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D E C I S I O N
of 3 August 1999

Case Number: T 1049/93 - 3.3.1

Application Number: 87900458.8

Publication Number: 0285608

IPC: C10M 173/00

Language of the proceedings: EN

Title of invention:
Water-in-oil emulsions

Patentee:
The Lubrizol Corporation

Opponent:
Nitro Nobel AB

Headword:
Emulsions/NITRO NOBEL

Relevant legal provisions:
EPC Art. 54, 56, 84, 113(1), 116, 123(2), (3)
EPC R. 71(1), (2)

Keyword:
"Amendments (main 1st and 2nd auxiliary requests) - partly no support in application as filed"
"Clarity - main 1st and 2nd auxiliary requests (no) - 3rd auxiliary request (yes)"
"Novelty (3rd auxiliary request) (yes)"
"Inventive step (yes) - non-obvious solution"
"Oral proceedings - absence of respondent (opponent) - final decision at oral proceedings (yes)"

Decisions cited:

G 0001/93, G 0004/92, T 0133/92, T 0771/92, G 0009/91

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Catchword:

Where an opponent who has been duly summoned, chooses not to attend oral proceedings, a board of appeal may still consider prior art which may be an obstacle to the maintenance of the patent in suit, irrespective of by whom that prior art was put forward. Such prior art does not constitute new facts within the meaning of G 4/92, which may not be construed as extending or prolonging the rights of a voluntary absent party (see point 12 of the reasons).



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Boards of Appeal

Chambres de recours

Case Number: T 1049/93 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 3 August 1999

Appellant: The Lubrizol Corporation
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Wickliffe
Ohio 44092 (US)

Representative: Vossius & Partner
Postfach 86 07 67
81634 München (DE)

Respondent: Nitro Nobel AB
(Opponent) Gyttorp
713 82 Nora (SE)

Representative: Danielsson, Laila
c/o Nitro Nobel AB
Patents
710 30 Gytthrop (SE)

Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 6 October 1993
revoking European patent No. 0 285 608 pursuant
to Article 102(1) EPC.

Composition of the Board:

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

Summary of Facts and Submissions

I. The Appellant (proprietor of the patent) lodged an appeal against the decision of the Opposition Division by which European patent No. 285 608 was revoked in response to an opposition which had been filed against the patent as a whole on the grounds that the subject matter claimed was not patentable under Article 100(a) EPC (Articles 54 and 56 EPC) and Article 100(c) EPC (Article 123(2) EPC).

II. The decision was based on the claims as amended during the oral proceedings before the Opposition Division, claim 1 reading as follows:

"A water-in-oil emulsion comprising:

(A) a continuous oil phase;

(B) a discontinuous aqueous phase;

(C) a minor emulsifying amount of at least one salt made by reacting component (C)(I) with component (C)(II) under salt-forming conditions, component (C)(I) being at least one hydrocarbyl-substituted carboxylic acid or anhydride, or ester or amide derivative of said acid or anhydride, the hydrocarbyl substituent of (C)(I) being either a purely hydrocarbyl or a substantially hydrocarbyl group having an average of from 20 to 500 carbon atoms, and component (C)(II) being at least one secondary or tertiary amine, provided that the salt comprises external salt; and

(D) a functional amount of at least one water-soluble, oil-insoluble functional additive dissolved in said aqueous phase; said functional additive being one or

more oxygen-supplying salts, one or more non-oxidizing acids, or one or more borates, phosphates and/or molybdates; with the proviso that when component (D) is ammonium nitrate, component (C) is other than an ester/salt formed by the reaction of polyisobutenyl-(Mn 950)-substituted succinic anhydride with diethylethanolamine in a ratio of one equivalent of anhydride to one equivalent of amine".

III. In support of the opposition the following documents were cited:

D1: EP-A-0 155 800

D2: EP-A-0 018 085

D3: Affidavit by Mr Riga (LUBRIZOL Corp.) dated 18 October 1989, pages 1 and 7 to 10

D4: Affidavit by Mr Wade (LUBRIZOL Corp.) dated 18 October 1989, pages 1, 7 to 9 and 13

IV. The Opposition Division held in particular:

Regarding Article 123(2) EPC, the Opposition Division considered that claim 1 met the requirements of said article in that both the wording "the salt comprises external salt" and the restriction to "secondary and tertiary amines" were disclosed in the application as filed.

Regarding the novelty issue, the Opposition Division held that the subject matter of claim 1 was novel in view of the Example 14 of D1 in so far as this example

did not disclose unambiguously the presence of an external salt. As far as the disclaimer related to the explosive composition disclosed by a prior commercial use was concerned (see affidavits by Mr Riga and Mr Wade), the Opposition division held that said disclaimer conferred novelty on the claim 1.

Regarding inventive step, the Opposition Division held that the subject-matter of claim 1 did not involve an inventive step in the light of documents D1, D3 and D4. In this context, in particular, the following issues arising from the fact that claim 1 covered explosive emulsions were considered:

In view of Example 14 of D1, the presence of an external salt, which was alleged to increase the overall conductivity of the emulsifier, did not involve an inventive step on the ground that a comparison with the electrical conductivity disclosed in D1 was not possible.

As regards Example 24 of D1, selecting a secondary or tertiary amine did not involve an inventive step on the ground that no effect or merits of said selection had been shown.

As to D3 and D4, it was within the ambit of the man skilled in the art to modify the disclosed explosive composition by choosing technical equivalents known from D1.

- V. Together with the statement of the grounds of appeal, the Appellant submitted comparative experimental data, and a new set of claims, which became the second

auxiliary request at the Oral proceedings before the Board.

In respect of claim 1 of this second auxiliary request, the Appellant submitted that the support for dimethylethanolamine as component (C)(II) in the proviso is found in original claim 38 and on page 47, lines 12 to 16 and 20 to 21. According to the Appellant, the general formula for the tertiary hydroxy amine $R(R)NR'OH$ individualizes dimethylethanolamine because each R substituent may be a hydrocarbyl group of one carbon and R' substituent may be a divalent hydrocarbyl group of two carbon atoms.

VI. In reply the Respondent (Opponent) argued that in claim 1 the expression "comprises **an** external salt" did not comply with Articles 123(2) and (3) EPC in that the description makes no distinction between internal and external salts for invention purposes. The only requirement throughout the text is a "salt" between (C)(I) and (C)(II). And still less is any support to be found for the wording "when said emulsion is an explosive emulsion" and "comprising an external salt" in this claim.

Furthermore, the Respondent argued that the meaning of "external salt" had been extended beyond the definition given in the application as filed in so far as the Appellant intended it to comprise the salts resulting from the reaction between "(C)(I) component and free and unreacted (C)(II) component".

VII. The Respondent also disputed the novelty of the patent in suit in view of Example 14 of D1 and the inventive

step in view of documents D1, D3 and D4.

VIII. Oral proceedings were held on 3 August 1999. The duly summoned Respondent had announced previously that he was not able to participate in the oral proceedings at this date or, indeed, at any time, but that he maintained his earlier position on the case. The oral proceedings thus took place in the absence of the Respondent (Rule 71(2) EPC).

IX. At the oral proceedings, the Appellant, upon having been made aware by the Board of another possible objection under Article 54(2) EPC in view of the document US-A-3 269 946 (D5) cited inter alia in the application as filed on page 2, line 1, submitted four new sets of claims as a main request, 1st, 2nd, 3rd auxiliary request respectively, claim 1 of either of those requests reading as follows:

Main request

1. A water-in-oil emulsion **which is an explosive emulsion or an acidizing fluid** comprising:
 - (A) a continuous oil phase;
 - (B) a discontinuous aqueous phase;
 - (C) a minor emulsifying amount of at least one salt made by reacting component (C)(I) with component (C)(II) under salt-forming conditions, component (C)(I) being at least one hydrocarbyl-substituted carboxylic acid or anhydride, or ester or amide derivative of said acid or anhydride, the hydrocarbyl substituent of (C)(I) being either a purely hydrocarbyl or a substantially hydrocarbyl group having an average of from 20 to 500 carbon

atoms, and component (C)(II) being at least one secondary or tertiary amine, **provided that the salt comprises external salt**, and
(D) a functional amount of at least one water-soluble, oil-insoluble functional additive dissolved in said aqueous phase; said functional additive being one or more oxygen-supplying salts **or** one or more non-oxidizing acids, with the proviso that when component (D) is ammonium nitrate, component (C) is other than an ester/salt formed by the reaction of polyisobutenyl (Mn=950) substituted succinic anhydride with diethylethanolamine in a ratio of one equivalent of anhydride to one equivalent of amine (emphasis added by the Board).

1st auxiliary request

Compared with the main request, the expression "provided that the salt comprises external salt" was replaced by "provided that the salt comprises external salt, **which external salt contains component (C)(II)**" (emphasis added by the Board).

2nd auxiliary request

1. A water-in-oil emulsion **which is an explosive emulsion or an acidizing fluid** comprising:
 - (A) a continuous oil phase;
 - (B) a discontinuous aqueous phase;
 - (C) a minor emulsifying amount of at least one salt made by reacting component (C)(I) with component (C)(II) under salt-forming conditions,

component (C)(I) being at least one hydrocarbyl-substituted carboxylic acid or anhydride, or ester or amide derivative of said acid or anhydride, the hydrocarbyl substituent of (C)(I) being either a purely hydrocarbyl or a substantially hydrocarbyl group having an average of from 20 to 500 carbon atoms, and component (C)(II) being at least one secondary or tertiary amine, **provided that when said emulsion is an explosive emulsion the salt comprises an external salt having dimethylethanolamine as component (C)(II);** and (D) a functional amount of at least one water-soluble, oil-insoluble functional additive dissolved in said aqueous phase; said functional additive being one or more oxygen-supplying salts **or** one or more non-oxidizing acids (emphasis added by the Board).

3rd auxiliary request

1. A water-in-oil emulsion **which is an acidizing fluid** comprising:
 - (A) a continuous oil phase;
 - (B) a discontinuous aqueous phase;
 - (C) a minor emulsifying amount of at least one salt made by reacting component (C)(I) with component (C)(II) under salt-forming conditions, component (C)(I) being at least one hydrocarbyl-substituted carboxylic acid or anhydride, or ester or amide derivative of said acid or anhydride, the hydrocarbyl substituent of (C)(I) being either a purely hydrocarbyl or a substantially hydrocarbyl group having an average of from 20 to 500 carbon

atoms, and component (C)(II) being ammonia and/or at least one amine; and

(D) a functional amount of at least one water-soluble, oil-insoluble functional additive dissolved in said aqueous phase; said functional additive being one or more non-oxidizing acids (emphasis added by the Board).

X. The Board pointed out at the oral proceedings that, in addition to the issues under Articles 123(2), 54(2) and 56, the additional subject matter had to be examined fully for compliance with the requirements of the EPC, particularly, in the present case, in view of Article 84 EPC. As the patent had been attacked as a whole, it was the Board's duty to examine the allowability of the 3rd auxiliary request related to acidizing emulsions, although in the opposition proceedings the arguments of both parties and the decision of the Opposition Division were only directed to explosive emulsions. As to novelty and inventive step of the 3rd auxiliary request, it appeared that the documents US-A-4140640 (D6) and US-A-4233165 (D7,) both cited in the application as filed on page 4, were relevant prior art.

XI. The Appellant submitted the following arguments in support of the allowability of the main request, the 1st auxiliary request and the 2nd auxiliary request, under Article 123(2) EPC and Article 84 EPC and of the allowability of the 3rd auxiliary request under Articles 54 and 56 EPC:

(i) Regarding the main request, the Appellant submitted that the restriction of components

(C)(II) to "second or tertiary amine" was supported by the application as filed in claim 32 which read " The emulsion of claim 1, wherein component (C)(II) comprises at least one primary, secondary and/or tertiary amine".

The Appellant submitted that the expression "one salt made by reacting components (C)(I) with component (C)(II) under salt forming conditions, provided that the salt comprises external salt" was supported by:

- the application as filed, in particular the passage on page 51, lines 31 to 33 or line 25 ("under salt forming conditions"), and
- the common general knowledge of the man skilled in the art as regards the meaning of the expression "external salt".

In particular, the Appellant explained the difference in terms of chemical structure between an "external salt" which in his view meant the association of free amines in cationic form with carboxylate as the counter ion and an "internal salt" which in his view involved the condensation of (C)(I) with the amine (C)(II) and possibly the formation of a salt link between the free carboxylate and the nitrogen atom of the same condensed molecule or another condensed molecule.

He pointed out that the "internal salt" form was exemplified by Example 8, while the other

examples were related to "external salts" and acknowledged that Example 8 could no longer be regarded as part of the invention.

The Appellant added that the man skilled in the art by applying his common technical knowledge could understand the distinction between "external" and "internal salt"; he would have understood that an excess of amine was necessary to obtain an "external salt". Example 8 was the sole example where the ratio (C)(II):(C)(I) was lower than 1. He further argued, that the term "comprises" meant that some internal salt might also be present.

- (ii) Regarding the 1st auxiliary request, the Appellant submitted that the added wording "which external salt contains component (C)(II)" was a clarification of the distinction between "internal salt" and "external salt" (see point (i) above).

- (iii) Regarding the 2nd auxiliary request, the Appellant argued that the dimethylethanolamine as component (C)(II) was individualized in the application as filed which contained on page 47 the formula (R)(R)N-R'-OH, wherein:
 - R may be a hydrocarbyl group of one to about eight carbon atoms (identifying therefore methyl),

 - R' may be an acyclic straight or branched alkylene group such as an ethylene.

He pointed out that by this amendment a positive restriction avoiding the use of the disclaimer was achieved.

- (iv) As to the 3rd auxiliary request, the Appellant submitted that the claims were also novel over the content of documents D6 and D7. He further pointed out that, in view of the closest prior art represented by D6, the problem to be solved was to find other acidizing emulsions. None of the cited documents, either alone or in combination, could direct the man skilled in the art to the solution as claimed in claim 1.

XII. The Appellant requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of one of the sets of claims in the version of the main, first and second auxiliary request or in the version of the claims and the description submitted as third auxiliary request, all as submitted at the oral proceedings.

The Respondent made no explicit request.

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

Reasons for the Decision

1. The Appeal is admissible.

Main request

2. In the Board's judgment, neither the addition of the words "which is an explosive emulsion or an acidizing fluid" and the consequential deletion of the words "or one or more borates, phosphates and/or molybdates" from the definition of the functional additive (D) nor the restriction of the component C(II) to "secondary or tertiary amines" in claim 1 contravenes Article 123(2) EPC.

Article 123(2) EPC requires that a European patent application or a European patent may not be amended in such a way that it contains subject-matter extending beyond the content of the application as filed. The idea underlying this provision is that an applicant should not be allowed to improve his position by adding subject-matter not disclosed in the application as filed, which would give him an unwarranted advantage and could be detrimental to the legal security of third parties relying on the content of the application as filed (see G 1/93, OJ 1994, point 9 of the reasons for the decision).

The same principle also governs the situation where the amendment results in a **limitation** of the scope of the claims, be it by the addition of a technical feature, or - as in the present case - by the deletion of the original definitions of the functional additive (D) (i.e. those specifically required for water-in-oil hydraulic fluids, see page 10, last paragraph of the application as filed) and of the component C (II) (i.e. ammonia and/or at least one amine) stated in the application as filed as including ammonia, primary, secondary and tertiary amines, see page 45, lines 10 to 16 of the application as filed.

In the present case, the Board considers that this limitation does not result in novel subject-matter as it merely excludes protection for a part of the subject-matter originally disclosed.

3. The Board is not convinced, however, that the added feature "comprises an external salt" can be directly and unambiguously derived from the application as filed.

First, the technical explanations given by the Appellant in the course of the oral proceedings cannot be found anywhere in the application as filed nor does any documented common general knowledge exist in the field concerned in support of them. Furthermore, there is an apparent discrepancy between the declaration of the Appellant at the oral proceedings concerning the necessary excess of amines and, on the one hand, the declaration by the Appellant (on page 2, last paragraph of the statement of grounds of appeal), where it is alleged that not only the ratio of equivalents of (C)(II) to (C)(I) is critical but **also** the higher reaction temperature, and on the other hand, the fact that the application as filed presents, as appropriate, a wide ratio of equivalents of (C)(II) to (C)(I) from 0.5 to 3.

Furthermore, the expression "comprises external salt" is to be understood as meaning that there may be combinations in any ratio of external salt and internal salt, which is in line with the Appellant's own technical explanations (see point XI(i) above). This does not appear to be supported however by the application as filed, where the presence of one salt

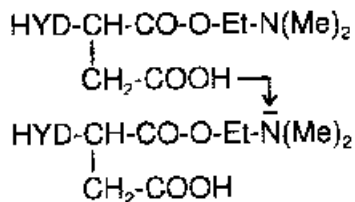
form excludes the other (page 51 "it may be an internal salt" **or** "it may be an external salt").

What can be inferred from the part of the application referred to by the Appellant (page 51) is that the presence of a salt is critical, particularly, in view of the preferred embodiment set out page 51, lines 26 to 30. Even this preferred variant, if ever it could have been extended to the invention as a whole, does not mention the presence, now required, of an "external salt" as a critical feature.

In view of the above, the Board therefore considers that it cannot be established beyond any reasonable doubt from the application as filed that the salt obtained in accordance with the teaching of patent in suit necessarily contains "external salt".

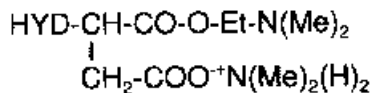
4. Furthermore, the Board considers that an essential feature of the claimed invention, i.e. the term "external salt", is objectionable under Article 84 EPC.

The application as filed refers to "an external salt wherein the ionic salt group is formed with a nitrogen atom which is not part of the same molecule" (page 51, lines 20 to 22). As pointed out by the Respondent at the oral proceedings before the Opposition division, this definition encompasses the salts of the following chemical structure:

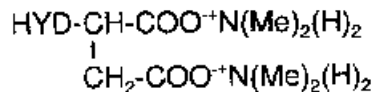


which the Appellant named "internal salt".

By contrast, the Appellant calls "external salts" the association of the free amines in cationic form and the carboxylate counter-ions as set out below:



or



The Board concludes that the merits of these mutually exclusive theories cannot be assessed by applying the common technical knowledge of the man skilled in the art. The burden was on the Appellant to clarify the meaning of this essential feature but nothing relevant was submitted. The external salt is not even mentioned in the "comparative experimental data" submitted with the statement of grounds of appeal, only the presence of "salts" for emulsifier No. 1 is indicated there.

In conclusion, the Board considers that claim 1 of the main request contravenes not only Article 123(2) EPC but also Article 84 EPC.

1st auxiliary request

5. For the same reasons as above explained in points 3 and 4, the feature "comprises external", also contained in claim 1 of this request, contravenes Article 123(2) and Article 84 EPC. Therefore, this request cannot be allowed either.

2nd auxiliary request

6. For the same reasons as explained above in points 3 and 4, the feature "comprises external", also contained in claim 1 of this request, equally contravenes Article 123(2) and Article 84 EPC. Therefore this request cannot be allowed either.

3rd auxiliary request

7. The subject-matter of claim 1 meets the requirements of Articles 123(2) and (3) EPC since it is supported by the application as filed, in that from the original three groups of possible functional additives (D) only non-oxidizing acid(s) are retained in claim 1, which means that the only emulsions left in the claims are those originally disclosed as acidizing fluids (see page 56, last paragraph of the application as filed). Claim 1, furthermore, no longer contains a feature directed to "external salt", i.e. the feature on account of which claims 1 of the main, first and second auxiliary requests have been objected to under Article 123(2) EPC.
8. The removal of any feature directed to "external salt", also removed the only reason for an objection under

Article 84 EPC. Claim 1 of the present request is therefore clear within the meaning of Article 84 EPC.

9. The subject-matter of claim 1 is novel with respect to documents D6 and D7 (see point X above) in that:
- document D6 relates to an acidizing water-in-oil emulsion comprising an aqueous acidizing solution, an oil and a combination of at least one C₈ to C₁₈ primary amine as a cationic surfactant and a non ionic surfactant comprising at least one diethanolamide of at least one C₈ to C₁₈ fatty acid. The distinguishing feature lies in the nature of the emulsifier (C) of the present request,
 - document D7 relates to an acidizing fluid comprising a dispersion of a water-in-oil emulsion in an aqueous medium, said emulsion having an acidified internal aqueous phase and an external liquid hydrocarbon phase comprising a blend of a liquid hydrocarbon and from about 0,5 to about 40 weight percent of an oil soluble surfactant.

The surfactants include anionic, cationic and nonionic surfactants (column 4, lines 26 to 54). The distinguishing feature lies again in the nature of the emulsifier (C) of the present request.

10. In view of document D6, taken as the closest prior art, the problem to be solved is to find other acidizing water-in-oil emulsions. The Board is convinced that the claimed emulsions represent a solution to this problem, particularly in view of Examples A to F, page 69 of the

application as filed.

11. The question now is whether this solution was obvious for a person skilled in the art. Both document D6 and D7 use an emulsifier which could in no way suggest the emulsifier (C) as defined in claim 1 of the present request, i.e. a salt made by reacting component (C)(I) with component (C)(II) (see point IX above).

Thus, neither document D6 nor document D7 nor the combination of documents D6 and D7 suggest to the person skilled in the art choosing the emulsifier (C) as a solution to the problem to be solved. Claim 1 of the present request therefore meets the requirements of Article 56 EPC.

This is also true for claims 2 to 9, which are dependent claims directed to preferred embodiments of the water-in-oil emulsion according to claim 1 and whose patentability is supported by that of claim 1.

12. As regards the procedural consequences of the respondent's non-appearance at the oral proceedings of 3 August 1999 reference is made to the following:

Where a duly summoned party has chosen not to attend oral proceedings (see point VIII above), the decision to maintain the patent in suit in amended form in accordance with a request by the patent proprietor submitted during those oral proceedings, may nevertheless be given orally pursuant to Rule 68(1) EPC, provided it is not based on new facts or evidence put forward for the first time during those oral proceedings (see G 4/92, in particular conclusion 1;

decisions T 133/92 and T 771/92 both summarised in Case Law of the Boards of Appeal of the European Patent Office, 3rd edition, pages 258, 259).

The purpose underlying said proviso is to protect a party against the adverse effects of new facts and evidence which it could not reasonably anticipate when deciding not to attend the oral proceedings. It is not in conflict with this purpose and the corresponding rights of the absent opponent - be he appellant or respondent - to consider any prior art which may be an obstacle to the maintenance of the patent in suit. Irrespective of by whom that state of the art was put forward (e.g. by another opponent or by the Board on its own motion under Article 114(1) EPC), such state of the art does not constitute new facts within the meaning of G 4/92, which opinion may not be construed as extending or prolonging the rights of a voluntarily absent party. It is true, that, as a party to the proceedings, the opponent has the right to be heard, including his arguments, on (all) the grounds on which a decision is based (Article 113(1) EPC). This opportunity is offered to him, as it is to the patent proprietor, by summoning all the parties to a hearing before the Board. If he chooses not to avail himself of this opportunity, his right to be heard is exhausted to the extent that it concerns facts and arguments in support of his position.

Were it otherwise, the absent party would be in a privileged position, in that he would, in fact, be given a further opportunity to submit arguments (in writing), eg even if the facts in question (normally prior art) were put forward by another opponent who had

appeared at the oral proceedings, and the patent proprietor, in order to overcome this new objection, had restricted his claims accordingly. This would not be compatible with the principle that the parties to the proceedings should be treated equally and would be contrary to the general interest in terminating the dispute and providing legal security, which is a legitimate interest of both the public and the parties who appeared at the oral proceedings. It is thus with good reason that, were a decision is given orally in the absence of the opponent, "new arguments may in principle be used to support the reasons for the decision" (G 4/92, conclusion 2). As regards prior art which is in favour of the absent opponent, the same must apply.

In the present case, the claims of the patent as granted comprised three different types of water-in-oil emulsions, namely explosive, hydraulic and acidizing fluids. The third auxiliary request - the one eventually held to be allowable - is limited to acidizing fluids. In these circumstances, the Board, for the reasons set out above, was not prevented from examining whether the claims of that auxiliary request meet the requirements of the EPC (G 9/91, OJ EPO 1993, 408, point 19 of the decision) in view of D6 and D7, which were found to constitute the relevant prior art. Nor was it prevented from taking a final decision on these claims at the oral proceedings.

Moreover, the non-oxidizing acids containing emulsions (acidizing fluids) claimed in accordance with the Appellants last request could not have escaped the Respondent's attention when he filed the opposition

against the patent as a whole.

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 amended form, namely:

claims: 1 to 9

description: pages 1 to 22

submitted as third auxiliary request at the oral proceedings on 3 August 1999.

The Registrar:

The Chairman:

E. Görgmaier

A. Nuss