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**DECISION**  
of 15 November 2004

**Case Number:** T 0398/01 - 3.3.6

**Application Number:** 93308505.2

**Publication Number:** 0595590

**IPC:** C11D 1/83

**Language of the proceedings:** EN

**Title of invention:**

Non-chlorinated low alkalinity high retention cleaners

**Patentee:**

Diversey IP International BV

**Opponent:**

The Procter & Gamble Company

**Headword:**

Hydrophobically modified polyacrylate/PROCTER

**Relevant legal provisions:**

EPC Art. 56, 84

**Keyword:**

"Novelty (main request): yes"

"Inventive step (main request): no"

"Trademark in a claim (auxiliary request): not admissible -  
definition not clear"

**Decisions cited:**

T 0012/81, T 0424/86, T 0666/89, T 0012/90, T 0562/90,  
T 0247/91, T 0658/91, T 0653/93, T 0401/94, T 0373/95,  
T 0714/00

**Catchword:**

-



Case Number: T 0398/01 - 3.3.6

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.6  
of 15 November 2004

**Appellant:**  
(Opponent)

The Procter & Gamble Company  
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**Representative:**

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**Respondent:**  
(Proprietor of the patent)

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**Decision under appeal:**

Decision of the Opposition Division of the  
European Patent Office posted 23 February 2001  
rejecting the opposition filed against European  
patent No. 0595590 pursuant to Article 102(2)  
EPC.

**Composition of the Board:**

**Chairman:** G. Dischinger-Höppler  
**Members:** G. N. C. Raths  
U. J. Tronser

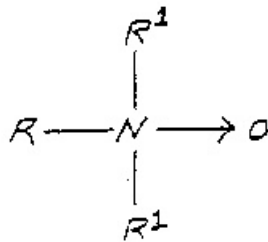
## Summary of Facts and Submissions

I. This appeal is from the decision of the Opposition Division to reject the opposition against the European patent No. 0 595 590 relating to non-chlorinated low alkalinity high retention cleaners.

II. Claim 1 of the patent as granted reads:

"1. An aqueous chlorine-free concentrate suitable for dilution with water to form a viscous cleaning solution, comprising;

(a) an amine oxide having the formula:



wherein R is C<sub>10</sub>-C<sub>18</sub> alkyl and wherein each R<sup>1</sup>, independently, is selected from the group consisting of methyl, ethyl, and 2-hydroxyethyl;

(b) an alkyl anionic surfactant selected from the group consisting of the ammonium and alkali metal salts of the alkyl sulfates, olefin sulfonates, alkylether sulfates, alkylarylether sulfates, alkylarylether sulfonates and mixtures thereof, wherein said alkyl groups are minimally C<sub>12</sub> when aryl groups are not present, and wherein said alkylaryl groups are minimally C<sub>16</sub>, and wherein said ether groups comprise a polyoxyalkylene group containing from 2 to 4 C<sub>2</sub> to C<sub>4</sub> alkylene oxide residues;

(c) a hydrophobically modified polymer surfactant;

(d) a thinner selected from the group consisting of methanol, ethanol, isopropanol, propylene glycol methylether, dipropylene glycol methylether and nonionic surfactants prepared by oxyalkylating an alkylphenol or fatty alcohol with from 4 to 10 C<sub>2</sub>-C<sub>3</sub> alkylene oxide moieties; and

(e) an alkali, characterised in that the hydrophobically modified polymer surfactant is a hydrophobe-containing polyacrylate polymer."

III. The opposition had been filed on the grounds of Article 100(a), (b) EPC, in particular, for lack of insufficiency of disclosure, and for lack of novelty and inventive step relying, *inter alia*, on the following documents:

(1) US-A-5 004 557,

(2) EP-A-0 314 232,

(7) ALCO, Technical Bulletin, Alcogum SL Series, Thickeners and Rheology Modifiers, 22 December 1987

and

(8) National Starch and Chemical Limited, Technical Information, Use of ALCOGUM SL 70 as a rheology modifier in cleansing formulations, 1987.

IV. The Opposition Division found that the invention was sufficiently disclosed and, with respect to novelty, that document (1) did not anticipate the claimed subject-matter because document (1) did not disclose the features of Claim 1 of the disputed patent in the combination set out in said claim.

In respect of inventive step, the Opposition Division found that the problem underlying the patent in suit in the light of document (2) was to provide compositions having an enhanced thickening effect upon dilution. The skilled person would not have inferred from the other prior art documents on file that a hydrophobically modified polyacrylate polymer solved the above mentioned technical problem.

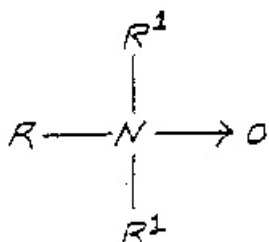
V. The opponent (hereinafter appellant) filed an appeal against this decision. Under cover of the letter dated 15 October 2004 the appellant filed comparative data.

VI. Oral proceedings before the Board took place on 15 November 2004 in the course of which the respondent submitted an auxiliary request heading "1st auxiliary request".

Claim 1 of the auxiliary request differs from claim 1 as granted in that

the word "following" was inserted between "the" and "formula"

the passage "in the amount of from 1 to 9 wt%" was inserted between "formula:" and



the passage "in an amount of from 1 to 8 wt% was inserted between "alkylene oxide residues;" and "(c)";

the passage "selected from the group Acusol™ 810 and Acusol™ 820 wherein the amount of said polymer is from 1 to 5% by weight, relative to the total weight of the concentrate" was added at end of the claim.

VII. The appellant argued orally and in writing that document (1) would anticipate the subject-matter of Claim 1. In particular, it argued that Claim 1 of document (1) disclosed a liquid detergent composition comprising 10 to 40% of an anionic sulfonate and sulphate surfactant (corresponding implicitly to component (b) of the patent in suit) and a nonionic surfactant, which nonionic surfactant included an amine oxide (corresponding to component (a) of the patent in suit) as was apparent from document (1) (second sentence of the paragraph of column 5, lines 17 to 24) and a thinner (corresponding to component (d) of the patent in suit), 0.1 to 2% of a water-soluble hydrophobically modified copolymeric active agent, wherein the copolymerizable monomers were selected from alkyl acrylates (corresponding to component (c) of the patent in suit); and an alkali corresponding to component (e) of the patent in suit because the detergent composition had a pH of 8 to 10.

With respect to inventive step, the appellant argued as follows:

The liquid detergent composition according to example 5 of document (2) was a suitable starting point for evaluating inventive step and differed from the

composition according to claim 1 of the patent in suit in that Wardol X, a mixture of polyethylene glycol esters of oleic acid, was used instead of a hydrophobe containing polyacrylate polymer. Since this difference did not lead to a technical effect, the technical problem actually solved in view of document (2) was to provide an alternative composition. In the light of the technical information disclosed by document (7) or (8) relating both to rheology modifiers, namely acrylate polymers sold under the trade name Alcogum, it was obvious for a skilled person to substitute for that purpose Wardol X by the polyacrylate polymer. Further, it has been shown in the appellant's experimental data that the desired enhanced thickening effect was not achieved within the whole range of the compositions covered by Claim 1 of the patent in suit.

VIII. The respondent refuted the arguments of the appellant.

Document (1) did not disclose the particular combination of the features of Claim 1 of the patent in suit. Therefore the subject-matter of Claim 1 of the patent in suit was novel.

With respect to inventive step, it was argued that the teaching of document (2) as a whole must be taken into consideration and that this teaching was illustrated by cleaners 1 to 3 of the patent in suit. These cleaners 1 to 3 had a Brookfield viscosity in the range of 95 to 110 cps upon dilution to 10% weight, whereas the Brookfield viscosity of the 10% weight solution of examples 1 to 5 according to the invention was ranging from 500 to 3400 cps. Therefore, excellent gel retention caused by the increase in viscosity could be

obtained and in view of document (2), the technical problem stated in the patent in suit of providing compositions with an enhanced thickening effect upon dilution was solved by the claimed subject-matter. This significantly increased viscosity of the compositions according to the patent in suit was surprising and not to be expected. In contrast, there was no evidence showing that the concentrate disclosed in example 5 of document (2) also provided the same increase in viscosity upon dilution.

The respondent further criticised the appellant's experimental data for not having been carried out properly, i.e. in accordance with the instructions given in the patent in suit.

- IX. The appellant requested that the decision under appeal be set aside and that the patent be revoked. The respondent requested that the appeal be dismissed and that the patent be maintained as granted or on the basis of Claims 1 to 8 according to the auxiliary request submitted at the oral proceedings.

## **Reasons for the Decision**

### 1. *Main request*

#### 1.1 Novelty

- 1.1.1 An objection of lack of novelty has been raised in view of document (1). In particular, it has been argued that document (1) disclosed in one single sentence of Claim 1 an aqueous chlorine-free concentrate comprising



components (b),(c),(d) and (e) as well as the characterising hydrophobe-containing polyacrylate polymer of Claim 1 of the patent in suit as one specific embodiment of all possible combinations of features referred to in Claim 1. The only additional selection the skilled person had to make was to use the specific amine oxide (a) defined in the patent in suit as the nonionic surfactant. Such amine oxides were, however, disclosed in the very short paragraph in column 5, lines 17 to 24 of document (1) as one of two possible groups of specific nonionic synthetic detergents.

Such a selection would not provide novelty to the claimed subject-matter.

- 1.1.2 The argument is not convincing since, in the Board's opinion, the appellant singled out several components from Claim 1 and the description of document (1) and combined them together.
- 1.1.3 Claim 1 of document (1) refers to an aqueous composition of pH 8 to 10 comprising
- at least one surfactant selected from the group consisting of anionic sulfates and sulfonates, nonionic surfactants, cationic surfactants and amphoteric surfactants, and
  - a water-soluble active agent selected from the group consisting of homo- or copolymers of monounsaturated mono- or dicarboxylic acids of 3 to 5 carbon atoms wherein in the case of copolymers, the copolymerizable monomers are selected from alkyl acrylates having an alkyl group of 10 to 30 carbon atoms (column 7, line 6) or an alkyl, alkoxy, haloalkyl

or cyanoalkyl group of 1 to 9 carbon atoms (see also column 7, line 8).

- 1.1.4 It may be agreed that, in order to achieve the alkaline pH of 8 to 10, the composition of claim 1 of document (1) contains alkali, i.e. component (e) of the patent in suit.

However, in order to arrive at the other four components of Claim 1 of the patent in suit several selections have to be made from the surfactants and the active agents mentioned in Claim 1 and the description of document (1).

- First, it is necessary to select from the surfactants the anionic sulfate or sulfonate (corresponding to component (b) of the patent in suit) and two nonionic surfactants.

- For the nonionic surfactants, the description mentioning the following three groups of nonionics has to be taken into account:

1) condensation products of ethylene oxide, propylene oxide and/or butylene oxide with alkylphenols, fatty alcohols and fatty acid amides in a ratio of 1 to 30 moles per mole;

2) tertiary amine oxides with one alkyl chain having 8 to 18 carbon atoms and two alkyl groups having 1 to 3 carbon atoms; and

3) nonionics described in "Surface Active Agents and Detergents", Vol. I and II, by Schwatz, Perry and Berch (see column 5, lines 17 to 29 in combination with

lines 11 to 13). From these groups, the first two have to be selected.

- Selecting from group 1) the condensation products of 4 to 10 ethylene oxide or propylene oxide moieties with alkylphenols or fatty alcohols results in component (d) of the patent in suit, i.e. the thinner.

- Selecting from group 2) tertiary amine oxides having at least 10 carbon atoms instead of 8 in the long alkyl chain and at most 2 carbon atoms instead of 3 in the two short alkyl chains results in component (a) of the patent in suit.

- Finally, in order to arrive at component (c) of the patent in suit a hydrophobe containing polyacrylate polymer must be selected from the watersoluble active agents mentioned in claim 1 since those are not necessarily all acrylic and hydrophobically modified.

1.1.5 The Board concludes that the particular combination of components (a) to (e) of Claim 1 of the patent in suit is not explicitly disclosed in document (1) and could result therefrom only via multiple selections a person skilled in the art had no reason to make since the selected components were not prominent in document (1). Therefore, the combination of the relevant components did not emerge from document (1) as being implicitly disclosed nor was it made available to the skilled reader or seriously contemplated by him (see e.g. T 666/89 (OJ EPO 1993, 495), reasons no. 6 and 7; T 653/93, not published in the OJ EPO, reasons no. 3.2.2).

1.1.6 The case law referred to by the appellant (T 12/81 (OJ EPO 1982, 296); T 424/86, T 12/90, T 562/90, T 247/91, T 658/91, T 401/94 and T 373/95) is not in contradiction to the conclusion reached by the Board for the following reasons:

In accordance with T 424/86, reasons no. 4, T 562/90, reasons no. 4, T 247/91, reasons no. 3, and T 373/95, reasons no. 3, the Board, when deciding the question of novelty in the present case, considered the disclosure of the whole prior art document (1). That the Board, in spite of taking account of the information of the whole document (1), acknowledges novelty of the claimed composition rests on the finding that the combination of the components constituting the composition is based on a particular selection not hinted at in document (1), and not an inevitable combination at which a skilled person would automatically arrive.

T 12/90 is not relevant. This case concerned a component defined by a generic formula to be compared with a generic formula disclosed in a prior art document. Novelty was denied because the overlap under consideration was inevitable, and not the result of an arbitrary combination (reasons no. 2.3 to 2.9).

Also T 658/91 is not relevant since in that case an enantiomer individually claimed was described in a prior art document by virtue of an individual technical teaching and thus reproducible by the skilled person (reasons no. 2).

In T 12/81 the Board considered that a product obtained by a reaction of a particular pair of components

issuing from two lists constitutes a selection (reasons no. 7, 10 and 14). However, the present case might be brought closer to T 401/94 where, by analogy to the present case, a composition, and not a single product, was at stake. The Board considered in T 401/94 (reasons no. 4) that the claimed composition was a selection and, therefore, novel since it corresponded to a particular combination of components chosen each from a list of a certain length.

1.1.7 Consequently, the subject-matter of Claim 1 is not directly and unambiguously derivable from document (1).

It follows that the subject-matter of Claim 1 is novel and thus meets the requirements of Article 54(1) and (2) EPC.

1.2 Inventive step

1.2.1 Claim 1 is directed to an aqueous chlorine free concentrate suitable for dilution with water to form a viscous cleaning solution comprising

- (a) an amine oxide
- (b) an alkyl anionic surfactant
- (c) a hydrophobically modified polyacrylate polymer
- (d) a thinner and
- (e) alkali.

1.2.2 The objective of the patent in suit is to provide aqueous concentrates that upon dilution develop into gel-like foams which enhance the residence time of the detergent solution on the surfaces to be cleaned and which exhibit superior cleaning ability (page 2, lines 51 to 53).

1.2.3 A similar objective is mentioned in document (2) according to which there was a need for detergent products which can be applied over a wide area and which cleaned upon immediate and/or prolonged contacts with the surface to be cleaned before being removed. This can be achieved by using a liquid detergent composition which undergoes the viscosity increase upon aqueous dilution (document (2), page 2, lines 2 to 11).

1.2.4 The Board shares, therefore, the opinion of both parties that document (2) was a proper starting point for the assessment of an inventive step.

1.2.5 Document (2) discloses in its broadest sense that the required rheological and cleaning properties are obtained by compositions comprising

- a primary surfactant material, in particular an amine oxide as in the patent in suit,
- a co-surfactant material which is a hydrotrope for the primary surfactant material, in particular anionic surfactant compounds,
- a water-soluble or water-miscible non-surfactant which is ionisable in water, in particular a base, and
- water (see claims 1, 5, 7, 8 and 11).

This composition may further comprise a thinner (page 4, lines 37 to 38 and examples 1 to 6) and differs, therefore, from the subject-matter of Claim 1 only in that a hydrophobically modified polyacrylate polymer is missing.

1.2.6 The parties disagreed on the question which part of document (2) should be taken for comparison. The

appellant was of the opinion that example 5 had the most features in common with the subject-matter of Claim 1 of the patent in suit whereas the respondent argued that account has to be taken of the whole content of document (2) which was best illustrated by the compositions of cleaners 1 to 3 mentioned in the patent in suit (page 5, line 36 to page 6, line 16).

In the respondent's view, it was apparent from a comparison of the Brookfield viscosity at 10 % w/w dilution of cleaners 1 to 3 (95 to 110 cps) with that of examples 1 to 5 according to the patent in suit (500 to 3400 cps) that the rheological behavior of the claimed invention was superior to that of the compositions disclosed in document (2). The technical problem actually solved by the subject-matter of Claim 1 in view of document (2) was, therefore, to provide compositions having an improved thickening effect upon dilution.

1.2.7 The Board agrees that the compositions of cleaners 1 to 3 come under what is broadly disclosed in document (2) (see 1.2.5 above). However, the comparison of the viscosity of examples 1 to 5 according to the invention with the cleaners 1 to 3 is not sound because the compositions of these cleaners differ from those of examples 1 to 5 in not only one aspect but in several aspects.

1.2.8 In particular, the compositions of examples 1 to 5 of the patent in suit differ from those of cleaners 1 to 3 in aspects which are not essential for the subject-matter as claimed, in particular the amounts of water, of amine oxide, of anionic surfactant, of thinner and

of alkali or the presence of additional ingredients such as a second anionic surfactant, EDTA, sodium silicate, and/or 1,2-phosphonobutane-1,2,4-tricarboxylic acid.

Cleaner 3 is irrelevant for the simple reason that it contains sodium hypochlorite which is not preferred in document (2) (page 4, lines 11 to 13) and explicitly excluded from the subject-matter claimed in the patent in suit (chlorine-free). Cleaners 1 and 2 contain a thinner in accordance with the patent in suit (dipropylene glycol methyl ether).

However, due to the multitude of differences as compared with examples 1 to 5, the compositions of cleaners 1 to 3 are not suitable as evidence showing that the only difference in regard of the composition of Claim 1 of the patent in suit, namely the absence of a hydrophobically modified polyacrylate polymer, is responsible for the worse thickening effect.

As a consequence, there is no evidence on file showing that in view of the compositions disclosed in document (2) the desired thickening effect is actually obtained within the whole range of compositions covered by Claim 1 of the patent in suit.

This is corroborated by the appellant's experimental data according to which compositions covered by Claim 1 of the patent in suit show even worse results than cleaners 1 to 3. The Board notes in this respect that these experimental data were made according to example IV of the patent in suit. The respondent's criticism that the experiments were not properly carried out is,



therefore, held to be unfounded and insufficiently substantiated as counter-evidence.

1.2.9 Therefore the problem underlying the patent in suit in view of document (2) can be seen in the provision of an alternative detergent composition and, considering examples 1 to 5 of the patent in suit, it is credible that this problem is solved by adding a hydrophobically modified polyacrylate polymer.

1.2.10 The question which remains to be answered is whether the provision of an alternative detergent composition, in particular, a composition containing a hydrophobe-containing polyacrylate polymer involves an inventive step or not.

1.2.11 The respondent has not contested that hydrophobe-containing polyacrylate polymers are known in the art. On the contrary, the patent in suit relates in this respect to commercial products, *inter alia*, to the polymers supplied by Alco Chemical under the trade name Alcogum (page 3, lines 30 to 32).

Document (7) identifies Alcogum as a thickener and rheology modifier which can be used in high caustic cleaners (page 1, title and properties, and page 3, first paragraph). Also document (8) relates to Alcogum as a rheology modifier in cleansing formulations.

1.2.12 Since both document (7) and document (8) are commercial brochures, it is evident that a hydrophobically modified polyacrylate polymer was commercially offered at the priority date of the patent in suit not only for use in cleaning compositions but also under the

prospect of providing a thickening and rheology modifying effect to these compositions.

1.2.13 Therefore, the Board concludes that a person skilled in the art, in the expectation of success, would have used Alcolgom in the compositions according to document (2) in order to provide a further aqueous chlorine-free concentrate suitable for dilution with water to form a viscous cleaning solution. The skilled person would thus arrive in an obvious manner at the claimed subject-matter.

1.2.14 The same result is obtained if example 5 of document (2) is used as the starting point for evaluating inventive step as suggested by the appellant (see 1.2.6 above). This example differs from the claimed subject-matter only in that Wardol X, a mixture of polyethylene glycol esters of oleic acid, is used instead of hydrophobically modified polyacrylate, but no evidence exists that a particular technical effect is obtained by this difference. Thus, the technical problem actually solved by the claimed subject-matter in view of this example remains the same as stated above under 1.2.9., i.e. the provision of an alternative detergent composition. Components of the kind of Wardol X are disclosed in document (2) to surprisingly enhance soil removal (page 4, lines 14 to 16). Whilst it is appreciated that such components are not disclosed in document (2) as contributing to the rheological properties of the detergent composition, it is nevertheless known from document (2) that compositions of high viscosity perform better due to a prolonged contact with the surface to be cleaned (page 2, lines 3 to 7). Therefore, the Board considers it to be obvious

to substitute Wardol X in example 5 of document (2) by the Alcofum thickeners known from documents (7) and (8) in order to provide an alternative composition having the same soil removing properties.

1.2.15 It follows that the subject-matter of Claim 1 does not meet the requirements of Articles 52(1) and 56 EPC.

## 2. *Auxiliary request*

### 2.1 Article 123

The amendments made to the claims find their basis in essence in Claims 1 and 6 and in the description of the application as filed (page 6, lines 2 to 4). The Board is satisfied that the requirements of Article 123 EPC are met. Since the appeal fails for other reasons, no further details need to be given.

### 2.2 Article 84 EPC

2.2.1 Article 84 EPC requires that the claims shall define the matter for which protection is sought. They shall be clear and concise and be supported by the description.

2.2.2 The feature regarding the hydrophobe containing polyacrylate polymer has been defined by reference to a trademark, namely Acusol<sup>TM</sup> 810 and Acusol<sup>TM</sup> 820.

The patent in suit discloses that preferred hydrophobically modified polyacrylate polymers are supplied by Rohm and Haas under the names Acusol<sup>TM</sup> 810 and Acusol<sup>TM</sup> 820 (page 3, lines 30 to 31). It would

appear that the polyacrylates according to the two trademarks Acusol™ 810 and Acusol™ 820 are not structurally identical. The precise definition of the structural constitution of these components is however not given, neither in the patent in suit nor in any other document on file.

- 2.2.3 Trademarks may be allowed exceptionally if their use is unavoidable and they are generally recognised as having a precise meaning.

This is however not the case here since there is no evidence at all concerning such a precise meaning of the trademarks used. In particular, it is not clear in what respect the Acusol products differ from other hydrophobe-containing polyacrylate polymers such as the products supplied under the trade name Alcogum (see document (7)) and referred to in the patent in suit (page 3, lines 31 to 33) (see T 714/00, not published in the OJ EPO, reasons no. 2.4).

- 2.2.4 As the subject-matter of Claim 1 for which protection is sought is not clear, Claim 1 does not meet the requirements of Article 84 EPC.

- 2.2.5 Therefore the respondent's auxiliary request must also fail since it does not meet the requirements of the EPC.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairperson:

G. Rauh

G. Dischinger-Hoeppler