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# D E C I S I O N
## of 10 November 1999

**Case Number:** T 0170/95 - 3.3.6

**Application Number:** 86301320.7

**Publication Number:** 0193375

**IPC:** C11D 17/00

**Language of the proceedings:** EN

**Title of invention:**
Liquid detergent composition

**Applicant/Patentee:**
UNILEVER PLC, et al

**Opponent:**
Henkel Kommanditgesellschaft auf Aktien

**Headword:**
Abrasive detergent composition/UNILEVER

**Relevant legal provisions:**
EPC Art. 56

**Keyword:**
"Inventive step (no) - suggested solution obvious to try"

**Decisions cited:**
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**Headnote/Catchword:**
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**Case Number:** T 0170/95 - 3.3.6

**D E C I S I O N**
**of the Technical Board of Appeal 3.3.6**
**of 10 November 1999**

**Appellant:** (Opponent)
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**Decision under appeal:** **Interlocutory decision of the Opposition Division of the European Patent Office posted 26 January 1995 concerning maintenance of European patent No. 0 193 375 in amended form.**

**Composition of the Board:**

**Chairman:** P. Krasa
**Members:** H. H. R. Fessel
J. Van Moer

## Summary of Facts and Submissions

I. European patent No. 0 193 375 in respect of European patent application No. 86 301 320.7, filed on 24 February 1986 in the name of Unilever PLC and of Unilever NV, was granted on 6 May 1992 (Bulletin 92/19) on the basis of 16 claims of which the only independent Claim 1 was directed to a pourable, homogenous, abrasive, aqueous detergent composition suitable for cleaning hard surfaces.

II. Notice of Opposition was filed on 4 February 1993 by Henkel KGaA requesting revocation of the patent in its entirety based on the grounds of lack of novelty, of inventive step and of sufficiency of disclosure (Art. 100(a) and (b) EPC).

The following documents were cited in support of the opposition:

D1 DE-A-1 250 949;
D2 US-A-4-179 414; and
D3 US-A-3 232 878.

The Opponent also filed experimental evidence in support of the objections raised under Art. 100(b) EPC.

III. By an interlocutory decision issued on 26 January 1995 the Opposition Division maintained the patent in amended form on the basis of 10 claims received on 20 June 1994 of which the only independent Claim 1 read as follows:

“ A pourable, homogenous, abrasive, aqueous detergent

composition suitable for cleaning hard surfaces, characterized in that it comprises:

a) 1.5 to 30% wt of detergent active compound, and

b) 15-45% wt of sodium bicarbonate, wherein at 20°C, at least 5% by weight of the composition consists of a solid phase in the form of undissolved sodium bicarbonate in particles having a mean diameter of from 10 to 500µm,

said composition having an apparent viscosity at 20°C of at least 6500 Pas at a shear rate of $3 \times 10^{-5}$ $sec^{-1}$ (as determined by the application of Stokes' Law) and not more than 10 Pas at a shear rate of 21 $sec^{-1}$."

The Opposition Division held the claimed invention to be sufficiently disclosed and to be new with regard to D1 to D3. Since that prior art did not lead obviously to the claimed subject-matter it considered the patent in suit to involve an inventive step.

IV. On 21 February 1995 an appeal together with payment of the prescribed fee was lodged by the Appellant (Opponent) against that decision. In the Statement of Grounds of Appeal, received by the EPO on 24 May 1995, the Appellant alleged (i) extension of scope of the claims (Art. 123(3) EPC, (ii) lack of inventive step (Art. 56 EPC), insufficiency of disclosure (Art. 83 EPC) and lack of clarity (Art. 84 EPC). Further he requested that the appeal fee be reimbursed.

V. In its written submissions the Respondent (Patentee) filed a new set of 10 claims said to meet the requirements of Art. 123(3) EPC of which Claim 1

differed from that of Claim 1 of the decision under appeal by the reintroduction of the method to measure the shear rate deleted during opposition proceedings. He held that the Appellant provided no convincing arguments to effectively dispute the argumentation given in the decision under appeal.

VI. At the beginning of oral proceedings, held on 10 November 1999, the Appellant declared that he did no longer maintain his objection as to insufficiency of disclosure (Art. 83 EPC). He admitted that the pastes disclosed in D2 differed from the pourable compositions of Claim 1 of the patent in suit by the higher amount of abrasive used.

The Appellant considered D2 to represent the most relevant prior art and argued that when starting from that document, having the same task as the patent in suit, there were only 2 possibilities for an alternative composition: (i) to increase the amount of sodium bicarbonate above the upper limit of 65%, disclosed in D2 or (ii) to reduce the amount and go below 50% which was the lower limit of the scouring agent disclosed in D2. It was obvious that a scouring effect could only be achieved with undissolved abrasive. From D1 it was known that normally a minimum amount of 5 wt.% was required to achieve the desired scouring effects (col. 4, ll. 28 to 30). Thus a range of 5 to 50% was available to the skilled person if he was looking for alternative compositions as compared with those of D2. To select a range of 15 to 45 wt.% as claimed in Claim 1 of the patent in suit from the said range of 5 to 50% could not be deemed to be an invention.

VII. The Respondent submitted that D2 relates to pastes, i.e. compositions which were not at all pourable. D2 could thus not be considered as most relevant prior art for the pourable compositions claimed in the patent in suit. Moreover col. 1, ll. 58 to 61 of D2 contained a clear warning not to use sodium bicarbonate in amounts which were in the range of the present claim 1, since an amount below 50% would lead to a formula which “is too thin ..... for dispersing”. But even if starting from D2 as most relevant prior art, and defining the problem as the provision of a suspension, i.e. a liquid composition which is stable, this problem, not existing for the pastes of D2, and its solution could not have been obvious to a skilled person.

During oral proceedings the Respondent submitted a set of 9 claims as new main and sets of 8 claims, respectively, as first and second auxiliary request.

Claim 1 of the main request differs from that of the decision under appeal in that at the end of that claim “not more than 10 Pas at a shear rate of 21 $sec^{-1}$.” was replaced by “not more than 5 Pas at a shear rate of 21 $sec^{-1}$ (as measured using a rotational viscometer).”

Claim 1 of the first auxiliary request differs from that of the main request by the insertion “at least one synthetic anionic” before “detergent active compound” in a) of Claim 1.

Claim 1 of the second auxiliary request differs from that of the main request in that in a) of Claim 1 “detergent active compound” was replaced by “at least one water-soluble synthetic anionic sulphated or

sulphonated detergent salt containing an alkyl radical having from 8 to 22 carbon atoms in the molecule".

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

The Respondent requested that the appeal be dismissed and that the patent be maintained on the basis of the main request (claims 1 to 9) or alternatively on the basis of the first or second auxiliary request (claims 1 to 8 each) all submitted during the oral proceedings.

## Reasons for the Decision

1. The appeal is admissible.

2. The Board considers the claimed subject-matter according to all requests to meet the provisions of Art.83 EPC and sees no reason to discuss that issue in detail since the Appellant did not maintain that objection. The Board is also satisfied that the claims of all requests are clear and, thus comply with the requirements of Art. 84 EPC which was not disputed either.

**Main request**

3. *Art.123(2) and (3) EPC*

The value of 5 introduced into Claim 1 instead of 10 for the shear rate was disclosed on p. 17, ll.20 to 21

of the application as filed (p. 7, l. 17 and Claim 15 of the patent specification).

By the above replacement the scope of the independent Claim 1 and also of the dependent Claims 2 to 9 became narrower. The objection under Art. 123(3) EPC raised in the Grounds of Appeal related to the former omission of the measurement of the Pas by a rotational viscosimeter became obsolete by the reintroduction of that feature.

Therefore the claims of the main request comply with the requirements of Art. 123(2) and (3) EPC.

4. The Board is satisfied that the claimed subject-matter is new. Since novelty was no longer contested in appeal proceedings no detailed reasoning is required.

5. *The problem and its solution*

5.1 The patent in suit relates to a liquid abrasive detergent composition comprising, inter alia, a water-soluble salt of which at least 5% by weight of the composition is present in the form of undissolved particles at 20°C (Claim 1).

5.2 In appeal proceedings both parties discussed inventive step starting from D2 as the most relevant state of the art and as this document was also mentioned as a starting point in the patent in suit (p. 2, ll. 45 to 46) the Board sees no reason to deviate therefrom. D2 concerns a fatty acid diethanol amide-containing general purpose cleaner in paste form displaying a scouring action, when used undiluted in full strength (abstract and col. 2, ll. 14 to 16).

5.3 Vis-à-vis that prior art the technical problem to be solved may be seen in the provision of a pourable liquid hard surface cleaner having a consistency which prevents sedimentation of solid particulate matter on storage while the product still remaining pourable (patent in suit p. 2, ll. 47 to 49). In other words the technical problem of the patent in suit could be seen in the provision of pourable scouring detergent composition with a sufficient stability of the suspension. Under sufficient stability the Board understands sedimentation of less than 1 cm per month at a temperature of 20°C (see p. 7, ll. 7 to 8 of the patent specification).

5.4 The Board is satisfied that this problem was effectively solved by the compositions claimed in Claim 1 in view of the passage on p. 7, ll. 5 to 20 of the patent in suit. It is noted that according to the sentence starting in line 18 on page 7 it was obviously not necessary to specify the anionic and non ionic detergent to provide a structured liquid and that therefore the patent in suit accepts that the skilled person would have known how to select the appropriate detergent system.

6. It has now to be decided whether that solution involves an inventive step.

6.1 D2 relates to a stable paste comprising between about 50 and about 65 wt.% sodium bicarbonate. It was also known to use bicarbonate as an abrasive in amounts above the saturation point (col. 2, ll. 3 to 7). Contrary to the compositions claimed in the patent in suit the compositions of D2 were called pastes, which

means with regard to ll. 13 and 58 to 60 of col. 2 of D2 a stable suspension. Thus, the Board considers the pastes of D2 to be past-like suspensions comprising creamy compositions and those of the patent in suit to comprise creamy pourable liquids. There exists thus no sharp delimitation between creamy pastes and pourable creams. This means that a skilled person would not ignore prior art dealing with stable paste-like suspensions when looking for pourable liquids. Therefore, it was obvious to try for a person skilled in the art to reduce the sodium bicarbonate of the composition disclosed in D2, reducing thereby their viscosity and, thus, to arrive at the pourable abrasive detergent compositions claimed as the solution of the existing technical problem. Problems which might have arisen from a possible poorer stability of those pourable suspensions could have been solved by a person of ordinary skill familiar with that technical field (see 5.4 above) as agreed by the parties when discussing sufficiency of disclosure.

It is evident for a man skilled in the art that a problem of stabilisation may arise at lower viscosities of the compositions. To find, however, solutions for that problem cannot involve any inventive step since stable liquid detergents were well known in the art as may be seen from D1. That document relating to pourable non-gritty abrasive compositions disclosed in addition thereto that the abrasive, i.e. an alkali salt of phosphoric acid, should be present in a minimum amount of 5 wt.% and at most 65 wt.%, whereby a range of 20 to 50% is preferred for pourable liquids (D1 col. 4, ll. 28 to 35).

Thus with regard to the combined teachings of D1 and D2, a skilled person would have tried, with a reasonable expectation of success to prepare a pourable liquid composition comprising 15 to 45 wt.% of sodium bicarbonate, wherein at least 5 wt.% of the composition consists of a solid phase in the form of undissolved sodium bicarbonate to have the desired scouring capacity. Since no special effect based on the selection of the claimed range was provided this selection had to be considered as an arbitrary one not involving any inventive step.

The Board cannot accept the argument of a hindsight combination of the teachings of D1 and D2. Both documents deal with scouring agents. If a skilled person was interested in the property “pourable” of a scouring composition comprising sodium bicarbonate as a water soluble scouring agent which was known from D2 it was obvious for him to reduce the amount of this scouring agent. The lower limit would have been the amount given in D1 which means 5 wt.%. The Board did, in this context, not ignore col. 1, ll. 57 to 61 of D2, wherein it was said that sodium bicarbonate amounts of <50% led to a formulation which “is too thin”. The respondent alleged that this was a clear warning for using bicarbonate amounts which were in the range of present Claim 1. The Board cannot accept this argument. Even if the skilled person would have paid attention to this passing remark in D2, a remark which was not supported by any evidence or argument, he would have known immediately that detergent systems as disclosed e.g. in D1 resulted in pourable creamy compositions which were stable on storage (see D1, Examples 4 and 5); so much the more as the said passage in D2 referred

to pastes and not to pourable detergent compositions.

Since no effect was demonstrated based on the specific mean particle diameter and/or the apparent viscosity of the composition the Board considers that these values neither alone nor in combination can contribute to inventivity.

F**irst (i) and second (ii) auxiliary request**

7. *Art.123(2) and (3) EPC*

(i) That the detergent active compound a) comprises at least one synthetic anionic detergent active component was disclosed on p. 5, ll. 5 to 6 of the application as filed (p. 3, ll. 23 to 24 of the patent specification). In this context the replacement of a general term by a specific term leads to a delimited scope of protection and thus is not objectionable under Art. 123(3) EPC.

(ii) The use of one water-soluble synthetic anionic sulphated or sulphonated detergent salt containing an alkyl radical having from 8 to 22 carbon atoms in the molecule was disclosed on p. 3, ll.9 to 14 of the application as filed (p. 3, ll. 25 to 27 of the patent specification). These subject-matter was delimited with regard to the above specified anionic detergent and thus narrower in scope. Thus the claimed subject-matter meets the requirements of Art. 123(3) EPC.

8. *Inventive step*

In D2 as detergent diethanolamides of a fatty acid having about 12-16 carbon atoms were used.

In the examples of D1 mixtures of anionic and nonionic detergent were used such as e.g. sodium dodecyl sulphonat, potassium soaps of peanutoil and diethanolamides of lauric acid.

That sulphonates were well known and common detergents in that technical field was agreed by the parties.

With regard to the teaching given by D1, especially examples 4 and 5 wherein sodium dodecyl benzene sulphonate, a sulphonated detergent salt containing an alkyl radical from 8 to 22 carbon atoms, was specified, the Board considers it to be obvious to use in addition to the non-ionic detergents used in D2 an anionic detergent as known from D1. Thus a skilled person would arrive at the detergent to be used in Claim 1 of the first and second auxiliary request without an inventive merit.

That an additional unexpected effect is produced by the use of the specified anionic detergents was neither argued nor was any evidence in that respect provided.

For these reasons the subject-matter of Claim 1 of both requests does not involve an inventive step.

## Order

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

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

G. Rauh P. Krasa