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**Datasheet for the decision
of 12 March 2024**

Case Number: T 1944/21 - 3.3.02

Application Number: 15707522.7

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C10M175/00, C10N40/25

Language of the proceedings: EN

Title of invention:

METHOD OF LUBRICATING AN INTERNAL COMBUSTION ENGINE

Patent Proprietor:

The Lubrizol Corporation

Opponent:

Afton Chemical Corporation

Relevant legal provisions:

EPC 1973 Art. 56, 84, 83

Keyword:

Inventive step
Clarity
Sufficiency of disclosure

Decisions cited:

G 0003/14



Beschwerdekammern

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Case Number: T 1944/21 - 3.3.02

D E C I S I O N
of Technical Board of Appeal 3.3.02
of 12 March 2024

Appellant: Afton Chemical Corporation
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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
16 August 2021 concerning maintenance of the
European Patent No. 3116979 in amended form**

Composition of the Board:

Chairman M. O. Müller
Members: A. Lenzen
M. Blasi

Summary of Facts and Submissions

I. This decision concerns the appeal filed by the opponent (appellant) against the opposition division's decision (decision under appeal), according to which European patent No. 3 116 979 (patent) in amended form meets the requirements of the EPC.

II. The following documents, filed before the opposition division, are relevant to the present decision:

- D7 WO 2007/121039 A2
- D8 US 2003/0024512 A1
- D54 Experimental Report (10 pages, comprising annexes A, B and C)
- D61 Respondent's submission of 19 December 2017, filed during the examination proceedings
- D69 Declaration by Mr Carress (4 pages)

III. The decision under appeal is based on the main request (patent as granted) and auxiliary request 1, the set of claims of which was filed during the oral proceedings before the opposition division. Insofar as it is relevant to the present decision, the decision under appeal can be summarised as follows:

- Claim 10 of the main request comprised added subject-matter (Article 100(c) EPC).
- The set of claims of auxiliary request 1, which no longer contained claim 10 but was otherwise identical to the set of claims of the main request, fulfilled the requirements of Article 123(2) EPC. Auxiliary request 1 also met the requirements of Articles 123(3), 83 and 54 EPC.

- As regards inventive step, D8 was the closest prior art. The technical problem set out in the patent was to provide a method of lubricating a diesel engine comprising a centrifugal oil mist separator (OMS). More specifically, the method was intended to prevent deposit formation and drain hole plugging in the centrifugal OMS, whilst at the same time achieving acceptable soot dispersancy. This problem had to be considered to be credibly solved unless there were reasons to assume the contrary. The experimental evidence provided by the patent proprietor (respondent) in the patent and in D61 did not demonstrate that the technical problem had actually been solved; however, at the same time, the appellant's experimental evidence, D69, could not give rise to any doubt as to the solution to the problem. In these circumstances, the burden of proof did not shift to the respondent and it had to be concluded that the problem had been solved over the whole scope of claim 1. The solution to this problem was not rendered obvious by the cited prior art. Therefore, the requirements of Article 56 EPC were met as well.

IV. With the statement of grounds of appeal, the appellant filed a document which did not have to be considered by the board to arrive at its decision.

V. With its reply to the statement of grounds of appeal, the respondent filed, *inter alia*, the sets of claims of the main request and of auxiliary requests 1 to 19. The parties filed further submissions and documents. These additional documents did not have to be considered in the circumstances of the present case.

VI. In preparation for the oral proceedings, arranged at the parties' request, the board issued a communication pursuant to Article 15(1) RPBA.

VII. Oral proceedings before the board were held on 12 March 2024 by videoconference in the presence of both parties. At the end of the oral proceedings, the chair announced the order of this decision.

VIII. The parties' requests relevant to this decision at the end of the oral proceedings were as follows.

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

The respondent requested that the appeal be dismissed, implying that the decision under appeal be confirmed and the patent be maintained in the form of the main request, identical to auxiliary request 1 found allowable by the opposition division, or alternatively, that the patent be maintained in amended form based on one of the sets of claims of auxiliary requests 1 to 19, filed with the reply to the statement of grounds of appeal. The respondent also requested that the appellant's reliance on D54 in relation to sufficiency not be admitted.

IX. The appellants' arguments regarding the allowability of the main request and auxiliary requests 1 to 19 can be summarised as follows:

- Main request and auxiliary requests 1 to 12

D8 could be taken as the closest prior-art document. The subject-matter of claim 1 of the main

request differed from D8 only on account of the presence of a certain amount of the soot-dispersing additive. The experimental data in the patent and D61 were not suitable for demonstrating an effect associated with this distinguishing feature. The reason for this was that the compositions which were compared differed not only on account of the presence of the soot-dispersing additive, but also on account of other components and possibly their quantity. Even if it were assumed that a technical effect could in principle be derived from the comparison of two different lubricant compositions, one of which comprises an olefin copolymer (OCP) and the other a hydrogenated styrene diene copolymer (HSD) as a soot-dispersing additive according to claim 1, D54 and D69 demonstrated that replacing an OCP with an HSD had no technical effect. Hence, the objective technical problem was to provide an alternative to the method in D8. As could be seen from D7, the polymers used in the patent as soot-dispersing additives were conventional additives. Moreover, the range of amounts specified for the soot-dispersing additive in claim 1 included amounts commonly used for the additives disclosed in D7. Therefore, the subject-matter of claim 1 did not involve an inventive step. The same conclusion applied to claim 1 of auxiliary requests 1 to 12, since the additional features did not contribute to inventive step. Therefore, the main request and auxiliary requests 1 to 12 were not allowable.

- Auxiliary requests 13 to 19

Claim 1 of auxiliary request 13 did not mention the reference point to be used in assessing whether the

stated purpose ("*for reducing filter plugging and deposits in the centrifugal oil mist separator*") was actually achieved. It lacked clarity.

Furthermore, the invention defined in claim 1 was not sufficiently disclosed. The reason for this was that the lubricant composition was used to reduce OMS-related problems, although it caused these problems itself. The same conclusions applied to claim 1 of auxiliary requests 14 to 19. Therefore, auxiliary requests 13 to 19 were not allowable.

- X. Summaries of the respondent's arguments regarding the allowability of the main request and auxiliary requests 1 to 19 are contained in the reasons for the decision.

Reasons for the Decision

Main request - inventive step - Article 56 EPC

1. Claim 1 reads as follows:

"A method of lubricating an internal combustion engine equipped with a centrifugal oil mist separator, wherein the lubricant contains 0.1 wt% to 8 wt% soot resulting from operation of the engine, and wherein the lubricant composition comprises an oil of lubricating viscosity, and 0.2 wt % to 3 wt % of a soot dispersing additive having a shear stability index of 0 to 25 as measured in the Orbahn shear test according to ASTM D6278, wherein the soot dispersing additive is a block copolymer comprising (i) a vinyl aromatic monomer block and (ii), a conjugated diene olefin monomer block."

Below, the oil mist separator is abbreviated as "OMS", and the shear stability index as "SSI".

2. Closest prior art

Both parties agreed that D8, which disclosed a centrifugal OMS and its application in an internal combustion engine, could be taken as the prior art closest to the subject-matter of claim 1.

3. Distinguishing feature

- 3.1 In its communication under Article 15(1) RPBA, the board had set out what it considered to be common ground between the parties, namely that the subject-matter of claim 1 differs from D8 only in that the lubricant composition comprises:

"0.2 wt % to 3 wt % of a soot dispersing additive having a shear stability index of 0 to 25 as measured in the Orbahn shear test according to ASTM D6278, wherein the soot dispersing additive is a block copolymer comprising (i) a vinyl aromatic monomer block and (ii), a conjugated diene olefin monomer block"

In its letter dated 9 February 2024 (page 7, lines 13 to 18), filed in response to the board's communication, the respondent expressly agreed with this distinguishing feature.

- 3.2 Only at the oral proceedings did the respondent take the view that the subject-matter of claim 1 differed from D8 in terms of the lubricant as a whole.

This argument implies that the lubricant in D8, apart from the soot-dispersing additive as set out above, also does not contain an oil of lubricating viscosity and/or that it also does not contain 0.1 to 8 wt.% of soot, as required by claim 1. The board does not find this convincing if only because the respondent did not offer any explanation for its change of view or provide any evidence. Instead, it must be assumed that the lubricant in D8 necessarily contains an oil of lubricating viscosity and that it also contains, after a certain period of operation, an amount of soot which falls within the range specified in claim 1. The latter conclusion is consistent with the opposition division's finding that no soot is added in any of the examples of the patent and that, therefore, the amount of soot must be considered an implicit result of the operation of an internal combustion engine (decision under appeal, page 14, point 3.2.1.2).

3.3 Therefore, the only feature distinguishing the subject-matter of claim 1 from D8 is that set out above under point 3.1.

4. Technical effect and objective technical problem

4.1 According to the respondent, the objective technical problem was to provide a method of lubricating an internal combustion engine equipped with a centrifugal OMS which prevents deposit formation and drain hole plugging in the OMS whilst at the same time achieving acceptable soot dispersancy in the engine.

This objective technical problem implies that the effect on which it is based (prevention of deposit formation and drain hole plugging in the OMS whilst at the same time achieving acceptable soot dispersancy in

the engine) is not in fact achieved in D8. Hence, it implies an improvement over D8.

4.2 It is established case law that alleged advantages to which a patent proprietor merely refers, without offering sufficient evidence to support the comparison with the closest prior art, cannot be taken into consideration in determining the problem underlying the claimed invention and therefore in assessing inventive step (Case Law of the Boards of Appeal of the European Patent Office, 10th edition 2022 (CLBA), I.D.4.3.1). Furthermore, tests comparing the claimed invention with the prior art have to be conducted in such a way that any effect can be attributed to the distinguishing feature (CLBA, I.D.4.3.3).

4.3 As regards technical effects associated with the distinguishing feature above, the respondent pointed to the tests disclosed in the patent and the application as filed (EX3, EX4, CEX5) and those described in post-published evidence D61 (filed by the respondent; EXA, EXB, CEXC) and D54/D69 (filed by the appellant; lubricant oils A, B, C and D). These tests assess the performance of various lubricant compositions in an internal combustion engine equipped with a centrifugal OMS.

Some of these lubricant compositions comprise a hydrogenated styrene-butadiene polymer (HSB) or a hydrogenated styrene-isoprene polymer (HSI) (they are referred to more generally in the following as hydrogenated styrene-diene polymers, HSDs). The specific HSDs used have an SSI as provided for in claim 1. Contrary to the appellant's argument, it is assumed below, in favour of the respondent, that these HSDs are soot-dispersing additives as defined in

claim 1. The lubricant compositions which comprise an HSD contain this polymer in an amount as required by claim 1 (note: with regard to D54 and D69, the appellant stated this in its letter dated 12 February 2024 (page 4, penultimate paragraph) and this was accepted by the respondent at the oral proceedings before the board). Hence, the lubricant compositions in the patent, D54, D61 and D69 which comprise an HSD are as defined in claim 1.

As pointed out by the respondent, the lubricant compositions which are as defined in claim 1 are compared with compositions which are not; however, the lubricant compositions used for comparison, while lacking an HSD, most importantly contain a different polymer additive instead, namely an olefin copolymer (OCP). The comparative compositions thus do not reflect the teaching of the closest prior art, D8.

In the case of the respondent's data (patent/application as filed and D61), the situation is actually aggravated by the fact that the lubricant compositions which are compared also differ from each other with respect to other ingredients such as various detergents and/or dispersants, and, if applicable, their amounts. Contrary to the respondent's view, there is no reason to assume that, despite all these differences between the compared compositions, it is the HSD polymer rather than any of the other differences that is responsible for the observed improvement in the performance of the lubricant compositions.

Therefore, the tests in the patent, D54, D61 and D69 do not allow it to be concluded that any effect is

associated with the distinguishing feature identified above.

- 4.4 In the absence of any technical effect associated with this difference, the objective technical problem is merely to provide an alternative to D8, i.e. an alternative method of lubricating an internal combustion engine equipped with a centrifugal OMS.
- 4.5 According to the respondent, the tests in the patent, D54, D61 and D69 still demonstrated that lubricant compositions as defined in claim 1 had acceptable performance in terms of deposit formation and drain hole plugging in the OMS whilst at the same time achieving acceptable soot dispersancy in the engine. Therefore, the objective technical problem was at least to provide a method of lubricating an internal combustion engine equipped with a centrifugal OMS which provides acceptable performance in terms of deposit formation and drain hole plugging in the OMS whilst at the same time achieving acceptable dispersancy in the engine.

However, this formulation of the objective technical problem and the technical effect on which it relies imply that this effect (acceptable performance in terms of deposit formation and drain hole plugging in the OMS whilst at the same time achieving acceptable dispersancy in the engine) is not in fact achieved in D8, or in other words that the subject-matter of claim 1 is still an improvement over D8 in terms of lubricant performance; however, as set out above, without any evidence of a technical effect over D8 (see above), let alone an improved technical effect, this cannot be accepted.

4.6 In view of the fact that a technical effect has not actually been demonstrated, contrary to the opposition division's view, there is no reason to give the respondent the benefit of the doubt that the problem set out in the patent has actually been solved in respect of D8 over the whole scope of claim 1.

5. Obviousness

Faced with the problem of providing an alternative to D8, i.e. an alternative method of lubricating an internal combustion engine equipped with a centrifugal OMS, the skilled person would have routinely added conventional additives to the composition in D8 in conventional amounts. Referring to D7, at the oral proceedings the appellant submitted that the compounds used in the patent as soot-dispersing additives were such conventional additives and furthermore that the range of amounts specified for them in claim 1 comprised amounts conventionally used. This was not disputed by the respondent. Therefore, it must be concluded that the skilled person would have arrived at the subject-matter of claim 1 by applying routine measures. The claimed invention therefore lacks an inventive step within the meaning of Article 56 EPC. The main request is not allowable.

Auxiliary requests 1 to 12 - inventive step - Article 56 EPC

6. With regard to auxiliary requests 1 to 12, in its reply to the statement of grounds of appeal the respondent had merely argued that the scope of the claims had been limited and that this contributed to inventive step; however, this general submission was not substantiated in more detail. No additional submissions were made at oral proceedings.

7. Hence, it must be concluded that the subject-matter of claim 1 of auxiliary requests 1 to 12 does not involve an inventive step over D8 as the closest prior art. Auxiliary requests 1 to 12 are not allowable.

Auxiliary request 13 - clarity and sufficiency - Articles 84 and 83 EPC

8. Claim 1 reads as follows:

"Use of a lubricant composition for lubricating an internal combustion engine equipped with a centrifugal oil mist separator and for reducing filter plugging and deposits in the centrifugal oil mist separator, wherein the lubricant contains 0.1 wt % to 8 wt % soot resulting from operation of the engine, and wherein the lubricant composition comprises an oil of lubricating viscosity, and 0.2 wt % to 3 wt % of a soot dispersing additive having a shear stability index of 0 to 25 as measured by dissolving an appropriate amount of the additive in a 6.0 to 6.1 mm/s² or cSt measured at 100°C according to ASTM D445 Group I or Group II mineral oil to prepare a 9 - 13 mm²/s or cSt solution and testing the solution in the Orbahn shear test according to ASTM D6278, wherein the soot dispersing additive is a block copolymer comprising (i) a vinyl aromatic monomer block and (ii), a conjugated diene olefin monomer block."

9. Therefore, claim 1 relates to the use of a lubricant composition

- (i) for lubricating an internal combustion engine equipped with a centrifugal oil mist separator

and

- (ii) for reducing filter plugging and deposits in the centrifugal OMS.

10. The set of claims as granted does not contain a use claim, nor does it recite purpose (ii) above. Therefore, insofar as claim 1 relates to the use of a lubricant composition for reducing filter plugging and deposits in the centrifugal OMS, it is open to an assessment of clarity under Article 84 EPC (G 3/14; OJ EPO 2015, A102). This was never contested by the respondent either.

10.1 Claim 1 does not mention any reference point, in terms of e.g. a specific lubricant composition, against which it is to be determined whether the composition defined in claim 1 fulfils purpose (ii). Hence, it is not possible to ascertain whether or not that purpose is actually achieved, i.e. whether or not a specific use actually falls within the subject-matter of claim 1. Claim 1 lacks clarity within the meaning of Article 84 EPC.

10.2 At the oral proceedings before the board, the respondent submitted that one of the following three general lubricant compositions was to be regarded as the reference point and that the skilled person knew which of them was applicable in a specific case:

- (a) any lubricant composition comprising a standard additive package and some level of soot, but not the block copolymer defined in claim 1
- (b) any lubricant composition outside the scope of claim 1
- (c) any lubricant composition outside the scope of claim 1 which leads to the OMS-related problems specified in claim 1

10.3 However, these three general lubricant compositions are all of different scopes. For example, a lubricant composition comprising a soot-dispersing additive as defined in claim 1 but in an amount above the upper limit specified in claim 1 would be a reference composition according to (b) but not according to (a). Moreover, each of the three general lubricant compositions (a) to (c) still comprises an unlimited number of specific compositions which cannot be readily expected to perform in exactly the same way with regard to the OMS-related problems to be reduced. Therefore, contrary to the respondent's argument, the problem of determining a reference point still remains.

11. Notwithstanding the lack of clarity set out above, the following aspects are relevant.

11.1 The appellant argued, and the respondent confirmed this when asked by the board, that the problems associated with the use of a centrifugal OMS, i.e. filter plugging and deposits, are caused by the lubricant composition from claim 1 as a whole.

11.2 This leads to a logical contradiction. After all, how can a lubricant composition be used to reduce problems that are caused by its use in the first place? There is no further information in the patent or application as

filed and the respondent also did not provide any information on how the skilled person could resolve this contradiction, e.g. which compounds they should add to the lubricant composition in order to still achieve the desired objective, i.e. reducing filter plugging and deposits in the centrifugal OMS. For this reason, the invention defined in claim 1 is insufficiently disclosed within the meaning of Article 83 EPC.

- 11.3 D54 is not relevant for the above conclusion of a lack of sufficiency. Therefore, there was no need to decide on the respondent's request at the oral proceedings that the appellant's reliance on D54 in the context of sufficiency not be admitted.

Auxiliary requests 14 to 19 - clarity and sufficiency -
Articles 84 and 83 EPC

12. Since claim 1 of auxiliary requests 14 to 19 essentially relates to the same use as claim 1 of auxiliary request 13 ("*Use of a lubricant composition for lubricating an internal combustion engine equipped with a centrifugal oil mist separator and for reducing filter plugging and deposits in the centrifugal oil mist separator ...*"), the same considerations with regard to a lack of clarity and sufficiency also apply in relation to each claim 1 of auxiliary requests 14 to 19.

Hence, it must be concluded that each claim 1 of auxiliary requests 14 to 19 is unclear (Article 84 EPC) and that the invention defined in these requests is not sufficiently disclosed (Article 83 EPC). Auxiliary requests 14 to 19 are not allowable.

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:



H. Jenney

M. O. Müller

Decision electronically authenticated