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**Datasheet for the decision
of 25 March 2022**

Case Number: T 0776/17 - 3.3.02

Application Number: 02744735.8

Publication Number: 1409620

IPC: C10M159/12, C10M169/04,
C10M133/56

Language of the proceedings: EN

Title of invention:

LOW-CHLORINE, POLYOLEFIN-SUBSTITUTED, WITH AMINE REACTED,
ALPHA-BETA UNSATURATED CARBOXYLIC COMPOUNDS

Patent Proprietor:

The Lubrizol Corporation

Opponent:

Afton Chemical Corporation

Headword:

Relevant legal provisions:

EPC Art. 54(2), 54(3), 56, 83, 113(1)
EPC R. 103(1)(a)
RPBA Art. 12(4), 13, 13(1)
RPBA 2020 Art. 25(2), 25(3)

Keyword:

Amendment to appeal case
Late-filed auxiliary requests
Novelty
Priority
Right to be heard
Substantial procedural violation

Decisions cited:

G 0007/93, G 0001/15, T 1209/05, T 1652/08, T 1253/09,
T 1083/16

Catchword:



Beschwerdekammern

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Case Number: T 0776/17 - 3.3.02

D E C I S I O N
of Technical Board of Appeal 3.3.02
of 25 March 2022

Appellant: The Lubrizol Corporation
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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
12 December 2016 concerning maintenance of the
European Patent No. 1409620 in amended form.**

Composition of the Board:

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

Summary of Facts and Submissions

- I. The appeal lodged by the patent proprietor ("appellant") lies from the opposition division's interlocutory decision that European patent No. 1 409 620 in amended form according to auxiliary request 3 then on file met the requirements of the EPC.
- II. Claim 1 of auxiliary request 3 held allowable by the opposition division reads as follows:

"1. A composition of matter comprising an amine acylated with a hydrocarbyl group substituted carboxylic acylating agent containing an average of 1.4 to 1.6 groups derived from α,β -unsaturated carboxylic compounds per equivalent of the hydrocarbyl group, wherein the equivalent weight of the hydrocarbyl is defined as its M_n , determined by GPC, which is 1700 to 3000, the amine comprises polyamine bottoms, and said acylated amine has total base number (TBN) of 20 to 30 on a neat chemical basis, wherein the hydrocarbon group substituted acylating agent is prepared by a process comprising forming a mixture of a polyolefin having a total of tetra- and tri- substituted unsaturated end groups up to about 90 mole % based on moles of polyolefin and a halogen selected from the group consisting of chlorine and bromine, wherein said halogen is present in said mixture on a molar basis up to an amount equal to the moles of tetra- and trisubstituted end groups and adding to said mixture from 1.5 to 2.5 moles per equivalent of polyolefin of an α,β -unsaturated carboxylic compound, sequentially or simultaneously with addition of said halogen, reacting said mixture at from 170°C to 220°C to effect reaction

of the polyolefin and α,β -unsaturated carboxylic compound, reducing the temperature to less than about 200°C and adding thereto additional halogen on a molar basis up to an amount equal to the moles of tetra- and tri- substituted end groups, then reacting the mixture to reduce unreacted α,β -unsaturated carboxylic compound to less than 3%."

III. The following documents are referred to in the decision:

D1	WO 96/01584 A1
D2	US 60/303,121; priority application of the opposed patent
D3	EP 1 318 189 A1
D4	US 5,565,528 A
D7	US 6,051,537 A
D9	US 6,165,235 A
D14	Experimental data and declaration of Mr Calder, filed on 21 October 2015
D17	US 4,234,435
D18	WO 02/22767 A1
D19	WO 00/26327 A1
D21	Calculation based on D18 filed on 17 October 2016 during oral proceedings before the opposition division
D22	Declaration of Dr John K. Pudelski
D23	ASTM-D 974-04
A024	Declaration of Dr John Loper
A025	US 7,615,521 B2
A026	US 6,165,235 A

IV. The opposition division's conclusions included the following:

- Documents D14, D18, D19 and D21 were admitted into the proceedings.
- The invention as defined in the patent was sufficiently disclosed within the meaning of Article 83 EPC.
- Claim 1 of the main request (claims as granted) lacked novelty in view of D4.
- The first auxiliary request was not admitted into the proceedings.
- The subject-matter of the claims according to the second auxiliary request did not involve an inventive step in view of D18 as the closest prior art.
- The subject-matter of the claims according to the third auxiliary request (filed during oral proceedings) involved an inventive step in view of D9 as the closest prior art. This request was thus allowable.

V. In its statement of grounds of appeal, the appellant filed the first to fourth auxiliary requests. The appellant objected to a violation of its right to be heard and a substantial procedural violation due to it not having had an opportunity to comment on the admittance of D18 and D19 and due to the rejection of its request for an adjournment.

VI. In its reply to the grounds of appeal, the opponent ("respondent") provided objections regarding

sufficiency of disclosure, novelty and inventive step. Documents D22 and D23 were submitted.

- VII. With a letter dated 4 December 2019, the appellant submitted new experimental data in support of the inventive step of the pending claim requests in view of D18.
- VIII. In preparation for the oral proceedings, scheduled at the parties' requests, the board issued a communication pursuant to Article 15(1) RPBA 2020.
- IX. In a letter dated 24 April 2020, the appellant submitted new technical data denoted annexes 1 and 2.
- X. In a letter dated 29 April 2020, the respondent commented on the board's preliminary opinion set out in its communication pursuant to Article 15(1) RPBA 2020 and submitted a recalculation of the ratio of unsaturated carboxylic compounds per equivalent of hydrocarbonyl group on the basis of the appellant's document D21.
- XI. In further letters, the appellant and the respondent provided comments in response to the other party's submissions.
- XII. In a letter dated 26 January 2021, the respondent filed A024 to A026 and submissions based on these documents.
- XIII. Oral proceedings before the board were held in person on 25 March 2022 in the presence of both parties.

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

Main request

- Novelty in view of D4
 - The compound of example 33 of D4 was not an acylated amine as required by claim 1 of the main request.
 - Dispersants formed via thermal or chlorination processes, such as those in accordance with claim 1 of the main request, were distinguished from the dispersants of example 33 of D4.

First auxiliary request

- Novelty in view of D18
 - D18 was late filed before the opposition division and should not be admitted into the proceedings.
 - Example 12 of D18 did not disclose any succination ratio for the acylated amine prepared in this example.
 - As shown by D21, the succination ratio of the acylated amine of example 12 of D18 was 1.23 and thus not within the range required by claim 1 of the first auxiliary request.
 - The respondent's recalculation submitted with the letter of 29 April 2020 of the ratio of unsaturated carboxylic compounds per equivalent of hydrocarbyl group on the basis of document D21 of the appellant and A024 to A026 should not be admitted into the proceedings.

- Inventive step
 - The attack of lack of inventive step based on D18, example 12, and the value of the succination ratio of 1.3 disclosed on page 12 of this document was late filed and should not be admitted into the proceedings.
 - The distinguishing feature of claim 1 of the first auxiliary request over example 12 of D18 was the succination ratio.
 - The experimental data filed with the letter dated 4 December 2019 showed that a dispersant according to claim 1 of the first auxiliary request had improved cleanliness.
 - The objective technical problem in view of D18 was the provision of a dispersant which maintains its efficacy while providing improved seal performance and cleanliness.
 - The solution proposed by claim 1 of the first auxiliary request was not obvious.

Second auxiliary request

- The subject-matter of claim 1 of the second auxiliary request was novel in view of D4 for the same reasons as given for claim 1 of the main request.

Third auxiliary request

- Admittance
 - The third auxiliary request had been submitted in response to the late-filed objection of lack of inventive step based on D18. This objection was

raised for the first time during oral proceedings before the opposition division.

- The third auxiliary request could not have been presented in the first-instance proceedings.
- Inventive step in view of D4
 - D4 did not disclose any amine acylated with a "hydrocarbyl group substituted carboxylic acylating agent". Rather, D4 was entirely concerned with copolymers.
 - The experimental data in D14 showed that seal performance and cleanliness were improved.
 - The objective technical problem in view of D4 was the provision of a dispersant which maintains its efficacy while providing improved seal performance and cleanliness.
 - The claimed solution was not obvious in view of D4. D4 provided no motivation to prepare a hydrocarbyl group substituted carboxylic acylating agent having the succination ratio, the molecular weight expressed as Mn and the total base number (TBN) required by claim 1 of the third auxiliary request.
- Sufficiency of disclosure
 - Paragraphs [0041] to [0044] of the patent disclosed the required polyamine and a candidate amine (E-100) which were used for preparing the acylated amine. Comparable products could be used under the conditions specified in the examples to obtain acylated amines having the required TBN of claims 1 and 6 of the third auxiliary request.

- Contrary to the respondent's submission, the nitrogen to carbonyl (N:CO) mole ratio of the acylated amine was not an essential feature for obtaining acylated amines having the required TBN.
- The succination ratio of example 1 of the patent did not correspond to that of example 12 of D18. Contrary to the respondent's submission, the two examples were not carried out under essentially the same reaction conditions. The amounts of the reactants, the PBU used and the reaction conditions of the second step of the reaction were different.
- Right to be heard
 - A violation of the right to be heard and a substantial procedural violation had occurred during the oral proceedings before the opposition division due to the appellant not having been given an opportunity to comment on the admittance of D18 into the proceedings and due to the rejection of its request for an adjournment.

XV. The respondent's case relevant to the present decision may be summarised as follows.

Main request

- Novelty in view of D4
 - Example 33 of D4 was novelty-destroying. Claim 1 of the main request did not exclude the copolymer disclosed in example 33 of D4.

First auxiliary request

- Novelty in view of D18
 - D18 was *prima facie* relevant and the decision to admit the document into the proceedings by the opposition division was correct.
 - The appellant's submissions regarding the admittance of D18 should not be admitted into the proceedings.
 - As shown by the respondent's recalculation submitted with the letter of 29 April 2020 of the ratio of unsaturated carboxylic compounds per equivalent of hydrocarbyl group on the basis of document D21 of the appellant and A024 to A026, the succination ratio of example 12 of D18 fell within the range of 1.4 to 1.6 of claim 1 of the first auxiliary request.
 - D21, relied on by the appellant to determine the succination ratio of example 12 of D18, should not be admitted into the proceedings.
 - Furthermore, the combination of the disclosure of example 12 of D18 with the teaching of the description (page 12, lines 18-19) disclosed an acylated amine according to claim 1 of the first auxiliary request.
- Inventive step
 - The attack of lack of inventive step based on D18, example 12, and the value of the succination ratio of 1.3 disclosed on page 12 of this document was a reaction to the board's communication pursuant to Article 15(1) RPBA 2020 issued on 6 March 2020. It should thus be

admitted into the proceedings, and example 12 and the value of the succination ratio of 1.3 were prior art under Article 54(2) EPC citable against inventive step.

- The distinguishing feature of claim 1 of the first auxiliary request in view of D18 was the succination ratio.
- The experimental data filed by the appellant with its letter of 4 December 2019 should not be admitted into the proceedings. Since these experimental data could not be taken into consideration, no effect was associated with the distinguishing feature.
- The technical problem was the provision of an alternative.
- The alternative was obvious in view of D18, page 12, lines 18-19.

Second auxiliary request

- The subject-matter of claim 1 of the second auxiliary request was not novel in view of D4 for the same reasons given for claim 1 of the main request.

Third auxiliary request

- Admittance
 - The third auxiliary request could have been presented before the opposition division and should not be admitted into the proceedings.

- Inventive step in view of D4
 - Example 33 of D4 was the closest prior art.
 - The distinguishing feature was the structure of the amine.
 - The objective technical problem in view of D4 was the provision of an alternative.
 - The claimed solution was obvious in view of D4, column 8, lines 47-50.
 - The subject-matter of claim 1 of the third auxiliary request did not involve an inventive step in view of D4.
- Inventive step in view of D9
 - The subject-matter of claim 1 of the third auxiliary request did not involve an inventive step in view of D9.
- Sufficiency of disclosure
 - Sufficiency of disclosure of the compositions of claims 1 and 6 of the third auxiliary request should be denied for the reasons given below.

XVI. The appellant requested that:

- the decision under appeal be set aside and that the patent be upheld on the basis of the main request (claims as granted)
- or, alternatively, the patent be maintained in amended form on the basis of any of the first to fourth auxiliary requests, all filed with the statement setting out the grounds of appeal

- documents D18 and D19 not be admitted into the proceedings
- the data submitted by the appellant with the letter dated 4 December 2019 be admitted into the proceedings
- annexes 1 and 2 submitted by the appellant with the letter of 24 April 2020 be admitted into the proceedings
- the respondent's recalculation submitted with its letter of 29 April 2020 of the ratio of unsaturated carboxylic compounds per equivalent of hydrocarbonyl group on the basis of the appellant's document D21 not be admitted into the proceedings

XVII. The respondent requested that:

- the appeal be dismissed, implying that the patent be maintained on the basis of the fourth auxiliary request before the board corresponding to the third auxiliary request found allowable by the opposition division
- the third auxiliary request not be admitted into the proceedings
- the appellant's request not to admit D18 and D19 be rejected
- document D17 be admitted into the proceedings
- document D21 not be admitted into the proceedings
- the appellant's submissions filed with its letter dated 22 February 2017 and reiterated in the statement of grounds of appeal be disregarded

- A024, a declaration of Mr Loper including documents A025 and A026 referred to in it, be admitted into the proceedings
- the data filed by the appellant with the letter of 4 December 2019 not be admitted into the proceedings
- annexes 1 and 2 filed by the appellant with the letter dated 24 April 2020 not be admitted into the proceedings

Reasons for the Decision

Main request (claims 1-19 as granted)

Novelty

1. The respondent objected to the novelty of the subject-matter of claim 1 of the main request in view of D4.
- 1.1 The composition of claim 1 of the main request comprises an acylated amine. This acylated amine is characterised as follows.
 - The amine is acylated with a hydrocarbyl group substituted carboxylic acylating agent.
 - The acylating agent contains an average of from 1.3 to 1.6 groups derived from α,β -unsaturated carboxylic compounds per equivalent of the hydrocarbyl group ("succination ratio").
 - The equivalent weight of the hydrocarbyl is defined as its Mn, determined by GPC, and is from 1500 to 3000.

- The amine comprises polyamine bottoms.
- The acylated amine has a total base number (TBN) of from 17 to 30 on a neat chemical basis.

1.2 The novelty objection of the respondent was based on example 33 of D4. This example discloses a dispersant based on an amine (HPA, table 1), corresponding to the polyamine bottoms according to claim 1 of the main request.

This amine is acylated with the copolymer of maleic anhydride and polybutene of example 2. This copolymer is characterised by a succination ratio of 1.5 (see example 2). This lies within the range of 1.3 to 1.6 according to claim 1 of the main request. This was not disputed by the parties.

The dispersant has a TBN of 11.7. As the dispersant content is 40% in solution with diluent oil ("actives of 40%", example 2), the total TBN on a neat chemical basis is $11.7/0.4 = 29.25$. This is within the range defined in claim 1 of the main request (17-30). This was not contested by the appellant.

The polybutylene (Glissopal EC 3252) has a molecular weight of 2400. This value is within the range defined in claim 1 of the main request (1500-3000), and this was not disputed by the appellant.

1.3 The appellant argued that example 33 of D4 did not comprise any amine acylated with a "hydrocarbyl group substituted carboxylic acylating agent". D4 disclosed polymeric dispersants formed via the reaction of polyamines with copolymers of a high molecular weight olefin and an unsaturated acidic reagent. In the compositions according to D4, the acidic group, for

example the succinic group, was incorporated into the polymer chain. A skilled person would understand that a hydrocarbyl group substituted on a carboxylic acylating agent was different from a hydrocarbyl group such as polybutene forming a component of a copolymer backbone. Dispersants formed via thermal or chlorination processes, such as those in accordance with the current invention, were distinguished from the dispersants of D4.

The board does not agree. As argued by the opposition division in its decision (point 2.4.2) and the respondent, the disclosure of D4 is encompassed by claim 1 of the main request. The hydrocarbyl group in claim 1 of the main request is not further specified and therefore covers a hydrocarbyl group which is part of a polymer backbone, as in D4. Furthermore, the wording of claim 1 of the main request is not limited to dispersants formed via thermal or chlorination processes and, thus, also for this reason, does not exclude the copolymer disclosed in example 33 of D4. The copolymer of maleic anhydride and polybutene disclosed in example 2 of D4 (i.e. the acylating agent used in example 33 of D4) therefore represents a hydrocarbyl group substituted carboxylic acylating agent according to claim 1 of the main request, and thus example 33 of D34 discloses an amine acylated with a "hydrocarbyl group substituted carboxylic acylating agents" as required by claim 1 of the main request.

For this reason, the subject-matter of claim 1 of the main request lacks novelty in view of D4.

2. The main request is not allowable.

First auxiliary request (claims 1-19 filed with the statement of grounds of appeal)

3. Claim 1 of the first auxiliary request reads as follows:

"1. A composition of matter comprising an amine acylated with a hydrocarbyl group substituted carboxylic acylating agent containing an average of 1.3 to 1.6 groups derived from α,β -unsaturated carboxylic compounds per equivalent of the hydrocarbyl group, wherein the equivalent weight of the hydrocarbyl is defined as its M_n , determined by GPC, which is 1500 to 3000, the amine comprises polyamine bottoms, and said acylated amine has total base number (TBN) of 17 to 30 on a neat chemical basis; wherein said hydrocarbyl group substituted carboxylic acylating agent (i) is prepared by direct thermal alkylation of an α,β -unsaturated carboxylic compound with a polyolefin, or (ii) is prepared by a process comprising forming a mixture of a polyolefin having a total of tetra- and tri- substituted unsaturated end groups up to about 90 mole % based on moles of polyolefin and a halogen selected from the group consisting of chlorine and bromine, wherein said halogen is present in said mixture on a molar basis up to an amount equal to the moles of tetra- and trisubstituted end groups and adding to said mixture from 1.5 to 2.5 moles per equivalent of polyolefin of an α,β -unsaturated carboxylic compound, sequentially or simultaneously with addition of said halogen, reacting said mixture at from 170°C to 220°C to effect reaction of the polyolefin and α,β -unsaturated carboxylic compound, reducing the temperature to less than about 200°C and adding thereto additional halogen on a molar basis up to an amount equal to the moles of tetra- and tri- substituted end groups, then reacting the mixture

to reduce unreacted α,β -unsaturated carboxylic compound to less than 3%."

Claim 1 of the first auxiliary request differs from claim 1 of the main request in that the hydrocarbyl group substituted carboxylic acylating agent is prepared by (i) direct thermal alkylation or (ii) the halogenation process as defined in the claim.

Novelty

4. The respondent did not raise any novelty objection based on D4 against the first auxiliary request. Incidentally, novelty over D4 can now be acknowledged since by way of the limitation added into claim 1 (see point 3 above), the copolymer of D4 is no longer covered by the claim.
5. The respondent submitted that the subject-matter of claim 1 of the third auxiliary request lacks novelty in view of example 12 of D18.
- 5.1 Admittance of D18

The appellant requested not to admit D18 into the appeal proceedings.

D18 was submitted by the respondent on 6 September 2016, i.e. one month before the oral proceedings before the opposition division. The opposition division decided to admit D18 into the proceedings.

The decision to admit D18 was a discretionary decision of the opposition division. The board can only overrule the way in which an opposition division exercised its discretion if it concludes that the department of first instance did so according to the wrong principles or in

an unreasonable way (G 7/93, T 1209/05, T 1652/08, T 1253/09).

In its decision to admit D18, the opposition division considered the relevance of the document and when it was filed. These two criteria are the right principles to be applied by a first-instance department deciding on admittance. Furthermore, these principles, when considering the admittance of D18, have been applied by the opposition division in a reasonable way. In point 2.6.2, the opposition division gave a detailed reasoning why the second auxiliary request was not allowable in view of D18. The board does not see any reason, and none has been invoked by the appellant, why this position of the opposition division was unreasonable.

Consequently, the board has decided not to overrule the opposition division's decision to admit D18.

- 5.2 Request to disregard submissions of the appellant on the admittance of D18 ("the appellant's submissions filed with its letter dated 22 February 2017 and reiterated in the statement of grounds of appeal")

The respondent requested that the submissions filed by the appellant with its letter dated 22 February 2017 and reiterated in the statement of grounds of appeal be disregarded since they were incorrect.

During the oral proceedings, the board decided to admit these submissions of the appellant into the appeal proceedings. Since, as set out above, D18 was admitted even taking the appellant's submission into account, there is no need to give any detailed reason for the admittance of the appellant's submissions.

5.3 Example 12 of D18 discloses the preparation of an acylated amine. The preparation of the acylated amine comprises the condensation of the polyisobutylene substituted succinic anhydride prepared in example 4 and the polyamine used in example 11. The product has a TBN of 13.7. A neat TBN of approximately 27.4 can be calculated, considering the TBN of 13.7 and the amount of diluent oil (approximately 50%). Thus, the calculated TBN (on a neat chemical basis) is according to claim 1 of the first auxiliary request (17-30). This was not disputed by the parties.

The polyisobutylene substituted succinic anhydride used in example 12 is a hydrocarbyl group substituted acylating agent, as required by claim 1 of the first auxiliary request. This polyisobutylene substituted succinic anhydride corresponds to the compound prepared in example 4 of D18. The molecular weight of the hydrocarbyl group of the polyisobutylene substituted succinic anhydride of example 4 of D18, calculated on the basis of the number of parts and its number of mole, is 2304 g/mol (7834 g/3.4 mol). It is considered that the number of parts disclosed in example 4 corresponds to the mass, as evidenced by the number of parts of chlorine ("410 parts"), which nearly corresponds to the mass of chlorine used (5.8 moles x 70.9 g/mol = 411.22). The molecular weight of the hydrocarbyl group of the polyisobutylene substituted succinic anhydride of example 12 thus also lies within the range defined by claim 1 of the first auxiliary request (1500-3000). This was not disputed by the parties.

As set out above, the polyamine used in example 12 is that of example 11 of D18. Example 11 of D18 refers to the polyamine of example 5 of D18, which is HPA-XTM, a polyamine bottom product, as required by claim 1 of the first auxiliary request.

5.4 Example 12 of D18 does not explicitly disclose any succination ratio. This was common ground between the parties.

5.4.1 For determining the succination ratio of example 12 of D18, the respondent relied on the recalculation submitted with the letter of 29 April 2020 of the ratio of unsaturated carboxylic compounds per equivalent of hydrocarbyl group on the basis of document D21 of the appellant and A024 to A026.

The appellant relied on D21.

5.4.2 Admittance

5.5 Admittance of D21

D21 was submitted by the appellant during oral proceedings before the opposition division. The opposition division (point 2.1.2 of its decision) admitted D21 for the reason that it had been filed in response to the objection based on D18.

As set out above for the admittance of D18, the board can only overrule the way in which the opposition division exercised its discretion when deciding to admit or not submissions if it concludes that the first-instance department did so according to the wrong principles or in an unreasonable way.

When D21 was filed, considered by the opposition division in its decision, is the right principle to be applied by a first-instance department deciding on

admittance. Furthermore, this principle, when considering the admittance of D21, was applied by the opposition division in a reasonable way. Incidentally, D21, filed during the oral proceedings before the opposition division, is a calculation made on the basis of D18 filed only one month before the oral proceedings. D21 is thus a reaction to the extremely late-filed document D18.

Consequently, the board has decided not to overrule the opposition division's decision to admit D21.

- 5.6 Admittance of the respondent's recalculation submitted with the letter of 29 April 2020 of the ratio of unsaturated carboxylic compounds per equivalent of hydrocarbyl group on the basis of the appellant's document D21

This recalculation was submitted by the respondent to dispute the ratio of unsaturated carboxylic compounds per equivalent of hydrocarbyl group ("succination ratio") as calculated by the appellant in D21.

The appellant requested not to admit this recalculation into the appeal proceedings.

This recalculation was filed after notification of the summons to oral proceedings and represents an amendment of the respondent's case.

Any amendment to a party's case after it has filed its grounds of appeal or reply may be admitted pursuant to Article 13(1) RPBA 2007 (which applies in accordance with Article 25(3) RPBA 2020; the first summons to oral proceedings had been notified before 1 January 2020, T 1083/16, Reasons 2.1) at the board's discretion. This discretion must be exercised in view of, *inter alia*,

the complexity of the new subject-matter submitted, the current state of the proceedings and the need for procedural economy.

The novelty objection based on D18 was raised by the respondent before the opposition division. The appellant provided document D21 during the oral proceedings before the opposition division. The opposition division, in its decision (point 2.4.3), took D21 into consideration for assessing the novelty of claim 1 of the main request in view of D18. Rather than submitting its recalculation of D21 after the board's communication pursuant to Article 15(1) RPBA 2020, the respondent could thus have submitted it at an earlier stage of the appeal proceedings, i.e. in the reply to the grounds of appeal. No reason is apparent to the board, and neither was one cited by the respondent, why the respondent's recalculation had not been presented at an earlier stage of the proceedings. Submitting such a recalculation at a late stage of the proceedings is contrary to procedural economy.

For these reasons, the board has decided not to admit the respondent's recalculation filed with the letter of 29 April 2020 and any related submissions into the appeal proceedings in accordance with Article 13(1) RPBA 2007.

5.7 Admittance of A024 to A026

A024 to A026 are documents submitted by the respondent with the letter of 26 January 2021. A024 is a declaration of a technical expert ("Declaration of Dr John Loper"). According to the respondent, the declaration was submitted in response to document D21.

In the declaration, the technical expert relied on A025 and A026, a patent and a patent application.

The reasons given for the non-admittance of the respondent's recalculation submitted with the letter of 29 April 2020 of the ratio of unsaturated carboxylic compounds per equivalent of hydrocarbyl group on the basis of the appellant's document D21 apply for the non-admittance of A024 to A026.

The board has therefore decided not to admit A024 to A026 into the appeal proceedings in accordance with Article 13(1) RPBA 2007.

6. Novelty in view of D18

- 6.1 As set out above, example 12 of D18 does not disclose any succination ratio. The question is whether the acylating agent used in example 12 of D18 exhibits the succination ratio required by claim 1 of the first auxiliary request (1.3-1.6) as an implicit feature.

The preparation of the acylating agent used in example 12 of D18 is disclosed in example 4 of D18 (point 5.3 above). Example 4 of D18 discloses the reaction of 3.4 moles of polyisobutylene and 5.3 moles of maleic anhydride in the presence of 5.8 moles of chlorine.

On the one hand, considering the respondent's approach that the incorporation of maleic anhydride into a polymer depends on the amount of chlorine present, the succination ratio of the acylated amine of example 12 of D18 is **1.5** (see point 3.c) of the reply to the grounds of appeal). This value is within the range defined in claim 1 (1.3-1.6).

On the other hand, D21, submitted by the appellant, refers to a succination ratio of the hydrocarbyl group

of the acylated amine of example 12 of D18 of **1.23**. The calculation is based on the TAN number disclosed in example 4 (60) and the theoretical TAN number (46.7) of an acylating agent having a ratio of 1 (maleic anhydride/polyisobutylene), considering the free maleic anhydride (0.22%) in the reaction product and the molecular weight of the acylating agent. The value of 1.23 is outside the range defined in claim 1 (1.3-1.6).

The board is thus faced with contradicting evidence. However, the respondent's evidence is based on the assumption that the incorporation of maleic anhydride into a polymer depends on the amount of chlorine present. The fact that this represented an assumption was not disputed by the respondent.

In contrast, the appellant's evidence is not based on any assumption but a measured parameter disclosed in example 4 of D18 (TAN number). For this reason, the board found the appellant's evidence more convincing.

Since the succination ratio determined by the appellant (1.23) is outside the range defined in claim 1 of the first auxiliary request (1.3-1.6), the subject-matter of the claim is novel in view of example 12 of D18.

6.2 The respondent also referred to the combination of the disclosure of example 12 of D18 with the teaching of the description (page 12, lines 18-19) and argued that based on this combination, an acylated amine according to claim 1 of the third auxiliary request was disclosed.

The description on page 12, lines 18-19 refers to a succination ratio *"1.3 to 3.5, especially 1.4 to 3.5 and most especially **1.5 to 2.5**".*

However, as set out in the board's communication pursuant to Article 15(1) RPBA 2020, the combination of the features of example 12 and the features of the passage on page 12, lines 18-19 is not directly and unambiguously disclosed in that document. This preliminary opinion was not contested by the respondent.

- 6.3 Therefore, the board concludes that the subject-matter of claim 1 of the first auxiliary request is novel in view of D18.

Inventive step

7. The respondent objected to the inventive step of the subject-matter of claim 1 of the first auxiliary request in view of example 12 of D18 and the value of the succination ratio of 1.3 disclosed on page 12 of this document.

- 7.1 Admittance of the attack of lack of inventive step based on D18, example 12, and the value of the succination ratio of 1.3 disclosed on page 12 of this document

As set out above, the respondent objected to the inventive step of claim 1 of the first auxiliary request in view of example 12 of D18 and the value of the succination ratio of 1.3 disclosed on page 12, line 19 of this document.

The appellant requested during oral proceedings that the attack of lack of inventive step based on D18, example 12, and the value of the succination ratio of 1.3 disclosed on page 12 of this document not be admitted into the appeal proceedings.

The board decided to admit this attack into the proceedings for the following reasons.

The objection of lack of inventive step based on D18, example 12, and the value of the succination ratio of 1.3 disclosed on page 12 of this document was raised in the respondent's letter of 29 April 2020, i.e. after notification of the summons to oral proceedings before the board.

As set out above, the admittance of any amendment to a party's appeal case after notification of a summons to oral proceedings in these proceedings is governed by Article 13(1) RPBA 2007.

As submitted by the respondent, the objection of lack of inventive step based on D18, example 12, and the value of the succination ratio of 1.3 disclosed on page 12 of this document was a reaction to the board's communication pursuant to Article 15(1) RPBA 2020. In this communication, issued on 6 March 2020, the board stated that the disclosure of a succination ratio of 1.5 in D18 constituted prior art under Article 54(3) EPC since claim 1 enjoyed the priority of the opposed patent in as far as a succination ratio of 1.5 was concerned. Hence, the disclosure of a succination value of 1.5 in D18 could not be cited against inventive step.

In response to this assessment in the board's communication, the respondent referred, in its letter of 29 April 2020, first full paragraph of page 7, to a succination ratio of 1.3 disclosed on page 12 of D18. This constituted prior art under Article 54(2) EPC which could be cited against inventive step because claim 1 of the first auxiliary request did not enjoy

the priority of the opposed patent in as far as a value of 1.2 was concerned.

This attack was raised less than two months after the issuance of the board's communication pursuant to Article 15(1) RPBA 2020 and could not have been submitted at an earlier stage. In view of the above, the board decided to admit this attack into the proceedings in accordance to Article 13(1) RPBA 2007.

8. D18 is a WO application having entered the European phase. It claims the priority of 11 September 2000 and was published on 21 March 2002, i.e. between the priority date (5 July 2001) and the filing date of the patent (27 June 2002). D18 is thus prior art under Article 54(2) EPC and citable against inventive step only in as far as the priority of the patent is not validly claimed.

9. Priority right of the subject-matter of claim 1 of the first auxiliary request

D2 is the priority document of the patent. It discloses in claim 1 "*a composition of matter comprising an amine acylated with a hydrocarbyl group substituted carboxylic acylating agent containing an average of from **about 1.4 to 1.6** groups derived from α,β -unsaturated carboxylic compounds per Mn of the hydrocarbyl group, wherein the hydrocarbyl group has Mn determined by GPC ranging from **about 1700 to about 3000**, the amine comprises polyamine bottoms, and said acylated amine has total base number (TBN) ranging from **about 20 to about 35**" (emphasis added by the board). The description of the priority document further discloses a second range for the TBN "*on a neat chemical basis ... from about 24 to about 30*" (page 10,*

lines 19-21). This passage, in combination with claim 1 of D2, discloses a TBN range from about 20 to about 30.

In accordance with G 1/15 (OJ 2017, A82, catchword), in a case of partial priority, part of the subsequent application's subject-matter disclosed in the previous application has the priority date of the previous application; for the remaining part, the date of filing of the subsequent application applies.

The patent claims the priority of 5 July 2001 from D2. The subject-matter of claim 1 of the first auxiliary request which is disclosed in D2 thus has the priority of 5 July 2001.

The subject-matter of the claims of the first auxiliary request which is not disclosed in D2 is thus only entitled to the filing date of the patent application, i.e. to 27 June 2002.

The part of the subject-matter of claim 1 of the first auxiliary request which is not disclosed in D2 comprises, *inter alia*, a composition of matter comprising an amine acylated with a hydrocarbyl group substituted carboxylic acylating agent containing an average of 1.3 to less than 1.4 groups derived from α,β -unsaturated carboxylic compounds per equivalent of the hydrocarbyl group. For this part, D18 is prior art under Article 54(2) EPC and thus citable against inventive step.

10. Inventive step in view of D18

10.1 The patent aims at providing high performance dispersants for engine lubricating oils having improved seal performance meeting GF-3 and top-tier European lubricant requirements, offering good economics and allowing for the formulation of low chlorine containing

products (paragraphs [0001], [0016] and [0017] of the patent).

10.2 D18 is concerned with the provision of engine lubricating oils for reducing, *inter alia*, degradation of elastomer seals (page 3, lines 2-3). This represents the same aim as the patent. Thus, D18 is a suitable starting point for the assessment of inventive step.

10.3 Distinguishing feature

As set out above when discussing novelty, the succination ratio is the distinguishing feature of claim 1 of the first auxiliary request.

10.4 Objective technical problem

The appellant submitted during the written appeal proceedings that the objective technical problem in view of D18 was the provision of a dispersant which maintains its efficacy while providing improved seal performance and cleanliness. It relied on the new experimental data filed with the letter dated 4 December 2019. In these experimental data, a dispersant according to claim 1 of the first auxiliary request ("dispersant C", succination ratio of 1.3) was compared to three comparative dispersants ("dispersant A, B, D") which were prepared with an amine with a structure not according to claim 1 of the first auxiliary request and/or had a succination ratio of 1.15, i.e. a value outside the range of claim 1 of the first auxiliary request (1.3-1.6). The comparison showed that dispersant C (according to claim 1 of the first auxiliary request) had improved cleanliness as measured by the Komatsu Hot Tube test and improved deposit control as measured by the MH TEOST bench test while

providing equivalent oxidative stability as measured by PDSC onset time.

10.4.1 Admittance of the experimental data filed by the appellant with its letter of 4 December 2019

The respondent requested not to admit these experimental data into the proceedings.

The new experimental data were filed after notification of the summons to oral proceedings and represents an amendment of the appellant's case.

As set out above, any amendment to a party's case after it has filed its grounds of appeal or reply may be admitted and considered at the board's discretion pursuant to Article 13(1)RPBA 2007.

The board notes that the experimental data were submitted three years after the filing of D18 (on 16 September 2016 before the opposition division) and two and a half years after the statement of grounds of appeal (filed on 20 April 2017). No explanation was provided in the letter of 4 December 2019 for the late filing of the experimental data. No reason is apparent to the board, and neither was one cited by the appellant, why the experimental data were not presented at an earlier stage of the proceedings.

The admittance of the experimental data would have been contrary to procedural economy. Furthermore, they would have raised complex new issues, namely whether the data can show that the effect relied upon by the appellant is obtained by the claimed subject-matter.

In light of the above considerations, the board decided not to admit the experimental data filed by the

appellant with its letter of 4 December 2019 into the proceedings in accordance with Article 13(1) RPBA 2007.

10.4.2 Since the experimental data filed with the letter dated 4 December 2019 were not admitted into the proceedings, there are no data available to show the effect relied on by the appellant during the written appeal proceedings.

10.4.3 Thus, as put forward by the respondent, the objective technical problem is the provision of an alternative acylated amine compound.

10.5 Obviousness

The solution proposed by claim 1 of the first auxiliary request is obvious in view of D18. The passage on page 12, lines 18-19 discloses a succination ratio of 1.3 (corresponding to y in the formula $R^1-(R^2)_y$, with R^1 and R^2 representing a substituent and a succinic group). Thus, the skilled person starting from example 12 of D18 and faced with the objective technical problem would have prepared an acylated amine with a succination ratio of 1.3. They would thus have arrived at the subject-matter of claim 1 of the first auxiliary request without any inventive skill.

10.6 During the oral proceedings, the appellant submitted that D18 taught an entirely different solution to the problem of providing a dispersant with improved seal performance. D18 showed that the acylated amines derived from stripped polyisobutylene exhibited better seal performance in comparison to the acylated amines derived from unstripped polyisobutylene. Hence, instead of varying the succination ratio, the skilled person would have selected stripped polyisobutylene. The

solution proposed by claim 1 of the first auxiliary request was not obvious in view of D18.

The board does not agree. As set out above, the objective technical problem is not to improve seal performance but just to find an alternative acylated amine compound. Hence, what the skilled person trying to improve seal performance would have done is of no relevance.

10.7 During the oral proceedings, the appellant further relied on the provision of an alternative composition having acceptable seal performance as the objective technical problem. Even if this problem is taken into account, the claimed solution still has to be considered obvious. D18, which aims at providing compositions with reduced degradation of elastomer seals (page 3, lines 2-3), i.e. having acceptable seal performance, discloses a succination ratio of 1.3 as preferred (page 12, line 18). The skilled person looking for compositions with acceptable seal performance would thus have selected a succination ratio of 1.3 and would have in this way arrived at the subject-matter of claim 1 of the first auxiliary request.

10.8 Thus, the subject-matter of claim 1 of the first auxiliary request does not involve an inventive step.

11. The first auxiliary request is not allowable

Second auxiliary request (claims 1-18 filed with the statement of grounds of appeal)

12. Claim 1 of the second auxiliary request corresponds to claim 1 of the main request except that the lower limits were increased from 1.3 to 1.4 (1.4-1.6) for the succination range, from 1500 to 1700 (1700-3000) for

the Mn range and from 17 to 20 (20-30) for the TBN range.

13. Novelty in view of D4

13.1 As set out above for the main request, D4 (example 33) discloses a dispersant based on an amine acylated with a copolymer of maleic anhydride and polybutene (having a molecular weight of 2400). This copolymer is characterised by a succination ratio of 1.5 (see example 2). The dispersant has a TBN of 29.25 based on a net chemical basis.

13.2 Consequently, the values disclosed in D4 lie within the amended ranges in claim 1 of the second auxiliary request. This was not contested by the appellant. Thus, claim 1 of the second auxiliary request lacks novelty in view of D4.

14. The second auxiliary request is not allowable.

Third auxiliary request (claims 1-18 filed with the statement of grounds of appeal)

15. Claim 1 of the third auxiliary request is a combination of claim 1 of each of the first and second auxiliary requests. Claim 1 of the third auxiliary request thus differs from claim 1 of the second auxiliary request in that the hydrocarbyl group substituted carboxylic acylating agent is prepared by (i) direct thermal alkylation or (ii) the halogenation process as defined in the claim.

Admittance

16. The third auxiliary request was filed with the statement of grounds of appeal.

The respondent requested not to admit the third auxiliary request into the appeal proceedings as it had been late filed. It should have been filed during oral proceedings before the opposition division.

The admittance of the third auxiliary request is governed by Article 12(4) RPBA 2007 (see the transitional provisions pursuant to Article 25(2) RPBA 2020, the statement of grounds of appeal having been filed before 1 January 2020). Under Article 12(4) RPBA 2007, the board has the power to hold inadmissible, *inter alia*, facts and evidence which could have been presented in the proceedings before the opposition division, even though they were filed with the statement of grounds of appeal, relate to the case under appeal and meet the requirements under Article 12(2) RPBA 2007.

As submitted by the appellant, the third auxiliary request was submitted in response to the late-filed objection of lack of inventive step based on D18. As set out above (point 5.1), document D18 was submitted one month before the oral proceedings. The objection of lack of inventive step based on D18 was raised for the first time during the oral proceedings before the opposition division. Contrary to the respondent's view, the appellant could not have been expected to react to the objection by filing the appropriate set of claims to overcome the objection during the oral proceedings before the opposition division. The new objection raised complex new issues to which the appellant could not be expected to respond on the spot during the oral proceedings (see also point 26 below). Thus, the appellant could only submit the third auxiliary request with the statement of grounds of appeal.

Accordingly, the board has decided to admit the third auxiliary request into the proceedings in accordance with Article 12(4) RPBA 2007.

Novelty

17. For the reasons given above for the first auxiliary request, novelty of the third auxiliary request can be acknowledged. In fact, no novelty objection was raised by the respondent during the oral proceedings.

Inventive step

18. The respondent objected to the inventive step of the subject-matter of claim 1 of the third auxiliary request considering each of D4 and D9 as the closest prior art.
19. Lack of inventive step in view of D4
- 19.1 The respondent referred to example 33 of D4 as the starting point for the assessment of inventive step of the subject-matter of claim 1 of the third auxiliary request.
- 19.2 Example 33 of D4

D4 discloses dispersant compounds for lubricating oil compositions having, *inter alia*, superior Viton Seal compatibility (column 1, lines 6-12). As set out above for the assessment of novelty of the subject-matter of claim 1 of the main request (point 1.2), the acylated amine used in example 33 of D4 is derived from the copolymer of maleic anhydride and polybutene of example 2 of D4. This copolymer of maleic anhydride and polybutene does not correspond to an acylating agent prepared by (i) direct thermal alkylation or (ii) the

halogenation process as required by claim 1 of the third auxiliary request.

19.3 Distinguishing feature

The distinguishing feature of claim 1 of the third auxiliary request is the acylated amine and more specifically the moiety derived from the acylating agent.

19.4 Objective technical problem

The respondent submitted that no effect was linked with the distinguishing feature, and thus the objective technical problem was the provision of an alternative acylated amine.

The board does not agree for the following reasons.

As submitted by the appellant, D14 shows that seal performance is achieved by the acylated amines of claim 1 of the third auxiliary request. More specifically, the table on page 3 of D14 shows that acylated amines according to claim 1 of the third auxiliary request (examples 4, 6 and 8) exhibit seal performance.

Thus, the objective technical problem is not that formulated by the respondent. Rather, it may be seen as the provision of an acylated amine compound with acceptable seal performance.

19.5 Obviousness

The respondent relied on the passage of column 8, lines 47-50 of D4.

This passage discloses that the copolymers of D4 "*differ from the PIBSA prepared by the thermal process in that the thermal process products contain a double*

bound and a singly substituted succinic anhydride group".

The PIBSA prepared by the thermal process mentioned in this passage refers to the acylating agent of claim 1 of the third auxiliary request. However, this passage does not teach that it would be obvious to use a PIBSA prepared by the thermal process to solve the objective technical problem. On the contrary, this passage teaches that the copolymers of D4 are different from the PIBSA prepared by the thermal process. Thus, this passage does not teach that the PIBSA prepared by the thermal process would exhibit the same seal properties as the copolymers of D4, let alone that the PIBSA prepared by the thermal process should have the same parameters (TBN, succination ratio and Mn) as the copolymer of example 33 of D4 (see point 1.3 above) to achieve the seal performance. The skilled person trying to find an acylated amine compound with acceptable seal performance would thus not have selected the PIBSA disclosed in column 8 of D4, let alone a PIBSA with a TBN, succination ratio and Mn as required by claim 1 of the third auxiliary request.

- 19.6 Thus, the subject-matter of claim 1 of the third auxiliary request involves an inventive step in view of D4 as the closest prior art.
20. Lack of inventive step in view of D9
- 20.1 During the oral proceedings, the respondent submitted that the subject-matter of claim 1 of the third auxiliary request did not involve an inventive step in view of D9. It relied on its written submissions for claim 1 of the main request.

20.2 Document D9 relates to a method for preparing polyolefin-substituted carboxylic agents having reduced chlorine content (claim 1 of D9). The method comprises a further step of reacting the polyolefin-substituted carboxylic agent with a reactant, among which an amine may be selected (claim 11 of D9). The products may be formulated in an oil of lubricating viscosity (claim 17 of D9). Example 3 of D9 discloses a dispersant that is an acylated amine obtained from the reaction of a polyisobutylene carboxylic acylating agent having a succination ratio of about 1.5 and a nominal molecular weight of 2200 with polyethyleneamine bottoms. The acylated amine product has a TBN of 55 on a neat chemical basis (the TBN is 27.5 for the acylated amine in an amount of about 50% in neutral oil).

In its communication pursuant to Article 15(1) RPBA 2020, the board pointed out that D9 was not a suitable closest prior art. D9 appeared to refer neither to engine oils nor to dispersants providing acceptable seal performance. There were no reasons why D9 should be considered suitable closest prior art when considering the gist of the patent, i.e. providing high performance dispersants for engine lubricating oils meeting GF-3 and top-tier European lubricant requirements, offering good economics, and allowing for the formulation of low chlorine containing products. The appellant did not dispute this preliminary opinion.

The board therefore concludes that the subject-matter of claim 1 of the third auxiliary request involves an inventive step in view of D9.

21. The subject-matter of claim 1, and by the same token claims 2-17, consequently involves an inventive step.

Sufficiency of disclosure

22. The respondent objected to sufficiency of disclosure of the compositions of claims 1 and 6 of the main request in the reply to the grounds of appeal. During the oral proceedings, the respondent submitted that this objection applied to claims 1 and 6 of the third auxiliary request.

22.1 Claim 1 of the third auxiliary request refers to "*a total base number (TBN) of 17 to 30 on a neat chemical basis*". Claim 6 is dependent on claim 1 of the third auxiliary request and refers to a TBN of from 20 to 30.

22.2 The respondent argued that the application as filed provided no means, directions or explanations on how to purposively adjust or calculate the "neat" TBN of an acylated amine to achieve the required TBN range of claim 1 or 6 of the third auxiliary request. The examples of the patent did not specify the type of amine bottoms used. Without this information, the skilled person was faced with extensive trial and error to obtain a compound falling within the scope of claim 1 or 6 of the third auxiliary request.

The board does not agree. The skilled person would be able to synthesise the acylated amine having the required TBN according to claim 1 or 6 of the third auxiliary request for the following reason.

As pointed out by the opposition division in its decision (page 8) and the appellant, paragraphs [0041] to [0044] of the patent disclose the required polyamine and a candidate amine (E-100) which may be used for preparing the acylated amine, and there is no doubt that comparable products may be used under the conditions specified in the examples to obtain acylated amines having the required TBN. The preparation of

acylated amines represents common general knowledge in the art, as supported by the various cited prior art patent documents D1, D4, D7 and D9.

Furthermore, should the TBN value of an acylated amine not fall within the range in claim 1 or 6 of the third auxiliary request, the skilled person would know how to adapt the conditions to obtain the required TBN value, e.g. by selecting a polyamine with a lower/higher nitrogen content or by decreasing/increasing the amount of the polyamine with respect to the acylating agent. Consequently, the skilled person would not face undue burden to arrive at an acylated amine having a TBN value as required by claim 1 of the third auxiliary request.

This was set out in the board's communication pursuant to Article 15(1) RPBA 2020 and not disputed by the respondent.

- 22.3 The respondent also submitted that to obtain the claimed TBN of the acylated amine, a certain nitrogen to carbonyl (N:CO) mole ratio of the acylated amine was needed. This information was not contained in the application as filed. Without this information, the skilled person was faced with extensive trial and error to obtain a compound falling within the scope of claim 1 of the third auxiliary request.

The board does not agree. The description and the examples of the application as filed do not refer to the N:CO mole ratio of the acylated amine. It can therefore not be deduced from the description that the N:CO ratio is to be kept within a range to achieve the required TBN value.

This was set out in the board's communication pursuant to Article 15(1) RPBA 2020 and not disputed by the respondent.

In the absence of clear evidence to the contrary, it is concluded that the preparation of acylated amine with the required TBN does not represent an undue burden.

22.4 Finally, the respondent submitted that the succination ratio of example 1 of the opposed patent was outside the range of claim 1 of the third auxiliary request and that this raised serious questions for sufficiency of disclosure. It submitted that the polyisobutylene substituted succinic anhydride used in example 12 of D18 was prepared under essentially the same conditions as those described in example 1 of the patent. If the succination ratio of example 12 of D18 was considered outside the range of claim 1 of the third auxiliary request, the succination ratio of example 1 of the patent was also outside this range for the same reasons.

The board does not agree. Example 1 of the patent does not disclose a succination ratio. It can also not be assumed on the basis of the respondent's comparison with example 12 of D18 that a succination ratio as claimed is implicitly present. As submitted by the appellant, the two examples are not carried out under essentially the same reaction conditions. The polyisobutylene substituted succinic anhydride of example 12 of D18 is prepared in example 4 of D18. In that example, the amount of stripped polyisobutylene having an Mn of 2304 (see point 8.2 above) is 7834 parts, and the amount of maleic anhydride is 517 parts. In example 1 of the patent, 1000 parts of polyisobutylene having an Mn of approximately 2000 and 76 parts of maleic anhydride are used. Furthermore, the

second chlorination is not carried out under the same time conditions (5 hours in D18, minimum of 2 hours in example 1 of the patent).

Therefore, the amounts of the reactants, the polyisobutylene used and the reaction conditions of the second step of the reaction of example 12 of D18 are different from those of example 1 of the patent. Thus, no comparison can be made between both examples, and it cannot be concluded that the succination ratio of example 1 of the patent is the same as that of example 12 of D18 and thus outside the claimed range.

- 22.5 In view of the above, sufficiency of disclosure of the invention defined in claims 1 and 6 of the third auxiliary request has to be acknowledged (Article 83 EPC).
23. The set of claims of the third auxiliary request is allowable.
24. The appellant requested that annexes 1 and 2 submitted with the letter of 24 April 2020 be admitted into the proceedings and that D19 not be admitted into the proceedings. The respondent requested that D17 be admitted into the proceedings.

Annexes 1 and 2 submitted by the appellant with the letter of 24 April 2020 are additional calculations to support that D3 does not disclose a composition comprising an acylated amine having a TBN of from 17 to 30. The board decided not to admit these annexes into the proceedings. D3 was cited by the respondent only against the main request and the first auxiliary request. These requests were found not to be allowable in the respondent's favour. Hence, neither D3 nor the related annexes were relevant to the outcome of the

present decision, and there is no need to give reasons for the admittance of these annexes.

Document D17 filed by the respondent relates to a lubricating oil composition comprising an acylated amine. D17 was considered not *prima facie* relevant by the opposition division and was not admitted into the proceedings.

Document D19 filed equally by the respondent discloses dispersants as additives for lubricating a device having one fluoroelastomer. D19 was considered *prima facie* relevant by the opposition division and was admitted into the proceedings.

D17 and D19 were not used by the respondent against the third auxiliary request during the oral proceedings. They were not relevant to the outcome of the present decision. Thus, there was no need for the board to overrule or affirm the opposition division's decision not to admit D17 and to admit D19 into the proceedings.

25. The respondent requested that the appellant's request not to admit D18 and D19 be rejected.

Since D18 and D19, both submitted by the respondent before the opposition division, were admitted into the proceedings in the respondent's favour (see point 5.1 and 24 above), there was no need for the board to decide on the respondent's request to reject the appellant's request not to admit D18 and D19.

Right to be heard

26. In its statement setting out the grounds of appeal, the appellant referred to a violation of its right to be heard and a substantial procedural violation having

occurred in the context of the opposition division's admittance of D18 due to:

- the rejection of the request for an adjournment (point 5 on page 2 of the statement)
- the fact that it had not been given an opportunity to comment on the admittance of D18 (point 2 under "Admissibility of D18 and D19" of the statement)

26.1 Rejection of the request for an adjournment

As set out above, D18 was filed one month before the oral proceedings before the opposition division. Together with the filing of D18, the respondent raised a novelty objection based on this document. Only during oral proceedings did the respondent also raise an inventive-step objection based on D18 as the closest prior art together with the assertion that no effect had been shown to be present (point 10.2 of the minutes)

Not providing the appellant with sufficient time to react to this attack by granting its request to adjourn the oral proceedings represents a violation of the appellant's right to be heard within the meaning of Article 113(1) EPC. As set out above, the inventive-step attack based on D18 as the closest prior art comprised the assertion that no effect had been shown to be present. It is thus absolutely credible to the board that the appellant would have needed time to react, and thus the oral proceedings should have been adjourned. Since admittance of the inventive-step attack based on D18 led to the rejection of auxiliary request 2 (point 10.4 of the minutes), the violation of the appellant's right to be heard constitutes a substantial procedural violation.

26.2 For the sake of completeness, the board notes that the conclusion made here that a substantial procedural violation occurred in relation to the opposition division's admittance of D18 is not in contradiction to the board's conclusion above (point 5.1) that in admitting D18 the opposition division applied the right principle in a reasonable way. The procedural violation does not arise due to the admittance of D18 but due to the fact that after this admittance, oral proceedings were not adjourned.

27. Reimbursement of the appeal fee

Under Rule 103(1) (a) EPC, the appeal fee is to be reimbursed in full in the event of interlocutory revision or where the board deems an appeal allowable if this reimbursement is equitable by reason of a substantial procedural violation.

As the board holds that the third auxiliary request is allowable, the decision under appeal is to be set aside and the appeal is allowable. The opposition division's finding of lack of inventive step based on D18 as the closest prior art is tainted with a violation of the right to be heard under Article 113(1) EPC (see 25.1 above), and a causal link exists between the violation and the final decision since this objection was the sole reason for the opposition division that the second auxiliary request was not allowable, thus amounting to a substantial procedural violation. Since the appellant did not have time to file auxiliary request 3 before the opposition division, it was necessary to lodge an appeal. Under these circumstances, the board considers it equitable that the appeal fee be reimbursed in full in accordance with Rule 103(1) (a) EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance with the order to maintain the patent on the basis of the third auxiliary request filed with the statement of grounds of appeal and a description to be adapted.
3. The appellant's appeal fee is reimbursed.

The Registrar:

The Chairman:



N. Maslin

M. O. Müller

Decision electronically authenticated