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**D E C I S I O N**  
of 18 January 1996

**Case Number:** T 0492/92 - 3.3.1

**Application Number:** 85108260.2

**Publication Number:** 0170091

**IPC:** C11D 17/00

**Language of the proceedings:** EN

**Title of invention:**  
Liquid detergent compositions

**Patentee:**  
Albright & Wilson Limited

**Opponent:**  
Henkel Kommanditgesellschaft auf Aktien  
Colgate-Palmolive Company  
PROCTER & GAMBEL E.T.C.  
RHONE-POULENC CHEMIE  
Unilever N.V.

**Headword:**  
Liquid detergent compositions/ALBRIGHT & WILSON

**Relevant legal provisions:**  
EPC Art. 56, 83, 123(2)

**Keyword:**  
"Amendment allowable - implicit disclosure of a limiting functional feature"  
"Sufficiency acknowledged - no necessity to specify one of the several available analytical methods"  
"Inventive step (yes) - non-obvious improvement"

**Decisions cited:**  
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**Catchword:**  
-



Case Number: T 0492/92 - 3.3.1

**D E C I S I O N**  
**of the Technical Board of Appeal 3.3.1**  
**of 18 January 1996**

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

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**Respondent I:**  
(Opponent 01)

Henkel  
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**Representative:**

-

**Respondent II:**  
(Opponent 02)

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**Representative:**

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**Respondent III:**  
(Opponent 03)

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**Representative:**

**Decision under appeal:**

Decision of the Opposition Division of the  
European Patent Office posted on 21 April 1992  
revoking European patent No. 0 170 091 pursuant to  
Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** A. J. Nuss  
**Members:** P. Krasa  
W. Moser

## Summary of Facts and Submissions

- I. European patent No. 0 170 091 relating to liquid detergent compositions and based on the application 85 108 260.2, filed as a divisional application of the prior application 83 300 605.9, was granted on the basis of 57 claims, claim 1 of which read:

"A fluid, aqueous based detergent composition comprising: a surfactant; a Builder, at least a proportion of said Builder being present as solid particles suspended in the composition; and a dissolved surfactant-desolubilising Electrolyte, said Electrolyte not comprising sodium sulphate in quantities in excess of its solubility in the composition at normal temperatures, but including any dissolved portion of the surfactant desolubilising Builder; and which is separable by Centrifuging at 800 times normal earth gravity for 17 hours at 25°C into at least two layers at least one layer of which layers is an aqueous layer; characterised in that: said aqueous layer contains sufficient of said Electrolyte dissolved therein to contribute from 2 to 4.5 gram ions of alkali metal ion per litre to said aqueous layer; and the Payload of said composition is above the minimum at which the composition is Non-sedimenting and below the maximum at which the composition is Pourable."

- II. Five notices of opposition were filed against the European patent, raising objections under Article 100(a), (b), and (c) EPC, citing a number of documents in support, of which finally only the following documents remained important:

- (114) US-A-4 018 720,
- (201) GB-A-2 028 365, and
- (303) FR-A-2 405 990.

III. By a decision delivered orally on 11 March 1992, with written reasons posted on 21 April 1992, the Opposition Division revoked the patent in suit. In its decision, the Opposition Division found in essence that

- the technical problem in relation to document (201) and underlying the subject-matter of claim 1 of the patent in suit was to produce stable liquid detergents having a higher payload of functional ingredients than that of example 1 of the said citation;
- the claimed solution of this problem, consisting in using sufficient dissolved electrolyte to give a concentration of 2 to 4.5 gram ions of alkali metal ion per litre in the separated aqueous phase, was obvious, since a skilled person would have combined the general teaching of document (201) with that of its example 1.

IV. An appeal was lodged against this decision.

V. The Appellant (proprietor of the patent) submitted in essence that

- the disclaimer relating to the amounts of sodium sulphate present in the claimed compositions was well supported by the application documents as originally filed;
- analytical methods were available to a skilled person for measuring the dissolved electrolyte contents of the claimed compositions;

- although the composition of the example 1 of document (201) was stable, most attempts to modify it according to the teaching in the citation failed;
- an unexpected technical effect, i.e. an increased stability under shear stress, was established for the compositions of the patent in suit, as compared to the composition of example 1 of document (201);
- document (303) related to abrasive scouring creams and, therefore, was no appropriate starting point for a skilled person seeking to develop a laundry detergent.

In support of the above submissions, the Appellant relied on an affidavit of Mr Brian Akred dated 11 February 1993 (received by the EPO on 18 February 1993; hereinafter 'AKRED').

VI. The Respondent III (Opponent 03) submitted that

- the disclaimer to the presence of sodium sulphate in excess to its solubility contravened Article 123(2) EPC;
- the patent in suit did not disclose how to measure the quantity of dissolved electrolyte which made it impossible for the skilled person to reproduce the claimed invention;
- it was obvious to replace the abrasive in the compositions known from document (303) by an insoluble builder.

No submissions were filed by the Respondents I and II.

VII. The Board, in the annex to the summons to attend oral proceedings, indicated inter alia that

- the subject matter of several claims as granted could be seen as extending beyond the scope of the application as filed or of the earlier application (European patent application 83 300 605.9);
- the relevance of citation (114) regarding novelty would have to be discussed.

Oral proceedings took place on 18 January 1996. The Respondents, although duly summoned, did not attend.

VIII. The Appellant, in a letter dated 5 December 1995

- received by the EPO on 9 December 1995 - submitted two sets of claims and correspondingly amended pages of the specification (main submission and alternative submission). He maintained in particular that

- these claims complied with the requirements of Articles 76(1) and 123 EPC;
- in view of the amendments, document (114) was no longer relevant.

IX. The requests of the parties to the appeal were as follows:

The Appellant requested that the impugned decision be set aside and that the patent in suit be maintained either with claims 1 to 55 submitted during oral proceedings and a description to be adapted (main request) or, alternatively, with claims 1 to 50, submitted on 9 December 1995 and a description to be adapted (auxiliary request).

Respondent III requested that the appeal be dismissed. Respondents I and II did not file any requests.

- X. At the end of the oral proceedings, the Chairman announced the Board's decision to allow the Appellant's main request.

### Reasons for the Decision

1. The appeal is admissible.

#### *Main Request*

2. *Amendments*

2.1 The amended claim 1 differs from claim 1 as granted in that the limiting functional feature relating to the sodium sulphate content (designated as the "disclaimer" in the prior proceedings) is shifted to its introductory part, whereby not only compositions comprising supersaturated solutions in respect to sodium sulphate, but also compositions which would contain sodium sulphate in quantities exceeding its solubility in the respective composition at normal temperature are excluded from the scope of the claim.

2.2 There is agreement between the parties that this limiting functional feature in claim 1 as granted, which had been introduced in the course of the examining procedure into claim 1 as filed, **had not been disclosed explicitly** in the application documents as originally filed.



2.2.1 However, in the original description which relates to "aqueous based, pourable, fluid detergent compositions" (cf. page 1, lines 2 and 3), it is stated on page 5, lines 22 to 29 under the heading "technical background" that such liquid laundry detergents "... should in theory be cheaper than powder detergents since they would avoid the need to dry and would in many instances **replace the sulphate filler** conventionally used in powder detergents with water" (emphasis added). Since it has never been contested that for the notional skilled person the solid sulphate filler then used in conventional powder detergents was sodium sulphate, the skilled person had to conclude from this passage that the liquid detergent compositions in the case in point should have the advantage of no longer containing **solid** sodium sulphate.

2.2.2 An inspection of further parts of the specification as originally filed would have confirmed this conclusion: alkali metal sulphates are not mentioned as possible builders; builders are, contrary to the electrolytes, present in the claimed compositions, at least partially, as solids (see page 25, lines 14 to 16, in combination with page 1, lines 15 to 23, corresponding to page 25, lines 9 to 11, in combination with page 1, lines 14 to 23 of the prior application as originally filed).

2.2.3 Thus, in the Board's judgement, the application as originally filed discloses that sodium sulphate, if present at all, should only be present in the compositions under consideration in minute amounts which completely dissolve therein and exert on the surfactant the desired "salting out" effect as an electrolyte. Furthermore, it is clear to a skilled person that this requirement must apply at the temperatures of normal storage and use of the claimed compositions. Therefore, the limiting functional feature in the amended claim 1

that sodium sulphate must not be present "in quantities in excess of its solubility in the composition at normal temperatures" is supported by the application as filed.

2.3 It follows that the subject-matter of the claims and of the description of the patent in suit as amended does not extend beyond the content of the application as filed or beyond the content of the earlier application as filed (Art. 123(2) and 76(1), second sentence, EPC) and that the said amendment also does not lead to an extension of the protection conferred in comparison to the claims as granted (Art. 123(3) EPC).

3. *Sufficiency of disclosure*

3.1 The objection of Respondent III as to the sufficiency of disclosure is based on the uncontested fact that the patent in suit does not disclose a method for measuring the quantity of dissolved electrolyte. In particular, the Respondent III pointed out in this context that the Appellant himself proposed in written submissions two different analytical methods giving significantly different results with one and the same composition. He concluded that, therefore, the notional skilled person could not reproduce the claimed invention.

3.2 The Board cannot accept this argument. As the Appellant credibly submitted in the course of the oral proceedings, a number of standard analytical methods of differing accuracy existed at the priority date of which the notional skilled person could avail himself according to his needs for establishing the electrolyte contents as claimed. This was confirmed by the Respondent III when he stated

"The fact is, and patentee himself has demonstrated that, there are different possible methods which give different, conflicting results"

(first complete sentence on page 2 of the submission dated 5 January 1993, received by the EPO on 6 January 1993).

3.3 It is obvious that a skilled person will select a particular analytical method balancing its simplicity and convenience against the required accuracy. Therefore, if the two methods suggested by the Appellant gave non-identical results (called "conflicting" results by the Respondent III), these differences are inherent to the two particular analytical methods, which were both chosen for being quick, convenient and, nevertheless, sufficiently accurate for their purpose. Therefore, the fact that the two methods selected by the Appellant do not necessarily lead to identical results when measuring the electrolyte contents of the same compositions according to the patent in suit is no sufficient evidence that a skilled person could not determine the electrolyte contents of the claimed compositions with the required accuracy. Such situations are not unusual in technical practice where it may happen sometimes that a quick method is sufficiently accurate, and therefore preferred, to a more accurate, but more cumbersome one. It is however clear that if the skilled person is interested in the best possible accuracy of the results, he will know which method to choose. As long as appropriate analytical methods are available to those skilled in the art, it is within their ordinary skill to select the appropriate one to meet their needs.

3.4 It follows that the patent in suit meets the requirements of Article 83 EPC.

4. *Novelty*

After examination of the cited prior art, the Board arrives at the conclusion that the subject-matter of the claims as amended is novel. Since this was not disputed in the appeal proceedings, it is not necessary to comment on this finding in detail.

5. *Inventive step*

5.1 The technical problem

The patent in suit relates to a liquid, aqueous detergent composition as defined in claim 1.

According to a statement in the patent in suit, the technical problem to be solved is to provide fluid, aqueous based detergent compositions having, inter alia, a higher payload and an improved stability as compared with compositions of the state of the art (cf. page 4, line 21, in combination with lines 26 to 27).

5.2 Similar compositions are known from document (201).

This citation discloses pourable, heavy-duty, built liquid aqueous detergent compositions comprising a water soluble anionic detergent, an optical brightener or soluble dye, and one or more conventional detergent builders (claim 1). In addition, alkaline substances, eg sodium carbonate, may be present in amounts of usually up to 5% by weight (cf. page 2, lines 4 to 6). A specific detergent composition comprising 2.5% by weight of sodium carbonate is disclosed in example 1 of document (201), which differs from example 2 only in the nature of the optical brightener used.

5.2.1 The Board accepts - as the Opposition Division did - document (201) as representing the most relevant state of the art and takes this citation as the starting point for evaluating inventive step. The compositions disclosed there (see point 5.2 above) are described as being stable and, therefore, as being able to overcome the drawbacks of conventional, built liquid detergent compositions, which suffer from discoloration, gelling or separation on standing (cf. page 1, lines 7 to 14). The improved stability of the compositions of document (201) is ascribed to the specific selection of their components and, in particular, to the presence of specific optical brighteners (cf. page 1, lines 10 to 12, in combination with lines 38 to 49). The compositions according to the examples 1 and 2 of citation (201) have payloads of more than 30% by weight. This is in the same order of magnitude as the payloads disclosed in the patent in suit (see for example page 12, lines 51 to 58). Thus, the Board cannot accept that an increase in the payload of the claimed compositions as compared with those known from document (201) was achieved. Consequently, the feature "higher payload" has to be disregarded when formulating the technical problem with a view to deciding on inventive step.

5.2.2 According to the Appellant's submission, which was no longer contested by the other parties and which was supported by experimental work, the compositions according to claim 1 of the patent in suit show an improved stability when subjected to shear stress as compared with the compositions disclosed in document (201) (see e.g. AKRED, points 6 and 8).

Thus, having regard to document (201), the technical problem actually solved by the invention of the patent in suit can be seen in providing liquid, heavy duty

detergent compositions with improved shear stability while maintaining a comparably high payload.

5.2.3 Document (201) does not deal with shear stability of liquid detergent compositions at all and, for that reason, cannot give any hint to the solution of the existing technical problem as claimed in claim 1. Moreover, as far as the improvement in storage stability is concerned, this is credited to the selection of particular optical brighteners (see point 5.2.1 above) which amounts to a completely different technical teaching than that of the patent in suit.

5.2.4 The Board does not accept the argument of the Opposition Division that it would have been obvious for a skilled person to increase the amount of sodium carbonate in example 1 of document (201) (i.e. 2.5% by weight) to 5% by weight according to the general teaching of this citation. In the respective paragraph bridging pages 1 and 2, firstly the phosphate builders are discussed and then it is stated that in addition "... sodium carbonate ... may be present usually in amounts of up to 5% by weight" (cf. page 2, lines 4 to 6). This figure, in the Board's judgement, has to be understood as a general upper limit indicating that there may exist within the range of allegedly stable compositions disclosed in document (201) also ones containing 5% by weight of sodium carbonate. However, in the absence of any further information to that end, it cannot be derived from this that an increase of the sodium carbonate contents of the particular compositions of the examples 1 and 2 of document (201) to 5% by weight would result also in stable compositions.

5.2.5 The Appellant argued in this connection that in the field of liquid detergents a skilled person would refrain from changing the particular formulation of a

given composition as he would have expected this to be detrimental to the stability of the latter. This submission appears to be credible all the more as it is corroborated, in the Board's judgement, by document (114), where it is stated in respect to surfactant emulsions (which may contain finely divided solid particulate material) that they "... typically must be formulated within narrow ranges of composition; changing in a modest way the type surfactant or the builder, or using **appreciably more or less** of either, ordinarily is enough to cause instability" (cf. column 2, lines 28 to 32, in combination with lines 9 to 12; emphasis added).

5.2.6 It is not decisive that a skilled person **could** have increased the sodium carbonate contents of the composition of example 1; it has rather to be investigated whether he **would** have done so in order to solve the existing technical problem. For the reasons given above, the Board is satisfied that, in the absence of any incentive to do so (see point 5.2.3 above), a skilled person expecting to solve the existing technical problem **would not** have increased the sodium carbonate contents according to example 1 of document (201) to 5% by weight or more.

5.3 The Respondent III maintained that the subject-matter of the patent in suit lacked inventive step as it would have been obvious for a skilled person to replace the abrasive of the compositions known from document (303) with an insoluble builder.

5.3.1 This citation relates to stable, aqueous, liquid cleansing suspensions (for the cleaning of hard surfaces) comprising inter alia from 1 to 20% by weight of a particulate abrasive which is insoluble in water (cf. page 1, lines 1 to 3, in combination with lines 16 to 19, and lines 25 to 28).

5.3.2 Whereas a liquid, heavy duty laundry detergent is considerably diluted in the washing process, a surface cleaner - such as disclosed in document (303) - is used as such when performing its surface cleaning activity. For this difference, a surface cleaner requires, according to the Appellant's uncontested submission, no or only minute amounts of builder, contrary to a liquid laundry detergent. Therefore, in the Board's judgement, a person skilled in the art seeking to solve the existing technical problem, i.e. to improve the stability of compositions containing high amounts of solid builder, would not have turned to a product which comprises practically no solid builder.

5.3.3 Here again, the proper question to answer is not whether a skilled person **could** have replaced the abrasive of the compositions disclosed in document (303) with a solid builder, but whether he **would** have done so with a reasonable expectation of solving, thereby, the existing technical problem. As document (303) is in no way connected with the problem of shear-stability, the notional skilled person could not find any hint regarding the solution of this problem in citation (303).

5.4 It follows from the above that neither of the documents (201) or (303), considered either in isolation or in combination, renders obvious the subject-matter of claim 1. Dependent claims 2 to 44, 46, and 52 to 55 relating to specific embodiments of this invention, claim 45 relating to a method of washing clothes or other soiled fabric utilising the claimed compositions and claims 47 to 51 relating to intermediate compositions are based on the same inventive concept and derive their patentability from that of claim 1.



6. *Conclusion*

The patent in suit is therefore to be maintained with claims 1 to 55 filed during oral proceedings and a description to be adapted. This decision is not based on facts and evidence put forward for the first time during oral proceedings. Thus, the decision could be taken in the absence of the Respondents (cf. the decision of the Enlarged Board of Appeal G 4/92; OJ EPO 1994, 149).

*Auxiliary request*

7. In these circumstances, it is not necessary to consider the Appellant's auxiliary request.

**Order**


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

1. The decision under appeal is set aside.
2. The case is remitted to the Opposition Division with the order to maintain the patent with the claims 1 to 55 submitted during oral proceedings and a description to be adapted.

The Registrar:

  
E. Gorgmaier

The Chairman:

  
A. Nuss