

Internal distribution code:

- (A) [] Publication in OJ
(B) [] To Chairmen and Members
(C) [X] To Chairmen

D E C I S I O N
of 11 March 1998

Case Number: T 0658/95 - 3.3.1

Application Number: 86307799.6

Publication Number: 0219314

IPC: C11D 1/37

Language of the proceedings: EN

Title of invention:

Granular detergent compositions having improved solubility

Patentee:

The Procter & Gamble Company

Opponent:

Henkel Kommanditgesellschaft auf Aktien

Headword:

Granular compositions/PROCTER & GAMBLE

Relevant legal provisions:

EPC Art. 56

Keyword:

"Inventive step (yes) - non-obvious solution of a technical problem"

Decisions cited:

T 0219/83

Catchword:

-



Case Number: T 0658/95 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 11 March 1998

Appellant:
(Opponent)

Henkel Kommanditgesellschaft auf Aktien
TTP / Patentabteilung
40191 Düsseldorf (DE)

Representative:

-

Respondent:

The Proctor & Gamble Company
(Proprietor of the patent) One Procter & Gamble Plaza
Cincinnati
Ohio 45202 (US)

Representative:

Peet, Jillian Wendy
Procter & Gamble Technical Centres Limited
Whitley Road
Longbenton
Newcastle upon Tyne NE12 9TS (GB)

Decision under appeal:

Interlocutory decision of the Opposition Division
of the European Patent Office posted 3 July 1995
concerning maintenance of European patent
No. 0 219 314 in amended form.

Composition of the Board:

Chairman: A. J. Nuss
Members: P. P. Bracke
R. E. Teschemacher

Summary of Facts and Submissions

I. This appeal lies from the Opposition Division's interlocutory decision, announced orally on 7 June 1995, with the reasoned decision being issued on 3 July 1995, that, account being taken of the amendments made by the Patent Proprietor (Respondent) during the opposition proceedings, European patent No. 0 219 314 and the invention to which it relates meet the requirements of the EPC.

The decision was based on Claims 1 to 6 (main request) and pages 2 to 4 of the description provided during the oral proceedings before the Opposition Division and pages 5 to 8 of the patent as granted.

The only independent claims read:

"1. A granular detergent composition prepared by drying an aqueous slurry, said composition comprising

(a) a mixture of C₁₁-C₁₃ alkylbenzene sulfonate surfactant and a C₁₂-C₁₅ alkyl sulfate surfactant in a weight ratio of sulfonate surfactant to sulfate surfactant of from 4:1 to 1:4;

(b) an alkali metal silicate having a molar ratio of SiO₂ to alkali metal oxide of from 1.0 to 3.2;

(c) from 10% to 60% by weight of sodium sulfate; and

(d) from 1% to 45% by weight of a water-soluble non

phosphate detergent builder material,

wherein the composition contains less than 5% by weight of a pyrophosphate or anhydrous Form 1 tripolyphosphate detergent builder material; characterized in that said detergent composition comprises from 30% to 60% by weight of said surfactant mixture, wherein the weight ratio of (a) to (b) is from 2.0:1 to 4.0:1, to provide granules initially containing by weight from 1% to 3% water."

and

"6. A laminated laundry product comprising two plies of water insoluble tissue in which:

- (1) at least one ply is water permeable;
- (2) at least one ply defines more than one cup, each cup being surrounded by a rim of that ply;
- (3) the second ply is sealed to the first ply at least at the rims of the cups to physically separate the cups so that the contents of the cups remain in place; and more than one cup contains a composition according to any one of Claims 1-5."

II. The Opposition Division found that the claimed granules and laminated laundry product were novel and inventive over the teachings of the only cited documents

- (1) EP-A-0 129 276 and
- (2) EP-A-0 084 657.

More particularly, the Opposition Division considered that document (1) represented the closest state of the art and that the problem to be solved, in view thereof, was the provision of alternative granular detergent compositions having good solubility in water. Since there was neither in document (1) nor in document (2) an incentive to use an alkylbenzene sulfonate/alkyl sulfate surfactant mixture and an alkali metal silicate in a weight ratio of from 2.0:1 to 4.0:1 in order to provide good solubility to a granular detergent composition, the Opposition Division found that the claimed granules were not obviously derivable from the cited prior art.

- III. At the oral proceedings before the Board of Appeal, held on 11 March 1998, the Respondent filed amended pages 2 and 3 of the description in order to adapt the text of the description to the claims underlying the contested decision. The Appellant (Opponent) stated that he had no objection to the proposed adaptation of the description.
- IV. The Appellant submitted in essence that it had not been shown that the claimed granular detergent compositions had a good solubility and that document (2), which describes water-soluble detergent granulates containing anionic surfactants and natrium silicate in a weight ratio as defined in present Claim 1 and having a good solubility in water, represented the closest state of the art. Since the other parameters in present Claim 1 were not shown to be relevant for the solubility, he concluded that the claimed compositions were obvious over the teaching of document (2).

- V. The Respondent argued that the problem underlying the invention arose from the fact that mixtures of alkylbenzene sulfonate and alkyl sulfate surfactants tended to gel on contact with water, which resulted in poor solubility of granules having high levels of such surfactant mixtures. Since none of the cited documents was concerned with that problem, he submitted that the claimed granular detergent compositions were not obvious over the teachings of documents (1) and (2).
- VI. The Appellant requested that the decision under appeal be set aside and that European patent No. 0 219 314 be revoked.

The Respondent requested that the appeal be dismissed and that the patent be maintained with Claims 1 to 6 filed during the oral proceedings before the Opposition Division as main request and with pages 2 and 3 as submitted during the oral proceedings before the Board of Appeal, page 4 as filed during the oral proceedings before the Opposition Division and pages 5 to 8 as granted.

Reasons for the Decision

1. The appeal is admissible.
2. The Board is satisfied that the contested patent, in its amended form, meets the requirements of Article 123(2) and (3) EPC and that the claimed

subject-matter is novel in view of the two citations. Since this was not contested, no detailed reasoning needs to be given.

3. *Inventive step*

3.1 The Appellant submitted that not document (1) but document (2) represents the closest state of the art.

3.1.1 Document (1) describes granular detergent compositions which have satisfactory solubility in the laundering solution (page 1, lines 13 to 17, and page 17, lines 21 and 22) and which contain, besides a non-phosphorus containing detergency builder and polymeric material, 5 to 50% by weight of a detergent surfactant and a water-soluble silicate material (page 2, line 19 to page 3, line 3). Document (1) also teaches that the dried granules contain from 3 to 15% by weight of water (page 3, lines 17 to 19) and not more than 4.5% by weight of the silicate material (page 3, lines 9 and 10, and page 12, second paragraph). Furthermore, in the experimental part it is shown that detergent compositions containing 24.6, 25 or 28.7% by weight of a mixture of sodium C₁₂ or C₁₃ lower alkyl benzene sulfonates and sodium C₁₄₋₁₅ alkyl sulfates (ratio 2.3/1 or 1/1) and 2.5% by weight of sodium silicate have a satisfactory solubility (compositions A-D in example I and compositions B-D in example II), whereas such compositions containing 14.2% by weight of sodium silicate are less soluble (high silicate comparison in example II).

3.1.2 Document (2) teaches that granular detergent

compositions having a powder density of not more than 450g/l and containing 35 to 50% by weight of sodium C₁₀₋₁₄ alkyl benzene sulfonate or a mixture thereof with sodium C₁₀₋₂₀ alkyl sulfate, 5 to 25% by weight of sodium tripolyphosphate, 5 to 25% by weight sodium aluminosilicate, 5 to 20% by weight of a sodium silicate having a SiO₂ : Na₂O ratio of 1.5:1 to 3.6:1 and 8 to 15% by weight of water (page 4, lines 3 to 26, and page 5, lines 16 to 25), are suitable for manual washing and have an increased grain strength without influencing the solubility (page 1, lines 4 to 9, page 2, lines 3 to 6, and page 10, lines 25 to 29).

3.1.3 It is the established jurisprudence of the Boards of Appeal of the EPO that the closest prior art is selected from the available prior documents disclosing subject-matter concerning **the same purpose as the claimed invention**. In the present case, both cited documents and the patent in suit are concerned with granulates containing a surfactant mixture of alkylbenzene sulfonates and alkyl sulfates. Document (1), however, is concerned with satisfactory soluble granular detergent compositions containing a non-phosphorus detergent builder material, whereas document (2) is concerned with detergent granulates containing 5 to 25% by weight of phosphorus containing detergency builder, namely sodium tripolyphosphate (see page 4, line 9). Since the solubility properties of detergent granulates containing a non-phosphorus detergent builder material are not comparable with those containing a phosphorus detergent builder, as may be derived, for example, from the teaching in the second and third paragraph on page 1 of document (1), and since the patent in suit is concerned with detergent compositions containing a non-phosphate detergent builder, the Board considers that document (1) represents the most relevant prior art.

3.2 According to the patent in suit, mixtures of alkylbenzene sulfonate and alkyl sulfate are desired for optimum detergency performance, but such mixtures tend to gel on contact with water, which can result in poor solubility of granules having high levels of alkylbenzene sulfonate and alkyl sulfate (page 2, lines 13 to 16)

Thus, in view of the teaching of document (1), the problem to be solved can be seen in providing granular detergent compositions which have **high levels** of alkylbenzene sulfonate and alkyl sulfate and which are **very soluble**, as mentioned in the patent in suit, page 2, line 17 to 21, and page 3, lines 47 and 48.

- 3.3 The Appellant submitted that the only information about the solubility of the claimed compositions on page 7, lines 37 and 38, of the patent in suit, teaching that "When the composition of Example 1 is incorporated in said laminated laundry product, it exhibits **superior** solubility" (emphasis added), is not sufficient to make it credible that the above mentioned problem is effectively solved by the claimed granular detergent compositions, since this statement is only concerned with the solubility when the claimed compositions are incorporated in a laminated laundry product and since no additional solubility data were provided. This view was contested by the Respondent.

The Board, however, does not see why the solubility of the claimed granular detergent compositions would be different when the granules as such are brought into contact with water than when they are first incorporated in a laminated laundry product. Even more, it is unlikely that, in order to be available as a detergent, the solubility requirements of granules directly brought into contact with water are more critical than when they are incorporated in a laminated product. According to the patent in suit, the claimed granular detergents are so composed that they are "very soluble in the wash water even though they contain high

levels of alkylbenzene sulfonate and alkyl sulfate surfactants" (see page 3, line 47 to page 4, line 8).

Since the Appellant has not substantiated his assertion that a good solubility has not been credibly shown, it must be pointed out that it is consistent jurisprudence of the Boards of Appeal that in such a situation, ie where the Board is unable to establish the facts of its own motion, this is to the detriment of the party that relies on an unsubstantiated allegation. In the present case, the onus of proof is clearly on the opponent and not on the patentee (eg T 219/83 OJ EPO 1986, 211, Reasons No. 12). Therefore, the Board accepts that the claimed compositions effectively solve the problem described herein-above.

- 3.4 Consequently, the question arises whether, in the light of the teaching of document (1), a skilled person, trying to solve the technical problem set out in point 3.2 above, would have arrived at the claimed granular detergent compositions, and more particularly whether he would have been led to compositions containing 30 to 60% by weight of a surfactant mixture as defined in Claim 1 and alkali metal silicate in a weight ratio of 2.0:1 to 4.0:1.

Thus, in assessing inventive step, it is to be decided whether such skilled person would have incorporated at least 7.5% by weight of an alkali metal silicate in a composition containing 30 to 60% by weight of a surfactant mixture as defined in Claim 1.

- 3.5 Document (1) is concerned with detergent compositions

containing not more than 4.5% by weight of an alkali metal silicate (page 1, lines 13 to 17, and page 12, lines 13 to 16) and it further teaches in the paragraph bridging pages 1 and 2 that an increased silicate level enhances silicate polymerisation during drying, resulting in the formation of unacceptable levels of insoluble silicates, which may deposit on fabrics.

Therefore, the Board finds that a skilled person looking for detergent compositions showing the required solubility would have been discouraged by the teaching of document (1) to increase the amount of alkali metal silicate above 4.5% by weight and, consequently, the claimed compositions were not suggested by the teaching of document (1), taken alone.

3.6 Thus, the question arises whether the claimed compositions were obviously derivable from the teaching of document (1) in combination with the teaching of document (2).

As already pointed out under point 3.1 above, this document concerns detergent compositions which must contain 5 to 25% sodium tripolyphosphate and which do not necessarily lead to the solubility problems arising when using non-phosphorus detergent builders. Although it was known from document (2) that granular detergent compositions having high levels of anionic surfactant and alkali metal silicate in a weight ratio of from 2.0:1 to 4.0:1 have a good solubility, this document concerns exclusively compositions containing at least 5% of sodium tripolyphosphate. It is silent about the function of sodium silicate in the detergent

compositions and does not specifically mention mixtures of C₁₁-C₁₃ alkylbenzene sulfonate surfactant and C₁₂-C₁₅ alkyl sulfate surfactant in a weight ratio of from 4:1 to 1:4. Furthermore, this document is completely silent about the problem that such mixtures tend to gel on contact with water.

Therefore, the Board finds that only with hindsight can it be considered that a skilled person looking to avoid the formation of a gel when contacting granular detergent compositions containing high levels of alkyl benzene sulfonates and alkyl sulfates in a weight ratio of 4:1 to 1:4, in the presence of substantial amounts of phosphorous-containing builders, would have taken the content of document (2) into consideration.

Therefore, the Board comes to the conclusion that, starting from the compositions described in document (1) as the most relevant prior art, a skilled person would have had no incentive to take the teaching of document (2) into consideration. Consequently, the claimed compositions were not obviously derivable from the combined teaching of documents (1) and (2).

- 3.7 Since the Appellant consistently used a different starting point for challenging inventive step, the Board finds it necessary to point out that the outcome of the assessment of inventive step would not have been different if the teaching of document (2) had been considered as the most relevant prior art, because,

- (i) in view of document (2), the problem to be solved would have been the provision of non-phosphorous builder containing detergent compositions also containing surfactant mixtures of alkylbenzene sulfonates and alkyl sulfates combining optimum detergency with the avoidance of the formation of gel on contact with water, thus providing good solubility;

- (ii) in document (2) there is no hint either to select a mixture of C₁₁-C₁₃ alkylbenzene sulfonate surfactant and C₁₂-C₁₅ alkyl sulfate surfactant in a weight ratio of sulfonate surfactant to sulfate surfactant of from 4:1 to 1:4 as being a surfactant mixture having optimum detergency, nor to combine the surfactant mixture with an alkali metal silicate **in a weight ratio of 2.0:1 to 4.0:1** in order to avoid the formation of gel upon contact of the surfactant with water;

- (iii) in document (1) it was clearly taught that increased silicate levels enhance silicate polymerisation during drying, resulting in the formation of insoluble silicates; and

- (iv) therefore, it was not obviously derivable from the teaching of document (2), taken alone or in combination with the teaching of document (1), that the claimed granular detergent compositions would combine optimum detergency with good solubility, resulting from the fact that the formation of gel upon contact with water is avoided.

3.8 Claims 2 to 5, which represent preferred embodiments of Claim 1, and Claim 6, which concerns a laminated laundry product containing a composition according to any one of Claims 1 to 5, derive their patentability from that of Claim 1.

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 the patent in the following version:

Claims: Claims 1 to 6 filed during the oral proceedings before the Opposition Division as main request,

Description: pages 2 and 3 as submitted during the oral proceedings before the Board of Appeal

page 4 as filed during the oral proceedings before the Opposition Division,

pages 5 to 8 as granted.

The Registrar:

The Chairman:

E. Görgmaier

A. Nuss