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D E C I S I O N
of 6 November 2003

Case Number: T 0306/99 - 3.3.7

Application Number: 91919526.3

Publication Number: 0509079

IPC: A61K 7/08

Language of the proceedings: EN

Title of invention:
Detergent Composition

Patentee:
UNILEVER PLC, et al

Opponent:
KPSS-Kao Professional Salon Services GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step - (yes)"

Decisions cited:
-

Catchword:
-



Case Number: T 0306/99 - 3.3.7

D E C I S I O N
of the Technical Board of Appeal 3.3.7
of 6 November 2003

Appellant: KPSS-Kao Professional Salon Services GmbH
(Opponent) Pfungstädterstrasse 92-100
D-64297 Darmstadt (DE)

Representative: -

Respondent: UNILEVER PLC
(Proprietor of the patent) Unilever House
Blackfriars
London EC4P 4BQ (GB)

and

UNILEVER N.V.
Weena 455
NL-3013 AL
Rotterdam (NL)

Representative: Watson, Robert James
Mewburn Ellis
York House
23 Kingsway
London WC2B 6HP (GB)

Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 12 March 1999
rejecting the opposition filed against European
patent No. 0509079 pursuant to Article 102(2)
EPC.

Composition of the Board:

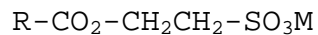
Chairman: R. E. Teschemacher
Members: B. L. ter Laan
G. Santavicca

Summary of Facts and Submissions

- I. Mention of the grant of European patent No. 0 509 079 in respect of European patent application No. 91 919 526.3, filed on 7 November 1991 as the International Patent Application No. PCT/GB91/01955 and published as WO 92/08440, claiming priority from an earlier application in Great Britain (9024162 of 7 November 1990), was announced on 24 January 1996, on the basis of eleven claims, Claim 1 reading:

"A detergent composition in the form of an aqueous liquid or gel comprising 10% to 50% by weight of a detergent mixture which comprises

- (a) 10 to 60% by weight of the detergent mixture of a fatty acyl isethionate of formula



where R is an alkyl or alkenyl group of 7 to 21 carbon atoms and M is a solubilising cation such as sodium, potassium, ammonium or substituted ammonium;

- (b) 10 to 80% by weight of the detergent mixture of a zwitterionic detergent which has a hydrophilic head group containing a quaternary nitrogen atom and at least one acid group,
(c) 10 to 55% by weight of the detergent mixture of a further anionic detergent,

subject to further requirements that: the amount by weight of the fatty acyl isethionate (a) is not more than twice the amount by weight of the zwitterionic detergent (b), the total of (a) and (b) is from 45 to 90% by weight of the detergent mixture, and the

composition is sufficiently free of alkanolamide detergents that the amount by weight of alkanolamide is not more than one quarter the amount of the zwitterionic detergent (b)."

Claims 2 to 10 are directed to preferred embodiments of the composition of Claim 1. Claim 11 refers to the use of the detergent mixture defined in Claim 1 in the production of an aqueous liquid or gel for personal washing.

II. On 23 October 1996 a Notice of Opposition was filed, in which the revocation of the patent in its entirety was requested on the ground of lack of inventive step as set out in Article 100(a) EPC.

The opposition was, *inter alia*, supported by the following documents:

- D1 K. Schrader, Grundlagen und Rezepturen der Kosmetika, 2nd edition, Hüthig Buch Verlag, Heidelberg, 1989, pages 197, 707, 718 and 719
- D2 H.P. Fiedler, Lexikon der Hilfsstoffe für Pharmazie, Kosmetik und angrenzende Gebiete, 3rd edition, Editio Cantor, Aulendorf, 1989, page 1217
- D3 Rivista Italiana, essenze, profumi, piante officinali, aromi, saponi, cosmetici, aerosol, anno LVI, no 10, October 1974, pages 567 - 572.

III. In a decision issued in writing on 12 March 1999, the Opposition Division held that the grounds for opposition did not prejudice the maintenance of the

patent as granted. In particular, it was held that the problem to be solved was to overcome the solubility problem of high amounts of compound (a), the isethionate, present in a mild shampoo composition having good lather properties. That problem had been effectively solved and the solution was not obvious in view of D1, which did not mention the solubility problem, and D2, which contained no hint as regards the role in that respect of the amounts and the ratios of the various compounds present in the composition. D3 had not been translated, so that it was not clear which problem it addressed. Hence, the claimed subject-matter was inventive.

- IV. On 22 March 1999 the Opponent (Appellant) lodged an appeal against the above decision and paid the prescribed fee simultaneously. The Statement of Grounds of Appeal was filed on 21 May 1999.

In a letter dated 13 December 1999, the Proprietor (Respondent) filed counter-arguments; by letter of 25 September 2003 two auxiliary requests were submitted.

Oral proceedings before the Board were held on 6 November 2003.

- V. The Appellant's arguments can be summarised as follows:

Although both D1 and D3 had solved the problem of isethionate solubility, D3 was the closest prior art document since the exemplified composition came closest to the one now being claimed. It only differed in the sum of the amounts of isethionate (a) and zwitterionic detergent (b) in the detergent mixture, which was lower

than claimed in the patent in suit. This difference was, however, only minor and did not contribute to the dissolution of the isethionate. The shampoo composition of D3 had the appropriate properties; no improvement of the three properties that were addressed in the patent in suit (solubility, lather quality and mildness) had been shown:

- (a) The water-solubility of isethionate could not play an important role in the attractiveness of the appearance of the shampoo since the detergent mixture formed only a part of the whole composition. This was confirmed by the examples of the patent in suit which indicated that the water-solubility of isethionate was only partial. Moreover, D2 taught that betaine was able to dissolve isethionate.
- (b) From the examples of the patent in suit it also appeared that the quality of the foam varied greatly and the best results were obtained with a composition outside the present claims, so that an improvement was not evident.
- (c) Nor was mildness improved over D3; there was no reason to believe that that composition was not mild, since mildness was a general requirement for all shampoos. The mildness of the composition of D3 was demonstrated by the information provided by the examples of the patent in suit. From the examples it also appeared that it was a high amount of component (b) rather than (a) that was responsible for the mildness of the claimed shampoo compositions.

(d) Furthermore, even if any improvement had been present, it was within the normal activities of the skilled person to try to improve existing shampoo compositions and to try variations in the composition of the shampoo. Hence, the claimed composition was not inventive.

VI. The Respondent (Patent Proprietor) argued that the closest document was the one that described the same purpose as the patent in suit rather than disclosing a similar composition. The problem to be solved, as indicated in the patent in suit, concerned the water solubility of the isethionate component in a mild shampoo with good lather properties. Since D3 was not available in an official language, any teaching that it might contain should not be taken into account. D1, however, referred to mild shampoos and indicated how to obtain milder compositions. Therefore, D1 was the closest document. The claimed composition solved the above-mentioned problem, which was demonstrated by the examples. D2 broadly described that a particular betaine formed clear, soluble addition products or gels with anionic tensides in general. It could not be combined with D1, nor would it lead to the claimed subject-matter if so combined. D3 only disclosed a single shampoo composition which differed considerably from the claimed ones, and it was silent on the purpose of its components. Therefore, those documents did not provide any motivation to amend the composition according to D1 in the first place, even less so in the direction of the claimed composition. Hence, the claimed subject-matter was inventive.

VIII. The Appellant requests that the decision under appeal be set aside and that the patent be revoked.

The Respondent requests that the appeal be dismissed and that the patent be maintained as granted, or, alternatively, on the basis of either of the two auxiliary requests filed by letter of 25 September 2003.

Reasons for the Decision

1. The appeal is admissible.

Main request

Closest prior art

2. The Appellant saw D3 as the closest prior art document, whereas the respondent was of the opinion that D1 was the proper starting point for assessing the presence of an inventive step.

2.1 In order to serve as a starting point for considering inventive step, a document should relate to the same or a similar technical problem as the patent in suit, requiring the minimum of structural and functional modifications (cf. Case Law of the Boards of Appeal of the European Patent Office, 4th edition 2001, I.D.3.1). The problems addressed in the patent in suit are the mildness of the shampoo composition, its lather properties (page 2, lines 4 to 6) and the water solubility of the fatty acyl isethionate it contains (page 2, lines 45 to 53).

2.2 D1 discloses shampoo compositions one of which contains 8,0% by weight Tego Betain L7, 8,0% by weight Medialan KF and 30,0% by weight Elfan AT 84 30% as well as other ingredients (page 718, "Hennashampoo"). It is undisputed that Elfan AT 84 is an acyl isethionate according to compound (a) in a final concentration of 9,0% by weight, Tego Betain L7 is a zwitterionic detergent according to compound (b) in a final concentration of 2,4% by weight and Medialan is a further anionic detergent according to compound (c) of the patent in suit in a final concentration of 3,2% by weight. Hence, the amount of detergent mixture is 14,6% by weight of the total composition, the amount of acyl isethionate (a) is 61.6% by weight of the detergent mixture and 3.75 times that of the zwitterionic detergent (b), which is present in an amount of 16.4% by weight of the detergent mixture, the total of acyl isethionate (a) and zwitterionic detergent (b) is 11.4% by weight of the total composition, which amounts to 78.1% by weight of the detergent mixture, the amount of further anionic detergent (c) is 21.9% by weight of the detergent mixture and no alkanolamide is present. Therefore, the claimed compositions differ from the composition of D1 in the amount of isethionate and in the ratio of compound (a) to compound (b).

According to D1, there is a noticeable trend toward mild shampoos for general use. Mildness can be attained by a drastic reduction of the total concentration of tensides to about 7 to 12%, or by the use of milder tensides in general. As examples of the latter, ampholytes and cocoyl isethionate are mentioned (page 707, point 2.2.3.2). Shampoos for children,

especially designed for mildness, could e.g. contain amphotensides like betaine.

2.3 D3 is a document in the Italian language, not an official language of the European Patent Office. The Appellant was given the opportunity to file a translation of that document into one of the official languages in case he wanted to rely on other parts of it than the amounts and trade names which were understandable. The Appellant has however abstained from providing a translation. Therefore, if this document contains any teaching regarding the properties of the shampoo compositions it describes, that is not taken into account. In fact, the only part of D3 upon which the Appellant relied is Shampoo VI (page 571), the exact contents of which are, due to the lack of concentration indications, not entirely clear. However, it was agreed that the amount of compounds (a) and (b) was 40.2% or 40.3% by weight of the detergent mixture and that those compounds were present in a ratio of about 1:1. It was also accepted that about the same amount of compound (c) was present. Therefore, the difference between the claimed compositions and D3 lies in the amount of the sum of compounds (a) and (b) in the detergent mixture.

2.4 The Appellant argued that D3 was the closest prior art document because the composition it disclosed was closer to that being claimed and it had the properties appropriate for a shampoo. In particular, it was also mild, as shown in a number of examples in the patent in suit.

The Board cannot agree with that argumentation because even if the mildness of shampoo composition VI of D3 were accepted as a fact, the disclosure given by D3 does not refer to any problem at all. It is merely a table of contents. Any properties of the composition cannot be deduced from the document itself. To use the examples of the patent in suit to that end amounts to reasoning with hindsight.

D1 on the other hand, the shampoo compositions of which are also close to the ones now being claimed, mentions a trend towards milder shampoos, which is one of the points addressed in the patent in suit. Cocoyl isethionate is specified as one of the milder tensides to be used. Therefore, the board considers D1 to be the most appropriate starting point.

Problem and solution

3. Although the "Hennashampoo" of D1 may be assumed to have appropriate shampoo properties, the mildness as well as the water solubility of the fatty acyl ethionate could still be increased without, however, losing the ability to generate good lather. Therefore, the problem to be solved can be seen as being to provide shampoo compositions having improved mildness without a deterioration in lathering properties and having an improved water solubility of its isethionate component, in line with the patent in suit (page 2, lines 4 to 6 and 45 to 53).

3.1 From page 6, Table 1, it appears that the solubility in demineralised water of cocoyl isethionate, by the addition of three kinds of betaine, improves when the

isethionate : betaine ratio decreases. At a ratio of 80:20, which is the closest to the ratio of 3.75 used in D1, the water-solubility of isethionate is clearly lower than at ratios of 60:40 or 40:60. Although other compounds, in particular compound (c), are absent in these experiments, there is no evidence that the effect would not occur in the presence of other compounds. Therefore, the Board accepts the results given in Table 1 as sufficient evidence that the water-solubility of isethionate is effectively improved within the claimed range of isethionate to zwitterionic detergent ratio, as compared to values outside that range.

- 3.2 Tables 2, 9 and 10 (pages 7, 10 and 11) give the results of mildness tests of various shampoo compositions. The compositions of these tables cannot be compared with each other since the conditions of each of the experiments reflected in the tables are different. However, on the basis of the results within each of the tables conclusions regarding the mildness of the shampoos can be drawn.

In Table 2 (page 7), there is no direct comparison with the composition of D1. Also, since an increase of one compound necessarily leads to the reduction of another one, direct comparisons are difficult to make. However, a general trend toward improved mildness can be seen for compositions that contain a low isethionate : betaine ratio (2G vs. 2J) as well as a relatively high amount of betaine, in particular above 30% by weight, as claimed in claim 2 of the patent in suit (2C vs. 2F and 2H).

In Table 9, all compositions contain more alkanolamide than allowed by the claimed range. It shows the negative influence of alkanolamide on mildness, but since the shampoo specified in D1 does not contain any alkanolamide, this table cannot lead to any conclusions regarding improvements over D1.

From Table 10 it can be seen that a decrease in the isethionate : betaine ratio from 70:30 to 60:40 and 50:50, which is brought about by a decrease in isethionate and an increase in betaine, leads to improved mildness of the composition (columns 1 and 2 vs. columns 4 and 5 and columns 7 and 8). This picture is in conformity with that of Table 2.

In view of the results given in Tables 2 and 10, the board is satisfied that the claimed shampoo compositions are milder than the "Hennashampoo" described in D1.

3.3 Tables 3 to 8 give the lather properties of several compositions. Depending on the experimental conditions, the foam properties of the claimed compositions vary somewhat but in general they are of the same order of magnitude as those having a higher ratio isethionate : betaine, which best reflect the composition of D1.

3.4 In view of the above, the Board concludes that the shampoo compositions now being claimed have an improved mildness and an increased water solubility of isethionate compared to D1, without the loss of good lather properties, so that the above defined problem is effectively solved.

Inventive step

4. It remains to be decided whether the claimed subject-matter is obvious having regard to the documents on file.

- 4.1 D1 teaches that mildness can be obtained by a drastic reduction of the total concentration of tensides or by the use of milder tensides in general. As an example of the latter, ampholytes and e.g. cocoyl isethionate are mentioned (page 707, point 2.2.3.2). D1 does not mention any relationship between the amounts of isethionate and betaine. Its teaching to reduce the amount of tensides as a whole also does not direct one to increase the amount of betaine, which, in combination with the low isethionate : betaine ratio, results in improved mildness, as shown in Tables 2 and 10 (see point 3.2 above). In view of this and the absence of any information as regards the water solubility of isethionate, D1 does not provide the skilled person with an incentive to use amounts and ratios in accordance with the ranges now being claimed. Therefore, D1 by itself does not render the claimed subject-matter obvious.

- 4.2 Since the properties of the product according to D3 are not known (see point 3.3 above), D3 cannot complete the teaching of D1 in the claimed direction, so that a combination of D3 with D1 does not render the claimed subject-matter obvious either.

- 4.3 D2 also does not add anything to point the way from D1 to the claimed subject-matter. It states that Tego-Betain L7 is an amphoteric tenside that forms addition

products with anionic tensides, which products give clear solutions or clear gels. The betain is mild for skin and mucus, e.g. the eye. Isethionates are not mentioned and there is no indication of any amounts or ratios, in particular not of the 1:1 isethionate : betain ratio indicated by the Appellant as being disclosed. The general indication that the betain forms addition products with anionic tensides cannot be interpreted as such a specific disclosure. Therefore, D2 does not render the claimed subject-matter obvious.

- 4.4 The same conclusion can be drawn when D3 is taken as the starting point. In the shampoo composition of D3, the sum of the amounts of (a) and (b) is less than the lower limit of the present range. Since D1 teaches to reduce the amount of tensides in order to improve mildness, it is not obvious to increase it, as in the patent in suit. In view of the lack of relevant disclosure in D2, that document cannot change the situation either.
5. From the above it follows that the subject-matter of Claim 1 as well as the claims that depend on it involves an inventive step.
6. Since the main request is found to be allowable, the auxiliary requests need not be dealt with.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

C. Eickhoff

R. Teschemacher