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**Datasheet for the decision  
of 13 January 2022**

**Case Number:** T 1152/16 - 3.3.02

**Application Number:** 09158603.2

**Publication Number:** 2177595

**IPC:** C10M141/06, C10N30/10

**Language of the proceedings:** EN

**Title of invention:**

Lubricating composition with good oxidative stability and reduced deposit formation

**Patent Proprietor:**

Afton Chemical Corporation

**Opponents:**

LANXESS Deutschland GmbH  
BASF SE

**Headword:**

**Relevant legal provisions:**

RPBA Art. 12(4)  
RPBA 2020 Art. 13  
EPC Art. 100(b), 100(c), 123(2), 54, 56

**Keyword:**

Late-filed evidence - submitted with the reply to the statement of grounds of appeal

Late-filed request - submitted during oral proceedings - no amendment of the appeal case

Grounds for opposition - insufficiency of disclosure - added subject-matter

Amendments

Novelty

Inventive step

**Decisions cited:**

T 0198/84, T 0279/89, T 0653/93, T 0929/00, T 1480/16,

T 0981/17, T 0995/18, T 1151/18, T 2243/18, T 1792/19,

T 1857/19

**Catchword:**



**Beschwerdekammern**  
**Boards of Appeal**  
**Chambres de recours**

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 1152/16 - 3.3.02

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.02**  
**of 13 January 2022**

**Appellant:** Afton Chemical Corporation  
(Patent Proprietor) 500 Spring Street  
Richmond, VA 23219 (US)

**Representative:** SSM Sandmair  
Patentanwälte Rechtsanwalt  
Partnerschaft mbB  
Joseph-Wild-Straße 20  
81829 München (DE)

**Respondent:** LANXESS Deutschland GmbH  
(Opponent 1) Kennedyplatz 1  
50679 Köln (DE)

**Representative:** Siegers, Britta  
LANXESS Deutschland GmbH  
LEX-IPR  
Kennedyplatz 1  
50569 Köln (DE)

**Respondent:** BASF SE  
(Opponent 2) 67056 Ludwigshafen (DE)

**Representative:** Lux, Berthold  
Maiwald Patentanwalts- und  
Rechtsanwaltsgesellschaft mbH  
Elisenhof  
Elisenstraße 3  
80335 München (DE)

**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 7 March 2016  
revoking European patent No. 2 177 595 pursuant  
to Article 101(2) and 101(3) (b) EPC.**

**Composition of the Board:**

**Chairman**            M. O. Müller  
**Members:**            A. Lenzen  
                              L. Bühler

## Summary of Facts and Submissions

- I. This decision concerns the appeal filed by the patent proprietor (appellant) against the opposition division's decision (decision under appeal) to revoke European patent No. 2 177 595 (patent).
- II. Before the opposition division, both opponent 1 (respondent 1) and opponent 2 (respondent 2) requested that the patent be revoked in its entirety based on the grounds for opposition pursuant to Article 100(a) (lack of novelty and lack of inventive step), 100(b) and 100(c) EPC.
- III. The following documents are referred to in this decision:
- |         |   |
|---------|---|
| D1      | A. Yano et al., Study on Sludge Formation during the Oxidation Process of Turbine Oils, Tribology Transactions, vol. 47, 2004, pages 111 to 122 |
| D2      | DE 34 46 630 A1   |
| D3      | Datasheet Ciba® IRGAMET® 39   |
| D4      | US 4,701,273  |
| D6      | US 6,207,623  |
| D7      | EP 1 054 052 A2   |
| D8      | WO 2008/009704 A1   |
| Annex C | appellant's submission dated 6 November 2015  |
- IV. The decision under appeal is based, *inter alia*, on the patent as granted and a third auxiliary request, filed during the oral proceedings before the opposition division. The decision can be summarised as follows:

- The experimental data contained in annex C were not admitted.
- Contrary to Article 100(c) EPC, the subject-matter of independent use claim 1 of the patent as granted extended beyond the content of the application as filed because of the feature "*to reduce the formation of sludge and other deposits*".
- The third auxiliary request met the requirements of Articles 123(2) and (3), 84, 83 and 54 EPC; however, its claimed subject-matter did not involve an inventive step over D8 as the closest prior art. In particular, the experimental data in the patent, more specifically a comparison of example 7 with comparative example 8\*, showed that the distinguishing feature over D8 was not associated with the technical effect of sludge reduction.

V. With its statement of grounds of appeal, the appellant filed:

- A025 H. R. Christen, F. Vögtle, Grundlagen der Organischen Chemie, 1989, page 136
- A026 Wikipedia: 1-Naphthylamine
- A027 Wikipedia: 2-Naphthylamine
- A028 Römpp Chemie Lexikon, 9th edition, 1991, pages 2903, 2904 and 2909
- A029 Ullmanns Encyklopädie der technischen Chemie, third edition, vol. 12, 1960, pages 623 to 625
- A030 Nomenclature of fused and bridged fused ring systems, Pure & Appl. Chem., vol. 70, no. 1, 1998, pages 143 to 216
- A031 Affidavit Mr D. Edwards
- A032 Lubricant Additives, Chemistry and Applications, second edition, 2009, pages 10 to 12, 585 and 594
- A033 Lubricant Additives, Chemistry and

Applications, 2003, pages 524 to 525  
A034 Synthetics, Mineral Oils and Bio-Based  
Lubricants, Chemistry and Technology, second  
edition, page 707

VI. The following documents were filed with the  
respondents' replies to the statement of grounds of  
appeal:

A035 JP 2008045111 A  
A036 English machine translation of the  
specification of A035  
A037 English machine translation of the claims of  
A035  
A038 S. Prasad, Formulating Low Varnish Turbine  
Technology - lubricant additives with improved  
deposit control, Lube Magazine no. 114, 2013,  
pages 22 to 27  
A039 English machine translation of A035

VII. With its letter dated 12 March 2018, respondent 2  
filed:

A040 Human translation of A035

VIII. In preparation for the oral proceedings, scheduled at  
the parties' request, the board issued a communication  
pursuant to Article 15(1) RPBA 2020.

IX. Oral proceedings before the board were held by  
videoconference on 13 January 2022 in the presence of  
all parties.

X. The parties' final requests were as follows.

The appellant requested that the decision under appeal be set aside and that the oppositions be rejected, implying that it was requesting that the patent be maintained as granted (main request), and alternatively it requested that the patent be maintained in amended form based on the following sets of claims together with the same amended description in each case, from which amended description the last sentence of paragraph [0022] of the patent as granted had been deleted:

- the claims as granted (main request A),
- the first auxiliary request filed with the statement of grounds of appeal,
- the first auxiliary request A filed with the letter of 8 March 2019,
- the first auxiliary request B filed during the oral proceedings on 13 January 2022,
- the second auxiliary request filed with the statement of grounds of appeal,
- the second auxiliary request A filed with the letter of 8 March 2019,
- the third auxiliary request filed with the statement of grounds of appeal,
- the third auxiliary request A filed with the letter of 8 March 2019,
- the fourth auxiliary request filed with the statement of grounds of appeal, and
- the fifth auxiliary request filed with the statement of grounds of appeal.

The appellant further requested

- that A025 to A034 be admitted,



- that the experimental evidence contained in annex C be admitted, i.e. that the opposition division's decision not to admit it be reversed,
- that the respondents' inventive-step objections starting from D1, D4 or D7 as the closest prior art not be admitted, and that, if these objections were admitted, the case be remitted to the opposition division for further prosecution,
- that A035 to A040 not be admitted,
- that the respondents' submission regarding the error margins in the patent not be admitted, and
- that questions be referred to the Enlarged Board of Appeal if the board maintained its preliminary opinion with respect to "*allowing the correct reading of D8*" (for the wording of the questions, see the minutes).

Respondent 1 and respondent 2 requested that the appeal be dismissed, implying that they were requesting that the decision under appeal be affirmed and that the revocation of the patent become final.

They also requested

- that the appellant's sets of claims not be admitted,
- that the appellant's experimental evidence contained in annex C not be admitted, i.e. that the opposition division's decision not to admit annex C be affirmed, and
- that A025 to A034 not be admitted.

Respondent 2 also requested that the appellant's submission according to which D8 referred to alkylated phenyl- $\beta$ -naphthylamine instead of alkylated phenyl- $\alpha$ -naphthylamine not be admitted.

XI. The appellant's appeal case, where relevant for the present decision, can be summarised as follows.

- A038 was not relevant and could and should have been filed in the opposition period. It was not to be admitted.
- Claim 9 of main request A was based on the application as filed. The statement in paragraph [0052] of the application as filed was to be understood as a general statement which was not limited to the examples discussed in this paragraph. Furthermore, the number of possible base oils in claim 9 of main request A was limited compared with e.g. claim 4 as filed; however, this limitation did not amount to a selection, but merely a shortened list. Claim 9 of main request A therefore met the requirements of Article 100(c) EPC. The same applied to claim 9 of the main request, the first auxiliary request and the first auxiliary request A.
- In view of the course of the proceedings, there was no reason why the first auxiliary request B should have been filed before the opposition division. In addition, its subject-matter was not complex and it did not raise any new issues. It was to be admitted.
- The effect recited in claim 1 was attributed to alkylated phenyl- $\alpha$ -naphthylamine in paragraph [0023] of the application as filed. It was only logical that a composition comprising this compound could be used for the same effect. The subject-matter of claim 1 of the first auxiliary request B therefore did not extend beyond the content of the application as filed.

- In its communication pursuant to Article 15(1) RPBA 2020, the board had set out why the invention according to claim 1 of main request A was sufficiently disclosed. The same reasoning applied to claim 1 of the first auxiliary request B as it was identical to claim 1 of main request A.
- As set out in the decision under appeal and in the board's communication pursuant to Article 15(1) RPBA 2020, the subject-matter of claim 1 of main request A could only be arrived at after multiple selections from D8/A035. The same conclusion had to apply to claim 1 of the first auxiliary request B. Therefore, the subject-matter of claim 1 of the first auxiliary request B was novel over D8 and A035.
- Contrary to the purpose of claim 1 of the first auxiliary request B, D4 did not relate to turbines and the reduction in sludge. D4 dealt with the problem of oxidation resistance of lubricating compositions. This problem was not related to the formation of sludge. D4 could not be considered as the closest prior art. The absence of (alkylated derivatives of) diphenylamine and/or the presence of an oil soluble triazole in a quantity as recited in claim 1 distinguished the subject-matter of claim 1 from D8/A035, D1 and D7. The experimental data in the patent showed that these distinguishing features were associated with reduced sludge formation. As borne out by D5, there was no relationship between this effect and oxidation resistance. In this context, contrary to the respondents' submissions, it was not possible to focus only on comparative example 8\* in order to draw a conclusion on example 7. Because the composition in comparative example 8\* was identical to that in comparative example 9\*, both had to be

considered. The objective technical problem was to improve the use disclosed in D8/A035, D1 and D7 in terms of sludge reduction. The solution to this problem was not rendered obvious by any of the cited prior-art documents. Consequently, the subject-matter of claim 1 involved an inventive step.

XII. The respondents' appeal cases, where relevant for the present decision, can be summarised as follows.

- A038 was *prima facie* relevant and its filing was prompted by the appellant's undue emphasis in its statement of grounds of appeal on the data in the patent obtained after a run time of 500 hours. A038 was to be admitted.
- The subject-matter of claim 9 of main request A amounted to an unallowable intermediate generalisation. Main request A was therefore not allowable. The same reasoning applied to claim 9 of the main request, the first auxiliary request and the first auxiliary request A.
- The set of claims in the first auxiliary request B only differed from that in main request A in that the composition claims 9 to 15 had been deleted; however, the respondents had filed objections against the deleted claims at a very early stage in the proceedings before the opposition division. The first auxiliary request B therefore could and should have been filed earlier and it was not to be admitted based on Article 12(4) RPBA 2007. In any event, the filing of a new request amounted to an amendment to the appellant's appeal case; however, the requirements of Article 13(2) RPBA 2020 were not met in the present case. Therefore, the first

auxiliary request B was not to be admitted under this provision either.

- The decision under appeal correctly found that the subject-matter of claim 1 of the first auxiliary request B extended beyond the content of the application as filed.
- The invention as stipulated in claim 1 of the first auxiliary request B was not sufficiently disclosed. It was not derivable from the application as filed how the reduction in "*other deposits*" could be measured.
- The subject-matter of claim 1 of the first auxiliary request B lacked novelty over D8 and A035.
- The subject-matter of claim 1 of the first auxiliary request B did not involve an inventive step over D4, D8/A035, D1 or D7 as the closest prior art. If the distinguishing feature of claim 1 over D8/A035 were to be seen in the absence of (alkylated derivatives of) diphenylamine, the data in the patent showed that it was not associated with any technical effect. As was clear from D1 the run times tested in the patent were much shorter than what was usually considered necessary. Therefore, with respect to D8/A035, the objective technical problem was to provide an alternative use. Said alternative use was obvious based on D8 alone or based on D8 in combination with D2/D4. With respect to D1 the objective technical problem was to provide a high-performance oil with continued beneficial properties. The solution to this problem was obvious based on a combination of D1 with one of D2 to D4 or D6 to D8. With respect to D7, the objective technical problem was to provide an alternative use. The solution to this problem was obvious based on D7 alone.

## Reasons for the Decision

Admittance of A038 (Article 12(4) RPBA 2007)

1. A038 was filed by respondent 1 with its reply to the statement of grounds of appeal in relation to its arguments on inventive step. It served to show that the modified MHI Dry TOST test was afflicted with a significant error and that the results in the patent obtained with this test were not meaningful. Therefore, no technical effect could be derived from these results. The appellant requested that A038 not be admitted.
  
2. A038 was published in April 2013, i.e. within the opposition period of the patent. Therefore, A038 could have been filed during the opposition period or at least in good time prior to the oral proceedings before the opposition division, which took place on 3 December 2015, i.e. more than two years after the publication of A038.

The *prima facie* relevance, as referred to by respondent 1, is not a criterion that a board of appeal must necessarily apply when deciding on the admittance of a new piece of evidence. Instead, the decisive factor is whether or not there are good reasons which justify it only being filed on appeal. In this context, respondent 1 argued that the filing of A038 was prompted by the fact that the appellant had emphasised the data in the granted patent in its statement of grounds of appeal. This is not convincing because these data and, in particular the question of whether a technical effect can be derived from them, were already the subject of the opposition proceedings. Therefore,

A038 should also have been filed in good time prior to the oral proceedings before the opposition division.

At the oral proceedings, the board therefore decided to hold A038 inadmissible (Article 12(4) RPBA 2007).

Main request A

3. The appellant's main request A was filed with its statement of grounds of appeal and this request was that the patent be maintained in amended form based on the set of claims as granted together with a description from which the last sentence of paragraph [0022] of the patent was deleted. Contrary to the respondents' request, at the oral proceedings the board decided not to hold main request A inadmissible (Article 12(4) RPBA 2007). Because it is not allowable (see below), there is no need to give reasons for this decision.
4. Amendments (Article 100(c) EPC)
  - 4.1 The respondents argued that the subject-matter of claim 9 extended beyond the content of the application as filed.
  - 4.2 Claim 9 of main request A reads as follows (amendments shown compared with claim 1 as filed):

*"A composition comprising an oil of lubricating viscosity **selected from API Group II, III and IV base stocks, 0.15 - 0.5 wt% of an alkylated phenyl- $\alpha$ -naphthyl amine as the sole antioxidant** and at least one oil soluble triazole or derivative thereof **as a metal deactivator**, wherein said composition is free of diphenylamine and alkylated*

*derivatives of diphenylamine, wherein the triazole or derivative thereof is present in the range of 0.01 - 0.04 wt%."*

4.3 The respondents' objection was based on the following two amendments, *inter alia*:

- (a) the alkylated phenyl- $\alpha$ -naphthyl amine has been specified to be the sole antioxidant
- (b) the oil of lubricating viscosity is now selected from API group II, III and IV base stocks

4.4 As a basis for amendment (a), the appellant referred to paragraphs [0009], [0025] and [0052] of the application as filed.

However, as correctly pointed out by respondent 1, paragraphs [0009] and [0025] of the application as filed relate to concentrates. Because these concentrates still have to be combined with a lubricating oil to give the final lubricating composition, the concentrates referred to in paragraphs [0009] and [0025] are different from the lubricating composition in claim 9. For this reason, paragraphs [0009] and [0025] do not provide a basis for amendment (a).

Paragraph [0052] of the application as filed reads as follows (emphases added; APANA is the abbreviation for alkylated phenyl- $\alpha$ -naphthylamine):

**"The data in Table 3 also indicate that best results are obtained when APANA is used as the only antioxidant. For example, a comparison of Example 4 versus 5 and 6 demonstrates that Example 4 (containing APANA as the only antioxidant) showed**



*less sludge and greater residual RPVOT. Similar results are seen in comparison of Example 7 with Examples 8 and 9."*

This paragraph compares results obtained with compositions according to the invention (examples 4 and 7 of the application as filed) and with compositions not according to the invention (examples 5, 6, 8 and 9 of the application as filed). As provided in claim 9, although the compositions in examples 4 and 7 of the application as filed do contain alkylated phenyl- $\alpha$ -naphthylamine as the sole antioxidant, as correctly pointed out by respondent 2, the fact that these compositions only contain an API group II oil as the lubricating oil, for example, is not found in the wording of claim 9. In contrast, by way of amendment (b), claim 9 allows the oil to be "*selected from API Group II, III and IV base stocks*", which is broader than examples 4 and 7 of the application as filed. Extracting, in claim 9, phenyl- $\alpha$ -naphthylamine as the sole antioxidant from paragraph [0052] of the application as filed while ignoring the fact that this paragraph deals with compositions containing API group II oils as the sole oil would be allowable only if the type of lubricating oil were considered by the skilled person to have no influence on the properties addressed in paragraph [0052], i.e. the formation of sludge and the residual RPVOT. The appellant did not, however, provide any argument as to why the skilled person, on the basis of the application as filed and their common general knowledge, would not consider the type of oil to be linked to sludge formation and residual RPVOT. In fact, D1 (paragraph bridging pages 117 and 118; page 121, conclusion no. 3(b)) recommends the use of API group II and III oils over other oils to reduce sludge. Hence, if anything, the skilled person would consider

the type of oil to have an impact on sludge formation. Consequently, the subject-matter of claim 9 is the result of a non-allowable intermediate generalisation.

It follows that the subject-matter of claim 9 of main request A extends beyond the content of the application as filed, contrary to Article 100(c) EPC. Main request A is therefore not allowable.

Main request, first auxiliary request and first auxiliary request A

5. Claim 9 of the main request is identical to claim 9 of main request A. The reasoning given above for main request A therefore also applies to the main request.

The respective claims 9 of the first auxiliary request and the first auxiliary request A only differ from claim 9 of main request A with regard to the definition of the "*oil soluble triazole or derivative thereof*". Notably, the respective claims 9 still feature the same combination of amendments (a) and (b) as discussed above for main request A. The reasoning given above therefore also applies, *mutatis mutandis*, to the first auxiliary request and the first auxiliary request A.

Therefore, none of the main request, the first auxiliary request and the first auxiliary request A is allowable. As they are not allowable, there was no need to decide on their admittance at the oral proceedings.

First auxiliary request B

6. The appellant's first auxiliary request B was filed during the oral proceedings before the board. It comprises a set of claims and a description from which

the last sentence of paragraph [0022] of the patent has been deleted. Said set of claims consists of eight use claims. They are identical to claims 1 to 8 as granted. Hence, the set of claims in the first auxiliary request B differs from that in the granted patent only in that claims 9 to 15 of the latter have been deleted. Claims 9 to 15 of the granted patent are composition claims.

7. Admittance (Article 12(4) RPBA 2007 and Article 13 RPBA 2020)

Both respondents requested that the first auxiliary request B not be admitted. Objections to claim 9 as granted had been raised by the respondents at a very early stage before the opposition division. Therefore, claims 9 to 15 as granted could and should have been deleted and the first auxiliary request B could and should have been filed before the opposition division. It was thus not to be admitted pursuant to Article 12(4) RPBA 2007. In any case, the filing of a new request was an amendment to a party's appeal case, i.e. the appellant's appeal case here. Contrary to Article 13(2) RPBA 2020, there were no exceptional circumstances justified with cogent reasons which could possibly have legitimated the filing of the first auxiliary request B only at the oral proceedings before the board. Furthermore, in its communication pursuant to Article 15(1) RPBA 2020 the board had indicated that claim 1 as granted appeared to be allowable. The fact that the appellant did not respond immediately to the board's communication by filing a claim request consisting of claims 1 to 8 as granted, but instead waited until the oral proceedings before the board to file such a request, amounted to an abuse of procedure.

For the admittance of the first auxiliary request B, the history of the case needs to be taken into account. Before the opposition division, objections were raised to both claims 1 and 9 as granted by the respondents under Article 100(c) EPC. As is clear from its preliminary opinion (annex to the summons, last paragraph on page 5), the opposition division considered the feature "*to reduce the formation of sludge and other deposits*" in claim 1 as granted to contravene Article 100(c) EPC. In the further course of the proceedings, the appellant addressed this objection in its auxiliary requests to the satisfaction of the opposition division by replacing this feature with "*to provide oxidative stability and to reduce the formation of sludge and varnish deposits*". Consequently, the departure from claim 1 as granted was prompted by the opposition division's assessment. Therefore, although the first auxiliary request B could have been filed before the opposition division, there is no reason why it also should have been filed then. The first auxiliary request B therefore cannot be held inadmissible based on Article 12(4) RPBA 2007.

Furthermore, the filing of a new request by a party, in this case the appellant, constitutes an amendment to its appeal case only if new aspects have to be discussed as a result (T 1480/16, point 2.3 of the Reasons; T 995/18, point 2 of the Reasons; T 981/17, point 3 of the Reasons; T 2243/18, point 2 of the Reasons; T 1792/19, point 2 of the Reasons; T 1151/18, point 2.1 of the Reasons; T 1857/19, point 1.1 of the Reasons); however, the respondents did not argue that precisely this was the case. The board also fails to see why the fact that the set of claims in the first auxiliary request B consists of claims 1 to 8 as granted and no longer comprises claims 9 to 15 as

granted should make it necessary to discuss new aspects. Therefore, the filing of the first auxiliary request B does not constitute an amendment to the appellant's appeal case. Consequently, it is not at the board's discretion to hold it inadmissible pursuant to Article 13 RPBA 2020. For the same reason, the filing of auxiliary request B only at the oral proceedings before the board does not amount to an abuse of procedure. Hence, the board decided to admit the first auxiliary request B.

8. Amendments (Articles 100(c) and 123(2) EPC)

8.1 Claim 1 of the first auxiliary request B reads as follows (amendments shown compared with a combination of claim 1 (composition claim) and claim 13 as filed (use claim which refers back to claim 1)):

*"Use of a composition **for lubricating a turbine** ~~to lubricate a turbine~~ **to reduce the formation of sludge and other deposits**, wherein said composition comprises an oil of lubricating viscosity, **0.15 - 0.5 wt% of an alkylated phenyl- $\alpha$ -naphthylamine** and at least one oil soluble triazole or derivative thereof, wherein said composition is free of diphenylamine and alkylated derivatives of diphenylamine, **wherein the triazole or derivative thereof is present in the range of 0.01 - 0.04 wt %.**"*

Therefore, the following amendments have been made to claim 1 compared with the combination of claims 1 and 13 as filed:

- (a) the feature "*to lubricate a turbine*" has been replaced with the feature "*for lubricating a turbine*"
- (b) the composition has been limited with regard to the quantities of the alkylated phenyl- $\alpha$ -naphthyl amine and of the oil soluble triazole or derivative thereof (herein also abbreviated as "(derivative of) the oil soluble triazole")
- (c) the use has been specified more precisely as "*to reduce the formation of sludge and other deposits*"

The two features mentioned under (a) are synonymous. Claims 7 and 8 as filed provide a basis for the amendments mentioned under (b). The amendments (a) and (b) therefore do not result in subject-matter which extends beyond the content of the application as filed. This was also not challenged by the respondents.

The respondents argued, however, that this precisely applied to amendment (c). More specifically, the effect "*to reduce the formation of sludge and other deposits*" was attributed in paragraph [0023] of the application as filed to the alkylated phenyl- $\alpha$ -naphthylamine itself, but not to a composition comprising it. After all, a composition comprising alkylated phenyl- $\alpha$ -naphthylamine could comprise further additives which might have an influence on this effect. As is clear from the decision under appeal (point 3.2.2 on page 6 f.), the opposition division accepted this argument.

The board acknowledges that the statement that a certain compound exhibits a certain effect purely theoretically includes the possibility that a composition containing that compound does not exhibit that effect, e.g. because the composition contains additional constituents which nullify the effect;

however, where an application as filed deals with chemical compositions and their use (see, for example, paragraph [0001] and claim 13) and attributes a particular technical effect to a constituent of those compositions, as in the present case, it would generally not make technical sense to assume that this effect is present for the constituent alone but not for the compositions dealt with in the application as filed. In that case, the reference to the effect in the application as filed would be completely meaningless. Therefore, amendment (c) does not result in subject-matter which extends beyond the content of the application as filed either.

8.2 As far as dependent claims 2 to 8 are concerned, the respondents did not raise any objections beyond those raised to claim 1. The board is convinced that the subject-matter of the dependent claims does not extend beyond the content of the application as filed either.

8.3 Apart from the claim amendments discussed above, the first auxiliary request B also contains an amended paragraph [0022]. This paragraph reads as follows (amendment shown compared with paragraph [0022] as filed):

*" ... Quite unexpectedly, however, the inventors have determined that even better results are achieved using alkylated phenyl-a-naphthyl amine ("APANA") as the antioxidant when used in combination with the oil soluble triazole or derivative thereof. Indeed, the present inventors have discovered that the addition of alkylated diphenylamine actually is detrimental in the sense that it increases the amount of sludge formation without any benefit in oxidative stability.*

~~Accordingly, in particularly preferred embodiments the lubricating compositions are free of diphenylamine ("DPA") and alkylated derivatives thereof. By stating that the compositions are "free of" DPA and alkylated derivatives, we do not mean to exclude compositions that contain minor amounts of DPA or the alkylated derivatives thereof; that is, compositions containing DPA or alkylated derivatives thereof in amounts that do not appreciably increase the amount of sludge formation or otherwise negate the beneficial effects of the compositions of the present disclosure."~~

Therefore, compared with paragraph [0022] as filed, the last sentence has now been deleted.

The board cannot follow the respondents' view that this amendment resulted in subject-matter extending beyond the content of the application as filed. While this last sentence allows for minor quantities of diphenylamine and alkylated derivatives of diphenylamine (herein also abbreviated as "(alkylated derivatives of) diphenylamine") in the composition, the rest of the paragraph makes it perfectly clear that the composition preferably does not contain (alkylated derivatives of) diphenylamine at all. The deletion of the last sentence of paragraph [0022] is thus only a restriction to a preferred embodiment and is not objectionable under Article 123(2) EPC.

8.4 In summary, the first auxiliary request B is based on the application as filed.



9. Sufficiency (Article 100(b) EPC)

Claim 1 relates to the "[u]se of a composition for lubricating a turbine **to reduce the formation of sludge and other deposits** [...]" (emphasis added).

Respondent 2 argued that the modified MHI Dry TOST test as performed in the examples of the patent (paragraph [0049] and table 3 of the patent) could only be used to determine sludge formation and that consequently it was not derivable from the application how the reduction in "other deposits" could be measured. Therefore, the invention as stipulated in claim 1 of the first auxiliary request B was not sufficiently disclosed.

The board agrees with the appellant that the application as filed consistently refers either to "sludge and other deposits" or to "sludge and varnish deposit[s]" and that, consequently, the skilled person would regard both "other deposits" and "varnish deposits" as being synonymous in the context of the application as filed. Furthermore, the opposition division accepted the expert's analysis provided by the appellant, according to which both sludge and varnish deposits could be measured using the MHI Dry TOST test (decision under appeal, point 6.5.3 on page 16). On appeal, the respondents did not disprove the expert's analysis. Therefore, in its communication pursuant to Article 15(1) RPBA 2020, the board had set out that it agreed with the opposition division on this issue. After the board's communication was issued and in particular at the oral proceedings, the respondents did not make further submissions in this regard. The board therefore saw no reason to deviate from its preliminary view. The invention as stipulated in claim 1 of the first auxiliary request B is sufficiently disclosed.

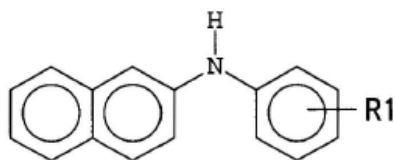
10. Novelty (Article 54 EPC) - D8 and A035

10.1 The use according to claim 1 requires, *inter alia*, that the composition

- comprises 0.15 to 0.5 wt% of an alkylated phenyl- $\alpha$ -naphthylamine
- comprises 0.01 to 0.04 wt% of an oil soluble triazole or derivative thereof
- is free of (alkylated derivatives of) diphenylamine.

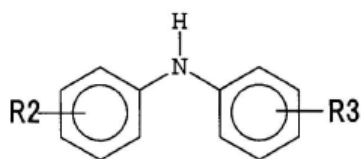
10.2 Both respondents formulated novelty objections against claim 1 based on D8, or in the alternative A035, arguing in particular that the above combination of features was directly and unambiguously disclosed in D8/A035.

10.3 D8 relates to a lubricating-oil composition for use in turbines, said composition displaying a high level of anti-sludge properties (page 3, lines 20 to 28; claims 1 and 11). An aromatic amine compound can be incorporated into the lubricating-oil composition, and as such aromatic amine compounds, phenyl- $\alpha$ -naphthylamine compounds of formula (6)



(6)

and dialkyl-diphenylamine compounds of formula (7)



(7)

are preferably used (page 15, line 8 to page 19, line 6; claims 1, 7 and 8). The aromatic amine compounds represented by these formulae (6) and (7) can be used alone or as mixtures. In the most preferred embodiment the lubricating-oil composition contains 0.05 to 1.0 wt% of the aromatic amine compound (page 19, lines 7 to 29). Further additives can be added to the lubricating-oil composition such as, *inter alia*, metal-deactivating agents such as benzotriazole or derivatives thereof. These correspond to the (derivative of the) oil soluble triazole as required by claim 1. When present in the lubricating-oil composition, the metal-deactivating agents are preferably contained in a quantity of 0.005 to 1 wt% (page 19, line 30 to page 20, line 14).

10.4 It was common ground between the parties that formula (6) of D8 depicted alkylated phenyl- $\beta$ -naphthylamines but not alkylated phenyl- $\alpha$ -naphthylamines; however, the parties disagreed on whether this could call into question the remaining disclosure of D8, which always refers to the  $\alpha$  form. In this context, the appellant referred to A025 to A034. Even if the respondents' view is accepted in their favour, namely that the entire disclosure of D8 unequivocally relates to alkylated phenyl- $\alpha$ -naphthylamines as required by claim 1, novelty over D8 still has to be acknowledged, for the following reasons.

10.5 D8 discloses that the aromatic amine compounds of formulae (6) and (7) can be incorporated into the lubricating-oil composition alone or as a mixture. Accepting the respondents' view as set out above, this amounts to D8 disclosing that alkylated phenyl- $\alpha$ -naphthylamines can be used alone or as a mixture with dialkyl-diphenylamines. While the sole use of alkylated phenyl- $\alpha$ -naphthylamines excludes the use of dialkyl-diphenylamines and thus also realises the feature of claim 1 according to which the composition is free of (alkylated derivatives of) diphenylamine, the sole use of compounds of one formula, namely formula (6) of D8, nevertheless implies a first selection over the sole use of compounds of the other formula, namely formula (7) of D8, or the use of a mixture of compounds of both formulae.

To arrive at the subject-matter of claim 1, at least the following further selections from the disclosure of D8 are required:

- According to D8, the most preferred range for the content of the phenyl- $\alpha$ -naphthylamines (aromatic amine compounds) is 0.05 to 1.0 wt%. In contrast, the corresponding range in claim 1 for the alkylated phenyl- $\alpha$ -naphthylamine ("0.15 - 0.5 wt%") is narrower.
- Similarly, according to D8, the most preferred range for the content of the metal-deactivating agent benzotriazole is 0.005 to 1 wt%. In contrast, the corresponding range in claim 1 for the oil soluble triazole is narrower (0.01 - 0.04 wt%).

Therefore, at least three selections from the disclosure of D8 are required to arrive at claim 1 of the first auxiliary request B, even assuming that D8

discloses phenyl- $\alpha$ -naphthylamine, as argued by the respondents. It is established case law that such a multiple selection establishes novelty unless there are pointers in the relevant prior-art document to the combination which is ultimately claimed (T 653/93, point 3.2.2 of the Reasons). In this regard, the respondents referred to the examples in D8, in particular examples 1 and 2 in table 1, arguing that they contained alkylated phenyl- $\alpha$ -naphthylamine and benzotriazole in quantities of 0.2 and 0.03 wt%, respectively, and that these values fell within the ranges recited in claim 1.

In the board's view, this argument is not convincing. D8 (examples in tables 1 to 3 together with page 22, lines 23, 24 and 26) discloses specific lubricating-oil compositions comprising:

- (i) 0.2 wt% of an "*alkylated phenylnaphthylamine*"
- (ii) 0.1 wt% of "*octylated & butylated diphenylamine*"
- (iii) 0.03 wt% of benzotriazole.

Hence, as indeed argued by the respondents, the compositions in these examples contain alkylated phenyl- $\alpha$ -naphthylamine and benzotriazole in quantities of 0.2 and 0.03 wt%, respectively, and these values fall within the ranges recited in claim 1; however, the respondents' argument ignores the fact that these compositions further contain "*octylated & butylated diphenylamine*", i.e. an alkylated derivative of diphenylamine, the presence of which is expressly excluded by the wording of claim 1. If the respondents' argument were nevertheless accepted, this would amount to accepting individual parts of a specific composition

as pointers while simply ignoring other parts of the same composition pointing in an entirely different direction with regard to the claim at issue.

With regard to the two selections of numerical ranges from the disclosure of D8, contrary to the submission by respondent 1, it is irrelevant whether or not one or both of the selected ranges are narrow in comparison with the corresponding broader ranges disclosed in D8. This is because the criteria established for a single selection of a numerical range from a known broader range (see in particular T 198/84 and T 279/89) are not applicable to the selection of several numerical ranges (T 653/93, point 3.6 of the Reasons; T 929/00, point 2.6 of the Reasons).

It follows that the subject-matter of claim 1, and consequently also that of its dependent claims 2 to 8, is novel over D8, even assuming in the respondents' favour that D8 discloses phenyl- $\alpha$ -naphthylamine.

10.6 Since novelty could be acknowledged even if the appellant's submission based on A025 to A034 was ignored in the respondents' favour, at the oral proceedings there was no need to decide on the admittance of A025 to A034 and on the appellant's request that questions be referred to the Enlarged Board of Appeal if the board did not follow the appellant's interpretation of D8.

Furthermore, there was no need to decide on the request by respondent 2 not to admit the appellant's allegation that D8 referred to alkylated phenyl- $\beta$ -naphthylamine instead of alkylated phenyl- $\alpha$ -naphthylamine, because novelty has been acknowledged accepting the

respondents' view that D8 unequivocally relates to alkylated phenyl- $\alpha$ -naphthylamines.

- 10.7 In the alternative to D8, both respondents referred to A035, a Japanese patent family member of D8. The respondents argued that the disclosure of A035 (as evidenced by its translations A036, A037, A039 and A040) differed from that of D8 only in that A035 depicted the correct structure for the alkylated phenyl- $\alpha$ -naphthylamines in formula (6). If novelty over D8 were acknowledged based on the fact that a wrong structure was shown in formula (6), then it could not be acknowledged over A035.

However, novelty over D8 was acknowledged above assuming, in the respondents' favour, that the entire disclosure of D8 and thus also formula (6) unequivocally related to alkylated phenyl- $\alpha$ -naphthylamines, or in other words, assuming that the disclosure of D8 corresponded entirely to that of A035. Therefore, taking into account the respondents' premise that, apart from formula (6), the disclosure of D8 corresponds to that of A035, the subject-matter of claim 1 and that of its dependent claims 2 to 8 must also be novel over A035.

Since novelty is also to be acknowledged over A035, there was no need to decide on the appellant's request not to admit A035 to A037, A039 and A040 at the oral proceedings.

- 10.8 In summary, the subject-matter of claim 1 of the first auxiliary request B and consequently also that of its dependent claims 2 to 8 is novel over both D8 and A035.

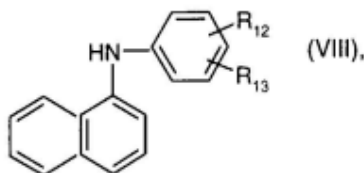
11. Novelty (Article 54 EPC) - D7

11.1 The respondents did not put forward a novelty objection based on D7; however, in view of the inventive-step objection raised by respondent 2 based on D7 (see below) calling into question the presence of a distinguishing feature, the board considers it expedient to separately address this point by way of a novelty assessment, setting out the features which distinguish the subject-matter of claim 1 from D7 and which form the basis for the assessment of inventive step.

11.2 D7 (paragraph [0061]; claim 8) relates to a lubricant composition comprising, *inter alia*,

" (b) ... 1-[bis(2-ethylhexyl)aminomethyl-4-methylbenzotriazole; ...

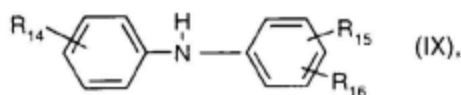
(d) ... a phenyl-naphthylamine [sic] of the formula



wherein  $R_{12}$  represents hydrogen or  $C_8-C_{13}$ alkyl;

**or**

a diphenylamine of the formula



wherein  $R_{12}$  [sic] is hydrogen and  $R_{13}$  [sic] is hydrogen or  $C_8-C_{13}$ alkyl" (emphasis added).



The above components (b) and (d) may also be part of a stabiliser mixture which may be incorporated into a lubricating oil to give the final lubricant composition. The quantities of components (b) and (d) in the mixture and the quantity of the mixture in the lubricant composition are given in paragraphs [0062] and [0063] of D7.

- 11.3 The compounds of formula (VIII) and (IX) correspond to the alkylated phenyl- $\alpha$ -naphthylamine and the (alkylated derivatives of) diphenylamine as recited in claim 1, respectively. Therefore, at least one selection, namely that of the compounds of formula (VIII), is necessary from the above compound (d) to arrive at the features of claim 1 according to which the composition comprises an alkylated phenyl- $\alpha$ -naphthylamine and is free of (alkylated derivatives of) diphenylamine.

It was a matter of dispute between the parties whether the ranges recited in claim 1 were anticipated by D7. Respondent 2 argued that the ranges of quantities given in paragraphs [0062] and [0063] of D7 amounted to the disclosure of a lubricant composition containing 0.0525 to 0.3675 wt% of alkylated phenyl- $\alpha$ -naphthylamine and 0.015 to 0.105 wt% of triazole (reply to the statement of grounds of appeal, page 40, paragraph 3 in conjunction with the notice of opposition, pages 13 to 15). For each component, the range disclosed in D7 overlapped with the corresponding range in claim 1, or, in other words, one of the boundaries of the range of D7 fell within the range in claim 1 (0.15 to 0.5 wt% of an alkylated phenyl- $\alpha$ -naphthylamine; 0.01 to 0.04 wt% of a (derivative of an) oil soluble triazole). Consequently, the ranges in claim 1 were anticipated by D7.

The board cannot agree with this contention. As already stated above, the criteria established for the selection of a single numerical range are not applicable to cases in which multiple numerical ranges have to be considered. In the case at hand, the mere fact that the two ranges disclosed in D7 overlap with the ranges in claim 1 or that upper or lower limits disclosed in D7 fall within these ranges does not mean that the ranges in claim 1 are anticipated by D7. Instead, as far as the overlaps of the ranges in claim 1 and those in D7 are concerned, they are to be regarded as selections (T 653/93, point 3.2.2 of the Reasons).

Similarly to D8, in the present case, the compositions in the examples in D7 cannot provide pointers to the claimed selection because they contain alkylated diphenylamine, the presence of which is expressly excluded by the wording of claim 1. In addition, the compositions in the examples do not contain alkylated phenyl- $\alpha$ -naphthylamine but (if present at all) non-alkylated phenyl- $\alpha$ -naphthylamine.

It follows that the subject-matter of claim 1 and its dependent claims 2 to 8 can be distinguished from D7 for the same reasons that it is novel over D8, namely because at least the following three selections are required to arrive at the subject-matter of claim 1:

- the selection of alkylated phenyl- $\alpha$ -naphthylamine and with it the absence of (alkylated derivatives of) diphenylamine
- the selection of the quantity of alkylated phenyl- $\alpha$ -naphthylamine
- the selection of the quantity of triazole

12. Inventive step (Article 56 EPC)

12.1 The respondents formulated inventive-step objections starting from D4 (respondent 2), D8/A035 (both respondents), D1 (respondent 1) and D7 (respondent 2) as the closest prior art.

The appellant requested that the respondents' inventive-step objections starting from D1, D4 or D7 not be admitted. At the oral proceedings, the board decided to admit them. In view of the fact that they are not convincing (see below), no reasons need to be given for the decision to admit them. Similarly, a decision on the appellant's request for remittal for further prosecution if the objections were admitted was not required.

12.2 D4 as the closest prior art

According to settled case law (Case Law of the Boards of Appeal of the European Patent Office, ninth edition, 2019, I.D.3.1), it is above all the stated purpose/effect which dictates the choice of the closest prior art for use claims, i.e., in the present case, "*use of a composition for lubricating a turbine to reduce the formation of sludge and other deposits ...*".

D4 (abstract) relates to lubricant formulations containing the combination of a specific benzotriazole and an antioxidant, wherein the antioxidant is selected from a small group of compounds. As established by example 1, said combination strongly increases the resistance of the lubricant formulation to oxidation; however, D4 does not mention the formation of sludge, let alone the reduction in it. As argued by the appellant and not contested by the respondents, there

is no direct correlation between an increase in oxidation resistance and the reduction in sludge. The board therefore concurs with the appellant that D4 is not suitable as the closest prior art for the subject-matter of claim 1.

### 12.3 D8 as the closest prior art

12.3.1 The respondents started from examples 1 or 2 of D8 (table 1).

12.3.2 As is clear from the assessment of novelty above, the subject-matter of claim 1 is distinguished from these examples at least in that the lubricant composition is free of (alkylated derivatives of) diphenylamine.

12.3.3 According to the patent, different compositions were subjected to the modified MHI Dry TOST test to analyse the amount of sludge formation (in mg/kg) after 500 and 700 hours' run time. The results obtained for examples 4 and 7 and comparative examples 5\*, 6\*, 8\* and 9\* are relevant for the present case because their comparison makes it possible to draw a conclusion on the effect which is linked to the above distinguishing feature:

- The composition in example 4 contained 0.21 wt% of an alkylated phenyl- $\alpha$ -naphthylamine and 0.04 wt% of an oil soluble triazole. The compositions in comparative examples 5\* and 6\* additionally contained an alkylated diphenylamine in quantities of 0.1 and 0.2 wt%, respectively. After both 500 and 700 hours, the composition in example 4 yielded less sludge than those in comparative examples 5\* and 6\*.
- Similarly, the composition in example 7 contained 0.26 wt% of an alkylated phenyl- $\alpha$ -naphthylamine and

0.04 wt% of an oil soluble triazole. The compositions in comparative examples 8\* and 9\* were identical to each other. In comparison with example 7, they additionally contained an alkylated diphenylamine in a quantity of 0.1 wt%. After 500 hours, the composition in example 7 yielded less sludge than those in comparative examples 8\* and 9\*.

12.3.4 On the basis of A038, the respondents argued that the experimental results in the patent suffered from a big error margin. This error margin was greater at shorter run times. Consequently, only the results at longer run times, i.e. in the present case after 700 hours, could be relevant at all; however, a comparison of example 7 (68.1 mg/kg) and comparative example 8\* (63.1 mg/kg) after 700 hours showed an increase rather than a decrease in sludge formation. Consequently, reduced sludge formation was not observed over the entire scope of claim 1. Furthermore, the experimental data in the patent showed that lubricating compositions according to the invention performed worse in terms of oxidation resistance (as indicated by lower RPVOT values) than comparative lubricating compositions. To correctly interpret the data in the patent, both sludge formation and oxidation resistance had to be taken into account. Lastly, D1 (figure 3) showed that the run times used in the patent were considerably shorter than those which were usual for such tests. The results in the patent therefore could not be an indication of the behaviour of the lubricating composition in practice. The objective technical problem could only be to provide an alternative use.

The board does not find these arguments convincing.

While it is true that more sludge was observed in example 7 (68.1 mg/kg) than in comparative example 8\* (63.1 mg/kg), the opposite is true when comparing example 7 with comparative example 9\* (76.6 mg/kg). As pointed out above, the compositions in both comparative examples 8\* and 9\* were identical and the respondents' line of argument is based entirely on only one of these two results, deliberately ignoring the other. In the board's view, this is not a sensible approach. Instead, both comparative examples 8\* and 9\* have to be taken into account. Since both examples, when taken together, do not make it possible for a clear conclusion to be drawn on whether sludge formation after 700 hours is better or worse than in example 7, the board considers that the respondents have not provided evidence that the improvement observed after a run time of 500 hours is no longer present after 700 hours, something which would also be rather unexpected in view of the temporal evolution of sludge formation in (comparative) examples 4, 5\* and 6\* (see above). Furthermore, without A038 in the proceedings (see above), the respondents' argument that the experimental results in the patent and in particular those after 500 hours suffered from a big error margin is a mere allegation and, for this reason alone, is not convincing. Consequently, at the oral proceedings there was no need to decide on the appellant's request not to admit the objection raised by respondent 1 based on the error margins in the patent.

The board does not come to a different conclusion either, even when following the argument by respondent 1 that sludge formation cannot be assessed independently of oxidation resistance for the assessment of inventive step. After 500 hours, the compositions in examples 4 and 7 exhibit a higher RPVOT

value and thus higher oxidation resistance than those in comparative examples 5\*/6\* and 8\*/9\*, respectively. Although the situation after 700 hours is no longer as clear-cut as after 500 hours, in the board's view it cannot be concluded from the data that the compositions in examples 4 and 7 would necessarily be worse than those in the comparative examples if both effects were taken into account. For example, the composition in example 4 has a lower RPVOT value of 12.8% after 700 hours than that in comparative example 6\* (20.8%). At the same time, however, the composition in example 4 results in much less sludge (59.8 mg/kg) than that in comparative example 6\* (99.4 mg/kg).

Last but not least, D1 (figure 3) illustrates the development of oxidation stability of different oils in an RBOT-time diagram (RBOT is the former name for RPVOT). Although a single oil was tested for up to 1900 hours, the run times for all the other 19 oils ranged from about 200 to 1200 hours. Against this background, the respondents' argument that the run times of 500 or 700 hours chosen in the patent would not be meaningful is not convincing.

12.3.5 In its reply to the statement of grounds of appeal (page 8), respondent 1 compared example 1 in D8 with example 7 in the patent and concluded that the former performed equally well in terms of sludge formation and even better in terms of oxidation resistance (RPVOT values).

However, such a comparison is not meaningful. The respective lubricating compositions differ not only with regard to the presence/absence of (alkylated derivatives of) diphenylamine, but also with regard to other ingredients. Therefore, no conclusion can be

drawn from such a comparison with regard to the distinguishing feature identified above.

- 12.3.6 Respondent 2 also argued that example 2 in the patent was in accordance with the invention but did not have satisfying properties in terms of sludge formation and oxidation resistance. Therefore, even if an effect was acknowledged, it was not achieved over the entire scope of claim 1.

The composition in example 2 comprises 0.16 wt% of an alkylated phenyl- $\alpha$ -naphthylamine, 0.04 wt% of an oil soluble triazole and 0.01 wt% of a phenolic ester antioxidant, but no (alkylated derivatives of) diphenylamine. Therefore, as correctly noted by respondent 2, it is as recited in claim 1. Still, the mere fact that this composition does not have satisfying properties is not relevant for inventive step as it has not been demonstrated by respondent 2 that the composition in example 2 does not perform better than the same composition additionally comprising (alkylated derivatives of) diphenylamine.

- 12.3.7 In view of the above, it can be concluded that the feature which distinguishes the subject-matter of claim 1 from examples 1 and 2 in D8 is linked to the technical effect of sludge reduction. The objective technical problem is therefore to modify the use in D8 such that it involves the formation of less sludge.
- 12.3.8 In their submissions, the respondents only ever argued that the objective technical problem lay, at best, in providing an alternative to the use in D8. Such an alternative was not obvious based on D8 alone or based on D8 in combination with D4/D2; however, the objective technical problem has to be formulated in more



ambitious terms as that of modifying the use in D8 such that it involves the formation of less sludge (see above). No arguments were given, and none are apparent to the board, that D8 alone or D4/D2 suggests that (alkylated derivatives of) diphenylamines should be omitted in order to reduce sludge formation. Therefore, an inventive step is to be acknowledged.

#### 12.4 A035 as the closest prior art

The conclusion above starting from D8 as the closest prior art was based on the assumption, made in the respondents' favour, that the entire disclosure of D8 unequivocally related to alkylated phenyl- $\alpha$ -naphthylamines, or in other words, that the disclosure of D8 corresponded to that of A035. As regards inventive step, the respondents did not add anything over their objection based on D8. Therefore, starting from A035, the conclusion cannot be different from that starting from D8.

#### 12.5 D1 as the closest prior art

12.5.1 Respondent 1 started from the composition of the lubricating oil R (table 3). It argued, and the board sees no reason to take a different stance, that the subject-matter of claim 1 differed from the use of this lubricating-oil composition R only in that the composition in claim 1 further comprises 0.01 to 0.04 wt% of an oil soluble triazole or derivative thereof.

12.5.2 A comparison of examples 7, 14 and 15 with comparative examples 10\*, 12\* and 16\* in the patent shows that the addition of an oil soluble triazole in the claimed range leads to a reduction in sludge formation (see the

table on page 20 in the statement of grounds of appeal).

While the comparison of these (comparative) examples was not challenged by respondent 1, it argued that the amount of sludge observed in the examples according to the invention of the patent was higher than that observed in D1 for lubricating-oil composition R. Consequently, the addition of an oil soluble triazole in the claimed range was not linked to a technical effect, in particular not to a reduction in sludge.

However, a comparison of the lubricating-oil composition R in D1 with those in the patent is not meaningful here either, analogously to what has been explained above with regard to a comparison of examples 1 and 2 in D8 with those in the patent. The respective lubricating compositions differ not only with regard to the presence/absence of the oil soluble triazole, but also with regard to other ingredients. Therefore, no conclusion can be drawn from such a comparison with regard to any effect resulting from the distinguishing feature identified above.

12.5.3 Consequently, starting from D1 as the closest prior art, the objective technical problem is to modify the use in D1 such that it involves the formation of less sludge.

12.5.4 For obviousness, respondent 1 referred to D2 (page 6, line 3; second paragraph on page 6), D3 (paragraph "Applications and typical treat levels recommended"), D4 (column 2, lines 30 ff.), D6 (column 2, lines 30 ff.), D7 (page 13, table 3) and D8 (examples). While these documents disclose that triazoles in the quantities as claimed contribute to oxidation

resistance, nothing is disclosed in these documents about their influence on sludge formation, in particular about the reduction in sludge formation when incorporated in a quantity as required by claim 1. As argued by the appellant and not contested by the respondents, there is no direct correlation between the reduction in sludge and an increase in oxidation resistance. Therefore, the skilled person would not have turned to one of D2 to D4 or D6 to D8 in order to solve the objective technical problem. An inventive step is to be acknowledged.

12.6 D7 as the closest prior art

12.6.1 As set out above under novelty, the subject-matter of claim 1 differs from D7 in that at least the following three selections have to be made from D7:

- the selection of alkylated phenyl- $\alpha$ -naphthylamine and with it the absence of (alkylated derivatives of) diphenylamine
- the selection of the quantity of alkylated phenyl- $\alpha$ -naphthylamine
- the selection of the quantity of triazole

12.6.2 As explained above with regard to the respondents' inventive-step objections starting from D8 and D1 as the closest prior art, the first and the last of these distinguishing features, respectively, are associated with a reduction in sludge. The objective technical problem is therefore to modify the use in D7 such that it involves the formation of less sludge.

12.6.3 In its submissions, respondent 2 only ever argued that the objective technical problem lay, at best, in providing an alternative to the use in D7. Such an

alternative was not obvious based on D7 alone. More specifically, it argued that D7 disclosed each of the features of claim 1 and that their mere combination could not involve an inventive step.

However, the objective technical problem has to be formulated in more ambitious terms as that of modifying the use in D7 such that it involves the formation of less sludge (see above). In the absence of any arguments, and the board fails to see any, that D7 suggests that (alkylated derivatives of) diphenylamines should be omitted or that the quantity of oil soluble triazole should be selected within a certain range to reduce sludge formation, an inventive step is to be acknowledged.

12.7 Consequently, the subject-matter of claim 1 and that of its dependent claims 2 to 8 involves an inventive step over the cited prior art. The first auxiliary request B is allowable.

13. In view of the allowability of the first auxiliary request B, at the oral proceedings there was no need to decide on the admittance of the lower-ranking auxiliary requests and to assess their allowability.

Annex C had been referred to by the appellant in support of novelty and inventive step. The first request that was assessed under Article 100(a) EPC was the first auxiliary request B. Therefore, at the oral proceedings there was no need to decide on the appellant's request to admit the experimental evidence contained in annex C.

## 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 with claims 1 to 8 of the first auxiliary request B filed during the oral proceedings on 13 January 2022 and a description to be adapted thereto with the premise that the last sentence in paragraph [0022] of the patent specification as granted being deleted, the last sentence reading as follows: *"By stating that the compositions are "free of DPA" and alkylated derivatives, we do not mean to exclude compositions that contain minor amounts of DPA or the alkylated derivatives thereof; that is, compositions containing DPA or alkylated derivatives thereof in amounts that do not appreciably increase the amount of sludge formation or otherwise negate the beneficial effects of the compositions of the present disclosure."*

The Registrar:

The Chairman:



N. Maslin

M. O. Müller

Decision electronically authenticated