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Datasheet for the decision of 27 November 2025

Case Number: T 0072/24 - 3.3.02

Application Number: 14778030.8

Publication Number: 3047000

IPC: C10M163/00, C10N40/25

Language of the proceedings: EN

Title of invention:
LUBRICANT COMPOSITIONS FOR DIRECT INJECTION ENGINES

Patent Proprietor:
The Lubrizol Corporation

Opponent:
Infineum International Limited

Relevant legal provisions:
EPC Art. 54, 83, 84, 123(2)
RPBA 2020 Art. 12(2), 12(3), 12(4), 12(5), 12(6), 13(1), 13(2)

Keyword:
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Sufficiency of disclosure
Amendment to case - objection - complexity of amendment - need for procedural economy
Claims - clarity

Decisions cited:
G 0002/21, G 0001/24

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Case Number: T 0072/24 - 3.3.02

D E C I S I O N
of Technical Board of Appeal 3.3.02
of 27 November 2025

Appellant: (Opponent)	Infineum International Limited P.O. Box 1 Milton Hill Abingdon Oxfordshire OX13 6BB (GB)
Representative:	Eisenführ Speiser Patentanwälte Rechtsanwälte PartGmbB Johannes-Brahms-Platz 1 20355 Hamburg (DE)
Respondent: (Patent Proprietor)	The Lubrizol Corporation 29400 Lakeland Boulevard Wickliffe, OH 44092-2298 (US)
Representative:	D Young & Co LLP 3 Noble Street London EC2V 7BQ (GB)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 8 November 2023 concerning maintenance of the European Patent No. 3047000 in amended form.**

Composition of the Board:

Chairman	M. O. Müller
Members:	P. O'Sullivan
	B. Burm-Herregodts

Summary of Facts and Submissions

I. The appeal of the opponent (hereinafter appellant) lies from the decision of the opposition division according to which European patent 3 047 000 in amended form according to auxiliary request 2 met the requirements of the EPC.

II. An opposition was filed on the grounds for opposition under Article 100(a) EPC in combination with Articles 54 and 56 EPC, Article 100(b) EPC and Article 100(c) EPC.

III. The following documents *inter alia* were submitted during opposition proceedings:

D5 : A Ritchie *et al.*, SAE International 2016-01-0717 dated 4 May 2016
D7 : EP 3 101 095 A1
D11: WO 2015/171980 A1
D12: WO 2015/171978 A1
D13: EP 0 312 315 A1
D14: WO 97/14774 A1
D16: Experimental report: declaration of Matthew Gieselman dated 25 October 2018
D17: Takeuchi *et al.*, SAE International 2012-01-30 dated 9 October 2012

IV. With the grounds of appeal the appellant submitted the following documents:

Annex 1: "Observations on lack of novelty supplementing Section 8 of the Statement of Grounds of Appeal"
Annex 2: Colour copy of figure 4 of D5

V. In a communication pursuant to Article 15(1) RPBA, the board provided its preliminary considerations, including the conclusion that claim 1 of the main request (which is identical to auxiliary request 2 found allowable by the opposition division) contained added subject-matter.

VI. Oral proceedings by videoconference took place as scheduled on 27 November 2025 in the presence of both parties.

VII. Requests relevant to the present decision

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

The respondent (patent proprietor) requested dismissal of the appeal, implying that the main request be found allowable. Alternatively, the respondent requested maintenance of the patent on the basis of one of the sets of claims of auxiliary requests 1 to 18 submitted with the reply to the grounds of appeal.

The set of claims of the main request is identical to that of auxiliary request 2 found allowable by the opposition division, which is in turn identical to auxiliary request 1 filed on 19 April 2022.

VIII. For the relevant party submissions, reference is made to the reasons for the decision set out below.

Reasons for the Decision

Main request - Amendments, Article 123(2) EPC

1. The set of claims of the main request is identical to the set of claims of auxiliary request 2 found allowable according to the contested decision.

1.1 Claim 1 of the main request reads as follows:

"~~A method for reducing low speed pre-ignition events in a spark ignited direct injection internal combustion engine comprising supplying to the engine a~~

(i) **Use of** a lubricant composition comprising a base oil of lubricating viscosity and a metal overbased detergent,

(ii) for reducing low speed pre-ignition events in a spark ignited direct injection internal combustion engine comprising

(iii) supplying the lubricant composition to a spark-ignited direct injection internal combustion engine

(iv) equipped with a turbocharger

(v) wherein the engine is operated under a load with a brake mean effective pressure (BMEP) of greater than or equal to 10 bars,

(vi) wherein the engine is operated at speeds less than or equal to 3,000 rpm; and

(vii) wherein the metal overbased detergent comprises a magnesium sulfonate detergent, ~~and~~

(viii) wherein the metal overbased detergent is present in an amount from 0.2 to 8 weight percent of the lubricant composition, and

(ix) wherein calcium and magnesium detergents are present such that the weight ratio of calcium to magnesium is 10:1 to 1:10."

(Roman numerals as assigned by the appellant added to the features of the claims; bold text added compared to claim 1 of the application as filed; underlining text added compared to claim 1 as granted.)

1.2 The appellant argued that the combination of the seven amendments in features (i) and (iv) to (ix) of claim 1 of the main request did not find basis in the application as filed. The requirements of Article 123(2) EPC were therefore not fulfilled.

1.3 It is undisputed that features (i) to (iii) of claim 1 of the main request find basis in claim 1 of the application as filed in combination. In relation to feature (i), claim 1 of the application as filed is directed to a method for reducing low speed pre-ignition events, while claim 1 of the main request is directed to the use of a lubricant composition for reducing low speed pre-ignition events. The appellant did not submit any substantive arguments as to why the change from a method claim to a use claim would add subject-matter. In this regard, the board agrees with the respondent that the rephrasing does not add subject-matter.

1.4 The appellant's objections in relation to the combination of seven amendments focus on the allegation that amendments (iv) to (ix) of claim 1 of the main request do not find basis in the application as filed in combination. As addressed in more detail below, the appellant argued that for multiple individual features among features (iv) to (ix) of claim 1, a selection was required from more than one option in the application as filed, without any particular pointer thereto being present.

1.5 The board agrees that in line with established case law, if more than one such selection were required without any pointer thereto being present in the application as filed, claim 1 would comprise added subject-matter.

1.6 Feature (iv) - equipped with a turbocharger

1.6.1 According to the appellant, the use of a turbocharger was disclosed as one of two alternatives in paragraph [0100] of the application as filed, namely an emission control system or a turbocharger. Thus, a selection was required from the application as filed to arrive at feature (iv).

1.6.2 The board does not share this view, essentially for the reasons put forward by the respondent. Specifically, paragraph [0028] of the application as filed, which refers to the operation of the engine, states "[A]s indicated above" with regard to the subsequently stated engine operating conditions. Since the only reference to such conditions "above" occurs in paragraph [0006], that paragraph is implicitly intended by this reference. Paragraph [0006] reads as follows:

"*More recently, vehicle manufacturers have observed intermittent abnormal combustion in their production of* ***turbocharged*** *gasoline engines, particularly at low speeds and medium-to-high loads. More particularly, when operating the engine at speeds less than or equal to 3,000 rpm and under a load with a brake mean effective pressure (BMEP) of greater than or equal to 10 bars, a condition which may be referred to as low-speed pre-ignition (LSPI) may occur in a very random and stochastic fashion.*" (emphasis added by the board)

1.6.3 The fact that paragraph [0028] refers to paragraph [0006] and additionally recites the same engine operating conditions (engine speed, BMEP and the occurrence of LSPI), indicates that the application as filed is only concerned with the occurrence of LSPI in turbocharged gasoline engines, i.e. engines equipped with a turbocharger as required by feature (iv) of claim 1 of the main request. Moreover, as noted by the respondent, both engines used in the examples of the patent (paragraph [0097]) are turbocharged gasoline direct injection engines, thus confirming the above understanding.

1.6.4 Hence a selection is not required from the application as filed to arrive at feature (iv).

1.7 Features (v) and (vi) - the engine is operated under a load with a BMEP of greater than or equal to 10 bars, and at speeds less than or equal to 3,000 rpm

1.7.1 The appellant argued that although features (v) and (vi) were based on claims 2 and 3 of the application as filed, these claims were each solely dependent on claim 1, and hence represented only two of three engine-

related alternatives in original claims 2 to 4. Therefore, irrespective of whether the combination of the two alternatives incorporated into claim 1 found basis in the application as filed, two out of three engine-related alternatives listed in the original claims must be selected to arrive at features (v) and (vi).

1.7.2 The board disagrees. As stated by the respondent, the skilled person would understand from paragraph [0028] as well as from paragraph [0006] of the application as filed that features (v) and (vi) were intended in combination, as these paragraphs (addressed above for feature (iv) of claim 1) refer specifically to engines having these characteristics. The single dependencies of claims 2 and 3 on claim 1 as filed would not detract from this understanding, which emerges from the description. Similarly, since a limitation to the fuel type mentioned in dependent claim 4 as filed is not mentioned in paragraphs [0028] or [0006], the skilled person would not understand features (v) and (vi) as obligatorily combined with the feature of claim 4 as filed.

1.7.3 Hence, a selection from the application as filed is not required to arrive at features (v) and (vi).

1.8 Feature (vii) - wherein the metal overbased detergent comprises a magnesium sulfonate detergent

1.8.1 The appellant essentially argued that this feature involved a double selection from the application as filed, without any pointer to the selections required being disclosed therein. First, sulfonate was selected as the anion portion of the detergent from the alternatives sulfonate, phenate and salicylate,

disclosed in claims 6, 8 and 9 of the application as filed. Second, magnesium was chosen as the cation from a list including magnesium, calcium and sodium.

1.8.2 In relation to the choice of a sulfonate in feature (vii), the board notes in agreement with the respondent that the application as filed expresses a preference for sulfonate as the anion. Specifically, paragraph [0008] of the application as filed reads as follows:

"*The metal overbased detergent may be selected from sulfonate detergents, phenate detergents, and salicylate detergents,* ***especially sulfonate*** *detergents*" (emphasis added by the board)

1.8.3 The use of "especially" indicates a preference for sulfonate. Furthermore, as indicated by the respondent, all examples include an overbased sulfonate detergent, and indeed sulfonate is the only anion used for the overbased metal detergents of the examples (tables 1 and 2, pages 22 and 23 of the application as filed; the compositions of example 4 and 11 also comprise calcium phenate detergents, neither of which is described as overbased). Hence, although a selection is required to arrive at the choice of sulfonate as the anion of the overbased detergent, the application as filed comprises a pointer to this selection.

1.8.4 In relation to the choice of magnesium as the cation in feature (vii), the respondent essentially argued that basis was provided by paragraph [0060] of the application as filed, which discloses sodium, calcium and magnesium as possible cations. A pointer to magnesium as the preferred cation was disclosed by the composition of example 12 (table 2, page 23) in combination with paragraph [0109] of the application as

filed. Hence, the choice of magnesium in feature (vii) of claim 1 also did not involve a selection.

1.8.5 The board agrees. Paragraph [0060] of the application lists sodium, calcium and magnesium as possible cations for the detergent. It is undisputed that this paragraph does not disclose a preference for magnesium. However, as argued by the respondent, a preference, or pointer, to the choice of magnesium as the cation is derivable from example 12 and a comparison thereof with example 13, and the associated observations set out in paragraph [0109] of the application as filed.

1.8.6 Example 12 (application as filed, table 2 on page 23) concerns a lubricating oil composition comprising 0.29 wt.% of an overbased calcium sulfonate detergent and 2.92 wt.% of an overbased magnesium detergent. The lubricating composition of example 13 comprises 2.78 wt.% overbased calcium sulfonate and no overbased magnesium sulfonate. Both compositions underwent engine testing for LSPI events (paragraphs [0106] and [0107] of the application as filed), which the application as filed seeks to minimise (paragraph [0007]). The results reported in table 4 (paragraph [0108]) indicate that the oil composition of example 12 comprising overbased calcium and overbased magnesium sulfonates led to 2.2 LSPI events, while the oil composition of example 13 led to 31.8 LSPI, both measured as LSPI events per 100,000 cycles, thus indicating a very large absolute and relative decrease in LSPI events linked to the use of magnesium as cation.

1.8.7 The appellant argued that the replacement of the overbased calcium detergent with the overbased magnesium detergent was not the only difference between examples 12 and 13, and hence the observed improvement

could not necessarily be attributed to this difference. In particular, it was argued that the 2.92 wt.% overbased magnesium detergent added to the composition of example 12 in addition to the 0.29 wt.% calcium detergent was more than the total weight percentage of overbased calcium detergents (2.78 wt.%) comprised within the composition of example 13. Hence, the magnesium detergent in example 12 not only replaced the calcium detergent in example 13, but also added additional detergent in terms of the absolute amount thereof.

1.8.8 This argument is not convincing. While the board acknowledges that more total detergent is present in the composition of example 12 compared to that of example 13, the extent of the observed decrease in LSPI events from example 13 to example 12 cannot be explained by this difference. Specifically, although the total detergent in example 12, at 3.21 wt.% (0.29 wt.% calcium and 2.92 wt.% magnesium) is approximately 15% more than the total amount in example 13 (2.78 wt.%), the number of LSPI events measured with the composition of example 12 represents a more than 14-fold reduction compared to that of example 13. Therefore, the reduction in LSPI events can credibly be attributed to the partial replacement of overbased calcium detergent by overbased magnesium detergent.

1.8.9 This improvement in example 12 compared to example 13 is also acknowledged in paragraph [0109] of the application as filed, which reads as follows:

"*The data indicates that a reduction in total detergent ash below 1 weight percent results in a reduction in LSPI events.* ***Partial replacement of calcium detergent with magnesium*** *and/or sodium* ***detergent also provided an***

observed reduction in LSPI events. *In addition, partial replacement of sulfonate detergent with phenate-based detergent resulted in a reduction in observable LSPI events.*" (emphasis added by the board).

1.8.10 The appellant argued that even if a reduction in LSPI events were attributed to the replacement of overbased calcium with overbased magnesium detergents, example 12 still did not represent a pointer to the choice of magnesium as the cation. Specifically, many examples were provided in the application as filed of which example 12 was only one. The lubricant compositions of all examples had in common that they comprised an overbased calcium sulfonate detergent. Some examples included an additional overbased sodium sulfonate detergent (examples 2, 5, 6 and 10), while others included an additional calcium phenate detergent (examples 4 and 11). However only one (example 12) included an additional overbased magnesium sulfonate. The general teaching of the examples in their entirety was therefore that the desired effect expressed in claim 1, namely the reduction of LSPI events, was achieved by compositions comprising overbased calcium sulfonate detergent, optionally in the presence of a further detergent as detailed above. Hence, the appellant argued, the examples could not provide a pointer to specifically selecting magnesium as the metal cation for the (preferred) sulfonate anion.

1.8.11 The board disagrees. It is acknowledged, as argued by the appellant, that examples 2 to 13 in the application as filed are all labelled as being according to the invention. However, as noted by the respondent, several methods for reducing LSPI events are disclosed according to paragraph [0109], cited above, which refers to the data derived from the examples. In

addition to the partial replacement of calcium with magnesium detergents, these methods - namely the partial replacement of calcium detergent with sodium detergent, and the partial replacement of sulfonate detergent with phenate-based detergent - and the associated reduction in LSPI events, are reflected in the compositions of the examples and the engine tests performed thereon.

1.8.12 Specifically, a comparison of examples 7 and 8 shows that by reducing the absolute concentration of overbased calcium sulfonate detergent from 2.78 wt.% to 1.12 wt.% - the only difference between the compositions of these examples - a reduction in sulfated ash and a corresponding absolute reduction in LSPI events can be achieved (19.2 vs. 12.6 LSPI events), thereby indicating a link between the absolute amount of calcium and the number of LSPI events. A comparison of examples 9 and 10 shows that the (partial) replacement of overbased calcium sulfonate detergent with overbased sodium sulfonate detergent in example 10 leads to a reduction in LSPI events from 8.1 to 4.4. Finally, a comparison of example 11 with example 13 shows that the partial replacement of a sulfonate detergent with a phenate-based detergent in example 11 leads to a reduction in LSPI events from 31.9 to 23.7.

1.8.13 Thus overall, the examples in the application as filed disclose that compositions comprising overbased calcium detergent generally lead to a relatively high occurrence of LSPI events, which can be lowered by the methods identified in paragraph [0109] of the application as filed.

Crucially, as stated by the respondent, among these methods, the partial replacement of overbased calcium detergent with overbased magnesium detergents shown in example 12 not only results in the lowest absolute number of LSPI events across all examples (2.2 for example 12 versus 19.2 for example 7, 4.4 for example 10 and 23.7 for example 11), but also shows by far the greatest comparative decrease in LSPI events - from 31.8 for example 13 to 2.2 LSPI events for example 12.

1.8.14 Hence, due to the superior results reported for example 12, this example, in combination with the teaching of paragraph [0109] of the application as filed, serves as an implicit preference and therefore a pointer for the skilled person to the choice of magnesium as the cation in the overbased sulfonate detergent. Consequently, although a selection is required to arrive at the choice of magnesium as the cation of the overbased detergent, the application as filed comprises a pointer to this selection.

Since the application as filed comprises a pointer to both sulfonate as the anion and magnesium as the cation in feature (vii), it follows that the application as filed discloses a pointer to feature (vii).

1.9 Feature (viii) - wherein the metal overbased detergent is present in an amount from 0.2 to 8 weight percent of the lubricant composition

1.9.1 The appellant submitted that this feature, derived from claim 12 of the application as filed, was selected from "five metal overbased detergent-related alternatives" disclosed in claims 6, 11, 12, 15 and 16 of the application as filed, all of which referred back to claim 1, and not to each other. The choice of the

alternative of claim 12, in the absence of the other alternatives, e.g. the amount of sulfated ash from claim 16, represented a further selection in claim 1 of the main request. Specifically, there was no basis in the application as filed for concluding that an amount of overbased metal detergent of from 0.2 to 8 weight percent applied equally to all types of detergents as determined by the specific metal and anion, and to all types and characteristics of engines in which the lubricants containing said specific detergent are then used.

1.9.2 The board disagrees. As noted by both parties, the features of claim 1 of the main request relate to three separate aspects set out in the application as filed, namely:

- the chemical composition of the lubricant,
- its purpose or use, and
- the design and operation of the engine in which the lubricant is used.

1.9.3 It was not disputed that these aspects are interlinked in the application as filed. There is therefore no reason to conclude that the amounts claimed in feature (viii) and derivable from claim 12 of the application as filed are not generally applicable to all of said aspects. This also emerges from the fact that the claimed range in feature (viii) is the only range mentioned in the claims, and the only range mentioned in the introductory "summary of the invention" section of the application as filed (paragraph [0020]), despite other possible ranges being stipulated in the description of the application as filed (paragraph [0063]). Furthermore, the board does not see in this feature a "selection" from claims 6, 11, 12, 15 and 16

- each of these claims relates to a different aspect of the lubricant composition. The board sees no reason why this aspect would only be disclosed in the application as filed in combination with the other aspects of claims 6, 11, 15 and 16. Furthermore, a combination of claims 6, 11, 15 and 16 would be in contradiction with the appellant's arguments set out in relation to other features of claim 1, namely that dependent claims depending solely on claim 1 cannot be combined.

1.9.4 The appellant referred to paragraph [0060] of the application as filed which taught that different amounts of detergents could be employed depending on the specific metal cation used. Similarly, paragraph [0063] disclosed various amount ranges for the metal overbased detergent which differed depending on the type of engine used. This cast doubt on the general applicability of the range of from 0.2 to 8 weight percent for the metal overbased detergent recited in claim 12 of the application as filed.

1.9.5 The board does not find this argument convincing. Even if paragraph [0060] proposes differing amounts of detergent depending on the nature of the cation, this does not equate to a disclosure of a differing total amount range for the detergent to that disclosed in claim 12 of the application as filed. Similarly, the differing amount ranges disclosed in paragraph [0063] of the application as filed depending on the type of engine used are merely provided as examples, and are therefore not to be considered limitative. Hence, there is no reason to doubt that the amount range in claim 12 of the application as filed is generally applicable to all metal overbased detergents, detergent mixtures and engine types disclosed in the application as filed.

1.9.6 Consequently, a selection from the application as filed is not required to arrive at feature (viii).

1.10 Feature (ix) - wherein calcium and magnesium detergents are present such that the weight ratio of calcium to magnesium is 10:1 to 1:10

1.10.1 The respondent referred to paragraph [0060] of the application as filed as basis for feature (ix). The relevant part of this paragraph reads as follows:

"*In one embodiment, both calcium and magnesium containing detergents may be present in the lubricating composition. Calcium and magnesium detergents may be present such that the weight ratio of calcium to magnesium is 10:1 to 1:10, or 8:3 to 4:5, or 1:1 to 1:3.*"

1.10.2 As explained above in relation to feature (vii), the pointer to magnesium as the cation in example 12 is supported by the associated text in paragraph [0109] according to which a reduction in LSPI events is observed by partial replacement of calcium detergent with magnesium detergent. In agreement with the respondent, once this preferred embodiment is selected, the skilled person must determine the relative amounts of calcium and magnesium detergents which may be present in the composition. In this regard, the only disclosure of such relative amounts is set out in paragraph [0060] of the application as filed. Consequently, the selection of magnesium as the cation, as a partial replacement of calcium according to paragraph [0109] of the application as filed inevitably leads the skilled person to the relevant disclosure in paragraph [0060] cited above.

1.10.3 The appellant argued that feature (ix) required a selection from paragraph [0060] of the application as filed, without any pointer thereto. Specifically, the ratio of calcium to magnesium of 10:1 to 1:10 recited in feature (ix) was selected from three separate ranges recited in paragraph [0060], namely 10:1 to 1:10, 8:3 to 4:5 and 1:1 to 1:3.

1.10.4 The board does not agree that a selection from the ratio ranges listed in paragraphs [0060] is necessary to arrive at the ratio recited in feature (ix). While it could be argued that a selection is necessary to arrive at one of the narrower ranges stipulated in paragraph [0060], there is no need for a selection to arrive at the broadest range of 10:1 to 1:10. More specifically, the skilled person would understand that the broader ratio range directly and unambiguously applies to all embodiments when the replacement of calcium with magnesium detergents described in paragraph [0109] of the application as filed is selected (with a pointer thereto). Hence, there is no need for a selection to arrive at the ratio range recited in feature (ix).

1.10.5 A further consideration under Article 123(2) EPC in relation to feature (ix) and raised by the board in its communication pursuant to Article 15(1) RPBA (point 3.13.8) concerned an objection raised by the appellant in the grounds of appeal under Article 84 EPC (page 20, point 5). Specifically, the board noted therein that feature (ix) of claim 1 did not require that the calcium or magnesium detergents are overbased, while in contrast, the ratio feature in paragraph [0060] of the application as filed, when interpreted in context, referred exclusively to the ratio in feature (ix) in relation to *overbased* calcium and magnesium detergents.

1.10.6 More specifically, paragraph [0060] repeatedly refers to *overbased* metal-containing detergents, including overbased calcium and magnesium detergents. Although the specific basis for feature (ix) in paragraph [0060] rather refers to "calcium and magnesium containing detergents", both parties agreed that in the context of paragraph [0060], exclusively *overbased* detergents were implicitly intended. The board also agrees.

1.10.7 The same context is however not derivable from claim 1 of the main request, despite feature (ix) being incorporated therein verbatim from the relevant part of paragraph [0060]. Rather, in claim 1 of the main request, there is no implicit indication that the calcium and magnesium detergents recited in relation to the ratio are overbased. Consequently, the ratio feature (ix) in claim 1 is not limited to overbased calcium and magnesium detergents, but rather includes the recited ratio in relation to any calcium and magnesium detergents, whether overbased or not. Feature (ix) in claim 1 of the main request is therefore different in scope to the corresponding text in paragraph [0060] of the application as filed, and as a consequence claim 1 comprises added subject-matter.

1.10.8 The respondent's arguments to the contrary failed to convince the board. First, the respondent argued that following a linguistically accurate reading of claim 1 of the main request, it was evident that the feature (ix) necessarily referred exclusively to overbased calcium and magnesium detergents. Specifically, the semi-colon in the seventh line of claim 1 separated the definition of engine and the engine conditions as such from the subsequent part of the claim in which the overbased metal detergents were defined. The features

related to the overbased metal detergents were related and to be read in combination. Hence, the final clause of claim 1 relating to the ratio was to be read in combination with the previous clause which referred to the amount of metal overbased detergent present, and thus referred exclusively to overbased calcium and magnesium detergents.

1.10.9 The board disagrees. The part of claim 1 of the main request referring to the metal detergents is split into three separate clauses, namely:

- wherein the metal overbased detergent comprises a magnesium sulfonate detergent, and
- wherein the metal overbased detergent is present in an amount from 0.2 to 8 weight percent of the lubricant composition, and
- wherein calcium and magnesium detergents are present such that the weight ratio of calcium to magnesium is 10:1 to 1:10.

1.10.10 While the first two clauses concern metal overbased detergents, the final clause does not. There is however nothing in the final clause which would lead to the understanding that it refers exclusively to overbased detergents mentioned in the earlier clauses. In particular, as stated by the appellant, there is no antecedent basis in claim 1 of the main request for the calcium detergents in said final clause, and a definite article, which may have indicated an antecedent basis in a detergent mentioned earlier in the claim, is absent. Furthermore, as noted by the appellant, claim 1 of the main request is formulated openly as *comprising* a metal overbased detergent: further detergents are therefore not excluded. Hence, based on a linguistic

interpretation, there is no reason to construe the claim in the limited manner proposed by the respondent.

1.10.11 The respondent also referred to Enlarged Board of Appeal decision G 1/24 to argue that feature (ix) of claim 1 of the main request was to be interpreted in line with paragraph [0051] of the patent (which is identical to paragraph [0060] of the application as filed), i.e. as pertaining exclusively to overbased calcium and magnesium detergents in feature (ix). Since it was undisputed that the basis for feature (ix) in paragraph [0051] of the patent exclusively concerned overbased calcium and magnesium detergents, feature (ix) in claim 1 of the main request was to be construed in the same manner.

1.10.12 The board disagrees for the reasons provided by the appellant. Even assuming that the description of the patent could be used to interpret claim 1 in the context of Article 123(2) EPC (the order of G 1/24 exclusively refers to patentability under Articles 52 to 57 EPC), such interpretation would still not lead to a conclusion that feature (ix) is limited to overbased calcium and magnesium detergents. Specifically, although paragraph [0051] of the patent exclusively concerns overbased calcium and magnesium detergents as set out above, this limitation is not unambiguous in view of the disclosure of the patent in its entirety. Firstly, the description of the patent, when defining the constituents of the lubricant composition uses a "comprising" language (e.g. paragraph [0010] of the patent). Hence, even though the magnesium and calcium detergent mentioned in paragraph [0051] of the patent are undoubtedly overbased, this does not mean that further non-overbased magnesium or calcium detergents are excluded from the lubricant composition. Secondly,

the examples of the patent do not exclude non-overbased metal detergents from the scope of the invention: a neutral (i.e. not overbased) calcium phenate detergent is employed in example 4 (see table 1, footnote 5). For at least these reasons, consultation of the description of the patent does not lead to the conclusion that claim 1 is necessarily to be interpreted in the limited manner proposed by the respondent.

1.10.13 Consequently, since in contrast to paragraph [0060] of the application as filed, claim 1 of the main request covers embodiments for which the ratio is a ratio between non-overbased detergents, it adds subject-matter over the content of the application as filed. It follows that the combination of features (i) and (iv) to (ix) in claim 1 adds subject-matter. The requirements of Article 123(2) EPC are therefore not met.

1.11 The main request is consequently not allowable.

Auxiliary request 1 - Article 123(2) EPC

2. Claim 1 of auxiliary request 1 is identical to claim 1 of the main request. Consequently, the same conclusion applies for the same reasons as set out above for claim 1 of the main request. The requirements of Article 123(2) EPC are therefore not met.

2.1 Auxiliary request 1 is consequently not allowable.

2.2 The appellant requested that auxiliary request 1 not be admitted into appeal proceedings. Since however this claim request was not allowable as set out above, there was no need for the board to consider the admittance thereof.

Auxiliary request 2

3. Claim 1 of auxiliary request 2 differs from claim 1 of the main request in feature (ix) as follows:

"*wherein* ***both overbased*** *calcium and* ***overbased*** *magnesium detergents are present such that the weight ratio of calcium to magnesium is 10:1 to 1:10.*" (emphasis denoting addition compared to claim 1 of the main request added by the board)

3.1 Prohibition of *reformatio in peius* - admittance

3.1.1 During discussions at oral proceedings on the admittance of auxiliary request 2 into the proceedings (*infra*), the appellant raised an objection against claim 1 of this request under the prohibition of *reformatio in peius*. The objection was raised without specifying whether it was relevant to the admittance of auxiliary request 2 into the proceedings, or rather the allowability thereof.

3.1.2 The appellant submitted that in view of the fact that the opponent was the sole appellant in the present case, the principle of prohibition of *reformatio in peius* applied, meaning that the respondent in the present proceedings is prohibited from improving its position beyond that accorded by the appealed decision.

3.1.3 The present main request was identical to the set of claims found allowable by the opposition division. Hence, under the prohibition of *reformatio in peius*, the opponent (sole appellant) may not be placed in a worse position than if it had not appealed. In claim 1 of auxiliary request 2 however, non-overbased

detergents can be present in amounts outside of the limitation expressed in feature (ix) of claim 1 of the main request, and hence claim 1 of auxiliary request 2 was broader than claim 1 of the main request in this regard.

3.1.4 The respondent requested that the appellant's objection under the prohibition of *reformatio in peius* not be admitted into appeal proceedings.

3.1.5 The appellant argued that the objection had not been submitted for the first time during oral proceedings before the board, but rather in writing at the earliest possible opportunity, namely with the rejoinder dated 16 December 2024 (page 36, point (3)), submitted in response to the respondent's reply to the grounds of appeal, the latter being the submission with which auxiliary request 2 was submitted.

3.1.6 The board disagrees. The cited passages of the letter dated 16 December 2024 referred to by the appellant as comprising the objection in question are part of section 9.1.3 (page 35 *et seq.*) related to auxiliary requests 3, 5, 10, 11 and 16 to 18. All of these requests comprise in claim 1 the same amendment, namely the addition in line 2 of a definition for the metal overbased detergent as "a mixture of overbased calcium and overbased magnesium detergents" (see for example claim 1 of auxiliary request 3). This amendment is however absent from claim 1 of auxiliary request 2. Hence, the relevant section of the appellant's letter neither refers to auxiliary request 2, nor does the objection raised therein have any relevance in substance to the subject-matter of claim 1 of auxiliary request 2. In this regard, it is noted that the amendment to feature (ix) in auxiliary request 2 (the

addition of "overbased") is not present e.g. in claim 1 of auxiliary request 3.

3.1.7 Consequently, the appellant's objection against claim 1 of auxiliary request 2 related to the prohibition of *reformatio in peius* was raised for the first time during oral proceedings before the board.

3.1.8 Article 13(2) RPBA applies to the admittance of this objection. According to this provision, any amendment to a party's appeal case made after notification of a communication under Article 15(1) RPBA shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

3.1.9 The appellant referred to the respondent's filing of 18 auxiliary requests with the reply to the statement of grounds as an excessive number of requests. This represented exceptional circumstances justifying the late filing of the *reformatio in peius* objection on the day of the oral proceedings. The RPBA could not impose on the appealing party the obligation to cover, in written appeal proceedings, all possible objections to 18 claim requests filed during the appeal proceedings.

3.1.10 The board disagrees. Although the total number of auxiliary requests filed by the respondent is not insignificant, the various combinations of amendments to those requests compared to the claims of the main request were more limited in number. Those amendments were detailed in the table submitted by the respondent with the reply to the statement of grounds of appeal (pages 56 and 57). Apart from amendments in which dependent claims were deleted, a total of six different amendments were introduced. The board does not consider

this an excessive number to the extent that it would have been unreasonable for the appellant to address them in the written proceedings. Furthermore, even if the number of requests and associated amendments were to be considered large in number, it is questionable whether this fact alone could serve as an exceptional circumstance justifying the submission of a new objection on the day of oral proceedings, in particular in view of the need for procedural fairness with regard to the respondent.

3.2 Consequently, the board decided not to admit the appellant's objection related to the prohibition of *reformatio in peius* for claim 1 of auxiliary request 2.

4. Auxiliary request 2 - admittance into proceedings

4.1 The appellant requested that auxiliary request 2 not be admitted into appeal proceedings.

4.2 Auxiliary request 2 was submitted with the respondent's reply to the statement of grounds of appeal. As set out above, claim 1 differs from claim 1 of the main request in that it stipulates in feature (ix) that the calcium and magnesium detergents are both overbased.

4.3 It is undisputed that in opposition proceedings, a clarity objection in relation to feature (ix) of claim 1 of the main request was submitted by the appellant with the letter dated 18 August 2023 (page 11, point 8, third paragraph), 2 months in advance of oral proceedings before the opposition division.

4.4 In its communication pursuant to Article 15(1) RPBA, the board applied this clarity objection in a different legal context, namely the context of

Article 123(2) EPC, as set out above in relation to claim 1 of the main request. Specifically, the board concluded that feature (ix) of claim 1 added subject-matter, as in contrast to paragraph [0060] of the application as filed, the detergents stipulated therein were not limited to overbased calcium and magnesium detergents. In relation to the question of whether auxiliary request 2 should have been submitted by the respondent in advance of oral proceedings before the opposition division, the board notes the following.

4.5 According to Article 12(6) RPBA, the board shall not admit *inter alia* requests which should have been submitted in the proceedings leading to the decision under appeal, unless the circumstances of the appeal case justify their admittance.

4.6 The question relevant to the assessment of admittance under Article 12(6) RPBA is therefore whether the filing of auxiliary request 2 with the respondent's reply to the statement of grounds of appeal represented a timely response to the clarity objection raised in the appellant's letter dated 18 August 2023 as set out above.

4.7 The appellant argued that auxiliary request 2 could have been submitted by the respondent at the same time as the present main request (comprising feature (ix), i.e. without the term "overbased"), submitted in opposition proceedings as the sole auxiliary request with the letter dated 19 April 2022 (the reply to the appellant's notice of opposition). Specifically, since with the (then) sole auxiliary request, the respondent had amended claim 1 to incorporate feature (ix), future objections in relation to feature (ix) should have been anticipated by the respondent at that time. Hence, a

request with the further limitation to feature (ix) implemented in claim 1 of present auxiliary request 2 should also have been considered at that time. Alternatively, auxiliary request 2 should have been submitted in advance of oral proceedings before the opposition division, subsequent to the clarity objection raised by the appellant in relation to claim 1 of the main request as addressed above.

4.8 The board disagrees. As stated by the respondent, there is no general requirement for patent proprietors to anticipate potential future objections against claim requests. Since the clarity objection mentioned above was submitted with the appellant's letter dated 18 August 2023, the argument that a claim request responsive to said objection should have been submitted on an earlier date is without merit.

4.9 The appellant's clarity objection was submitted approximately 16 months after the filing of the present main request with the respondent's reply to the notice of opposition dated 19 April 2022. Furthermore, it was submitted on the final date set for making written submissions in accordance with Rule 116 EPC, 2 months in advance of oral proceedings before the opposition division, which took place on 18 October 2023.

4.10 In the board's view, it is not equitable on the one hand for the appellant to require 16 months to respond to the respondent's submission of a (single) auxiliary request with a new clarity objection, and on the other hand to expect the respondent to react thereto within the remaining 2 months in advance of the oral proceedings before the opposition division. Furthermore, the clarity objection raised by the appellant was addressed during oral proceedings before

the opposition division and not found convincing. Hence, there was no need, during oral proceedings, for the respondent to file auxiliary request 2 in response to a negative finding in relation to clarity.

4.11 There is therefore no basis for concluding that auxiliary request 2 should have been submitted in opposition proceedings.

4.12 Furthermore, although auxiliary request 2 represents an amendment to the respondent's case within the meaning of Article 12(4) RPBA, as stated by the respondent, it is not complex, and as set out below, is suitable for addressing the clarity objection raised by the appellant, later applied by the board in the context of Article 123(2) EPC as set out above.

4.13 Consequently, the board decided pursuant to Article 12(4) and (6) RPBA to admit auxiliary request 2 into appeal proceedings.

5. Article 123(2) EPC - Admittance

5.1 As confirmed during oral proceedings, the appellant's only objection under Article 123(2) EPC in relation to auxiliary request 2 was directed to dependent claims 2, 3, 5 and 6. These claims correspond to dependent claims 2, 3, 6 and 7 of the main request for which the objection was raised with the appellant's statement of grounds of appeal.

5.2 The respondent requested that these objections not be admitted into appeal proceedings pursuant to Article 12(4) and (6) RPBA. They had not been raised before the opposition division. Since they concerned granted claims, they should have already been raised

with the notice of opposition. In view of the fact that the appellant had expressed the view that claim 1 of the main request comprised added subject-matter even without feature (ix), introduced into claim 1 of the main request compared to the claims as granted, the objection against the dependent claims could not be considered responsive to this amendment. Even if it were responsive, the corresponding objections should have been submitted in advance of oral proceedings before the opposition division.

5.3 According to the appellant, to the extent that its objections against dependent claims were to be considered an amendment of its case compared to opposition proceedings, such an amendment was justified due to a change in opinion of the opposition division in relation to added subject-matter for claim 1 of the (then) main request, compared to the view set out in its preliminary opinion.

5.4 The board notes in agreement with the respondent that substantive objections against individual dependent claims were submitted for the first time in appeal proceedings. In view of the fact that these dependent claims were also present in the claims as granted, there is no reason why the objections against these claims could not have been submitted with the notice of opposition, or at the very latest at a later stage of opposition proceedings in advance of the oral proceedings. It is inconsequential in this regard whether during oral proceedings, the opposition division changed its view in relation to added subject-matter for claim 1 of the (then) main request, compared to the view set out in its preliminary opinion: it is within the responsibility of the party concerned to anticipate such an eventuality.

5.5 Consequently, the board decided pursuant to Article 12(6) RPBA not to admit the appellant's added subject-matter objections against dependent claims 2, 3, 5 and 6 of auxiliary request 2 into appeal proceedings.

5.6 In the absence of any further added subject-matter objections, and as concluded by the board during the oral proceedings, the claims of auxiliary request 2 do not contain added subject-matter.

6. Novelty - Article 54(3) EPC

6.1 The appellant submitted that the claimed subject-matter lacked novelty over each of D7, D11 and D12, all of which, in the event that the claimed subject-matter were not entitled to the priority date, were prior art under Article 54(3) EPC.

6.2 The issue of entitlement to priority was addressed in the board's communication pursuant to Article 15(1) RPBA. However, in view of the conclusions below, there is no need for the board to address the validity of the claimed priority in the present decision.

6.3 Novelty vis à vis D7

6.3.1 Patent document D7 discloses lubricant compositions whose purpose includes *inter alia* the reduction of LSPI events (e.g. paragraph [0021], first sentence). For a summary of the ingredients of the compositions of the examples of D7, see the table on page 2 of the appellant's Annex 1, the accuracy of which has not been disputed. In these examples "Metal Cleaner 4" is an

overbased magnesium sulfonate detergent and "Metal Cleaner 1" is an overbased calcium sulfonate detergent (D7, paragraph [0112]). It is undisputed that at least some of the lubricant compositions disclosed in D7 fall within the scope of the compositions recited in claim 1 of the main request.

6.3.2 According to the respondent, the subject-matter of claim 1 of the main request differed from D7 in that D7 employed an inline 4-cylinder **supercharged** engine (e.g. D7, paragraph [0018]), and not an engine equipped with a **turbocharger** as required by claim 1.

6.3.3 The board agrees. As set out in the board's communication pursuant to Article 15(1) RPBA, it was common general knowledge that a supercharged engine and a turbocharged engine are not the same thing: this is also implied by the use of different terms in D7 and in the patent. It was also noted in the board's communication that in its written submissions, the appellant had not explicitly stated that supercharged engines and turbocharged engines are one and the same, or at least overlap in their definition. Also during oral proceedings, this was not contested.

Consequently, at least for this reason, the subject-matter of claim 1 is novel over D7.

6.4 Admittance of the novelty objection based on D11

6.4.1 In relation to its objections of lack of novelty over *inter alia* D11, the appellant referred to Annex 1 submitted with the grounds of appeal. This document comprises the appellant's submissions in opposition proceedings related to claim 1 of the patent as granted. Annex 1 is divided into a Part A, a copy of

the appellant's arguments set out in the notice of opposition (Annex 1, pages 1 to 7), a Part B, a copy of the appellant's arguments submitted in response to the opposition division's preliminary opinion (pages 7 to 13), and a Part C, which is the only part which concerns the disclosure of feature (ix) of claim 1 of the present main request.

6.4.2 As set out in the board's communication pursuant to Article 15(1) RPBA, Part C of Annex I, entitled "[d]isclosure of feature (ix) of claim 1 as maintained", only comprises substantive arguments concerning the disclosure of feature (ix) of claim 1 of the main request for documents D7 and D12, and is silent on the disclosure of this feature in D11. Consequently, a lack of novelty vis à vis D11 is not substantiated by the appellant in appeal against claim 1 of the main request, and there is no need to investigate any further.

6.4.3 During oral proceedings, the board stated that it maintained this view also for claim 1 of auxiliary request 2, and was thus of the preliminary view that the objection of lack of novelty based on D11 should not be admitted into appeal proceedings.

6.4.4 At oral proceedings the appellant referred to their written submissions.

6.4.5 In agreement with its statement made during the oral proceedings, the board notes that although the novelty objection against claim 1 vis à vis D11 was raised for claim 1 of the main request, the same considerations in relation to a lack of substantiation in appeal apply *a fortiori* to claim 1 of the auxiliary request 2.

6.4.6 The objection of lack of novelty vis à vis D11 thus does not meet the complete case requirement of Article 12(3) RPBA. The board therefore decided pursuant to Article 12(5) RPBA not to admit the appellant's novelty objection vis à vis D11 into appeal proceedings.

6.5 Admittance of the novelty objection based on D12

6.5.1 The appellant submitted that claim 1 of auxiliary request 2 lacked novelty over patent document D12. The respondent requested that this objection not be admitted into appeal proceedings.

6.5.2 The file history in relation to the appellant's novelty objection based on D12 is relevant to the issue of admittance.

6.5.3 A novelty objection based on D12 against claim 1 of the main request was submitted by the appellant with the grounds of appeal (point 3.6, page 9) by way of reference to Annex I, filed on the same date. Annex I is addressed above in relation to novelty vis à vis D11. In section C, point 2 of Annex I, the appellant argued that D12 disclosed feature (ix) of claim 1 of the main request. Specifically, feature (ix) was disclosed in examples 9 and 10 (D12, fig. 9, page 21/52); in particular the amounts of calcium and magnesium disclosed resulted in a ratio of calcium to magnesium of 1.45, falling within the claimed range.

6.5.4 Auxiliary request 2 was submitted with the respondent's reply to the grounds of appeal dated 12 July 2024. As stated above, claim 1 of this request differs from claim 1 of the main request in that it stipulates that the calcium and magnesium detergents are overbased. In

the same letter, the respondent submitted (albeit in relation to claim 1 of the main request) that D12 did not directly and unambiguously disclose an "overbased" calcium detergent such that the weight ratio defined in claim 1 was satisfied (reply, point 282).

6.5.5 With the rejoinder dated 16 December 2024, the appellant reiterated the novelty objections set out in Annex I for claim 1 of the main request (point 7.2 of the letter), and merely stated that none of the objections raised for the main request were overcome by *inter alia* auxiliary request 2 (point 9.2 of the letter). No arguments were submitted according to which D12 disclosed feature (ix) of auxiliary request 2 which explicitly requires that the calcium and magnesium detergents are *overbased*.

6.5.6 With further letter dated 6 June 2025 (pages 2 and 3), the appellant submitted a table identifying the individual amendments introduced into one or more of the auxiliary requests, and provided passages in *inter alia* D12 which, according to the appellant, disclosed the feature in question. In relation to the amendment to feature (ix) in claim 1 of auxiliary request 2, the appellant again made reference to examples 9 and 10 and figure 9 of D12, and added a reference to paragraph [00196] of D12. No explanation of the cited paragraph was provided, and how or why it disclosed feature (ix) of claim 1 of auxiliary request 2.

6.5.7 Finally, with the letter dated 14 November 2025, approximately 2 weeks in advance of oral proceedings before the board, the appellant filed further submissions in relation to novelty over D12. Specifically, the appellant argued that D12 disclosed the use of overbased detergents. Examples 9 and 10 of

D12 contained "calcium salicylate 1" and "High TBN magnesium sulfonate". According to paragraph [00196] of D12, "calcium salicylate 1" was a medium TBN calcium salicylate. *Inter alia* paragraph [0080] of D12 defined the expressions "medium TBN" and "high TBN" to refer to a TBN range of about 100 to 200 and about 200 to 600, respectively. Paragraph [0080] also correlated neutral, mildly overbased or highly overbased detergents with low, medium and high TBN respectively. Hence, both the medium TBN calcium salicylate and the high TBN magnesium sulfonate used in examples 9 and 10 of D12 were overbased.

6.5.8 As acknowledged above, the appellant's submissions preceding the letter dated 14 November 2025 referred to examples 9 and 10 of figure 9 and paragraph [00196] of D12. It is however not derivable from any of these references whether or how the calcium and magnesium detergents used in example 9 and 10 are overbased. Rather, as stated above, paragraph [00196] of D12 merely states that "medium TBN" and "high TBN" refers to specific TBN ranges. There is no indication in these passages that a detergent having these TBN ranges would necessarily be overbased.

6.5.9 The appellant then attempted to close this gap in its reasoning with the letter dated 14 November 2025 by reference to *inter alia* the facts set out in paragraph [0080] of D12 as stated above. Hence, the appellant's novelty objection vis à vis D12 against auxiliary request 2 was only fully substantiated with the submission of this letter.

6.5.10 Since said letter was submitted after the issuance of the board's communication pursuant to Article 15(1) RPBA, Article 13(2) RPBA applies to the

admittance of this new allegation of fact into proceedings. According to this provision, any amendment to a party's appeal case made after notification of a communication under Article 15(1) RPBA, shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

6.5.11 The appellant argued that the submissions addressed above in the letter dated 14 November 2025 did not represent an amendment to its case, but merely refined and further developed arguments already presented with earlier submissions, thereby implying that the provisions of Article 13(2) RPBA did not apply.

6.5.12 The board disagrees. The reference in said letter to the facts contained in paragraph [0080] of D12 and the associated argument that in view of that paragraph, the skilled person would consider the detergents of examples 9 and 10 to be overbased, relate to feature (ix) of claim 1 of auxiliary request 2 for which a corresponding disclosure in D12 had not previously been presented. This does not represent a refining or a development of the appellant's appeal case, but rather a completely new allegation of fact and thus an amendment of the appeal case.

6.5.13 Although auxiliary request 2 was submitted with the respondent's reply dated dated 12 July 2024, the substantiated objection under novelty in relation to the feature added to claim 1 of this request compared to claim 1 of the main request was only submitted with the letter dated 14 November 2025, less than two weeks before oral proceedings before the board. The appellant did not identify any exceptional circumstances justifying the admittance of this objection at such a

late stage of appeal proceedings, and none could be identified by the board.

6.5.14 In addition to the provisions of Article 13(2) RPBA, Articles 13(1) and by reference, Article 12(4) RPBA, also apply. According to Article 13(1) RPBA, the board shall exercise its discretion in view of, *inter alia*, whether the amendment is detrimental to procedural economy. According to Article 12(4) RPBA, the board shall exercise its discretion in view of, *inter alia*, the complexity of the amendment.

6.5.15 As stated by the respondent at oral proceedings, the amendment to the appellant's case is complex, and detrimental to procedural economy. Specifically, paragraph [0080] of D12 refers *inter alia* to neutral, overbased and highly overbased magnesium and calcium salicylate and sulfonates, and TBN ranges from low TBN (0 to 100), medium TBN (100 to 200) and high TBN (200 to 600). However, it does not explicitly disclose that overbased detergents necessarily have a medium TBN, and highly overbased detergents necessarily have a high TBN. Hence, a direct and unambiguous disclosure that examples 9 and 10 comprise overbased detergents appears to be lacking, at least on a *prima facie* basis. The presence of such a relationship was explicitly contested by the respondent during the oral proceedings. Hence, the new alleged facts are not straightforward, requiring further analysis of the disclosure of D12, and therefore complex in nature.

6.5.16 Furthermore, given the late filing of these new alleged facts, the respondent was fully within its rights to request, as it did at oral proceedings, that should said new allegations of fact be admitted into the proceedings, it be given the opportunity to respond

thereto with further submissions, for example to demonstrate the possibility of preparing a non-overbased calcium salicylate with the TBN of 200. Hence, admitting said alleged facts at such a late stage of appeal proceedings would be detrimental to procedural economy, not least due to the need to provide sufficient opportunity to the respondent to respond thereto.

6.5.17 For these reasons, the board decided not to admit the appellant's novelty objection based on D12 against claim 1 of auxiliary request 2 into the proceedings pursuant to Articles 12(4), 13(1) and 13(2) RPBA.

7. Sufficiency of disclosure - Article 83 EPC

7.1 According to the contested decision, the subject-matter defined in claim 1 of the then main request (claims as granted) was not sufficiently disclosed, essentially because the presence of calcium was not required by claim 1, and overbased magnesium sulfonate alone could not reduce LSPI events, the latter being a functional technical feature of the claim (contested decision, point 5.5). The decision further held that this finding was overcome for the subject-matter of the present main request (then auxiliary request 2) by the addition of feature (ix), since this feature introduced the requirement in claim 1 that calcium was present (contested decision, point 10.3).

7.2 The appellant contested this finding in appeal. As set out above, claim 1 of auxiliary request 2 differs from claim 1 of the main request in feature (ix) in which it is stipulated that the calcium and magnesium detergents are overbased. The appellant's arguments in relation to sufficiency of disclosure apply equally to this claim.

7.3 A key aspect of the appellant's arguments under sufficiency concerns the purpose-related functional technical feature of claim 1, namely

"*for reducing low speed pre-ignition events [LSPI] in a spark-ignited direct injection internal combustion engine*".

7.4 It was undisputed that whether the skilled person, based on the patent and common general knowledge, can achieve this effect is a question of sufficiency of disclosure under Article 83 EPC. The board agrees with

this view (see e.g. G 2/21, point 74 of the reasons, second paragraph).

7.5 In a first line of argumentation, the appellant submitted that claim 1 does not define a comparator, i.e. a reference lubricant composition (or situation) associated with an undesirably high number of LSPI events, from which the claimed reduction in LSPI was to be achieved (hereinafter abbreviated as "comparator"). It also did not emerge from the patent against which comparator the claimed reduction in LSPI was to be measured. The lack of any comparator in the patent deprived the feature of any relevant technical contribution, with the consequence that the claimed subject-matter could not be carried out by the skilled person.

7.6 The respondent argued that the comparator in claim 1 was a lubricant composition containing an overbased calcium detergent (alone or in admixture with other detergents), but absent an overbased magnesium detergent. This was apparent from the patent in view of a comparison of examples 12 and 13 (patent, table 2, page 12) and the statement in paragraph [0100] of the patent that a partial replacement of calcium detergent with magnesium provided an observed reduction in LSPI events.

7.7 The board agrees. A reduction in LSPI events is mentioned in general terms as an aim of the invention in paragraphs [0022] and [0023] of the patent. The only subsequent mention of said reduction occurs in paragraph [0100] of the patent. This paragraph stipulates, with reference to the data in the examples, that a reduction in LSPI events was observed by reducing total detergent ash, by replacement of calcium

detergents with magnesium and/or sodium detergent, or by partial replacement of sulfonate detergents with phenate-based detergent. By virtue of the inclusion in claim 1 of the ratio feature concerning the amounts of calcium and magnesium in the composition (feature (ix), with the limitation that the calcium and magnesium detergents are overbased), it would be evident to the skilled person that the claimed embodiment relates to a composition in which the reduction is observed by the alternative in paragraph [0100] of the patent related to the partial replacement of calcium with magnesium.

7.8 Hence, it would be clear to the skilled person that the relevant comparator is a corresponding composition in which overbased calcium detergent is not replaced with overbased magnesium detergent. Due to this teaching, the skilled person would rule out other theoretically possible references, such as a lubricant composition containing an overbased magnesium detergent only, as proposed by the appellant (reply, point 179).

7.9 The appellant's arguments to the contrary failed to convince the board. It was argued that the prevailing teaching in the patent and the application as filed was that any alkali or alkaline earth metal detergent could be used to achieve the claimed reduction in LSPI events, including overbased calcium detergents. This lay in contradiction to what had been asserted by the respondent in relation to the comparator, namely that overbased calcium detergents cause LSPI events, and that partial replacement with overbased magnesium detergents represented the solution. Furthermore, the ratio feature in claim 1 did not make it clear whether a reduction in LSPI events was to be achieved in comparison with a detergent comprising overbased calcium and magnesium detergents such that the ratio of

calcium to magnesium fell *outside* the claimed range as comparator, or for a composition only comprising an overbased calcium detergents as comparator, i.e. absent a magnesium detergent, as submitted by the respondent.

7.10 The board acknowledges that certain parts of the patent taken in isolation imply that a reduction in LSPI events may be achieved by using any overbased metal detergent (e.g. paragraph [0010]). However, the relevant question under sufficiency of disclosure is the teaching of the patent as a whole, in its entirety. As set out above, in view of examples 12 and 13, and paragraph [0100] of the patent, the skilled person would have understood the comparator to be a composition comprising overbased calcium detergent, none of which is replaced by an overbased magnesium detergent, and not e.g. a composition comprising overbased calcium and magnesium detergents providing a ratio of calcium to magnesium falling outside the range recited in claim 1.

7.11 In a further line of argumentation, the appellant argued that even if it were accepted that the comparator in claim 1 were as set out above, post-published journal article D5 demonstrated that partial replacement of an overbased calcium detergent with an overbased magnesium detergent did not lead to reduction in LSPI events. Figure 1 of D5 showed that calcium sulfonate detergent promotes LSPI events, while figure 2 showed that magnesium sulfonate detergent was "LSPI neutral", i.e. it had no effect on LSPI events, and therefore did not reduce LSPI events as required by claim 1. Since the claimed reduction could not be achieved, the subject-matter defined in claim 1 was not sufficiently disclosed.

7.12 The board disagrees. D5 concerns a study on the effect of lubricant composition additives on LSPI (title). D5 indeed demonstrates in figure 2 that magnesium (detergents) are "LSPI neutral". Nevertheless, the authors of D5 come to the same conclusion as that provided in paragraph [0100] of the patent, namely that "magnesium reduces the occurrence of LSPI events if it is used as a detergent to displace calcium..." Hence, D5 does not contradict the data provided by examples 12 and 13 of the patent, and discussed in paragraph [0100]. The fact that overbased magnesium detergents may be "LSPI neutral" is not determinative: claim 1 does not require that magnesium sulfonate *per se* reduces LSPI events, but rather that the claimed composition reduces LSPI events over the comparator. As set out above, the comparator is a composition comprising overbased calcium detergent, absent overbased magnesium detergent. The relevant question under sufficiency of disclosure is whether a reduction in LSPI events may be achieved by partial replacement of overbased calcium detergents with overbased magnesium detergents. D5 only offers support in this regard.

7.13 In this context the appellant also cited D2 - the patent in a related case in which the current respondent acted as opponent. The appellant cited the minutes of oral proceeding before the opposition division in the proceedings underlying D2 to support the argument that the present respondent, in those proceedings, had stated that D5 (D19a in those proceedings) provided evidence "that magnesium was LSPI neutral and not reducing LSPI".

As stated above, that magnesium is LSPI neutral is accepted by the board. Therefore, the appellant's arguments remain unconvincing on the basis of D2.

7.14 The appellant also referred to figure 4 of D5, which is a cross plot of magnesium versus calcium concentrations to show the combined effect of the two on LSPI events. The appellant argued that figure 4 demonstrated that there were embodiments covered by the composition of claim 1, in particular comprising 0.10 wt% calcium and 0.10 wt% magnesium, in which partial replacement of calcium with magnesium led to an increase in LSPI (see Annex 2 to the grounds of appeal, which is a colour reproduction of figure 4 of D5, in particular the central light green box). During oral proceedings the appellant also referred to the orange box in Annex 2 located between 0.15 and 0.20% calcium and 0.025 and 0.05% magnesium, for which the number of LSPI events was higher than when less magnesium was present (see lighter coloured orange box immediately below).

7.15 The board disagrees. Even if it is accepted in the appellant's favour that the tests in figure 4 are carried out on compositions comprising overbased magnesium sulfonate and an overbased calcium detergent as required by claim 1, this argument does not point to a lack of sufficient disclosure in claim 1. As stated by the respondent, even if there is an occasional failure to reduce LSPI events as allegedly demonstrated in figure 4, there is no evidence that the skilled person cannot transform this failure into success, in particular starting from examples 12 and 13 of the patent as discussed above. As stated by the respondent, the skilled person would know that by increasing the amount of magnesium, fewer LSPI events would be observed. Furthermore, a conclusion on the basis of

figure 4 of D5 that a reduction could not be achieved lies in contradiction with the teaching of D5 itself, which, as stated above, recognises that magnesium reduces the occurrence of LSPI events if it is used as a detergent to displace calcium.

7.16 Furthermore, as stated by the respondent, the data in the patent demonstrating a reduction in LSPI events is supported by post-published evidence D16 and D18, submitted by the respondent in opposition proceedings and relied on in appeal. D16 and D18 both disclose engine tests on lubricant compositions falling within the scope of the compositions defined in claim 1 of auxiliary request 2, and show a reduction in LSPI events when overbased calcium detergent is replaced by overbased magnesium detergent. In D16, for example, six compositions were prepared and evaluated for LSPI events in an engine test.

7.17 The appellant submitted that the evidence in D16 and D18 could not be relied on in view of Enlarged Board of Appeal decision G 2/21, because the data disclosed therein was contradictory with the application as filed, which presented overbased calcium detergents as a solution to the problem of LSPI events, and not the cause thereof.

7.18 As stated above in relation to the appellant's first line of argumentation under sufficiency, the board does not agree. The effect relied on in relation to sufficiency is the reduction in LSPI events compared to a composition in which overbased calcium detergent has not been partially replaced with overbased magnesium detergent. This effect is derivable from the patent and the application as filed alike in examples 12 and 13 and paragraph [0100] of the patent, corresponding to

paragraph [0109] of the application as filed. Hence, the effect demonstrated in D16 and D18 is the same as that shown by a comparison of examples 12 and 13 in the application as filed, and consequently the evidence disclosed therein can be taken into account.

7.19 In D16 (table 1) six compositions were prepared and evaluated for LSPI events in an engine test. The composition of EX1 comprises only overbased calcium sulfonate as detergent, while in all other compositions EX2, EX3, EX4A, EX4B and EX5, the calcium detergent is partially replaced by an overbased magnesium sulfonate detergent, providing calcium to magnesium ratios within the range recited in claim 1 of auxiliary request 2. In the engine test, EX1 led to 24.5 LSPI events (table 1, final row), while all of the compositions according to claim 1 led to a lower number of LSPI events, ranging from 2.0 to 12. Compared to EX1 of D16 (table 1), partial replacement of calcium with magnesium sulfonate at ratios of approximately 3:1 to 2:1 is demonstrated in EX2 to EX5 (1224:438, 1350:593, 1343:720, 1348:727 and 1130:630 respectively). D18 demonstrates a reduction in LSPI events for a ratio of calcium to magnesium of approximately 10:1 (EX2 compared to EX1: 1720:170).

7.20 The appellant furthermore argued that the data in D16 was not reliable. Specifically, EX4A and EX4B concerned the same composition, but provided different results in the LSPI test (5.0 versus 7.0). Hence, the method of measurement was not reliable or repeatable.

7.21 The board disagrees. As stated by the respondent, the relevant comparison in D16 is between EX1 comprising only an overbased calcium detergent and the further examples in which said calcium detergent was partially

replaced by overbased magnesium detergent. In the engine test, the composition of EX1 caused more than double the number of LSPI events compared to the composition according to claim 1 with the highest number of LSPI events, namely EX2 (24.4 versus 12), with all other compositions according to claim 1 yielding a lower number. Even if some measurement or experimental error were accepted, the relative extent of the improvement in the examples leaves no reasonable doubt that the effect is convincingly demonstrated by the comparison.

7.22 Hence, on the basis of the evidence on file, the appellant failed to cast doubt on whether the effect of a reduction in LSPI events expressed in claim 1 can be achieved by the skilled person.

7.23 In consequence, the subject-matter defined in claim 1 of auxiliary request 2 is sufficiently disclosed.

8. Inventive step - Article 56 EPC

8.1 D13 and D14 as closest prior art - Admittance

8.1.1 According to the contested decision, the appellant selected D13 and D14 as closest prior art disclosures for the subject-matter of claim 1 of the present main request (then auxiliary request 2; reasons for the decision, point 13.2). The opposition division came to the conclusion that the claimed subject-matter involved an inventive step starting from either one of these documents as closest prior art (reasons for the decision, points 13.7 and 13.11).

8.1.2 With the grounds of appeal the appellant submitted an inventive step objection which, according to the board's communication pursuant to Article 15(1) RPBA, appeared to start from D17 as closest prior art, although this is not explicitly stated (grounds of appeal, point 9, page 30).

8.1.3 At oral proceedings before the board, the appellant disagreed, and stated that its grounds of appeal, when properly construed, comprised not only an inventive step objection starting from D17, but also starting from either of D13 or D14 as closest prior art.

8.1.4 The board disagrees. Section 9 of the appellant's grounds of appeal starting on page 30 contains the appellant's submissions on inventive step in relation to claim 1 of the main request.

8.1.5 The disclosure in D17 is addressed first (page 30, last two paragraphs). The technical effects of the claimed subject-matter are discussed (page 31, first two paragraphs), and it is then stated that

"[a]*ccordingly, if any, the objective technical problem vis-à-vis the* ***above prior art, as illustrated by D17,*** *is at most to provide an alternative lubricant composition less likely to cause LSPI events.*" (emphasis added by the board)

8.1.6 The appellant's formulation of the objective technical problem is then followed in point 9.1 by a short description of D13. In the second paragraph of point 9.1, the appellant states:

"In view of the **problems with Ca detergents as discussed in D17, a person skilled in the art would**

have found it obvious to try the detergent known from D13 to reduce the level of calcium. By routine experimentation, the skilled person would have arrived at lubricant compositions within the scope of claim 1 as maintained." (emphasis added by the board)

8.1.7 Similarly, point 9.2 contains a short description of the disclosure of D14, followed by the argument that, in view of the problems discussed in D17, the skilled person would have tried the detergent known from D14.

8.1.8 Consequently, it is readily apparent that these submissions follow aspects of the conventional problem-solution approach starting from D17 as closest prior art, i.e. identification of the technical effects and the objective technical problem, followed by the argument that the claimed solution to the objective technical problem starting from D17 would have been obvious in view of either D13 or D14 as secondary references. The appellant's argument that the grounds of appeal comprise inventive step objections starting from D13 or D14 is therefore without merit.

8.1.9 The appellant also argued that inventive step objections starting from D13 or D14 were submitted with the rejoinder dated 16 December 2024, in which it was stated that *inter alia* auxiliary request 2 was not suitable for overcoming the "above summarized objections" for the main request (rejoinder, page 44, point 9.2). In relation to inventive step, the term "above" implied a reference to page 2, sixth bullet point, which stated that the subject-matter of the main request "lacks inventive step in view of the teaching of documents D13, D14 and D17".

8.1.10 The board disagrees. The mere reference to documents without any arguments cannot be considered as a substantiated objection, not least because it does not even identify which document represents the closest prior art. At most, the mention of these documents can only be understood as a reference to the submissions under inventive step in the grounds of appeal, which, as stated above, only comprise an objection starting from D17 as closest prior art *in combination* with D13 or D14. However, this submission does not comprise any inventive step objections starting from either of D13 or D14.

8.1.11 As stated by the board at oral proceedings, the appellant's letter dated 14 November 2025 comprises brief references to D13 and D14 in relation to inventive step (page 3, first two paragraphs). The board does not construe any submission in this letter as representing an inventive step objection starting from either of D13 or D14. Nevertheless, insofar as such an objection could potentially be construed, these are new objections, submitted for the first time in appeal proceedings less than two weeks in advance of oral proceedings before the board. As stated above in relation to novelty over D12, the provisions of Article 13(2) RPBA apply: the objections shall in principle not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

8.1.12 Since no such reasons were identified by the appellant, and none were apparent to the board, the board decided not to admit the appellant's inventive step objections, insofar as substantiated, starting from D13 or D14 as closest prior art.

8.2 Starting from D17 as closest prior art

8.2.1 As established above, with the grounds of appeal, the appellant submitted an inventive step objection starting from D17 as closest prior art.

8.2.2 The appellant did not dispute that an inventive step objection starting from D17 had not been raised in opposition proceedings. Hence, the objection is entirely new in appeal proceedings.

8.2.3 The respondent requested that the appellant's objection starting from D17 as closest prior art not be admitted into appeal proceedings pursuant to Article 12(6) RPBA.

8.2.4 According to Article 12(6) RPBA, the board shall not admit *inter alia* objections which should have been submitted in the proceedings leading to the decision under appeal, unless the circumstances of the appeal case justify their admittance.

8.2.5 The appellant argued that D17 represented common general knowledge. It was known to the respondent and since it was cited in the patent (paragraph [0008]), it was relevant prior art. Hence, the submission with the grounds of appeal of the objection starting from D17 was justified, and was to be admitted into proceedings.

8.2.6 The board did not find the appellant's arguments convincing. It is the admittance of the inventive step objection starting from D17 as closest prior art, rather than D17 as evidence *per se*, which is to be assessed. The fact that D17 was known to the respondent and cited in the patent as representative of common general knowledge, is not sufficient justification for invoking it, for the first time in appeal proceedings,

in an entirely different substantive and legal context, namely as closest prior art in the assessment of inventive step. Hence, the appellant's objection should have been submitted in opposition proceedings.

8.2.7 No particular circumstances of the appeal case justifying the admittance of this objection within the meaning of Article 12(6) RPBA were identified by the appellant, and none were apparent to the board. Consequently, the board decided not to admit the appellant's objection starting from D17 as closest prior art.

8.3 Consequently, in summary, the board decided not to admit the opponent's inventive step objections starting from any of D13, D14 or D17 into appeal proceedings.

9. Clarity - Article 84 EPC

9.1 During oral proceedings, the appellant referred to its written submissions in relation to clarity, submitted for claim 1 of the main request, and stated that said submissions also applied to claim 1 of auxiliary request 2.

9.2 The first objection raised by the appellant in its written submissions related to the feature (ix) of claim 1 and the fact that it was not limited to overbased detergents, but included both overbased and non-overbased detergents.

9.3 Since claim 1 of auxiliary request 2 specifies in feature (ix) that the calcium and magnesium detergents are overbased, this objection is moot.

9.4 A second objection noted by the board in its communication pursuant to Article 15(1) RPBA (points 4.5 and 4.6) related to whether it "would be clear if Ca would be part of the problem or part of the solution, as Ca was taught to be the source of LSPI".

9.5 The respondent had argued in writing that this clarity objection was not admissible under G 3/14, because the reduction of LSPI events and the role of calcium was already within the scope of the granted claims.

9.6 In the board's communication pursuant to Article 15(1) RPBA, it was stated that "[w]hile the board is unsure which part of claim 1 this objection relates to, it would appear admissible under G 3/14 only insofar as it relates to feature (ix)".

9.7 During oral proceedings the appellant merely referred to its written arguments, and did not provide any further information or explanation as to the nature of this objection. In particular, it was not argued nor explained how the objection related to feature (ix) of claim 1 of the main request, let alone to amended feature (ix) of claim 1 of auxiliary request 2.

9.8 Hence, despite the doubt and the uncertainty expressed by the board in its communication, the appellant chose not to explain the nature of the objection under Article 84 EPC when provided with the opportunity do so at oral proceedings before the board. Under these circumstances, the board can only conclude that this objection is not convincing and claim 1 of auxiliary request 2 meets the requirements of Article 84 EPC.

10. Since there were no further objections, the set of claims of auxiliary request 2 is allowable.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the opposition division with the order to maintain the patent with the claims of auxiliary request 2 filed with the reply to the statement of grounds of appeal and a description to be adapted thereto, if necessary.

The Registrar: The Chairman:

U. Bultmann M. O. Müller

Decision electronically authenticated