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Aktenzeichen / Case Number / N° du recours : T 364/89 - 3.3.2

Anmeldenummer / Filing No / N° de la demande : 83 306 946.1

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Bezeichnung der Erfindung: Detergent compositions
Title of invention:
Titre de l'invention :

Klassifikation / Classification / Classement : C11D 1/12

ENTSCHEIDUNG / DECISION

vom / of / du 15 February 1990

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /
Titulaire du brevet :

Unilver N.V.

Einsprechender / Opponent / Opposant :

Blendax GmbH

Suchwort / Headword / Référence : Foaming detergent/UNILEVER

EPÜ / EPC / CBE Article 56

Schlagwort / Keyword / Mot clé :

"Inventive step confirmed - improvement not foreshadowed by prior art"

Leitsatz / Headnote / Sommaire



Case Number : T 364/89 - 3.3.2

D E C I S I O N
of the Technical Board of Appeal 3.3.2
of 15 February 1990

Appellant :
(Opponent)

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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 dated 12 April 1989, posted on 26 May 1989, rejecting the opposition filed against European patent No. 0 112 044 pursuant to Article 102(2) EPC.

Composition of the Board :

Chairman : A. Nuss

Members : R. Lunzer

R. Schulte

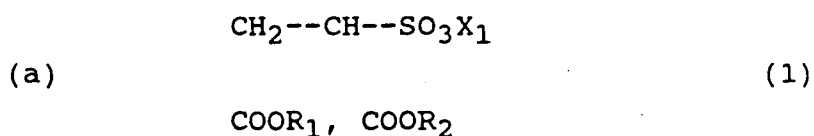
Summary of Facts and Submissions

- I. European patent No. 112 044 was granted on 1 October 1986 with sixteen claims in response to European patent application No. 83 306 946.1, filed on 14 November 1983.

Independent Claim 1 of the patent as granted reads as follows:

1. A foaming liquid detergent composition in the form of a stable aqueous solution containing at least 2% by weight of an active detergent mixture comprising:

- (a) a water-soluble salt of a dialkyl ester of sulphosuccinic acid of formula I,



wherein each of R_1 and R_2 , which may be the same or different, represents a straight-chain or branched-chain alkyl group having from 3 to 12 carbon atoms and X_1 represents a solubilising cation, and

- (b) an alkyl polyethoxy sulphate, the weight ratio of (a) to (b) being within the range of from 5:1 to 0.5:1, characterised in that the alkyl polyethoxy sulphate (b) is a C_{10} - C_{18} primary alkyl polyethoxy sulphate containing 20% by weight or less of material of C_{14} and above chain length and having an average degree of ethoxylation of from 1 to 12.

- II. The Appellant (Opponent) filed a notice of opposition against the patent on 5 June 1987, requesting revocation on the grounds of lack of novelty, and lack of inventive step. Of the documents which were relied on in support of the opposition proceedings, the Appellant relied on (5) GB-A-1 429 637 in support of its case on appeal, together with document (9) Lexikon der Hilfsstoffe für Pharmazie, Kosmetik und angrenzende Gebiete, (Fiedler) 1981, 2nd Edn. Vol. 9, pages 389, 426, 590, 598, 599, 915, 929, 930, 931, 1022, which was introduced during the oral proceedings on appeal; while the Respondent (Proprietor of the patent) referred additionally to (7) Encyclopedia of Chemical Technology (Kirk-Othmer) 1963, 2nd Edn. Vol. 1, pages 552 and 553; and (8) Emulsifiers and Detergents by McClutcheons (1987), pages 227-228.
- III. By a decision dated 26 May 1989, the Opposition Division rejected the opposition, in particular on the ground that document (5), although considered to be the closest state of the art, did not lead to the subject matter of Claim 1 as granted, since this document did not suggest that in order to improve both the foaming performance and storage stability of known detergent mixtures, an alkyl ester sulphate possessing 20% or less by weight of C₁₄ and above chain length material should be selected.
- IV. The Appellant lodged an appeal against this decision on 2 June 1989, and paid the requisite appeal fee on 7 June 1989. By its Statement of Grounds of Appeal filed on 5 August 1989, the Appellant put forward the following case:

The objection of lack of novelty would no longer be pursued. As to the lack of any inventive step, attention was drawn to document (5), and especially the form in which its examples were described. In each and every one

of Examples 1 to 7 inclusive, and in Example 10 too, there was an explicit indication of the range of carbon chain lengths, in terms such as "(C₁₁₋₁₅)". In contrast, in Examples 8 and 9 the sulphates were identified respectively as "Sodium lauryl sulphate" and "Sodium lauryl 10 EO sulphate".

Accordingly, the skilled reader of this document would regard the change of style as intentional. As pure lauryl sulphate has a chain length of 12, and is available commercially, he would understand Example 9 to be describing a detergent composition which, apart only from the fact that it was solid and not liquid, would otherwise fall within the claims of the patent in issue, because, if the sulphate were to be "lauryl sulphate" properly so called, which has a carbon chain length of 12, it would inevitably have less than 20% of material with a chain length of C₁₄ and above.

- V. In contrast, the Respondent argued that despite the language used in the citation, the skilled reader would understand that the term "lauryl" was being used in its everyday sense, to describe the kind of sulphates commonly used in dish washing compositions, and described by the term "lauryl". In fact, although they are called "lauryl", these normally have more than 20% of material having a chain length of C₁₄ and above.
- VI. In a communication from the Appeal Board, the question was raised as to whether the comparative tests shown in the patent specification ought not to have been carried out by comparing a detergent according to the invention with prior art detergents having a degree of ethoxylation of 10, rather than 3, since the best performance demonstrated in the prior patent document (5) had been obtained with a

degree of ethoxylation of 10. By a letter dated 6 February 1990, the Respondent accepted that a comparison with 10 ethoxylated material might have been better, but submitted that the ethoxylation state of the alkyl sulphate was not crucial to the Applicant's perception of the invention. Instead, this was perceived to be the selection of a particular limit on chain length. In addition it was not to be expected that the results would be any different.

- VII. Oral proceedings took place on 15 February 1990, in the course of which the Appellant argued as indicated above, and made reference to document (9) in support of its construction of the word "lauryl" as used in document (5). Document (9) contained a number of references to lauryl esters, some at least of which were plainly intended to refer to lauryl, i.e. specifically C₁₂ compounds.
- VIII. The Appellant requested that the decision under appeal be set aside, and the patent revoked, whereas the Respondent requested that the appeal be dismissed, and the patent maintained in unamended form; alternatively, by way of an auxiliary request, that it be maintained in a more limited form on the basis Claims 1 to 15 filed on 9 February 1989.

Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is, therefore, admissible.
2. The patent in suit is concerned with liquid detergents of the kind used for washing up by hand, where foam stability is desired, as contrasted with such detergents to be used in dish washing machines, where foaming is undesirable. As is indicated in document (5), which is incorporated by reference at page 1, line 8 of the patent in suit, and

which also emanates from the present Respondent, foaming performance is desired, not because it has any beneficial effect on the actual performance of the detergent, but rather because users believe (erroneously) that the collapse of foam is indicative of the detergent ceasing to be effective. The detergents here in issue consist of two active ingredients; a sulphosuccinate, and an alkyl sulphate, each as specified in the main claim set out above.

3. In relation to the invention as claimed, document (5) is regarded as constituting the closest prior art. It relates to dish washing compositions whose active detergent materials are, as in the present case, a combination of sulphosuccinates and alkyl sulphates. The invention described in this prior patent is concerned with the sulphosuccinate part of the composition, and is based on the finding that it is advantageous to confine the sulphosuccinates to those having a carbon chain length of C₇ to C₉, and more particularly C₈ (see page 2, lines 30 to 53). Example 9 describes a solid detergent composition in which the alkyl sulphate used is described as "sodium 10 EO lauryl sulphate", "10 EO" indicating the degree of ethoxylation (see page 1, lines 51 to 73). In Example 3, two commercial products were used; i.e. Empimin 3003 and Empimin 3023, already mentioned on page 2, lines 21 to 24 of this document. Both are defined as ethoxylated sodium salts of lauryl alcohol containing an average of 3 and 10 ethylene oxide units per molecule respectively, derived from a narrow cut coconut alcohol.
4. The technical problem vis-a-vis document (5) consisted in finding a liquid detergent composition having the desired combination of properties in terms of improved foaming performance and storage stability.

5. According to the patent in issue, this problem is solved by directing attention to the alkyl sulphate part of the composition, and specifically, in going from the alkyl sulphates used in the past, which normally had a substantial proportion of materials having a chain length of C₁₄ and above, to the use of sulphates which have a lower chain length. In the light of Examples 1 to 6 of the patent in suit, it appears that superior foaming performance, which was measured in terms of the number of plates which could be washed before there was only one third of the bowl surface covered with foam, is attainable by the use of the lower chain length alkyl sulphates, while Examples 7 to 9 demonstrate some improvement with respect to the storage stability of the claimed formulations. Thus it appears that the problem is solved by the adoption of a composition as claimed.

6. The objection of prior publication was not pursued by the Appellant (see IV above), rightly in the view of the Board, because Example 9 of document (5) is stated to be a solid composition, whereas the compositions here in issue are liquids. Although the known compositions may be diluted in water, it is clear from this prior document that the active detergent concentration in that case is only 0.04% by weight (see page 2, lines 84 to 94), which is well below the minimum concentration of 2% by weight mentioned in Claim 1 of the patent in suit. An additional significant difference becomes apparent from the matters considered in paragraphs 7. and 7.2 below. Consequently, the subject matter of the Claim 1 of the patent in suit is new. The same applies mutatis mutandis to dependent Claims 2 to 16.

7. The sole issue to be determined is whether, when faced with the problem of improving foaming performance and storage stability, it would have been obvious to turn from

the formulations disclosed in document (5) to the solution proposed in the patent in suit, specifically, of using alkyl sulphates having the specified relatively low carbon chain lengths.

- 7.1 The argument of the Appellant is that Example 9 discloses a detergent composition containing "lauryl 10 EO sulphate"; that lauryl sulphate accurately so called has a chain length of exactly 12; and so this document discloses the significant integer of the disputed claim in which the alleged invention is said to reside. The Board finds itself unable to accept this argument. Taking into account available literature, in particular document (7) at page 553, where the same term "lauryl alcohol" is used as a common name to describe three different commercial fractions of fatty alcohol mixtures derived from coconut oil containing respectively 96%, 71%, and 65% of C₁₂ material, it emerges that the term "lauryl" is often used loosely, when describing substances having a chain length distribution which may lie in the range of 10 to 15. This practice is clearly confirmed by the statement in document (5) that the sodium salts of lauryl alcohol used there are derived from a narrow cut coconut alcohol (see paragraph 3 above). The Board is therefore not satisfied that the skilled reader of this document, even taking into account the fact that the other examples in the cited patent specify the chain length ranges, would understand Examples 8 and 9 as being directed to "lauryl sulphates" properly so called; i.e. those which have a chain length of 12, and thus having less than 20% of C₁₄ and above.
- 7.2 It appears to the Board that the skilled reader, even if he observed that there was a difference between the nomenclature used in Examples 8 and 9 when compared with

the other examples, would still conclude that the commonly available commercial lauryl sulphate was intended, and not a product of special purity.

- 7.3 Thus if the skilled reader were seeking to find detergents of superior performance to those described in document (5), he would see in it no suggestion whatever to any advantage to be derived from the exclusion of alkyl sulphates having a chain length of C₁₄ and above, because document (5), when fairly construed, does not point in that direction. The Board did not find that document (9) threw any further light on the point at issue. It is fully accepted that in some contexts lauryl can mean C₁₂ and none other than C₁₂. However, the acceptance of that fact does not decide the issue of how the term "lauryl" would be understood in the context of document (5) by a notional skilled reader.
- 7.4 From Table I of the patent in issue it appears that alkyl sulphates having the requisite low proportion of material with a chain length of C₁₄ and above were commercially available. But the Board has been unable to find any indication that their use would have any particular beneficial effects when included in foaming detergent compositions, still less the beneficial effects demonstrated by the Respondent to be derived from their inclusion in such detergents.
- 7.5 Accordingly, the Board has reached the conclusion that there is nothing in document (5), nor in any other of the documents considered, which would render the invention as claimed obvious.
8. Since, after the grant of a patent, i.e. in an opposition, or on appeal proceedings therefrom, the onus of proof is on the opponent and not on the patentee (see T 219/83, OJ EPO 1986, 211, paragraph 12) there is no burden on the

Appellant to demonstrate superiority of the claimed detergents over those containing 10 ethoxylated sulphates. In this connection, the Board is satisfied with the Respondent's answer that in the present case chain length selection is the crucial feature, and not the degree of ethoxylation of the alkyl sulphate (see VI above). In view of this, and in addition the fact that the Appellant did not object to the comparative tests included in the patent in suit, there is no reason to believe that the demonstrated improvements are not attainable with a degree of ethoxylation different from that used for the purposes of the comparison.

9. It follows from the above that Claim 1 of the patent as granted involves an inventive step (Article 56 EPC). Since dependent Claims 2 to 16 concern particular embodiments of the claimed foaming liquid detergent compositions, they too are allowable. Consequently there are no grounds which prejudice the maintenance of the patent in the form as granted. In these circumstances, the Appellant's auxiliary request need not be considered.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

Mrs M. Beer

Mr A.J. Nuss