"1. A lubricant for lubricating combustible engines, characterized by: at least one biobased oil selected from the group comprising: synthetic vegetable oils, synthetic animal oils, genetically modified vegetable oils, genetically modified synthetic vegetable oils, synthetic tree oils, and mixtures thereof; and, hexagonal boron nitride with a particle size of 1 micron or smaller,

wherein the lubricant is further characterized by at least one base oil selected from the group comprising: group III petroleum oils, polyalphaolefins (PAOs), and mixtures thereof,

wherein the lubricant is further characterized by: at least one additive, namely a viscosity modifier, and a friction modifier selected from polytetrafluoroethylene, molybdenum and graphite compounds,

wherein the biobased oil is 40% to 80% by weight of the lubricant,

the boron nitride is 0.002% to 35% by weight of the lubricant,

the base oil is 10% to 20% by weight of the lubricant, and

the additive is 0.001% to 40% by weight of the lubricant." (emphasis added by the board)

The sole claim of the fifth auxiliary request was filed with the statement of grounds of appeal.

2.2 Like claim 1 of the main request, claim 1 of the fifth auxiliary request comprises a feature (particle size) which was not required by any of the claims of the requests filed before the examining division. In addition, claim 1 of the fifth auxiliary request for the first time specifies that the friction modifier is polytetrafluoroethylene, molybdenum or graphite compounds. This restriction was not present in any claim of the requests before the examining division either.

2.3 For these reasons, the board decided that the fifth auxiliary request was not admitted into the proceedings either, pursuant to Article 12(4) RPBA 2007.

First auxiliary request filed with the statement of grounds of appeal

3. Claim 1 of the first auxiliary request is identical to claim 1 of the main request in the proceedings before the examining division and reads as follows:

"1. A lubricant characterized by: at least one biobased oil selected from the group comprising: natural or synthetic vegetable oils, natural or synthetic animal oils, genetically modified vegetable oils, genetically modified synthetic vegetable oils, natural or synthetic tree oils, and mixtures thereof; and, at least one boron nitride,

wherein the lubricant is further characterized by at least one base oil selected from the group comprising: synthetic esters, solvent refined petroleum oils, hydrocracked petroleum white oils, all hydroprocessed synthetic oils, Fischer Tropsch oils, group I petroleum oils, group II petroleum oils, group III petroleum oils, polyalphaolefins (PAOs), and mixtures thereof,

wherein the lubricant is further characterized by: at least one additive or combination of additives selected from the group comprising: anti-oxidants, corrosion inhibitors, metal deactivators, viscosity modifiers, anti-wear inhibitors, friction modifiers, and extreme pressure additives,

wherein the biobased oil is 40% to 80% by weight of the lubricant,

the boron nitride is 0.002% to 35% by weight of the lubricant,

the base oil is 10% to 20% by weight of the lubricant, and

the additive is 0.001% to 40% by weight of the lubricant."

The board decided to admit this request into the proceedings. In view of the board's conclusion in respect of inventive step (4, *infra*), there is no need for the board to provide its reasons regarding the admittance of this request.

4. Inventive step (Article 56 EPC)

4.1 D2 relates to lubricants useful as mould release agents in metal casting. The lubricant comprises polytetrafluoroethylene (PTFE), boron nitride and at least one base oil selected from the group consisting of vegetable oils and mineral oils (claim 2 of D2). The lubricant prevents oxidation at high temperatures (first paragraph on page 1 of D2). This represents the same aim as that in the application as filed (paragraph [0001] of the application as filed).

In line with appellant's arguments, the board is therefore of the view that D2 represents the closest prior art.

4.2 The composition of example 1 of D2 is a mixture of:

- rapeseed oil (a vegetable, i.e. biobased, oil according to claim 1 of the first auxiliary request)
- a powder of boron nitride ("additives NB powder", corresponding to the boron nitride of claim 1 of the first auxiliary request) and

- PTFE (a friction modifier which corresponds to the additive according to claim 1 of the first auxiliary request)

The amounts of boron nitride and PTFE in example 1 of D2 are 2 and 4 wt%, respectively, and thus fall within the ranges defined in claim 1 (boron nitride: 0.002-35 wt%; additive: 0.001-40 wt%). The amount of rapeseed oil is 90 wt%, which is above the upper limit of the claimed range (biobased oil: 40-80 wt%).

4.3 Distinguishing features

The subject-matter of claim 1 of the first auxiliary request differs from example 1 of D2 on account of the amount of the biobased oil and the presence of a further base oil in an amount of 10-20 wt.%.

4.4 Technical problem

The application as filed includes examples of lubricant compositions (paragraphs [0121] to [0126] and [0134] to [0142]). However, the application as filed does not show any technical effect achieved by these lubricant compositions or provide any comparative data in relation to example 1 of D2.

Therefore, no evidenced effect is associated with the distinguishing features.

In view of the above, the objective technical problem is merely to provide an alternative lubricant.

4.5 Obviousness

The solution proposed by claim 1 of the first auxiliary request is obvious for the skilled person, who knows that a lubricant oil can comprise different base oils. This is confirmed by D2, last paragraph on page 1,

which teaches that the lubricant composition referred to in D2 can comprise "*at least one kind of the oil selected from the group consisting of vegetable oil such as rapeseed oil and soybean oil and mineral oil such as liquid paraffin oil and the like*". It would thus be obvious to the skilled person to replace part of the rapeseed oil in the composition of example 1 of D2 with a mineral oil. The appellant did not dispute that a mineral oil represents a further base oil as required by claim 1 of the first auxiliary request. Furthermore, the skilled person knows that the amounts of the biobased oil and the mineral oil may be adapted depending on the conditions and/or the intended use.

Thus, the solution proposed by claim 1 of the first auxiliary request represents an arbitrary modification regarding the nature and content of the base oil and the content of the biobased oil in the composition disclosed in example 1 of D2. Hence, claim 1 of the first auxiliary request does not involve an inventive step.

5. Therefore, the first auxiliary request is not allowable.

Second auxiliary request filed with the statement of grounds of appeal

6. Claim 1 of the second auxiliary request differs from claim 1 of the first auxiliary request in that the boron nitride is hexagonal.
7. The board decided to admit this request into the proceedings. In view of the board's conclusion in respect of inventive step (*infra*), there is no need for the board to provide its reasons in this regard.

8. Inventive step

8.1 D2 remains the closest prior art; this was not disputed by the appellant. D2 does not explicitly disclose the form in which the boron nitride is present, and thus whether it is in the hexagonal form as required by claim 1 of the second auxiliary request. The skilled person would, however, understand that D2 uses hexagonal boron nitride. More specifically, D2 refers to the lubricity of boron nitride (second paragraph of "Means of solving the problems"). The two common crystalline structures of boron nitride are cubic and hexagonal. The cubic form is hard and abrasive (see top of page 859 of D5) and would not suit the properties referred to in D2. Thus, only the hexagonal form, which is known to be used as a lubricant (top of page 859 of D5), fits with the property of lubricity disclosed in D2. Hence, it is implicit to the skilled person that the boron nitride of D2 is in the hexagonal form. The limitation in claim 1 of the second auxiliary request therefore does not create any additional distinguishing feature, so it does not contribute to inventive step. This conclusion was included in the board's communication pursuant to Article 15(1) RPBA 2020, but the applicant did not comment on it.

8.2 The board thus concludes that the subject-matter of claim 1 of the second auxiliary request does not involve an inventive step.

9. Therefore, the second auxiliary request is not allowable.

Third auxiliary request filed with the statement of grounds of appeal

10. Claim 1 of the third auxiliary request differs from claim 1 of the second auxiliary request in that the base oil definition was restricted, and on account of the following additional features:

- "for lubricating combustible engines"
- "classified as either H-1 or H-2 under ... regulations"

11. Admittance

In the written appeal proceedings, the appellant did not make any submissions on why the third auxiliary request should be admitted into the appeal proceedings. In addition, even though the board had noted in its communication pursuant to Article 15(1) RPBA 2020 that the appellant had not provided any reasons why the claim request had not been filed before the examining division, the appellant still failed to provide any such reasons.

Classification under H-1 or H-2 as introduced in claim 1 of the third auxiliary request by way of amendment implies that the claimed lubricant is a food-grade lubricant (see e.g. paragraph [0006] of the application as filed). Claim requests relating to a lubricant comprising one or more food-grade components (claims filed on 19 September 2011 and claims according to the main request filed on 6 October 2016) were filed but later withdrawn during proceedings before the examining division (1.3, *supra*). Consequently, not only was it possible for the third auxiliary request filed on appeal to have been filed before the examining division, but similar subject-matter had actually been

filed and later withdrawn before the examining division. There can therefore be no doubt that the third auxiliary request could have been filed before the examining division. Had the board admitted the third auxiliary request filed on appeal, it would have had to decide on the substance of the subject-matter of this request while a decision in that respect had been avoided before the examining division due to the withdrawal of essentially the same subject-matter. As set out above, it is not the purpose of the appeal proceedings to offer the party adversely affected by the decision under appeal a second opportunity to put forward a new case.

For these reasons, the board decided not to admit the third auxiliary request into the proceedings pursuant to Article 12(4) RPBA 2007.

Fourth auxiliary request filed with the statement of grounds of appeal

12. Claim 1 of the fourth auxiliary request reads as follows:

"1. A lubricant for lubricating combustible engines, characterized by: at least one biobased oil selected from the group comprising: synthetic vegetable oils, synthetic animal oils, genetically modified vegetable oils, genetically modified synthetic vegetable oils, synthetic tree oils, and mixtures thereof; and, hexagonal boron nitride,

wherein the lubricant is further characterized by at least one base oil selected from the group comprising: synthetic esters, group III petroleum oils, polyalphaolefins (PAOs), and mixtures thereof,

wherein the lubricant is further characterized by: at least one additive, namely a viscosity modifier,

wherein the biobased oil is 40% to 80% by weight of the lubricant,

the boron nitride is 0.002% to 35% by weight of the lubricant,

the base oil is 10% to 20% by weight of the lubricant,
and

the additive is 0.001% to 40% by weight of the lubricant."

13. Admittance

Claim 1 of the fourth auxiliary request differs from claim 1 of the third auxiliary request in that the classification as lubricant H-1 or H-2 was deleted, the list for biobased oil was restricted by deleting all the natural oil alternatives, synthetic esters were added to the list defining the base oil, and the additive was restricted to a viscosity modifier. Like claim 1 of the third auxiliary request, claim 1 of the fourth auxiliary request does not correspond to any claim decided upon by the examining division. In the written appeal proceedings, the appellant did not make any submissions on why the fourth auxiliary request should be admitted into the appeal proceedings.

In addition, even though the board had noted in its communication pursuant to Article 15(1) RPBA 2020 that the appellant had not provided any reasons why the claim request had not been filed before the examining division, the appellant still failed to provide any such reasons. During the oral proceedings, the appellant did not make any submissions on the admittance of the fourth auxiliary request.

For these reasons, the board decided not to admit the fourth auxiliary request into the proceedings pursuant to Article 12(4) RPBA 2007.

14. None of the appellant's requests is admissible and allowable.

Order

For these reasons it is decided that:

1. The appeal is dismissed.

The Registrar:

The Chairman:



M. Schalow

M. O. Müller

Decision electronically authenticated