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File Number: T 430/89 - 3.3.1  
Application No.: 83 201 434.4  
Publication No.: 0 106 407  
Title of invention: Brightener for detergents containing nonionic and cationic surfactants  
Classification: C11D 3/42

D E C I S I O N  
of 17 July 1991

Proprietor of the patent: The Procter & Gamble Company  
Opponent: Henkel Kommanditgesellschaft auf Aktien

Headword: Brightener/PROCTER  
EPC Articles 56, 114(2)  
Keyword: "Inventive step (confirmed)" - "late filed document (disregarded)"  
- "construction of a technical term"

Headnote



Case Number : T 430/89 - 3.3.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.1  
of 17 July 1991

**Appellant :**  
(Opponent)

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

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**Representative :**

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**Decision under appeal :**

Decision of Opposition Division of the European  
Patent Office of 18 April 1989, posted on  
13 June 1989 rejecting the opposition filed  
against European patent No. 0 106 407 pursuant to  
Article 102(2) EPC.

**Composition of the Board :**

**Chairman :** K.J.A. Jahn  
**Members :** P. Krasa  
G. Davies

Summary of Facts and Submissions

I. European patent No. 106 407 was granted in respect of European patent application No. 83 201 434.4 with four claims; Claim 1 being the only independent claim. Claims 1 and 4 read as follows:

"1. A laundry detergent composition comprising:

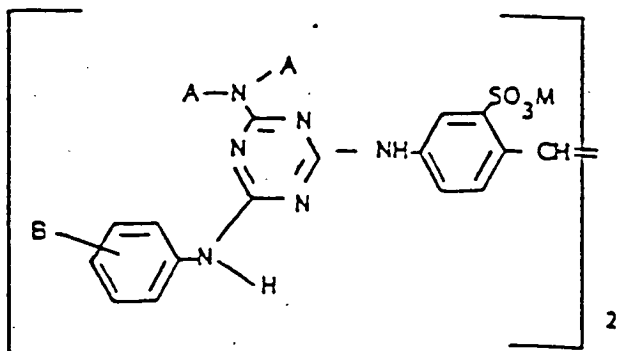
(a) from 5% to 95% by weight of a surfactant mixture consisting essentially of:

(i) an ethoxylated alcohol or ethoxylated alkyl phenol nonionic surfactant of the formula  $R(OC_2H_4)_nOH$ , wherein R is an aliphatic hydrocarbon radical containing from 10 to 18 carbon atoms or an alkyl phenyl radical in which the alkyl group contains from 8 to 15 carbon atoms, and n is from 2 to 9, said nonionic surfactant having an HLB of from 5 to 14; and

(ii) a quaternary ammonium cationic surfactant of the di-long chain type, having 2 chains which each contain an average of from 12 to 22 carbon atoms; and

the weight ratio of said nonionic surfactant to said cationic surfactant being from 2:1 to 40:1; and

(b) from 0.01% to 3% by weight of an anionic brightener of the formula



wherein each A is hydrogen, methyl, ethyl, isopropyl, 2-hydroxyethyl, 2-hydroxypropyl, or propanamido, or taken together are morpholino or anilino; and each B is hydrogen or  $-SO_3M$ , wherein M is a compatible cation and the total number of  $-SO_3M$  groups in the molecule is from 3 to 6 with no more than 2  $-SO_3M$  groups per anilino group; characterised in, that the equivalent weight ratio of said cationic surfactant to said brightener is greater than 3.

4. The composition of Claim 3, additionally comprising an alkylpolysaccharide surfactant of the formula  $R^2O(C_nH_{2n}O)_t(\text{glycosyl})_x$ , wherein  $R^2$  is selected from the group consisting of alkyl, alkylphenyl, hydroxyalkyl, hydroxyalkylphenyl, and mixtures thereof, in which said alkyl groups contain from about 10 to about 18 carbon atoms, n is 2 or 3, t is from 0 to about 10, the glycosyl moiety is derived from glucose, and x is from about 1 1/2 to about 3."

II. A notice of opposition was duly filed by Henkel KGaA within the prescribed period (Article 99).

The grounds of opposition were that all the claims lacked inventive step.

Of the six documents which were relied on in support of the opposition, the Appellant relied only on

- (2) Soap and Chemical Specialities, May 1965, pages 85 to 88, and
- (3) EP-A-0 021 752

in support of their case on appeal.

After expiry of the opposition period the Appellant referred also to

(3a) EP-B-0 021 752.

III. By a decision of 18 April 1989, with written reasons posted on 13 June 1989, the Opposition Division rejected the opposition.

IV. In its decision, the Opposition Division held that the subject-matter of Claim 1 as granted was novel and also involved an inventive step. Document (3) was deemed to represent the closest state of the art.

The technical problem to be solved by the subject-matter claimed was defined as providing alternative laundry detergent compositions which give acceptable fabric softening and whitening without causing discolouration.

The disclosure of (3) was said to amount to a technical prejudice against compositions as presently claimed which, therefore, would not have been obvious to a skilled person.

Document (2) was said to be less relevant as it related to fabric softening compositions to be added during the rinse cycle.

V. An appeal was lodged against this decision on 12 July 1989 and the prescribed fee was paid on the same day. A Statement of Grounds of Appeal was filed on 11 October 1989.

The Appellant's arguments submitted in writing and orally may be summarised as follows:

Citation (3) relates to liquid laundry detergent compositions which correspond completely to the compositions of Claims 1 to 3 as granted as far as the nature of their components is concerned. The ratio of nonionic to cationic detergents corresponds to that of the patent in suit. The only difference between a composition disclosed in (3) as compared with a composition of Claim 1 claimed is the somewhat higher amount of optical brightener in the compositions according to (3).

If, however, already such higher amounts of brightener disclosed in (3) did not lead to fabric yellowing then it was not surprising that this undesired effect did not appear with lower amounts of brightener.

The Appellant stated for the first time in the oral proceedings that they doubted whether they understood properly the term "equivalent weight ratio"; they alleged that none of the examples given in the disputed patent fell within the scope of the claims in view of the definition given for the equivalent weight. Thus, according to them, no beneficial properties could be deduced from these examples for the claimed compositions.

The Appellant cited a new document

(7) EP-A-26 013

in the course of oral proceedings before the Board.

The Appellant (Opponent) requested that the impugned decision be set aside and that the disputed patent be revoked.

VI. The Respondent (Patentee) requested that the patent be maintained on the basis of Claims 1 to 3 filed in the

course of oral proceedings. Claim 1 differs from that claim as granted by the incorporation of Claim 4 as granted. This is achieved by adding at the end of Claim 1 the words "and the composition additionally comprises" followed by the part of Claim 4 as granted starting with "an alkylpolysaccharide". Furthermore, the total number of  $-SO_3M$  groups in the brightener are now defined to be 3 or 4. Claims 2 and 3 remain unchanged.

The Respondent contested that the examples of the patent in suit are not covered by the claims. They emphasised that the amounts of the components actually used cannot be neglected when the disclosure of both the citation (3) and the patent in suit is considered.

According to the Respondent there is nothing in (3) which would have induced the skilled person to use the cationic surfactant and the brightener in such amounts as claimed. Furthermore, the Respondent was of the opinion that the skilled person would have disregarded citation (7) as it was known from (3) that disulfonates are not proper optical brighteners.

VII. Oral proceedings took place on 17 July 1991 at the end of which the Board's decision to maintain the patent in the requested form was announced.

#### Reasons for the Decision

1. The appeal is admissible.
2. There are no formal objections under Article 123 EPC to the claims in accordance with the Appellant's request. Support for the restriction of the total number of  $-SO_3M$

groups can be found on page 5, line 28 of the patent in suit (corresponding to page 9, last paragraph of the application documents as originally filed); the passage from Claim 4 as granted now incorporated into Claim 1 is supported by Claim 10 as originally filed.

3. The patent in suit relates to laundry detergent compositions comprising particular nonionic, cationic surfactants, alkylpolysaccharide surfactants and an anionic brightener as specified.

Prior art laundry detergent compositions comprising anionic brighteners were considered to have the disadvantages that their usage over time tends to discolour fabrics, generally with a greenish/yellow tinge (see the patent in suit, page 2, lines 28 and 29).

Document (3), which represents the closest state of the art, is concerned with the problem to provide stable, single phase liquid laundering compositions with balanced cleansing, softening and brightening performance and, inter alia, a capacity to resist yellowing of fabrics (page 3, lines 18 to 30). It suggests compositions with certain ratios of cationic surfactant to brightener (Claim 1, as well as e.g. page 5, lines 23, 24). The components of these compositions do not differ chemically in a significant way from those of the present compositions apart from the fact that the latter necessarily comprises an alkylpolysaccharide surfactant.

- 3.1 In the light of this closest prior art, the technical problem underlying the patent in suit is to be seen in providing further alternative compositions which overcome the above-mentioned disadvantages.



According to the disputed patent, this technical problem is solved by providing laundry detergent compositions comprising nonionic surfactants, quaternary ammonium cationic surfactants and anionic brighteners together with particular alkylpolysaccharide surfactants whereby the equivalent ratio of said cationic surfactant to said brightener in terms of equivalents is greater than 3.

The Board is satisfied that this technical problem is effectively solved (cf. page 2, lines 33 to 36 and page 7, lines 22 to 27 of the disputed patent). No counter-evidence in this respect was submitted by the Appellant who, however, alleged for the first time at the oral proceedings before the Board that examples A through F (page 7) do not fall within the scope of Claim 1 as granted and, thus, could not support a beneficial effect for the subject-matter claimed. This was contested by the Respondent who maintained that these examples were covered by Claim 1 as granted.

- 3.2 The Appellant's allegation was connected with an objection to the term "equivalent weight ratio", an issue also raised for the first time at the oral proceedings. The Appellant submitted that this term was ambiguous and could have two possible meanings: Differing from the prior proceedings it could also be understood as not referring to amounts of the respective components but to their equivalent weights as such. The Respondent emphasised that in any case the expression was used in exactly the same way as in citation (3).

A skilled person has to establish how to construe a claim properly if he realises that on a literal reading of the claim the examples of the patent (here A to F) would not fall within the terms of the claim. Such construction has to be done in the light of the description. In the present

case, the skilled person, noting that all the examples (examples A to F) would not fall within the terms of Claim 1 if the expression equivalent weight ratio was used according to its scientific definition, would have understood immediately that such a discrepancy could be resolved without difficulty if such ratio were to be construed as relating rather to the equivalents than to the equivalent weights of the components concerned. He would have found confirmation for such interpretation by referring to the use of this term in the state of the art:

Citation (3) discloses on page 5, lines 24 to 27: "it has been found that both brightening and, unexpectedly, softening are enhanced, when an equivalent weight or greater of brightener is employed as compared to softener". This sentence as such makes it already clear that in document (3) "equivalent weight" is used as a synonym for "equivalent" as soon as the amounts of the respective ingredients are concerned. Further confirmation for such a construction can be taken e.g. from page 12, lines 4 to 5: "... the equivalent weight ratio of quat softener to brightener is about 1 eq./1 eq." Thus, in the Board's judgment the skilled person would have seen that in this particular field of the art the term "equivalent weight ratio" means a particular weight ratio so that the respective equivalent ratio takes a desired value. The Appellant conceded in the oral proceedings that according to this interpretation of the term in question all the examples of citation (3) fell within the terms of the claims thereof.

In the present case, the Board cannot overlook either that the Appellant had no problem in construing the term "equivalent weight ratio" in a technically sensible way throughout the opposition proceedings. Even in the grounds

of appeal, he did not contest the Opposition Division's view that the ratio given in Claim 1 refers to amounts of the respective components (see the impugned decision page 4, last sentence of the first paragraph); on the contrary, he confirmed this opinion himself when linking the figures given for the equivalent weight ratio to the amounts of the respective components (see reasons for the appeal, dated 9 October 1989 page 2, first paragraph).

- 3.3 Hence, in the Board's judgment the Appellant's arguments regarding examples A to F and the ambiguity of the term "equivalent weight ratio" are unfounded.
4. After examination of the cited prior art, the Board has reached the conclusion that the claimed subject-matter is novel. Since novelty of the present claims was not disputed, it is not necessary to give detailed reasons for this finding.
5. It still remains to be decided whether the subject-matter of the disputed patent involves an inventive step.
- 5.1 Document (3) gives a clear warning to use cationic surfactant (= softener) and brightener in an equivalent ratio of above 1:1, as softener levels above this ratio reduce brightening and enhance undesired yellowing (see (3), page 12, lines 5 and 6). Furthermore, it is disclosed on page 14, lines 23 to 28 of document (3) that brightener levels have to be adjusted sympathetically as softener levels are changed to avoid yellowing, loss of rewettability and brightener greening of the fabric thereby confirming that the ratio of softeners:brighteners was deemed to be crucial. This is in line with the statement in (3) that the ratios of surfactant to brightener are an "important feature of the invention" (see page 5, lines 18 to 27).

As the subject-matter of present Claim 1 is contrary to the teaching of (3), it cannot have been obvious over this citation.

This finding cannot be changed by the Appellant's argument that (3a), which is not prepublished, no longer contains such ratio. The Appellant referred to a letter of 16 June 1982 to the European Patent Office, written in the course of the respective examination proceedings. In this letter, the suggestion was made to delete such ratios. It was also expressly stated that this suggestion was not a formal reply to a prior communication in which the examiner had asserted that a composition with an equivalent weight ratio of 4:1 (softener:brightener) was disclosed on page 12, line 5 of (3). The Examining Division's objection raised in the said communication was based on an incorrect interpretation of the disclosure of document (3) as may be seen from No. 3.2 above. This is due to the fact that the Examining Division executed non-reproducible calculations on the basis of figures given in (3) and that it drew conclusions which were contrary to the disclosure of this document (see description and examples). In the Board's judgment, and under the prevailing circumstances, the said letter of 16 June 1982 cannot be equated with a disclosure which would have induced a skilled person to neglect the clear warning given in document (3) regarding the equivalent ratios of softener and brightener.

- 5.2 Document (2) is concerned with fabric softening compositions comprising softeners and anionic brighteners. One of the suggested brighteners falls within the scope of present Claim 1 (page 86, formula V). These compositions are to be used in the rinse cycle (see (2), the chapter "Effectiveness", starting in the right hand column of

page 87). Thus, the conditions which apply for the interaction of cationic detergent (= softener) and anionic brightener with the fabric differ from those prevailing in a wash cycle according to the patent in suit (see (2), table 1 on page 86). Hence, the Board finds that document (2) would not have induced the skilled person to disregard the warning set forth in (3).

- 5.3 Document (7) was not cited by the Appellant prior to the oral proceedings before the Board. Thus, it is a late filed document.

The Boards of Appeal have repeatedly stated that opposition proceedings as well as appeal proceedings should be speedily concluded and that this requires the parties to present their case as early and in as complete a manner as possible (e.g. T 326/87 of 28 August 1990, point 2.1.1 and 2.1.2, to be published; T 117/86, point 4, OJ EPO 1989, 401, 405; T 137/90 of 26 April 1991). This Board has expressed the view already that, in particular, attempts by either party to take the other by surprise by deliberate late-filing as well as by inadvertent omission to present arguments and evidence in due time are contrary to the public interest, unfair to the other party and against the spirit of the EPC (T 496/89 of 21 February 1991, point 2).

The only explanation given by the Appellant for the late submission of arguments and also of document (7) was the fact that the Appellant's representative took over the case only recently. This obviously cannot be accepted by the Board as a justification for tardiness. However, while exercising its judicial discretion under Article 114(2) the Board deems it appropriate in the present case to give brief reasons why it has disregarded this citation:

It relates to laundry detergent compositions comprising optical brighteners with only two sulfonate groups. Such optical brighteners are known to form unstable products with poor brightening properties in combination with laundry detergents and cationic softeners (see (3), page 2, lines 17 to 20). Therefore, this document is not more relevant than those already in the proceedings and may be disregarded by the Board in accordance with Article 114(2).

- 5.4 Thus, the subject-matter of Claim 1 is not obvious over the cited prior art. Dependent Claims 2 and 3 relate to particular embodiments of the subject-matter of Claim 1; they too are allowable.

**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 a patent on the basis of Claims 1 to 3, submitted during oral proceedings.

**The Registrar:**

  
E. Gorgmaier

**The Chairman:**

  
K. Jahn