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D E C I S I O N
of 26 January 2005

Case Number: T 1166/01 - 3.3.6

Application Number: 95907480.8

Publication Number: 0741772

IPC: C11D 1/835

Language of the proceedings: EN

Title of invention:

High sudsing light duty liquid or gel dishwashing detergent compositions containing long chain amine oxide

Patentee:

THE PROCTER & GAMBLE COMPANY

Opponent:

Henkel KGaA

Headword:

Dishwashing composition/PROCTOR & GAMBLE

Relevant legal provisions:

EPC Art. 54, 56

Keyword:

"Novelty - yes: no evidence of implicit disclosure in the prior art"5

"Inventive step - yes"

Decisions cited:

-

Catchword:

-



Case Number: T 1166/01 - 3.3.6

D E C I S I O N
of the Technical Board of Appeal 3.3.6
of 26 January 2005

Appellant: Henkel KGaA
(Opponent) VTP (Patente)
D-40191 Düsseldorf (DE)

Representative: -

Respondent: THE PROCTER & GAMBLE COMPANY
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
29 August 2001 concerning maintenance of
European patent No. 0741772 in amended form.

Composition of the Board:

Chairman: P. Krasa
Members: P. Ammendola
A. Pignatelli

Summary of Facts and Submissions

I. This appeal is from the interlocutory decision of the Opposition Division concerning the maintenance in amended form of the European patent No. 0 741 772 on the basis of the ten claims of the 1st auxiliary request filed by the Patent proprietor at the oral proceedings of 11 July 2001.

II. Claim 1 of this 1st auxiliary request was identical to claim 1 of the granted patent. It read:

"1. *A high sudsing, spontaneous grease emulsifying light-duty liquid or gel dishwashing detergent composition comprising by weight:*

(a) *from 5% to 70% of detergent surfactant selected from the group consisting of polyhydroxy fatty acid amides; nonionic fatty alkylpolyglycosides; C₈₋₂₂ alkyl sulfates; C₉₋₁₅ alkyl benzene sulfonates, C₈₋₂₂ alkyl ether sulfates; C₈₋₂₂ olefin sulfonates; C₈₋₂₂ paraffin sulfates; C₈₋₂₂ alkyl glyceryl ether sulfonates; fatty acid ester sulfonates; secondary alcohol sulfates; C₁₂₋₁₆ alkyl ethoxy carboxylates; ampholytic detergent surfactants; zwitterionic detergent surfactants; and mixtures thereof; and*

(b) *from 8% to 30% C₁₀ to C₂₂ amine oxide;*

said composition comprising a pH between 6 to 10 and an amine oxide to detergent surfactant ratio from 2:1 to 1:4. "

Claims 2 to 9 defined preferred embodiments of the detergent composition of claim 1 and were respectively identical to the granted claims with the same numbering. Claim 10 was instead an independent use claim and differed from the corresponding granted claim.

III. The Opponent had cited in the grounds of opposition, *inter alia*,

Document (2) = US-A- 5 269 974,

Document (5) = EP-A- 0 095 205,

Document (7) = US-A- 4 144 201

and

Document (8) = US-A- 3 928 249.

During the opposition proceedings the Patent Proprietor had indicated in a letter dated 8 June 2001 (see the first paragraph at page 2) that it had reproduced examples I to IV of Document (7) and example XVI of Document (8) and found out that these compositions displayed pH values above 11.

IV. The Opposition Division considered that the Opponent failed to provide credible evidence that the surprisingly high pH values measured by the Proprietor were incorrect or credible evidence contradicting the statements in the patent in suit as to the improved grease removal performance provided by the patented light-duty dishwashing detergent compositions

(hereafter "LDDCs") containing high level of amine oxide (hereafter "AO"). Therefore, the Opposition Division concluded, *inter alia*, that the compositions disclosed in Documents (7) and (8) would not anticipate the LDDCs defined in claims 1 to 9 of the Patent Proprietor's 1st auxiliary request, and that these LDDCs would also be non obvious for the skilled person starting from the prior art disclosed in Document (8).

V. The Opponent (hereafter Appellant) lodged an appeal against this decision, presenting in the statement setting out the grounds of appeal only arguments in respect of lack of novelty and inventive step. In particular, it stated to have carried experiments reproducing example I of Document (7) and example XVI of Document (8) and found out that the obtained compositions displayed pH values about 9 (see the statement setting out the grounds of appeal page 4, lines 21 to 32).

VI. Under cover of a letter dated 24 December 2004, the Patent Proprietor (hereafter Respondent) filed three sets of amended claims as 1st to 3rd auxiliary requests.

On 26 January 2005, at the oral proceedings before the Board, it finally filed as main request an amended set of nine claims. This set of claims, the only one relevant for this decision, differed from that of the 1st auxiliary request considered in the decision under appeal (see above item II) only in that claim 10 was deleted.

VII. At the oral proceedings before the Board, the Appellant conceded that the generic definitions in the claims of Documents (7) and (8) did not disclose directly and unambiguously the claimed subject-matter but argued finally that the specific compositions of examples I to IV of Document (7) and example XVI of Document (8) - whose contents in AO and detergent surfactant were undisputedly according to present claim 1 - would anticipate the claimed subject-matter. It considered that the compositions of these examples would also necessarily have pH values above 6, in order to avoid protonation of the AO, and below 10, in order to avoid irritating the human skin. This would also be consistent with the fact that Document (8) specifically disclosed compositions with an acidic pH range of between about 4 and 6.5 (column 4, lines 4 to 12) as well as alkaline compositions having a pH of at most 9 (column 6, lines 21 to 24). The Appellant conceded however not to have any evidence that a pH of not more than 10 would be required to render a dishwashing composition mild to the skin.

It argued additionally that, even though the pH values reported in the statement setting out the grounds of appeal had been measured in compositions not exactly identical to example I of Document (7) and example XVI of Document (8), still the minor compositional differences between these experiments and these prior art examples would clearly exercise no influence on the pH.

In respect of inventive step, the Appellant argued that Document (8) disclosed the most relevant prior art and that it was common general knowledge that AO could

provide superior grease removal performance to detergent compositions at the appropriate pH. The existence of this common general knowledge was evident, for instance, from the results of the fat-cleaning tests reported in example I of Document (5), a very old patent document.

On the other hand, it would have been also obvious for the skilled person to combine directly the teachings of Documents (8) and (5), since both citations described detergent compositions based on AO for removing fatty soils.

Therefore, the skilled person would have expected that the dishwashing compositions containing high amounts of AO disclosed in Document (8), such as that of example XVI, could provide improved grease removal performance upon optimisation of their pH, thereby arriving at the presently claimed subject-matter without exercising any inventive activity.

VIII. The Respondent refuted the Appellant's arguments and argued substantially as follows.

Any pH value from 4 to 12 would be possible in dishwashing detergent compositions mild to the human skin, because the mildness to the skin might as well derive e.g. from the presence of certain ingredients (such as the casein present in the compositions of Document (7), see claim 1 of this citation) rather than exclusively from an about neutral or slightly acidic pH.

Example I of Document (7) and example XVI of Document (8) had been exactly repeated by the Respondent, who had found the pH values reported in the letter dated 8 June 2001, thereby credibly demonstrating that in these prior art compositions the pH was well above 10. The contradiction between these pH values and those below 10 observed by the Appellant would clearly indicate that, contrary to the Appellant unsupported allegations, the compositional differences between the Appellant's experiments and the examples of the prior art had exercised an appreciable influence on the pH.

In respect of the inventive step assessment, the Respondent considered the prior art disclosed in Document (2) more relevant than that of Document (8), because the latter citation would be focused on removing milk stains rather than fatty soils.

It stressed that the patent in suit clearly stated (see paragraph 68) that the pursued beneficial combination of properties had been obtained only at "high level" of AO. On the contrary, Document (8) disclosed as equally advantageous (cf. the examples in this citation) the LDDCs with low as well as high AO levels, i.e. the skilled reader of this citation had no reason to focus in particular on the only example in this citation (example XVI) containing the AO and the surfactant in the amounts as required in present claim 1. The Respondent stated also not to be aware of any common general knowledge of the skilled person as to the superior grease removal performance produced by AO in dishwashing. Finally, it maintained that the person skilled in the art of LDDCs would have never taken into consideration Document (5), because this citation

belonged to the completely different technical field of detergents for washing cloths.

- IX. The Appellant has requested that the decision of the first instance be set aside and the patent be revoked.

- X. The Respondent has requested that the patent be maintained on the basis of claims 1 to 9 of the main request filed during the oral proceedings or, alternatively, on the basis of one of the 1st to 3rd auxiliary requests filed under cover of the letter dated 24 December 2004.

Reasons for the Decision

Respondent's main request

- 1. Novelty of the subject-matter of claim 1
 - 1.1 The LDDC of this claim (see above items VI and II) has a pH between 6 to 10 and comprises a specific detergent surfactant and AO in defined amounts (hereafter the amounts of AO and detergent surfactant required in claim 1 are collectively indicated as "high level of AO", consistent with the wording used in the patent in suit, see e.g. paragraph 1).

 - 1.2 The Appellant has finally contested the novelty of the subject-matter of this claim only on the basis of the liquid detergent compositions with high level of AO disclosed in examples I to IV of Document (7) and example XVI of Document (8).

Since the pH of these prior art compositions is undisputedly undisclosed, the Appellant has presented the two following lines of reasoning for maintaining that also their pH is as defined in present claim 1.

- (a) Dishwashing compositions mild to the skin would necessarily have a pH neutral or slightly acidic, so as to approach the pH of the human skin (which is undisputedly slightly acidic). In particular, no dishwashing compositions would be expected to have a pH higher than 10, because strongly basic pH would be clearly too aggressive to the skin. On the other side, when AO is used as "nonionic" surfactant the pH of the detergent composition containing it must necessarily be at least 6, because AO is notoriously protonated at pH lower than 6. Therefore, the fact that the compositions disclosed in Documents (7) and (8) are mild to the skin and "contain" the AO "nonionic" surfactant would also imply that they must necessarily have a pH between 6 and 10.

- (b) Independently on the validity of the above reasoning, the pH values about 9 reported in the statement setting out the grounds of appeal have been measured in experiments aiming at reproducing example I of Document (7) and example XVI of Document (8). Even though these experiments were admittedly different from these prior art examples, the skilled person would immediately recognise that the compositional differences could not influence the pH. Therefore, already these pH data *per se* would credibly demonstrate that the compositions

exemplified in Documents (7) and (8) display a pH between 6 to 10.

- 1.2.1 The Board observes, however, that the Respondent has contested the Appellant's argument that dishwashing compositions mild to the skin must necessarily have a pH lower than 10 (the Respondent has maintained that this pH may vary between 4 and 12) and that the Appellant has conceded not to have supporting evidence. Therefore, this argument in the line of reasoning (a) amounts to an unproven allegation and is disregarded.

The Board notes also that the second argument in the line of reasoning (a) is based on the unjustified assumption that when a detergent composition is defined in a patent document by indicating that it "*contains*" a "*nonionic*" surfactant ingredient, then this definition would necessarily imply that this ingredient must necessarily be present in the composition in its original nonionic form. On the contrary, the Board observes that in the conventional patent language the wordings "*contains A and B*" (or "*comprises A and B*") is very often used to indicate that a chemical compositions "*is prepared from A and B*". This is clearly confirmed in the present case by the fact that Document (8) itself explicitly indicates (cf. in Document (8) the definition of component "C" in claim 1 with column 4, line 12) that the pH may go as low as 4 in a composition that "*contains*" the AO "*nonionic*" surfactant, i.e. despite the fact that AO would be certainly protonated at any pH lower than 6. Hence, the simple fact that liquid detergent compositions are defined in the cited patent documents (7) and (8) as "*containing*" the AO "*nonionic*" surfactant does not

necessarily imply that the pH of these composition must be higher than 6.

- 1.2.2 In respect of the line of reasoning (b), the Board is confronted with the contradiction between the pH values of about 9 measured by the Appellant in experiments wherein some of the ingredients described in example 1 of Document (7) and example XVI of Document (8) have been replaced by similar ones, and the different (higher) pH values reported by the Respondent from experiments in which these examples have been exactly repeated.

The Board notes that both parties have provided very generic information as to how their experiments have actually been carried out. Thus, no further difference among these experiments (in addition to the different ingredients) is apparent from the parties' submissions. In addition, the Respondent has disputed the Appellant's statement as to the fact that the compositional differences between these experiments and the prior art examples would not influence the measured pH value, and the Appellant has provided no evidence supporting such statement.

Under these circumstances, the Board concludes that the different results can only be reasonably attributed to the different ingredients. Therefore, the experiments carried by the Appellants are found unsuitable for providing reliable information as to the pH of the different compositions described in example I of Document (7) and example XVI of Document (8).

1.2.3 Hence, none of the two lines of reasoning presented by the Appellant (see above item 1.2) convincingly demonstrates that the dishwashing detergent compositions with high level of AO disclosed in the cited examples of Documents (7) or (8) also have a pH between 6 to 10.

1.3 Therefore, the Board concludes that the subject-matter of claim 1 of the main request is novel and, thus, complies with the requirements of Article 54 EPC.

2. *Inventive step for the subject-matter of claim 1*

2.1 It is undisputed by the parties that the technical problem addressed in the patent in suit is defined in paragraph 8, as that of providing LDDCs with an *"increase in grease removal performance"* combined with *"reasonably high sudsing"*.

2.2 The Board notes that, as correctly observed by the Appellant too, Document (8) mentions both aspects of this problem (see in this citation column 2, lines 45 to 56 *"...the effectiveness of dishwashing compositions could be surprisingly improved...having same or superior sudsing capacity when compared to known liquid dishwashing compositions, but also superior cleaning performances."* and column 3, lines 21 to 26 *"The cleaning performance of the compositions of the present invention can...be adapted so that the detergent composition can be optimally used under specific circumstances, e.g. washing of tableware heavily soiled with fats,..."*).

Document (8) discloses in general (e.g. in claim 1 and column 1, lines 51 to 35) LDDCs based on AO and further surfactants, and specifically in example XVI a LDDC with the high level of AO required in present claim 1.

Therefore, the claimed compositions differ from those disclosed in Document (8) in that the pH of the former ones must be in the range of "*between 6 to 10*".

2.2.1 The Board notes that the prior art compositions disclosed in Document (2) (which addresses the same technical problem as the patent in suit and Document (8)) are less similar to the compositions of the present invention, because Document (2) discloses explicitly only compositions with low amount of AO (see Document (2), claims 1 and 15 and the Table in example III).

2.2.2 Therefore, the Board has no reason to deviate from the finding of the Opposition Division that the LDDCs disclosed in Document (8) represent the most reasonable starting point for the assessment of inventive step according to the problem and solution approach.

2.3 The Appellant has not contested the statements in the description of the patent in suit as to the fact that the high level of AO actually produces in the LDDC of the invention improved grease removal performance (see e.g. paragraph 68 of the patent in suit).

Therefore, the Board has no reason to doubt that the level of grease removal performance achieved by claimed LDDCs is also higher than that produced by the liquid dishwashing compositions disclosed in Document (8).

In respect of the sudsing properties, the Board finds instead that the "*reasonably high sudsing*" displayed by the LDDCs of the present invention can only be substantially comparable to the "*same or superior sudsing capacity when compared to known liquid dishwashing compositions*" disclosed in Document (8) for the liquid dishwashing compositions of this prior art (cf. the wordings of the patent in suit and of this citation quoted above at items 2.1 and 2.2).

- 2.4 Accordingly, the technical problem credibly solved by the present invention vis-à-vis the most relevant prior art is that of **providing LDDCs with improved grease removal performance and comparable sudsing.**

Since example XVI of Document (8) is the only LDDC containing high level of AO disclosed in this citation, the question relevant for the assessment of inventive step boils down in the present case to establishing whether or not the person skilled in the art would have considered obvious to solve this problem by setting at between 6 and 10 the pH of the composition of this prior art example.

- 2.5 The Appellant has argued that the skilled person would have been aware of the common general knowledge as to the superior grease removal performance at a certain pH of AO-based detergent composition. Thus, the skilled person would have expected that in particular the composition containing high amounts of AO disclosed in Document (8) could also provide improved fatty soil removal upon optimisation of pH. This common general knowledge would be evident e.g. from the comparison of

the cleaning results reported in example I of Document (5).

- 2.5.1 The Board notes that the Respondent has contested the existence of the common general knowledge alleged by the Appellant, and that the latter has referred to example I of Document (5) as the only supporting evidence.

The Board stresses that common general knowledge is normally that contained in basic handbooks and textbooks on the subject in question, rather than e.g. the information derivable from the specific disclosure of one or few patent documents which, in the absence of particular circumstances, can serve as evidence only for the opinion or knowledge of the respective authors. Therefore, the reference to only one specific example of Document (5) is found insufficient to render credible the existence of the common general knowledge alleged by the Appellant.

- 2.5.2 On the other hand, the information derivable from example I of Document (5) does not refer to dishwashing, but exclusively to the use of heavy duty detergent compositions for washing clothes.

Due to the substantial differences in the kind of interaction binding fatty soils onto fabrics and those binding them to the surface of dishes, glasses, pots or cutlery, the Board finds that the skilled person searching for a solution to the existing technical problem of washing tableware soiled with grease or oil, would have no apparent reason to consider relevant the information contained in Document (5) (or any other

disclosure in the technical field of detergents for washing fabrics) as to how to remove fatty soils from fabrics.

2.5.3 Therefore, the Board does not find convincing the Appellant's arguments based on Document (5) because this citation does not represent credible evidence of the common general knowledge alleged by the Appellant and the specific technical teaching contained therein does not refer to dishwashing.

2.6 Thus, the Board concludes that the skilled person searching for a solution to the existing technical problem (see above item 2.4) had no reason for expecting that this could be found by selecting within the satisfactorily sudsing LDDC disclosed in Document (8) the only composition with high level of AO and by setting the pH thereof in the range between 6 to 10.

Accordingly, the Board finds that the subject-matter of claim 1 of the present request is based on an inventive step and, hence, complies with the requirements of Article 56 EPC.

3. *Novelty and inventive step for the subject-matter of claims 2 to 9*

These claims refer to preferred embodiments of the LDDC of claim 1 on which they depend and, thus, the Board finds that their subject-matter is novel and based on an inventive step for the same reasons indicated above.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to maintain the patent on the basis of claims 1 to 9 according to the main request as submitted during the oral proceedings and a description to be adapted as necessary.

The Registrar:

The Chairman:

G. Rauh

P. Krasa