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D E C I S I O N
of 18 July 2000

Case Number: T 0450/95 - 3.3.1

Application Number: 87310461.6

Publication Number: 0273588

IPC: C10M 159/22

Language of the proceedings: EN

Title of invention:

Sulphurised alkaline earth metal hydrocarbyl phenates, their production and use thereof

Patentee:

LUBRIZOL ADIBIS HOLDINGS (UK) LIMITED

Opponent:

Exxon Chemical Patents Inc.

Headword:

Overbased phenate lubricating oil/EXXON

Relevant legal provisions:

EPC Art. 56

Keyword:

"Main request and first auxiliary request: inventive step (no)
- problem not solved for all embodiments within the scope of
the claimed subject-matter"
"Second auxiliary request: inventive step (yes) - non obvious
solution"

Decisions cited:

T 0181/82; T 0219/83; T 0939/92

Catchword:

-



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Boards of Appeal

Chambres de recours

Case Number: T 0450/95 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 18 July 2000

Appellant:
(Opponent)

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Representative:

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Appellant:
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Decision under appeal:

Interlocutory decision of the Opposition Division
of the European Patent Office posted 29 March
1995 concerning maintenance of European patent
No. 0 273 588 in amended form.

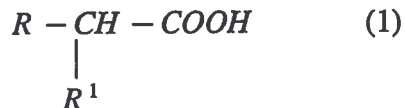
Composition of the Board:

Chairman: A. J. Nuss
Members: P. F. Ranguis
R. T. Menapace

Summary of Facts and Submissions

- I. The Appellants (Proprietor of the patent and Opponent) lodged an appeal against the interlocutory decision of the Opposition Division posted on 29 March 1995 which found that the European patent No. 0 273 588 (European patent application No. 87 310 461.6) in the form as amended during opposition proceedings according to the then pending auxiliary request met the requirements of the EPC.
- II. The opposition to the patent in its entirety was based on the grounds that the claimed subject-matter lacked novelty and inventive step (Article 100(a) EPC). It was supported by three documents, i.e.
- (1) EP-A-0 094 814
 - (2) EP-A-0 095 322
 - (3) GB-A-2 142 928
- III. The decision was based on claims 1 to 24 of the auxiliary request submitted during opposition proceedings, independent claims 1 and 24 reading as follows:
- "1. A process for the production of an additive concentrate suitable for incorporation into a finished lubricating oil composition, the additive concentrate comprising:
- (a) a lubricating oil,
 - (b) a lubricating oil soluble sulphurised alkaline earth metal hydrocarbyl phenate modified by incorporation of from greater

than 10 to 35% by weight based on the weight of the concentrate of at least one carboxylic acid having the formula:



wherein R is a C₁₀ to C₂₄ straight chain alkyl group and R¹ is hydrogen, or an anhydride or ester thereof, the concentrate having a TBN greater than 300 and a viscosity at 100°C of less than 1000 mm². s⁻¹ (cSt), which process comprises reacting at elevated temperature:

(A) a sulphurised alkaline earth metal hydrocarbyl phenate having a TBN less than that of the final additive concentrate,

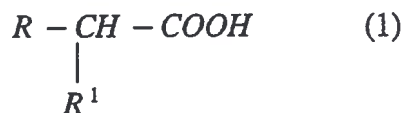
(B) an alkaline earth metal base, either added in whole to the initial reactants, or in part to the initial reactants and the remainder in one or more portions at a subsequent stage or stages in the process,

(C) either a polyhydric alcohol having from 2 to 4 carbon atoms, a di- or tri- (C₂ to C₄) glycol, an alkylene glycol alkyl ether or a polyalkylene glycol alkyl ether,

(D) a lubricating oil,

(E) carbon dioxide added subsequent to the, or each, addition of component (B), and

(F) sufficient to provide from greater than 10 to 35% by weight based on the weight of the concentrate of at least one carboxylic acid having the formula:



wherein R is a straight chain C₁₀ to C₂₄ alkyl and R¹ is hydrogen, or an anhydride or ester thereof, the weight ratios of components (A) to (F) being such as to produce a concentrate having a TBN greater than 300.

24. An additive concentrate suitable for incorporation into a finished lubricating oil which concentrate is obtainable by reacting at elevated temperature (A) a sulphurised alkaline earth metal hydrocarbyl phenate having a TBN less than that of the final additive concentrate, (B) an alkaline earth metal base, either added in whole to the initial reactants, or in part to the initial reactants and the remainder in one or more portions at a subsequent stage or stages in the process, (C) either a polyhydric alcohol having from 2 to 4 carbon atoms, a di- or tri- (C₂ to C₄) glycol, an alkylene glycol alkyl ether or a polyalkylene glycol alkyl ether, (D) a lubricating oil, (E) carbon dioxide added subsequent to the, or each, addition of component (B), and (F) sufficient to provide from greater than 10 to 35% by weight based on the weight of the concentrate of a carboxylic acid having the formula (I) or an acid anhydride or ester thereof, the weight ratios of components (A) to (F) being such as to produce a concentrate having a TBN greater than 300 and a viscosity at 100°C of less than 1000 mm². s⁻¹ (cSt)."

IV. The Opposition Division held in its decision that, having regard to the cited documents, the subject-matter of said claims was novel and involved an inventive step. Concerning inventive step, they held in particular that none of the documents cited either in the opposition procedure or in the examination procedure disclosed an overbased composition comprising greater than 10 wt.% of long straight chain saturated fatty acids and having high TBNs and that the person skilled in the art could not have expected that

sulphurised alkaline earth metal hydrocarbyl phenate modified by incorporation of such an amount of C₁₂-C₂₄ straight chain saturated fatty carboxylic acid could be overbased at TBNs greater than 300 while maintaining the viscosity below 1000 cSt. Furthermore, document (1), which recommended to using relatively small amounts of carboxylic acids, taught away from the claimed invention.

V. During the written proceedings, the Appellant (Proprietor of the patent) abandoned its main request related to the claims as granted but refused by the Opposition Division and filed two other sets of claims which, after correction of a clerical error, were refiled at the oral proceedings held on 18 July 2000 as **main request** and **first auxiliary request**, the set of claims allowed by the Opposition Division (see point III above) becoming the **second auxiliary request**.

VI. Main request

The main request comprises a set of 32 claims including three independent claims, i.e. claims 1, 29 and 32.

Claims 1 and 32 of the main request differ from claims 1 and 24 of the request allowed by the Opposition Division (see point III above) by the definition of the carboxylic acid, said definition reading as follows:

"(i) at least one carboxylic acid having the formula:



wherein R is a C₁₀ to C₂₄ alkyl or alkenyl group and R¹ is either hydrogen, a C₁ to C₄ alkyl group or a -CH₂-COOH group, or an anhydride or ester thereof or (ii) a di- or polycarboxylic acid containing from 36 to 100 carbon atoms or an anhydride or ester thereof".

Independent claim 29 of the main request concerns the finished lubricating oil composition and reads as follows:

"29. A finished lubricating oil composition which composition comprises a lubricating oil and sufficient of the additive concentrate produced by the process of any one of the preceding claims to provide a TBN in the range from 0.5 to 120."

VII. First auxiliary request

The first auxiliary request differs from the main one in that claim 29 and the related dependent claims 30 and 31 were deleted with consequent renumbering of the subsequent claim.

VIII. The Appellant (Opponent) argued in essence that claim 32 of the main request, claim 29 of the first auxiliary request and claim 24 of the second auxiliary request lacked inventive step essentially for the following reasons:

- (a) Starting from document (2), the technical problem to be solved was to be seen in the provision of an alternative additive concentrate having the same specifications.
- (b) However, the additive concentrate claimed according to the main and first auxiliary request did not represent a solution to the technical problem defined in point (a) above since the use

of more than 10 wt.% of polyisobutylene succinic acid (PIBSA), a carboxylic acid of type (ii), as encompassed by the claimed invention, would have increased the viscosity beyond the acceptable limit.

- (c) The solution of the technical problem (see point VIII(a) above) represented by the claimed subject-matter of any of the present requests was obvious having regard to the combination of the teaching of document (2) with that of documents (1) and (3). Firstly, the process feature related to the claimed subject-matter merely described the second step of a "double lime addition" as opposed to a "single lime addition" as in the cited prior art. However, both methods were conventional as confirmed in the introduction of the patent in suit on page 2, lines 39 to 42. Hence any technical effect which could be of relevance in the examination for inventive step was to be associated with the incorporation of from greater than 10 to 35 wt.% of a straight chain alkanolic acid having from 10 to 24 carbon atoms in the alkyl group or an anhydride or ester thereof. This feature could not, however, confer any inventive step to the claimed solution having regard to the combination of the teaching of documents (1), (2) and (3).
- (d) Moreover, no technical effect was provided by the claimed invention as there was no correlation between the amount of straight chain carboxylic acid used and the viscosity of the additive concentrate obtained as demonstrated by the figures based on the examples of the patent in suit and the co-pending EP-B-0 271 262. It was

also noted that Example No. 2 of the co-pending EP-B-0 271 262 showed a viscosity of $7600 \text{ mm}^2 \cdot \text{s}^{-1}$ (cSt) with an amount of 13.6 wt.% stearic acid.

IX. Furthermore, the Appellant (Opponent) argued that claims 29, 30 and 31, concerning the finished lubricating oil composition, lacked novelty over document (1).

X. The Appellant (Proprietor of the patent) submitted in essence that the technical problem to be solved was to provide overbased phenates having a TBN of 300 or more and an acceptable viscosity suitable for incorporation into a finished lubricating oil composition.

He disputed, in particular, that claim 32 of the main request and claim 29 of the first auxiliary request did not solve the said technical problem as far as the carboxylic acids of type (ii) were concerned. Regarding the question of the extremely high viscosity obtained with the example No. 2 of the co-pending EP-B-0 271 262 which allegedly showed that the additive concentrate of none of the submitted requests represented a solution for all the claimed embodiments, he pointed out that the Appellant (Opponent) had not brought forward any evidence which showed that example No. 2 was a concentrate according to the claimed invention.

Regarding the non-obviousness of the additive concentrate according to any of the requests, he firstly denied, in relying upon comparative tests submitted in the course of the examining proceedings, that document (2) disclosed overbased phenates having a TBN of 300 or more and an acceptable viscosity suitable for incorporation into a finished lubricating oil composition. He further pointed out that document (1) disclosed an additive concentrate having a TBN lower than 300 obtained through the addition of $\text{C}_{10}\text{-C}_{24}$

carboxylic acid to overbased phenates in relatively small amounts (see page 4, lines 3 to 7). Although there was a broad disclosure of 0.1 to 10% by weight and a preferred range of 2 to 6% by weight (see page 9, lines 1 to 4), there was no indication that amounts of acid in excess of 10% by weight should be used. Those findings were consistent with a general prejudice against making alkaline earth metal hydrocarbyl phenates having a TBN greater than 300 and an acceptable viscosity.

Regarding the novelty of claim 29 of the main request, he argued that a finished lubricating oil composition comprising an additive concentrate must, for a given TBN value, be materially different to one containing an additive concentrate having a lower TBN, by virtue of its containing less phenate.

- XI. The Appellant (Opponent) requested that the decision under appeal be set aside and that the European patent No. 0 273 588 be revoked.

The Appellant (Proprietor of the patent) requested that the patent be maintained according to the main request or the first auxiliary request (claims as submitted during the oral proceedings), or, as second auxiliary request, description and claims as allowed by the first instance with the amendments made during the oral proceedings.

- XII. At the end of the oral proceedings the decision of the Board was given orally.

Reasons for the Decision

Admissibility

1. The appeal is admissible.
2. *Main request*

Articles 123(2) and 84 EPC

- 2.1 Present claim 1 is supported by claims 20, 1, 17 and 13 as originally filed, taken in combination. Present claims 2 to 16, 18 to 26 are supported respectively by claims 2 to 16, 18, 21 to 28 as originally filed. Present claim 17 is supported by the description as originally filed, page 12, line 6. Present claim 27 is supported by the description as originally filed, page 11, line 20. Present claim 29 is supported by claim 30 as originally filed. Present claim 32 is supported by claims 19, 13 and 17 as originally filed, taken in combination. Thus, all the present claims meet the requirements of Article 123(2) EPC.
- 2.2 Clarity of this version of the claims was not disputed and the Board is satisfied that these claims are clear.

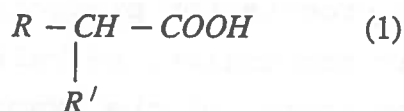
Article 123(3) EPC

- 2.3 The feature incorporated in claims 1 and 32 by indicating that the carboxylic acids of the type (i) or (ii) are present in the concentrate in a range greater than 10 to 35% by weight restricts the scope of the claims as granted so that the present claims do not contravene the requirements of Article 123(3) EPC.

Article 56 EPC

- 2.4 In accordance with the "problem-solution approach" consistently applied by the Boards of Appeal to assess inventive step on an objective basis, it is necessary to establish the closest state of the art being the starting point, to determine in the light thereof the technical problem which the invention addresses, to verify that the technical problem is solved by all the embodiments encompassed within the claimed solution and to examine whether the claimed solution is obvious or not in view of the state of the art.
- 2.5 The patent in suit relates to a process for the production of an additive concentrate suitable for incorporation into a finished lubricating oil composition, the additive concentrate comprising (a) a lubricating oil, (b) a lubricating oil soluble sulphurised alkaline earth metal hydrocarbyl phenate modified by incorporation of from greater than 10 to 35% by weight based on the weight of the concentrate of a carboxylic acid of the type (i) or (ii), the concentrate having a TBN greater than 300 and a viscosity at 100°C of less than 1000 mm².s⁻¹ (cSt). The objectives to be achieved, as indicated in the patent in suit, in particular on page 2, lines 53 to 55, consists in providing compositions having a TBN in excess of 300 whilst retaining an acceptable viscosity.
- 2.6 Document (2) relates to lubricating oil compositions containing an overbased sulphurised alkaline earth metal alkylphenate (see page 1, lines 1 to 5) and finished lubricating oil compositions obtained by diluting the said lubricating oil compositions with an oil of lubricating viscosity (see page 10, line 27 to page 11, line 7). According to examples Nos. 10, 11 and 12, the lubricating oil compositions have a TBN greater than 300 and a viscosity of less than 1000 mm².s⁻¹ (cSt).

2.7 Document (1) relates to an additive concentrate for incorporation in a lubricating oil composition comprising lubricating oil, an overbased alkaline earth metal hydrocarbyl sulphurised phenate and from 0.1 to 10 weight % (based on the weight of the additive concentrate) of an organic carboxylic acid of formula:



wherein R is a C₁₀ to C₂₄ unbranched alkyl or alkenyl group, and R' is hydrogen, a C₁ to C₄ alkyl group or a -CH₂-COOH group or an anhydride or a salt thereof. All the examples disclose additive concentrates having a TBN lower than 300 (the values being no greater than 270) with a viscosity lower than 1000 mm².s⁻¹ (cSt).

2.8 Document (3) relates to detergent-dispersant additives of very high alkalinity for lubricating oils having a TBN higher than 300 resulting from the mixture of an alkylene sulphonc acid, an alkylphenol and lime.

2.9 In the Board's judgment, and this was admitted by the parties at the oral proceedings, document (2) represents the prior art closest to the patent in suit as it aims at the same objective as the claimed invention, i.e. providing additive concentrates having a TBN greater than 300 whilst retaining an acceptable viscosity, that is a viscosity of less than 1000 mm².s⁻¹ (cSt).

2.10 In the next step, the technical problem which the claimed invention addresses in the light of the closest state of the art is to be determined.

The parties have conflicting views regarding the technical problem to be solved. The Appellant (Proprietor of the patent) argued that the technical problem was to provide overbased phenates having a TBN of 300 or more and an acceptable viscosity suitable for incorporation into a finished lubricating oil composition and that neither document (1) nor document (2) disclosed a process for producing such phenates. In support of this contention, he relied upon tests submitted in the course of the Examining proceedings to compare the performance of concentrates made according to example No. 1 of the co-pending EP-B-0 271 262 and example No. 11 of document (2) (A) in finished lubricating oil compositions comprising calcium sulfonates, (B) in marine formulations, (C) in multigrade formulations and (D) regarding their anti-wear properties.

However, those comparative tests cannot be accepted for the following reasons:

- It is well established jurisprudence of the Boards of Appeal that to be relevant comparative tests must involve a compound (concentrate) disclosed in the claimed invention (see decision T 181/82, OJ EPO 1984, 401, point 5 of the reasons). Example No. 1 of the co-pending EP-B-0 271 262 relates to an additive obtained by reacting a dodecylphenol directly with lime, sulphur and stearic acid according to the so-called "single lime addition" process, while the claimed additive is produced by overbasing a sulphurised alkaline earth metal hydrocarbyl phenate obtained beforehand according to the so called "double lime addition" process as defined in claim 32. The Appellant (Proprietor of the patent) has not submitted any evidence that the additive disclosed in example No. 1 of the

co-pending EP-B-0 271 262 could be obtained by the process defined in claim 32. As a result, this example cannot form a proper basis for comparing the claimed invention to the state of the art. The Board notes, furthermore, that the Appellant (Proprietor of the patent) did not accept that the products obtained according to the co-pending EP-B-0 271 262 were obtainable by the process of the patent in suit (see point 4.5 below).

- The Appellant (Proprietor of the patent) only concluded from this test that the concentrate of example No. 11 (and not No. 12) was not suitable in all [emphasis added by the Board] lubricating oils (see letter of 19 February 1996, page 2, fifth paragraph). The Board concludes from this that it has not been shown that such a concentrate is generally not suitable for lubricating oils.

In view of the above, the Board concludes that starting from document (2), which in its examples Nos. 10, 11 and 12 disclosed additive concentrates having a TBN greater than 300 and a viscosity at 100°C of less than 1000 cSt, the technical problem to be solved is to be seen in the provision of an alternative additive concentrate having the same specifications (see page 2, lines 53 to 55 of the patent in suit).

- 2.11 The patent in suit proposes, as solution to this technical problem, an additive concentrate according to present claim 32.
- 2.12 Regarding the use of carboxylic acids of type (ii) alone according to claim 32, encompassing PIBSA, the Board notes, as admitted by the Appellant (Proprietor of the patent) at the oral proceedings, that no example supported this claimed embodiment. Furthermore, the

person skilled in the art would have derived from document (1) that PIBSA used alone dramatically increased the viscosity of the obtained concentrates (see, in particular, Table 1, two first examples; page 15, lines 5 to 17), while, as indicated in the patent in suit, the claimed invention aimed at offsetting the increase of viscosity observed when the phenates are overbased (page 2, lines 28 to 36). The onus of proof in that situation being on the Appellant (Proprietor of the patent), in the absence of evidence to the contrary, the Board's conclusion is that the use of carboxylic acids of the type (ii) does not embody a solution to the technical problem defined above and, therefore, claim 32 does not meet the requirements of Article 56 EPC (see T 939/92, OJ EPO 1996, 309, points 2.6 and 2.6.1 of the reasons).

2.13 For the above reasons, the main request cannot be allowed.

3. *First auxiliary request*

Article 56 EPC

As claim 29 of the first auxiliary request is identical to claim 32 of the main request, the first auxiliary request thus suffers from the same deficiency as the latter and is therefore not allowable under Article 56 EPC.

4. *Second auxiliary request*

Articles 123(2) and 84 EPC

4.1 Present claim 1 is supported by claims 20, 1, 8, 17 and 13 as originally filed, taken in combination. Present claims 2 to 11 are supported respectively by claims 2 to 6, 9, 10, 14 to 16 as originally filed. Present

claims 13 to 21 and 23 are supported respectively by claims 18 to 26 and 28 as originally filed. Present claim 12 is supported by the description as originally filed, page 12, line 6. Present claim 22 is supported by the description as originally filed, page 11, line 20 . Present claim 24 is supported by claims 19, 8, 13 and 17 as filed, taken in combination. Thus, all the claims meet the requirements of Article 123(2).

- 4.2 Clarity of the granted claims as amended was not disputed and the Board is satisfied that these claims are clear.

Article 123(3) EPC

- 4.3 The feature incorporated in claims 1 and 24 by indicating that the carboxylic acids are unbranched C₁₀-C₂₄ monocarboxylic acids and are present in the concentrate in a range greater than 10 to 35% by weight restricts the scope of the claims as granted so that the present claims do not contravene the requirements of Article 123(3) EPC.

Article 56 EPC

- 4.4 Claim 24 of the present request differs solely from the corresponding claim 32 of the main request in that the nature of the carboxylic acids is restricted to unbranched C₁₀-C₂₄ monocarboxylic acids. The Board, in the present circumstances, sees no reason to deviate from its previous conclusions concerning the closest state of the art and the definition of the problem to be solved (see points 2.9 and 2.10 above). Consequently, the Board considers that starting from document (2) as the closest state of the art, which in its Examples 10, 11 and 12 disclosed additive concentrates having a TBN greater than 300 and a viscosity at 100°C of less than 1000 cSt, the technical

problem to be solved is to be seen in the provision of an alternative additive concentrate having the same specifications.

- 4.5 The patent in suit proposes, as the solution to this technical problem, an additive concentrate according to present claim 24 (see points III and V above).

The Appellant (Opponent) contested that the claimed subject-matter represented a solution for all the embodiments encompassed by claim 24 (see points VIII(d) above) in relying upon example No. 2 of the co-pending EP-B-0 271 262 as evidence which disclosed a concentrate comprising 13.6% stearic acid by weight for a TBN of 390 and a viscosity of $7600 \text{ mm}^2 \cdot \text{s}^{-1}$ (cSt). The Appellant (Proprietor of the patent) disputed this statement and contended that the Appellant (Opponent) had not substantiated his assertion.

The Board notes that the concentrate of example No. 2 of the co-pending EP-B-0 271 262 is obtained through a "single lime addition" process, while the concentrates according to the claimed invention are obtainable through a "double lime addition process" (see point 2.10 above, fourth paragraph) whilst it cannot be established by the Board whether this example is one in accordance with the patent in suit or not.

In that situation, the Board considers that the burden of proof that example No. 2 of the co-pending EP-B-0 271 262 is within the scope of the subject-matter of claim 24 rests with the Appellant (Opponent), who has, however, submitted no relevant information in support of this assertion. Therefore, the objection is dismissed (T 219/83, OJ EPO 1986, 211, in particular point 12 of the reasons).

Furthermore, the Board is not convinced that in the additive concentrate as now claimed the indicated amount of carboxylic acid has no technical effect and, therefore, does not contribute to the solution of the technical problem. This would indeed be in contradiction with the own declaration of the Appellant (Opponent) that carboxylates are detergents (see page 16 of its letter of 26 July 1995). The fact that the examples of the patent in suit do not show a correlation between the amount of carboxylic acids and the viscosity is irrelevant since the problem to be solved relates to concentrates having an acceptable viscosity (less than $1000 \text{ mm}^2 \cdot \text{s}^{-1}$ at 100°C), which is actually achieved.

Thus, the Board is satisfied, in view of examples Nos. 1 to 5 and 7 to 23 contained in the patent in suit, that the additive concentrate now claimed represents a solution to the technical problem stated above. It is to be noted that contrary to the view of the Appellant (Opponent), example No. 17 concerns the claimed invention (see page 5, lines 32 to 34 of the patent in suit).

4.6 It remains to be decided whether or not the proposed solution to the problem underlying the patent in suit, in the form of the present auxiliary request, is obvious in view of the cited state of the art.

4.7 Document (2), i.e. the closest state of the art (see point 4.4 above) discloses additive concentrates containing an overbased sulphurised alkaline earth metal alkylphenate for use in finished lubricating oils. According to examples Nos. 10, 11 and 12, the lubricating oil compositions have a TBN greater than 300 and a viscosity of less than $1000 \text{ mm}^2 \cdot \text{s}^{-1}$ (cSt). Document (2) also teaches that the TBN depends upon the ratio between the number of equivalents of the alkaline

earth metal moiety to the number of equivalents of the phenol moiety (see page 1, line 24 to page 2, line 8). This is also confirmed by all the examples, from which the person skilled in the art derives that when 200 g dodecyl phenol and 90 g lime are used (as in example No. 1) the obtained TBN is lower than when 150 g dodecyl phenol and 90 g lime are used (as in example No. 10). In the same way, as pointed out by the Appellant (Opponent), the same conclusion follows from a comparison of examples Nos 10 and 11 (320 TBN in example No. 10 which uses a lower proportion of lime compared to 352 TBN in example No. 11 which uses a higher proportion of lime). Therefore, the Board does not follow the argument of the Appellant (Proprietor of the patent) according to which the disclosure of document (2) would be consistent with a general prejudice against overbased additives having a TBN greater than 300 with an acceptable viscosity.

- 4.8 Furthermore, document (2) teaches that it is preferable to add a small amount, up to 2% w/w being suitable, of an acid such as stearic acid or acetic acid, stearic acid being, in particular, valuable to minimise emulsion formation in water (see page 8, lines 10 to 18).

On the other hand, document (1) discloses overbased phenates (TBN 270 or less) the properties of which, in particular a desired reduction in viscosity, may be improved by addition of from 0.1 to 10 wt.% C₁₀-C₂₄ fatty acids, preferably from 2 to 6% wt.% (see page 1, lines 12 to 17; page 4, lines 8 to 18; page 7, line 24 to page 8, line 8 and page 9, lines 1 to 12).

Thus, in the Board's judgment, the person skilled in the art was provided with an incentive to apply the teaching of document (1) to the disclosure of document (2) and could have envisaged additive concentrates

having a viscosity of less than $1000 \text{ mm}^2 \cdot \text{s}^{-1}$ comprising overbased phenates having a TBN greater than 300 and up to 10% of $\text{C}_{10}\text{-C}_{24}$ fatty acids.

- 4.9 The sole remaining question is whether he would have had the incentive to add more than 10 wt.% $\text{C}_{10}\text{-C}_{24}$ fatty acid to solve the technical problem defined above.

Firstly, the Board does not share the view of the Appellant (Opponent) according to which the fact that no prejudice exists against a larger amount of $\text{C}_{10}\text{-C}_{24}$ fatty acid is sufficient to substantiate the lack of inventive step. Although the existence of a prejudice is, in general, sufficient to acknowledge inventive step, the inverse is not true. The absence of a prejudice does not exempt the Appellant (Opponent) from demonstrating that the cited prior art led the person skilled in the art toward the invention.

To substantiate that the person skilled in the art would have an incentive to add more than 10 wt.% $\text{C}_{10}\text{-C}_{24}$ fatty acid to solve the technical problem defined above, the Appellant (Opponent) argued that document (1) was concerned with additive concentrates having total base numbers close to 250. Thus, starting from examples Nos. 10, 11 and 12 of document (2) which relate to additive concentrates having higher TBN, the person skilled in the art would have understood that a concentrate having more calcium carbonate would require more detergent in order to keep the calcium carbonate stably dispersed. Both the phenate and the carboxylate are detergent and, therefore, it is obvious to increase either the amount of phenate or the amount of carboxylate.

This interpretation goes beyond the teaching of documents (1) and (2). On the one hand, increasing the amount of phenate would have caused the TBN to decrease (TBN, according to the Appellant (Opponent) himself, depends upon the ratio calcium/phenate). On the other hand, document (1) does not teach that any amount of C₁₀-C₂₄ fatty acid may be added. This amount is limited to 10%.wt and more preferably to 2 to 6%.wt. Furthermore in studying the examples, one cannot notice a trend that would have enabled the person skilled in the art to go beyond this teaching. Nor can document (3) be of any help given that no C₁₀-C₂₄ fatty acid is used.

9. It follows from the above that the subject-matter of independent claim 24 is not rendered obvious by the prior art. Claim 1, which relates to a process for the production of an additive concentrate according to claim 24 is based on the same inventive concept and derives its patentability on the same basis as does claim 24. The same applies to the dependent claims 2 to 23 which represent preferred embodiments of the process as defined in claim 1.

Order

For these reasons it is decided that:

- 1. The decision under appeal is set aside.
- 2. The case is remitted to the first instance with the order to maintain the patent in the following version:

Description: pages 2, 3, 8, 9, 11 to 22 as granted,
pages 4 to 7, 10, 23 as submitted during
the oral proceedings.

Claims: No. 1 to 24 submitted during the oral
proceedings as second auxiliary request.

The Registrar

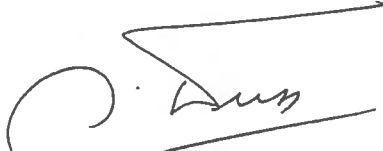
The Chairman



L. Martinuzzi

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28 SEP. 2000



A. Nuss



