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**Datasheet for the decision  
of 25 January 2023**

**Case Number:** T 0203/20 - 3.3.02

**Application Number:** 10725593.7

**Publication Number:** 2446004

**IPC:** C10M141/08, C10M163/00,  
C10N10/04, C10N30/10, C10N40/20

**Language of the proceedings:** EN

**Title of invention:**  
ENGINE OIL FORMULATIONS FOR BIODIESEL FUELS

**Patent Proprietor:**  
The Lubrizol Corporation

**Opponent:**  
Afton Chemical Corporation

**Headword:**

**Relevant legal provisions:**  
EPC Art. 56  
RPBA 2020 Art. 13(1), 13(2)

**Keyword:**  
Inventive step  
Amendment to appeal case

**Decisions cited:**

T 0219/83, T 1797/09, T 1311/11, T 1984/15

**Catchword:**



**Beschwerdekammern**

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**Case Number: T 0203/20 - 3.3.02**

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.02**  
**of 25 January 2023**

**Appellant:** The Lubrizol Corporation  
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**Representative:** D Young & Co LLP  
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**Appellant:** Afton Chemical Corporation  
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**Representative:** J A Kemp LLP  
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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
12 November 2019 concerning maintenance of the  
European Patent No. 2446004 in amended form.**

**Composition of the Board:**

**Chairman** M. O. Müller  
**Members:** S. Bertrand  
R. Romandini

## **Summary of Facts and Submissions**

- I. The appeals by the patent proprietor and the opponent are against the interlocutory decision of the opposition division, according to which European patent No. 2 446 004, in its form modified on the basis of the then pending auxiliary request 6 and the invention to which it relates, meets the requirements of the EPC.
- II. The following documents are referred to in the present decision:
- |     |                   |
|-----|-------------------|
| D1  | WO 2009/085943 A1 |
| D27 | EP 2 290 038 A2   |
- III. In the impugned decision, the opposition division's conclusions included that the subject-matter of the claims of auxiliary request 6, relating to a lubricating oil composition comprising fatty acid esters, a phenate detergent and a sulfonate detergent, involved an inventive step.
- IV. In its statement of grounds of appeal, the patent proprietor submitted auxiliary requests 1 to 13.
- V. In its statement of grounds of appeal, the opponent raised an objection of lack of inventive step in view of D1 as the closest prior art.
- VI. Since the patent proprietor and the opponent are both appellants and respondents in these appeal proceedings, they are referred to as "patent proprietor" and "opponent" in the decision.

- VII. In their replies to the grounds of appeal, the patent proprietor submitted auxiliary requests 14 to 25, and the opponent objected to the admittance of auxiliary requests 3, 5 and 10 to 13.
- VIII. In a further letter, the opponent provided further submissions regarding, *inter alia*, the admittance of auxiliary requests 14 to 25.
- IX. In preparation for the oral proceedings, scheduled at the parties' requests, the board issued a communication pursuant to Article 15(1) RPBA 2020.
- X. Oral proceedings before the board were held on 25 January 2023 by videoconference in the presence of both parties.
- XI. The parties' relevant requests are as follows.
- The patent proprietor requested that the decision under appeal be set aside and the opposition be rejected or, alternatively, that auxiliary requests 1 to 25 be admitted into the proceedings and the patent be maintained in amended form on the basis of one of the sets of claims of auxiliary requests 1 to 25, auxiliary requests 1 to 13 filed with the statement of grounds of appeal and auxiliary requests 14 to 25 filed with the reply to the grounds of appeal.
  - The opponent requested that the decision under appeal be set aside, the patent be revoked in its entirety, and auxiliary requests 3, 5 and 10 to 25 not be admitted into the proceedings.
- XII. The patent proprietor's case relevant to the present decision can be summarised as follows. For further details, reference is made to the Reasons.

Main request and auxiliary requests 1 to 3, 5 to 8 and 10 to 25 - inventive step

- Considering example 5 of D1 as the closest prior art, the distinguishing feature of claim 1 of the main request was the weight ratio of sulfonate soap to phenate soap.
- The examples of the patent showed that controlling the weight ratio of sulfonate soap to phenate soap in a certain range improved oxidation resistance and reduced deposit formation in an engine oil composition. Furthermore, examples 1 and 2 showed that a higher total soap content in the examples of the patent did not have any influence on the effect of improving oxidation resistance and reducing deposit formation. This effect was attributable to the distinguishing feature of claim 1.
- The objective technical problem was the provision of a method for improving oxidation resistance and reducing deposit formation.
- The prior art did not teach the solution proposed by claim 1 of the main request.

Auxiliary request 4

- The objective technical problem was the provision of a method for improving oxidation resistance and reducing deposit formation. The solution was not obvious in view of the cited prior art.

Auxiliary request 9

- By replacing the term "soap" with "anion" in the claim, claim 1 of auxiliary request 9 enjoyed the

priority claimed by the opposed patent, and D1 was no longer prior art under Article 54(2) EPC.

- The subject-matter of claim 1 of auxiliary request 9 involved an inventive step.
- Paragraph [0034] disclosed the same amounts of sulfonate soap and sulfonate anion. The terms were thus interchangeable, and the replacement of "soap" with "anion" did not extend the scope of claim 1 as granted. The auxiliary request was *prima facie* allowable and should be admitted into the proceedings.

XIII. The opponent's case relevant to the present decision can be summarised as follows. For further details, reference is made to the Reasons.

Main request and auxiliary requests 1 to 3, 5 to 8 and 10 to 25 - inventive step

- D1, in particular its example 5, was the closest prior art.
- The distinguishing feature of the subject-matter of the main request over example 5 of D1 was the weight ratio of sulfonate soap to phenate soap.
- The technical effect relied on by the patent proprietor was not attributable to the distinguishing feature since the fluid of example 4 of the patent, according to the invention, comprised more soap than all the other comparative fluids. Furthermore, D27 showed that, for the detergents used in the examples of this document, oxidation stability depended on the presence and the amount of the phenate detergent, not on the excess of sulfonate as alleged in the patent.

- The patent proprietor's allegation that a higher total soap content in the examples of the patent did not have any influence on the effect of improving oxidation resistance and reducing the deposit formation was not corroborated by examples 1 and 2 of the patent. Examples 1 and 2 of the patent did not comprise the same mixture of detergents. Different detergents had different effects.
- The objective technical problem was therefore the provision of an alternative method.
- The selection of the weight ratio of sulfonate soap to phenate soap as defined in claim 1 of the main request, in the absence of any effect, was arbitrary.

Auxiliary request 4

- The reasons given for claim 1 of the main request applied to claim 1 of auxiliary request 4.

Auxiliary request 9

- The scope of claim 1 of auxiliary request 9 had been broadened compared to claim 1 as granted. The weight ratio of the sulfonate soap to the phenate soap mentioned in claim 1 as granted was not identical to the weight ratio of the sulfonate anion to the phenate anion mentioned in claim 1 of auxiliary request 9.
- Claim 1 of auxiliary request 9 did not fulfil the requirements of Article 123(3) EPC, and auxiliary request 9 was *prima facie* not allowable and hence not to be admitted into the proceedings.



## Reasons for the Decision

*Main request (claims 1-15 as granted)*

1. Inventive step

1.1 Claim 1 of the main request reads as follows:

*"1. A method for reducing oxidative degradation of a lubricant composition which contains an oil of lubricating viscosity and at least 1 percent by weight of a C1-C4 alkyl ester of a carboxylic acid of 12 to 24 carbon atoms, comprising including within said lubricant composition a sulfonate detergent in an amount sufficient to provide at least 0.2 percent by weight sulfonate soap to the lubricant composition, wherein the weight ratio of sulfonate soap to phenate soap in the lubricant composition is from 1.2:1 to 500:1."*

The patent is concerned with the provision of an engine oil composition for internal combustion engines fuelled by a liquid fuel which includes a biodiesel component. The engine oil composition, which contains a portion of the biodiesel component after operation, exhibits improved oxidation resistance and/or reduced deposit formation (paragraph [0009] of the patent).

1.2 The opponent raised an objection of lack of inventive step starting from D1.

1.3 D1 discloses an engine oil composition. The engine oil composition is used in an internal combustion engine fuelled by liquid fuel which includes a biodiesel fuel.

Example 5 of D1 discloses an engine oil composition comprising, *inter alia*, a mineral base oil (an oil of lubricating viscosity) with 7.5 wt% rapeseed methyl ester, 0.18 wt% 400 TBN overbased Ca sulfonate, 1.1 wt% 255 TBN overbased Ca phenate and 0.6 wt% 448 TBN overbased Na sulfonate.

The engine oil compositions of D1 exhibit improved oxidation resistance and/or reduced deposit formation in lubricants containing a portion of the biodiesel component (paragraph [0008] of D1).

This represents the same aim as that of the patent. D1, in particular its example 5, is thus a suitable starting point for the assessment of inventive step of the claimed subject-matter. This was not disputed by the patent proprietor.

#### 1.4 Distinguishing feature

The distinguishing feature of the subject-matter of claim 1 of the main request over example 5 of D1 is the weight ratio of sulfonate soap to phenate soap. This was common ground between the parties.

#### 1.5 Technical effect and objective technical problem

The patent proprietor relied on the examples of the patent and submitted that the objective technical problem was the provision of a method for improving oxidation resistance and reducing deposit formation.

The examples of the patent are set forth in the table of paragraph [0072] of the description, which is reproduced below. Lubricants of examples 1-4 are subjected to a biodiesel oil oxidation and deposit test. Longer times ("Time to Fail") and lower

viscosities represent improved stability of the sample in terms of oxidation resistance and deposit formation.

	Ex 1*	Ex 2*	Ex 3 *	Ex 4
85 TBN Ca Sulfonate (incl. 47% oil)	0	0	1.35	2.65
400 TBN Ca Sulfonate (inc 42% oil)	0.4	0.4	0.4	0
145 TBN Ca Phenate (incl. 27% oil)	2.5	1.25	1.25	1.25
115 TBN Ca Salixarate (inc 51% oil)	0	1.55	0	0
Total Soap component	1.68	1.53	1.45	1.91
Total Sulfonate Soap component	0.08	0.08	0.65	1.11
Phenate Soap component	1.6	0.8	0.8	0.8
Ratio, Sulfonate:Phenate	0.05:1	0.1:1	0.81:1	1.39:1
Total Sulfated Ash	0.655	0.655	0.652	0.651
Detergent TBN	5.23	5.20	4.56	4.07
Time to Fail (hours) (interpolated)	78	96	103	114
Initial Viscosity (mm <sup>2</sup> /s)	10.5	10.5	10.4	10.4
Viscosity at 72 hours (mm <sup>2</sup> /s)	30.2	16.58	13.15	12.38
Viscosity at 96 hours (mm <sup>2</sup> /s)	137.1	58.3	29.3	23.8
Viscosity at 120 hours (mm <sup>2</sup> /s)	424.0	312.0	113.9	69.96
<b>* A reference example</b>				

Example 4 has a weight ratio of sulfonate soap to phenate soap of 1.39:1 and is according to claim 1 of the main request (1.2:1 to 500:1). Examples 1 to 3 have a weight ratio of sulfonate soap to phenate soap of 0.05:1, 0.1:1 and 0.81:1, respectively. These weight ratios of sulfonate soap to phenate soap are lower than the lower limit of the range of claim 1 of the main request (1.2:1). Thus, examples 1 to 3 are comparative examples.

Example 4 (according to claim 1 of the main request) shows a longer time to fail (114 hrs) in comparison to examples 1 to 3 (comparative examples, 78, 96 and 103

hrs). In the same way, the viscosity of example 4 at 72, 96 and 120 hrs is lower than the viscosity of each of examples 1 to 3. Thus, the board acknowledges that example 4 exhibits improved oxidation resistance and reduced deposit formation in comparison to examples 1 to 3.

However, as set out by the opponent, the total soap content of example 4 (1.91) is higher than that of examples 1 to 3 (1.68, 1.53 and 1.45). Thus, the above table does not convincingly show that the improved oxidation resistance and reduced deposit formation of example 4 in comparison to examples 1 to 3 is achieved by the weight ratio of sulfonate soap to phenate soap. On the contrary, it could also be achieved by the total soap content.

Furthermore, as submitted by the opponent, this conclusion is corroborated by document D27. Table 3 of this document shows the oxidation stability ("OIT") and the deposit formation of, *inter alia*, comparative lubricants 3-6. Comparative lubricants 3 and 5 comprise only sulfonate detergents and no phenate detergents. Comparative lubricants 4 and 6 comprise only a phenate detergent and no sulfonate detergents. Comparative lubricants 3 and 5 perform worse in OIT than comparative lubricants 4 and 6, respectively. Comparative lubricant 3 exhibits more deposits than comparative lubricant 4. From a comparison of comparative lubricants 3 (sulfonate detergents only) and 4 (phenate detergent only) as well as 5 (sulfonate detergents only) and 6 (phenate detergent only), it thus follows that no improvement in oxidation resistance and formation of deposits is achieved by the presence of a sulfonate detergent. In fact, this type of detergent leads to inferior oxidation resistance and increased formation of deposits. Hence, D27 supports

the conclusion above that the claimed excess of sulfonate detergent does not lead to any improved oxidation resistance or reduced deposit formation.

Unlike in the examples of the patent, the total soap content of comparative lubricants 3 and 4 (15.90 and 15.88) and comparative lubricants 5 and 6 (23.84 and 23.83) are almost identical. Consequently, the above conclusion about oxidation resistance and deposit formation cannot be attributed to any difference other than the presence or absence of the sulfonate soap.

Therefore, the effect relied on by the patent proprietor is not achieved, and it cannot be taken into consideration when formulating the objective technical problem.

The patent proprietor relied on T 1797/09 and T 219/83 and submitted that there was no reason to assume that the technical problem it had formulated (provision of a method for improving oxidation resistance and reducing deposit formation) was not credibly solved by the claimed subject-matter. It argued that the opponent had not provided technical evidence casting doubt on the fact that the problem as formulated by the patent proprietor was solved. This is not correct. As set out above, the opponent provided D27 as evidence. Hence, the situation in the current case is different from that in the two cited decisions, where the opponent's argument that the technical problem was not credibly solved, was not supported by any evidence. These two decisions thus do not apply to the current case.

The patent proprietor submitted in the context of auxiliary request 4 that a higher total soap content in the examples of the patent did not have any influence on the effect of improving oxidation resistance and

reducing deposit formation, when comparing examples 1 and 2 of the patent. The objective technical problem was the provision of a method for improving oxidation resistance and reducing deposit formation, and the solution proposed by claim 1 of auxiliary request 4 was not obvious in view of the cited prior art. Since the same argument applies also to the main request, this argument is treated here.

The board does not find the patent proprietor's submission convincing. First, it is acknowledged that example 1 has a higher total soap content than example 2 (1.68 vs 1.53, table in paragraph [0072] of the patent) and exhibits a lower performance than example 2 in the oxidation and deposit test (78 vs 96 hrs). However, the examples are not comparable because they comprise different detergent mixtures. Example 1 comprises a mixture of a sulfonate and a phenate. Example 2 comprises a mixture of a sulfonate, a phenate and a salixarate, and it is known that different detergents have different effects. This was not disputed by the patent proprietor. Thus, the comparison of examples 1 and 2 of the patent is not a fair comparison to support the patent proprietor's assertion.

The conclusion made above that it is not credible that any effect results from the distinguishing feature thus remains valid. Hence, the objective technical problem can only be seen in the provision of an alternative method.

#### 1.6 Obviousness

The selection of the weight ratio of sulfonate soap to phenate soap as defined in claim 1 of the main request, in the absence of any effect, is arbitrary. Such an

arbitrary selection - in line with the case law of the boards (see, for instance, T 1984/15, point 4.5 of the Reasons with further references) - is considered to be within the routine abilities of the skilled person and for this reason alone cannot support any inventive step.

The patent proprietor submitted that the solution was not obvious in view of D1. There were further ways a skilled person could modify the teaching of D1.

The board disagrees. Even if there is more than one option of altering a prior-art disclosure, in the absence of any effect linked to the option chosen in the claim in question, this option is nothing but an arbitrary selection out of the options of the prior art. As set out above, such an arbitrary selection cannot contribute to inventive step.

The patent proprietor lastly argued that the skilled person could but not necessarily would have arrived at the claimed solution. However, in line with several decisions of the boards in cases where the problem is to provide an alternative solution, the could-would approach does not apply (see e.g. T 0892/08, Reasons 1.7; T 1968/08, Reasons 5.5). The board agrees with this case law.

- 1.7 Consequently, the subject-matter of claim 1 of the main request does not involve an inventive step starting from D1 as the closest prior art.
2. The main request is not allowable.

*Auxiliary requests 1 to 3, 5 to 8 and 10 to 25*

3. Inventive step

In the board's communication under Article 15(1) RPBA 2020, the board was of the preliminary opinion that the amendments made in these auxiliary requests did not change the preliminary opinion given for the claimed subject-matter of the main request. This was not disputed by the patent proprietor, neither during the written proceedings nor at oral proceedings when the chair set out that the same conclusion as given for the main request applied to these auxiliary requests. Thus, the subject-matter of claim 1 of each of these auxiliary requests does not involve an inventive step.

4. Auxiliary requests 1 to 3, 5 to 8 and 10 to 25 are thus not allowable.

*Auxiliary request 4 filed with the statement of grounds of appeal*

5. In claim 1 of auxiliary request 4, the weight ratio of sulfonate soap to phenate soap in the lubricant was restricted to 1.2:1 to 3:1.

6. Inventive step

The patent proprietor did not rely on the modified weight ratio of sulfonate soap to phenate soap in arguing that the effect achieved was improved oxidation resistance and reduced deposit formation. Therefore, the objective technical problem remains the same as formulated for the main request, i.e. the provision of an alternative method. In the same way as for the main request, the claimed ratio is nothing but an arbitrary



selection out of the teaching of D1. The reasoning given for claim 1 of the main request thus also applies to claim 1 of auxiliary request 4.

7. Auxiliary request 4 is not allowable.

*Auxiliary request 9*

8. Claim 1 of auxiliary request 9 differs from claim 1 of the main request in that the claim was recast as a use claim, the term "soap" was replaced with "anion", and the amount of sulfonate anion was reduced from at least 0.2 wt% to at least 0.4 wt%.

9. Admittance of the allegation of fact that claim 1 of this request enjoyed the priority claimed by the opposed patent

- 9.1 During the oral proceedings, the patent proprietor submitted that in view of the amendment made in auxiliary request 9, the subject-matter claimed in this request was entitled to the priority claimed by the patent. D1 was therefore no longer prior art under Article 54(2) EPC so that it was no longer relevant for inventive step. The subject-matter claimed in this request thus involved an inventive step.

- 9.2 These submissions consisted of both new allegations of fact and new arguments in law and represented an amendment to the patent proprietor's case. Since they were made for the first time during oral proceedings, their admittance is governed by Article 13(2) RPBA 2020.

- 9.3 In accordance with Article 13(2) RPBA 2020, any amendment to a party's appeal case made after

notification of a summons to oral proceedings must, as a rule, not be taken into account unless there are exceptional circumstances justified with cogent reasons by the party concerned.

9.4 Since auxiliary request 9 was filed with the statement of grounds of appeal, the submission that in view of the amendment made in auxiliary request 9, the subject-matter claimed in this request was entitled to the priority claimed by the patent could have been made in the statement of grounds of appeal. The board sees no reason, and no reason has been cited by the patent proprietor, why this was not done. There are thus no exceptional circumstances which could justify the allegation made by the patent proprietor only during the oral proceedings.

9.5 For these reasons, the board decided not to admit the patent proprietor's allegation of fact into the proceedings in accordance with Article 13(2) RPBA 2020.

10. Admittance of auxiliary request 9

10.1 As set out above, auxiliary request 9 was submitted with the statement of grounds of appeal. In its statement of grounds of appeal (point 92), the patent proprietor only stated that the claims of auxiliary request 9 corresponded to the claims of auxiliary request 9 filed on 16 July 2019 before the opposition division and described the amendments made compared to the claims of auxiliary request 2. No substantiation as to why the amendments made would overcome objections against any higher-ranking request was provided in the statement of grounds of appeal. No reference to a substantiation made during the proceedings before the

opposition division was provided in the statement of grounds of appeal either (point 92).

- 10.2 It follows that auxiliary request 9 was not substantiated when filed with the statement of grounds of appeal.
- 10.3 The patent proprietor submitted that the substantiation of the claims of auxiliary request 9 was made during the proceedings before the opposition division (reply to the notice of opposition).

Under the established case law of the boards, a mere reference to a party's earlier submissions made during the proceedings before the opposition division is not sufficient as a submission in a statement of grounds of appeal (see e.g. T 1311/11, Reasons 19). In the current case, not even a reference to a substantiation made during the proceedings before the opposition division was provided in the statement of grounds of appeal.

- 10.4 Article 12(3) RPBA 2020 requires an appellant to provide its complete case with the statement of grounds of appeal. As set out above, auxiliary request 9 was not substantiated by the proprietor in its statement of grounds of appeal. The proprietor thus did not provide a complete case. The requirement of Article 12(3) RPBA 2020 is thus not fulfilled. The board therefore had the discretion not to admit this request. Accordingly, the board decided that auxiliary request 9 not be admitted into the appeal proceedings.
- 10.5 Furthermore, Article 13(1) RPBA 2020 stipulates that the board must exercise its discretion to admit or not to admit a claim request in view of, *inter alia*,

whether the party has demonstrated that the amendment does not give rise to new objections.

- 10.6 Both the appellant and the board noted during oral proceedings, and only for this request, that an issue under Article 123(3) EPC arose in claim 1 with regard to the replacement of the term "soap" with the term "anion". More specifically, the term "soap" comprises an anion and a cation. Thus, the weight of a soap, encompassing the weight of the cation and the weight of the anion, does not correspond to the weight of the corresponding anion. Consequently, the weight ratio of the sulfonate soap to the phenate soap mentioned in claim 1 as granted is not identical to the weight ratio of the sulfonate anion to the phenate anion mentioned in claim 1 of auxiliary request 9. It follows that the scope of claim 1 of auxiliary request 9 has been broadened compared to claim 1 as granted.

The patent proprietor submitted that paragraph [0034] of the application as filed disclosed the same amounts of sulfonate soap and sulfonate anion, and thus the terms were interchangeable. For this reason, claim 1 of auxiliary request 9 did not extend the scope of claim 1 as granted.

The board does not agree. While it is accepted that paragraph [0034] of the application as filed discloses identical amounts of sulfonate soap and sulfonate anion (0.5 to 5, 0.6 to 3 and 0.65 to 2 wt% on page 8, lines 29-30 and page 9, lines 8-9 of the application as filed), this does not mean that the terms have the same meaning. On the contrary, as set out above, a sulfonate or phenate soap is not equivalent to, and thus not interchangeable with, a sulfonate or phenate anion. For

this reason alone, the patent proprietor's submission must fail.

- 10.7 Consequently, the amendment in claim 1 of auxiliary request 9 gives rise to a new objection under Article 123(3) EPC in contravention of Article 13(1) RPBA 2020. Also on this ground, the board decided not to admit this request into the proceedings.
11. The opponent requested that auxiliary requests 3, 5 and 10 to 25 not be admitted into the proceedings. Since these requests were found not allowable, there was no need for the board to decide on their admittance.
12. None of the patent proprietor's requests is both allowable and admissible.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



N. Maslin

M. O. Müller

Decision electronically authenticated