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Datasheet for the decision of 23 April 2024

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Language of the proceedings: EN

Title of invention:
LUBRICANT COMPOSITION

Patent Proprietor:
Idemitsu Kosan Co., Ltd.

Opponent:
Infineum International Limited

Headword:
IDEMITSU KOSAN / FOULING REDUCTION / BIOFUEL

Relevant legal provisions:
EPC Art. 54(1), 56, 83, 114(1)
RPBA 2020 Art. 12(1)(c), 12(1)(d), 12(3), 13(1), 13(2)

Keyword:

Sufficiency of disclosure - (yes)
Inventive step - main request and auxiliary request 12 (no) - auxiliary request 14 (yes)
Basis of proceedings - power of the board to examine auxiliary requests of its own motion (yes)
Amendment to appeal case - submission made at oral proceedings - admitted (no)

Decisions cited:

G 0002/88, G 0006/88, G 0009/91, G 0010/91, T 0231/85, T 0059/87, T 0892/94, T 1439/16, T 0189/18

Catchword:

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

Case Number: T 1504/21 - 3.3.02

D E C I S I O N
of Technical Board of Appeal 3.3.02
of 23 April 2024

Appellant: (Opponent)	Infineum International Limited P.O. Box 1 Milton Hill Abingdon Oxfordshire OX13 6BB (GB)
Representative:	Hart, Richard Joseph PO Box 1, Milton Hill Abingdon, Oxfordshire OX13 6BB (GB)
Respondent: (Patent Proprietor)	Idemitsu Kosan Co., Ltd. 1-1 Marunouchi 3-chome Chiyoda-ku Tokyo 100-8321 (JP)
Representative:	Stratmann, K. Hoffmann Eitle Patent- und Rechtsanwälte PartmbB Arabellastraße 30 81925 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 12 July 2021 concerning maintenance of the European Patent No. 2154231 in amended form.**

Composition of the Board:

Chairman	M. O. Müller
Members:	M. Maremonti
	B. Burm-Herregodts

Summary of Facts and Submissions

I. The appeal by the opponent ("appellant") lies from the interlocutory decision of the opposition division, according to which European patent No. 2 154 231 ("the patent"), in its form modified on the basis of the claims of auxiliary request 10 filed on 6 March 2020, and the invention to which it relates meets the requirements of the EPC.

II. Claim 1 of auxiliary request 10 found allowable by the opposition division reads as follows:

"*1. Use of a lubricating oil composition in an internal combustion engine for reducing fouling in the internal combustion engine, the internal combustion engine using a fuel that contains at least one fat and oil selected from a group consisting of natural fat and oil, hydrotreated natural fat and oil, transesterified natural fat and oil and hydrotreated transesterified natural fat and oil, the lubricating oil composition comprising:*

a component (A) that is an alkaline earth metal-based detergent, the component (A) being contained by a content of more than 0.35 mass% and 2 mass% or less of total amount of the composition in terms of alkaline earth metal;

a component (B) that is a boron derivative of a succinimide compound substituted by an alkyl or alkenyl group having a number average molecular weight of 200 to 5000, the boron derivative being contained by a content of 0.01 to 0.2 mass% of the total amount of the composition in terms of boron, and wherein a mass ratio

(B/N) of boron (B) and nitrogen (N) contained in the component (B) is 0.6 or more; and

a phenol-based antioxidant and/or an amine-based antioxidant being contained by 0.3 mass% or more of the total amount of the composition,

wherein the fouling is generated by degradation and decomposition of the at least one fat and oil".

III. An opposition was filed invoking the grounds for opposition under Article 100(a) (invoking lack of inventive step under Article 56 EPC) and (b) EPC. Reference was made *inter alia* to the following documents:

D1: EP 1 736 529 A1

D2: US 2004/0242434 A1

D6: V. Stepina and V. Vesely, "*Lubricants and Special Fluids*", Tribology Series, 23, pages 289, 301 and 315 to 321, Elsevier, 1992

IV. On 6 March 2020, the patent proprietor filed sets of claims according, *inter alia*, to auxiliary requests 9, 10, 12 and 14. It maintained the patent as granted as its main request. The opposition division came, *inter alia*, to the following conclusions:

- The ground for opposition under Article 100(b) EPC did not prejudice maintenance of the patent as granted.
- The subject-matter of claim 1 as granted and claim 1 of auxiliary request 9 did not involve an inventive step in view of D1 taken as the closest prior art.
- The subject-matter of claim 1 of auxiliary request 10 involved an inventive step in view of either D1 or D2 taken as the closest prior art.

V. The appellant contested the opposition division's reasoning and argued, *inter alia*, that the subject-matter of claim 1 of auxiliary request 10 found allowable by the opposition division was not sufficiently disclosed and lacked an inventive step.

VI. The patent proprietor ("respondent") rebutted the arguments of the appellant and submitted that the claimed subject-matter considered allowable by the opposition division was sufficiently disclosed and involved an inventive step. It further relied, *inter alia*, on auxiliary requests 12 and 14 as filed by letter dated 6 March 2020.

VII. The parties were summoned to oral proceedings as per their requests. In preparation for the oral proceedings, the board issued a communication under Article 15(1) RPBA. In this communication, the board expressed, *inter alia*, the preliminary opinion that the claimed subject-matter was sufficiently disclosed. The board further held that the main request appeared to lack inventive step and raised objections to the subject-matter of *inter alia* auxiliary requests 12 and 14.

VIII. Oral proceedings before the board were held on 23 April 2024 by videoconference in the presence of both parties. During the oral proceedings, the respondent submitted, *inter alia*, that the location of fouling defined in claim 1 of auxiliary request 10 was a further distinguishing feature over the disclosure in document D1.

IX. Final requests relevant to the decision

The appellant requested that the appealed decision be set aside and that the patent be revoked. It also requested that the respondent's submission made during oral proceedings that the location of fouling defined

in claim 1 was a further distinguishing feature from the disclosure in document D1 not be admitted into the proceedings.

The respondent requested that the appeal be dismissed and that the decision to maintain the patent in amended form on the basis of the claims of auxiliary request 10 filed on 6 March 2020 (main request in appeal) be upheld. Alternatively, the respondent requested that the patent be maintained in amended form on the basis of the claims of one of auxiliary requests 12 or 14 filed on 6 March 2020.

X. As regards the parties' submissions that are relevant to the decision, reference is made to the reasons for the decision set out below.

Reasons for the Decision

Main request (auxiliary request 10 filed on 6 March 2020) - claim 1 - sufficiency of disclosure under Article 83 EPC

1. The appellant observed that claim 1 of auxiliary request 9 filed on 6 March 2020 was identical to claim 1 of the main request (point II above) except for the absence of the specification that "*the fouling is generated by degradation and decomposition of the at least one fat and oil*". Claim 1 of auxiliary request 9 was found by the opposition division to be obvious starting from D1 whereas claim 1 of the main request was found to involve an inventive step. This meant that the opposition division found that the above feature added to claim 1 of the main request distinguished the claimed subject-matter in an inventive way from the prior art. The appellant submitted that where the invention relied upon a distinguishing technical effect, the patent had to teach in an enabling way how

to obtain that effect. However, the patent did not disclose in an enabling manner how to practise the claimed use without at the same time effecting the conventional reduction in fouling arising from oils, which was held to be obvious by the opposition division with respect to then auxiliary request 9. Therefore, the claimed subject-matter was insufficiently disclosed.

2. The board disagrees.

2.1 Contrary to the appellant's view, claim 1 of the main request should not be read as meaning that the compositions defined therein are used to reduce *only* the fouling generated by degradation and decomposition of the at least one fat and oil, i.e. without also reducing the fouling possibly originating from another cause. Rather, claim 1 of the main request requires that the fouling generated by degradation and decomposition of the at least one fat and oil be especially reduced; but this does not exclude the fouling generated from other sources also being reduced. For this reason alone, the appellant's argument is not convincing.

2.2 Moreover, the examples of the patent show (tables 1 and 2 on pages 10, 11 and 13) that, by employing compositions falling under claim 1 of the main request, the fouling generated in a hot tube test by these compositions when mixed with biofuel is reduced as compared with compositions not covered by claim 1 also mixed with biofuel. In particular, the amount of fouling produced by using the claimed compositions is almost as small as the amount produced by employing the corresponding new oil, i.e. a composition to which no biofuel was added. Despite the examples of the patent not explicitly mentioning that degradation and decomposition of the biofuel used in the experiments

took place, thus giving rise to fouling, it can be implicitly assumed that this occurred at the high temperature used (300°C, see paragraph [0080] of the patent) and also that this specific fouling was reduced. Therefore, the examples of the patent demonstrate that the fouling generated by the degradation and decomposition of biofuel is also reduced when compositions covered by claim 1 of the main request are used.

2.3 For these reasons, the board concludes that the subject-matter of claim 1 of the main request is sufficiently disclosed, thus meeting the requirements of Article 83 EPC.

Submission made by the respondent at the oral proceedings that the location of fouling defined in claim 1 is a further distinguishing feature over the disclosure in document D1 - admittance into the proceedings - Article 13(1) and (2) RPBA

3. At the oral proceedings before the board and during the discussion of inventive step starting from document D1 as the closest prior art (see below), the respondent argued that while claim 1 of the main request was directed to the reduction of fouling in the internal combustion engine, D1 aimed to avoid the formation of deposits on a diesel particulate filter ("DPF"). It referred to paragraph [0001] of D1. A DPF was located in the exhaust system and therefore outside the engine. Hence, the respondent submitted that the claimed location of the fouling to be reduced was a further feature distinguishing the subject-matter of claim 1 of the main request from D1.

The appellant argued that this submission constituted an amendment to the respondent's case and requested that this submission not be admitted into the proceedings.

4. Under Article 13(1) RPBA, "[a]*ny amendment to a party's appeal case after it has filed its grounds of appeal or reply is subject to the party's justification for its amendment and may be admitted only at the discretion of the Board.*" The board exercises its discretion in view of *inter alia* the current state of the proceedings and the need for procedural economy.

4.1 The respondent did not dispute that the location of the fouling to be reduced had not been mentioned in the reply to the appeal as a distinguishing feature over D1. However, it brought forward that the appellant had not attacked the novelty of the claimed use, thus implicitly recognising this use as a distinguishing feature. There was no need for the respondent to focus its arguments on the location of the fouling since D1 clearly disclosed that deposits occurred on the DPF, i.e. outside the engine. Moreover, all the respondent's arguments concerning the technical effect of the invention were related to the reduction of the fouling in the engine. Thus, this feature was always part of the respondent's appeal case.

4.2 The board disagrees for the following reasons.

4.2.1 The fact that the appellant did not object to the novelty of the subject-matter of claim 1 of the main request does not imply that it recognised the claimed use "*for reducing fouling in the internal combustion engine*" as a distinguishing feature over D1. In fact, in its statement of grounds of appeal, the appellant focused its arguments on the feature added to claim 1 of the main request requiring that "*the fouling is generated by degradation and decomposition of the at least one fat and oil*", by virtue of which an inventive step had been recognised by the opposition division. According to the appellant (statement of grounds of appeal, page 3, penultimate paragraph), this feature

could not differentiate the claimed use from the prior art.

4.2.2 Article 12(3) RPBA stipulates that the respondent should set out its complete case with the reply to the appeal. As admitted by the respondent, when arguing in support of inventive step in the reply to the appeal (page 4, point 4.2), it did not identify the location of the fouling as a distinguishing feature over D1. It was only argued that the subject-matter of claim 1 of the main request differed from the disclosure in D1 in that component (B) of the composition had a B/N ratio of 0.6 or more and in that the composition was used for reducing the fouling generated by degradation and decomposition of the at least one fat and oil.

4.2.3 This argument of the respondent was summarised by the board in its communication issued under Article 15(1) RPBA (point 4.2.1). The board further expressed its preliminary view that the sole distinguishing feature over D1 was the claimed B/N ratio of component (B).

4.2.4 At the latest in its reply to the board's communication, the respondent should have submitted that it had identified a further distinguishing feature in the location of the fouling. However, the respondent chose not to reply to the board's communication but to wait until the oral proceedings to make this submission.

4.2.5 In view of the above considerations, the board concludes that the respondent's submission that the location of fouling defined in claim 1 of the main request constitutes a distinguishing feature over the disclosure in D1 amounts to an amendment to its appeal case that was introduced extremely late and without good reason into the appeal proceedings.

4.2.6 The board concurs with the appellant that the admittance of this submission would have raised complex issues: it would, for example, have had to be discussed whether or not the accumulation of deposits on the DPF as disclosed in D1 necessarily implies that fouling is generated in the engine as required by claim 1 of the main request; and whether or not certain deposits might form directly on the DPF and not in the engine as alleged by the respondent. These issues had never been discussed in appeal prior to the oral proceedings. Hence, the admittance of the above submission would have been detrimental to procedural economy (Article 13(1) RPBA).

4.3 Additionally, under Article 13(2) RPBA, "[a]*ny amendment to a party's appeal case made after notification of a communication under Article 15, paragraph 1, shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned*".

The respondent could not give any reason why exceptional circumstances would have justified the admittance of its submission on the location of fouling made for the first time at the oral proceedings. The board also cannot identify any such exceptional circumstances.

4.4 Hence, the board did not admit into the proceedings the respondent's submission that the location of fouling as defined in claim 1 of the main request is a further distinguishing feature over the disclosure in document D1 (Article 13(1) and (2) RPBA).

Main request (auxiliary request 10 filed on 6 March 2020) - claim 1 - inventive step under Article 56 EPC

5. Closest prior art

5.1 In line with the appealed decision (page 26, point 10.2), both parties indicated document D1 as a possible starting point for the assessment of inventive step. In view of its disclosure, the board has no reason to take a different stance.

5.2 D1 discloses (paragraphs [0001], [0007], [0010], [0030], [0031], [0037] to [0042], [0055], [0057], [0058], [0067], [0077] and table 1]) the use of a lubricating composition comprising *inter alia* an alkaline earth metal-based detergent (corresponding to component (A) of claim 1), a boron-containing poly(iso)butenyl succinimide (corresponding to component (B) of claim 1) and one or more of a phenol-based antioxidant or an amine-based antioxidant, for inhibiting the formation of depositing components which accumulate on the walls of a DPF in a diesel engine equipped with such a DPF. According to D1 (paragraph [0056]), the diesel engine is in particular operated with biodiesel fuel, "*such as alkyl esters of saturated or unsaturated fatty acids*".

6. Distinguishing feature(s)

6.1 The respondent argued that the subject-matter of claim 1 of the main request (point II above) differed from the above disclosure in D1 in that

- the defined composition was used for reducing fouling in the engine
- the fouling to be reduced was generated by degradation and decomposition of the at least one fat and oil

- component (B) of the composition had a B/N ratio of 0.6 or more

The respondent referred to decisions G 2/88 and G 6/88 of the Enlarged Board of Appeal, according to which, for a use claim, the technical effect aimed at was a functional technical feature of the claim and could thus be used to distinguish the claimed use from the closest prior art. D1 did not disclose the claimed use for reducing the fouling generated by degradation and decomposition of the at least one fat and oil.

6.2 These arguments are not convincing.

6.2.1 As stated above, the respondent's submission that the location in the engine of the fouling to be reduced is a distinguishing feature over D1 was not admitted into the proceedings. Therefore, the location of the fouling mentioned in claim 1 of the main request cannot be used as a distinguishing feature over D1.

6.2.2 In decision G 2/88 (OJ EPO, 1990, 93), the Enlarged Board considered two cases, namely T 59/87 underlying the referral as well as case T 231/85. In T 59/87, the question to be decided was whether the use of a certain compound as a friction additive was anticipated by the known use of the same compound for inhibiting rust. In T 231/85, the competent board had decided that the use of a compound as fungicide was novel over the known use of the same compound as plant growth regulator. The same question concerning novelty of use claims was considered in decision G 6/88 (OJ EPO, 1990, 114, order). The Enlarged Board concluded in both of cases G 2/88 and G 6/88 that a claim to the use of a known compound for a particular purpose based on a technical effect described in the patent should be interpreted as including that technical effect as a functional technical feature, and is accordingly not open to

objection under Article 54(1) EPC provided that such technical feature has not previously been made available to the public.

6.2.3 In the cases underlying G 2/88 and G 6/88, there were two distinctly different effects, i.e. two distinctly different applications or uses for the same substance, which could clearly be distinguished from each other. Conversely, as observed in decision T 892/94 (point 3.4 of the reasons), no novelty of a claimed use exists, if the claim is directed to the use of a known substance for a known purpose, even if a newly discovered technical effect underlying said known use is indicated in that claim (see also T 189/18, point 2.4 of the reasons). This applies in the case at hand, where, as pointed out by the appellant, both claim 1 of the main request and D1 are directed to the same purpose, i.e. the reduction of fouling in an internal combustion engine.

6.2.4 In fact, D1 discloses (see in particular paragraphs [0055] and [0056]) that the lubricating composition defined therein remarkably inhibits the formation of depositing components when the diesel engine runs on a fuel containing not more than 10 mass ppm of sulfur, in particular a biodiesel fuel, such as a fuel containing alkyl esters of saturated or unsaturated fatty acids. This effect is demonstrated in the examples of D1 obtained with lubricating compositions mixed with a diesel fuel containing no more than 10 mass ppm sulfur (table 1 and paragraphs [0077] and [0078]). Even if D1 does not explicitly refer to fouling that is generated by degradation and decomposition of biofuel, by stating that a remarkable inhibition of the formation of depositing components is achieved when the diesel engine is run on biofuel, D1 discloses that fouling is reduced no matter where it originates from. Thus, the

fouling generated by the degradation and decomposition of biofuel is also reduced by using the lubricating compositions defined therein, as required by claim 1 of the main request. In other words, the same reasoning applies as is mentioned above for the examples of the patent in the discussion of sufficiency of disclosure. As set out above, the examples of the patent also do not explicitly mention that degradation and decomposition of the biofuel used in the experiments took place thus giving rise to fouling. However, it was implicitly assumed that this occurred at the high temperature used (300°C, see paragraph [0080] of the patent) so that also this specific fouling had been reduced.

6.2.5 It follows that the claimed use for reducing fouling generated by degradation and decomposition of the at least one fat and oil does not constitute a distinguishing feature over the disclosure in D1.

6.2.6 According to D1 (paragraph [0043]), the B/N ratio of the boron-containing poly(iso)butenyl succinimide used in the compositions described therein is "*not particularly limited, and may be usually not lower than 0.1 and not higher than 0.5, preferably not lower than 0.14 and not higher than 0.3, more preferably not higher than 0.2*". Therefore, the B/N ratio of 0.6 or more required by claim 1 of the main request for component (B) is a distinguishing feature over D1.

6.3 The board thus concludes that the subject-matter of claim 1 of the main request differs from D1 only in that component (B) has a B/N ratio of 0.6 or more.

7. Objective technical problem

7.1 The respondent argued that the objective technical problem was how to reduce the specific fouling

generated by the degradation and decomposition of biofuel in an internal combustion engine.

7.2 However, as set out above, the claimed reduction of the fouling generated by degradation and decomposition of the at least one fat and oil does not distinguish the claimed subject-matter from D1.

7.3 No technical effect has been put forward by the respondent as being associated with a B/N ratio of 0.6 or more for component (B) of claim 1 of the main request. In fact, the opposition division concluded that no technical effect could be associated with this feature (appealed decision, point 2.4.4 on pages 9 and 10) and this finding has not been contested by the respondent.

7.4 In the absence of any technical effect of the above-mentioned distinguishing feature, starting from the use disclosed in D1, the objective technical problem has to be considered to be the provision of an alternative composition to be used for the reduction of fouling in particular generated by the degradation and decomposition of biofuel.

8. Obviousness of the claimed solution

8.1 The respondent argued that D1 did not emphasise the use of biofuel and the problems of fouling linked therewith. As disclosed in paragraph [0056], D1 focused on low sulfur fuels and biofuel was only mentioned among other alternatives. Thus, there was no reason for the skilled person to consider D1 for solving the objective technical problem. Even considering D1, the skilled person would have learnt from paragraph [0043] to adjust the B/N ratio to a value not higher than 0.2, thus teaching away from the claimed solution.

8.2 However, as already set out above, in paragraphs [0055] and [0056], D1 explicitly mentions biofuel as an example of fuel the diesel engine can be run on; the disclosed compositions remarkably inhibit the formation of fouling and thus also the fouling generated by the degradation and decomposition of biofuel.

8.3 The skilled person, looking for a solution to the above-mentioned objective technical problem, would have found in D1 itself, paragraph [0043], the indication that the B/N ratio of the boron-containing poly(iso)butenyl succinimide used in the composition (corresponding to component (B) of claim 1 of the main request) "*is not particularly limited*". In view of this disclosure, the skilled person would have regarded the claimed range of a B/N ratio of 0.6 or more as an obvious alternative to be selected to solve the objective technical problem posed.

8.4 It is further noted that, as submitted by the appellant, boron-containing polysuccinimides having a B/N ratio higher than 0.6 are known to the skilled person at least from document D6, which discloses lubricating compositions which are to be used as high-temperature detergents in internal combustion engines and comprise *inter alia* this component with a B/N ratio ranging from 0.1 to 5.5 (pages 289 and 317 to 319).

8.5 For these reasons, the board concludes that the subject-matter of claim 1 of the main request lacks an inventive step in view of D1 as the closest prior art (Article 56 EPC). Therefore, the main request is not allowable.

Auxiliary requests 12 and 14 as filed on 6 March 2020 - power of the board to examine these auxiliary requests of its own motion

9. Auxiliary requests 12 and 14 relied on by the respondent were filed with the opposition division on 6 March 2020.

9.1 At the oral proceedings, the respondent submitted that, in its statement of grounds of appeal, the appellant had not raised any objections to the subject-matter of auxiliary requests 12 and 14 filed with the opposition division. These auxiliary requests had been relied on in the reply to the appeal. Even after this reply, no objections were raised by the appellant against these requests. The respondent acknowledged that the board had raised objections *inter alia* to auxiliary requests 12 and 14 in the communication issued under Article 15(1) RPBA. However, it questioned the board's power to raise objections *ex-officio* in the case at hand, where the appeal had not been extended to the auxiliary requests. In this respect, it referred to decision T 1439/16.

9.2 The board notes the following.

9.2.1 In its decision G 9/91 (OJ EPO, 1993, 408, order), the Enlarged Board of Appeal stated that the power of a Board of Appeal to examine and decide on the maintenance of a European patent depends upon the extent to which the patent is opposed in the notice of opposition. Moreover, as pointed out by the appellant, the Enlarged Board further ruled in opinion G 10/91 (OJ EPO, 1993, 420, point 19) that "*in case of amendments of the claims or other parts of a patent in the course of opposition or appeal proceedings, such amendments are to be fully examined as to their compatibility with the requirements of the EPC*". The Enlarged Board

further confirmed in G 9/91 (point 18 of the reasons) that Article 114(1) EPC, empowering the EPO to examine the facts of its own motion, also covers the appeal proceedings, albeit in a more restrictive manner.

9.2.2 In its notice of opposition, the appellant had opposed the patent as a whole (form 2300, point V) and requested revocation of the patent in its entirety (notice of opposition, page 1, bottom).

9.2.3 For this reason alone, since the patent was opposed in its entirety, and since, in view of G 10/91, amendments are to be fully examined as to their compatibility with the requirements of the EPC, the board in its communication issued under Article 15(1) RPBA had the power to raise objections of its own motion against *inter alia* auxiliary requests 12 and 14.

9.2.4 Furthermore, as stipulated by Article 12(1)(c) RPBA, the appeal proceedings are based *inter alia* on the reply to the appeal. Since auxiliary requests 12 and 14 were relied on by the respondent in its reply, the appeal proceedings were also based on these requests.

9.2.5 In its communication issued under Article 15(1) RPBA, the board raised objections *inter alia* against the subject-matter of auxiliary requests 12 and 14 (points 5.1 and 5.2). As stated above, the board was empowered to raise these objections, which then also became part of the appeal proceedings, see Article 12(1)(d) RPBA.

9.3 Decision T 1439/16 invoked by the respondent concerns a case in which a new objection was raised by the opponent at the oral proceedings before the board. The competent board did not admit this objection, stating (point 3 of the reasons) that the opponent should have submitted the objection well before the oral proceedings to allow both the patent proprietor and the board to prepare for a substantial discussion. The

rationale underlying T 1439/16 is thus not applicable to the current case, in which the board itself raised objections against auxiliary requests 12 and 14 well in advance of the oral proceedings.

Auxiliary request 12 - claim 1 - inventive step under Article 56 EPC

10. Claim 1 of auxiliary request 12 differs from claim 1 of the main request (point II above) only in that the B/N ratio of component (B) was amended to "*0.8 or more*".

10.1 The respondent argued that the above amendment increased the distance from D1 since D1 disclosed a maximum B/N ratio value of 0.5. The statement contained in D1 that the B/N ratio was not particularly limited could not be extended to any B/N ratio. The respondent further referred to the lack of predictability regarding fouling reduction performance when an internal combustion engine was run on biofuel. In view of the formation of polar compounds, the skilled person would not have expected the performance obtained in D1 with classic petroleum fuels also to be obtained with a biofuel. Thus, the claimed alternative was not obvious.

10.2 The board disagrees.

10.2.1 No technical effect was put forward by the respondent as being associated with the amended B/N ratio. The amendment of the B/N ratio does not therefore affect the objective technical problem, which remains the same as for the main request.

10.2.2 As stated above, D1 discloses that the B/N ratio of the boron-containing poly(iso)butenyl succinimide used in the composition "*is not particularly limited*". As set out above for claim 1 of the main request, the skilled person would have regarded the claimed range of a B/N ratio of 0.8 or more as an obvious alternative to be

selected to solve the objective technical problem posed.

10.2.3 The lack of predictability invoked by the respondent is irrelevant to the question of obviousness since, as set out above, D1 does not concern classical petroleum fuels but already discloses remarkable reduction of fouling when the engine is run on biodiesel fuel.

10.3 For the same reasons given above for claim 1 of the main request, the subject-matter of claim 1 of auxiliary request 12 also lacks an inventive step starting from D1 (Article 56 EPC). Therefore, auxiliary request 12 is not allowable.

Auxiliary request 14 - claim 1 - inventive step under Article 56 EPC

11. Claim 1 of auxiliary request 14 differs from claim 1 of the main request (point II above) in that the content of component (A) was amended to "*0.4 to 1.8 mass%*".

12. D1 as the closest prior art

12.1 It was common ground for this claim request too that D1 can constitute the closest prior art.

12.2 D1 discloses in paragraph [0037] that the content of the alkaline earth metal-based detergent, corresponding to component (A) of claim 1, "*is usually not less than 0.01 mass% and not more than 0.5 mass%*" in terms of the metal, thus overlapping with the claimed range. Accordingly, arriving at the subject-matter of claim 1 requires the selection not only of a B/N ratio as claimed but also of an amount of component (A) as claimed.

12.3 At the oral proceedings, the respondent pointed to the comparison between example 1 and comparative example 1 of the patent, the results of which are reported in

table 1 on pages 10 and 11. The board notes that in the tested compositions, the same calcium-based detergent was used (overbased calcium salicylate corresponding to component (A) of claim 1) but in substantially different amounts: 0.41 mass% in example 1 versus 0.22 mass% in comparative example 1, reflecting an amount covered by the teaching of D1 (see above). The results show that a substantially lower fouling amount was generated in example 1 as compared with comparative example 1: 0.6 mg in example 1 versus 62.3 mg in comparative example 1. This finding was not disputed by the appellant at the oral proceedings.

12.4 Therefore, the board concurs with the respondent that the selection of an amount within the claimed range for component (A) makes it possible to improve the reduction of fouling. It follows that the objective technical problem starting from D1 has to be formulated as being how to improve the reduction of fouling.

12.5 As submitted by the respondent, paragraph [0037] of D1 teaches that the content of component (A) should preferably not be more than 0.2 mass%. In accordance with this teaching, all the examples of D1 are carried out with contents of the alkaline earth metal-based detergent outside the claimed range, in particular with contents lower than 0.4 mass% (see table 1 on page 9 of D1). Example 7 of D1 has the highest amount of the alkaline earth metal, namely 0.35 mass%. However, the result in terms of the number of DPF clogging in this example is "5", which is worse than the results of the comparative examples of D1.

12.6 Therefore, the board concurs with the respondent that the skilled person would not have been prompted by D1 to blend a higher amount of the alkaline earth metal-based detergent into the lubricant composition for a

diesel engine when aiming to solve the above-mentioned objective technical problem.

12.7 For these reasons, the board concludes that the subject-matter of claim 1 of auxiliary request 14 does involve an inventive step when starting from D1 (Article 56 EPC).

13. D2 as closest prior art

13.1 The appellant argued that its objection of lack of inventive step starting from D2 against the subject-matter of claim 1 of the main request as brought forward in the statement of grounds of appeal applied *mutatis mutandis* to claim 1 of auxiliary request 14. Therefore, this objection had to be considered.

13.2 The respondent argued that this objection against auxiliary request 14 constituted an amendment to the appellant's case and requested that the objection not be admitted. However, since the board arrived at the conclusion that claim 1 of auxiliary request 14 involved an inventive step also starting from D2 (see below), there was no need for the board to decide on the admittance of the appellant's objection.

13.3 D2 discloses (paragraphs [0001], [0006], [0008], [0011] and [0016]) the use of a lubricating composition comprising *inter alia* an alkali metal or an alkaline earth metal detergent (corresponding to component (A) of claim 1), a succinimide compound (corresponding to component (B) of claim 1) and a phenol-based antioxidant and/or an amine-based antioxidant, for achieving high-temperature detergency in an internal combustion engine. According to D2 (paragraph [0065]), the content of the alkali metal or alkaline earth metal detergent ranges from 0.05 to 0.5 mass%. According to paragraphs [0036] to [0039], [0041] and [0045], the succinimide compound can be a polybutenyl succinimide,

and it can contain boron and have a B/N ratio from 0.1 to 1.2. According to paragraph [0070], the antioxidant content ranges from 0.01 to 3.0 mass%.

In view of this disclosure, the board agrees with the appellant that D2 can also be a valid starting point for the assessment of inventive step.

13.4 Distinguishing features

13.4.1 The appellant submitted that the subject-matter of claim 1 of auxiliary request 14 differed from the above disclosure in D2 only in that the engine used a biofuel.

13.4.2 The board disagrees and concurs with the respondent that, apart from the use of a fuel required by claim 1 to contain at least one fat and oil selected from a group consisting of natural fat and oil, hydrotreated natural fat and oil, transesterified natural fat and oil and hydrotreated transesterified natural fat and oil, several selections within the above disclosure in D2 are needed to arrive at the composition defined in claim 1 of auxiliary request 14, namely:

- selection of an alkaline earth metal detergent
- selection of a content of this alkaline earth metal detergent ranging from 0.4 to 1.8 mass%
- selection of a boron-containing succinimide derivative
- selection of a B/N ratio of 0.6 or more

13.5 Objective technical problem

13.5.1 The appellant argued that, even accepting that several selections had to be made within the disclosure in D2 to arrive at the composition defined in claim 1 of auxiliary request 14, these selections were not purposive, i.e. they were not linked to any technical

effect. Therefore, the objective problem had to be formulated as being the provision of an alternative fuel.

13.5.2 The board disagrees and concurs with the respondent that comparative example 1 according to the patent (table 1 on pages 10 and 11) constitutes a composition falling within the teaching of D2 reported above. In particular, this composition contains a non-borated succinimide and 0.22 mass% of a calcium-based detergent, a content falling within the preferred range according to paragraph [0065] of D2. As already pointed out in the discussion of inventive step starting from D1, a comparison of the results obtained in this comparative example 1 with those of example 1 concerning a composition falling under claim 1 of auxiliary request 14 makes it possible to conclude that a substantially higher reduction of fouling is obtained with the claimed composition. This finding was not disputed by the appellant at the oral proceedings.

13.5.3 Therefore, the board concurs with the respondent that at least the selection of the claimed range for component (A) in combination with a boron-containing succinimide leads to an improvement in the reduction of fouling. It follows that the objective technical problem starting from D2 also has to be formulated as being how to improve the reduction of fouling.

13.6 Obviousness of the claimed solution

13.6.1 The appellant argued that detergents based on an alkaline earth metal and boron-containing succinimides were preferred in D2 and thus pointed to. Moreover, the preferred detergent content and B/N ratio ranges disclosed in D2 overlapped with the corresponding claimed ranges. Additionally, the choice of biofuel was obvious since this type of fuel was well known in the

art at the filing date of the patent, as shown by D1 and reported by the patent itself in paragraph [0003]. Moreover, biofuels fell fully within the teaching of D2, which was directed to applications of the lubricating compositions described therein in internal combustion engines using low sulfur content fuels, see paragraph [0016]. Hence, the claimed solution was obvious.

13.6.2 These arguments are not convincing. D2 neither discloses nor suggests that a composition containing a boron derivative of a succinimide in combination with an alkaline earth metal-based detergent in an amount of 0.4 to 1.8 mass% would lead to an improvement in the reduction of fouling. As stated above, D1 teaches that the content of the alkaline earth metal-based detergent should preferably be no more than 0.2 mass%. It follows that the skilled person faced with the above-mentioned objective technical problem would not have been prompted towards the claimed solution either by D2 or indeed when considering D1.

13.7 The board thus concludes that the subject-matter of claim 1 of auxiliary request 14 also involves an inventive step starting from D2 (Article 56 EPC).

Auxiliary request 14 - sufficiency of disclosure under Article 83 EPC

14. At the oral proceedings, the appellant stated that its objection of lack of sufficiency of disclosure against the main request applied *mutatis mutandis* to the subject-matter of auxiliary request 14. It referred to its arguments brought forward in writing against the main request.

15. However, as already explained above in relation to the main request, these arguments are not convincing. The same observations by the board apply as for the main

request. Therefore, the board concludes that the subject-matter of the claims of auxiliary request 14 is sufficiently disclosed, thus meeting the requirements of Article 83 EPC.

Conclusion

16. No other objections were raised by the appellant against the subject-matter of the claims of auxiliary request 14. Hence, the board concludes that auxiliary request 14 is allowable.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the opposition division with the order to maintain the patent on the basis of the claims of auxiliary request 14 filed on 6 March 2020 and a description to be possibly adapted thereto.

The Registrar: The Chairman:

H. Jenney M. O. Müller

Decision electronically authenticated