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**D E C I S I O N**  
**of 16 September 2005**

**Case Number:** T 0997/03 - 3.3.06

**Application Number:** 96203471.6

**Publication Number:** 846755

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**Language of the proceedings:** EN

**Title of invention:**

-

**Patentee:**

The Procter & Gamble Company

**Opponent:**

-

**Headword:**

Solubility/PROCTER & GAMBLE

**Relevant legal provisions:**

EPC Art. 56

**Keyword:**

"Inventive step (acknowledged after amendment)"

**Decisions cited:**

-

**Catchword:**

-



Case Number: T 0997/03 - 3.3.06

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.06  
of 16 September 2005

**Appellant:**

THE PROCTER & GAMBLE COMPANY  
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Ohio 45202 (US)

**Representative:**

Mather, Peter Geoffrey  
NV Procter & Gamble Services Company SA  
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**Decision under appeal:**

Decision of the Examining Division of the  
European Patent Office posted 4 July 2003  
refusing European application No. 96203471.6  
pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** P. Krasa  
**Members:** G. Raths  
A. Pignatelli

## Summary of Facts and Submissions

I. This appeal is from the Examining Division to refuse European patent application No. 96203471 concerning a coated detergent tablet.

II. The application as filed contained 7 claims, which read as follows:

"1. A tablet comprising a core and a coating, the core being formed by compressing a particulate material, the particulate material comprising surfactant and detergent builder, characterised in that the coating comprises a material, or mixture of materials, which is substantially insoluble in water at 25°C.

2. A tablet according to claim 1 comprising a coating of substantially water insoluble materials having a melting point in the range of from 40°C to 180°C.

3. A tablet according to either of claims 1 or 2 wherein the coating material is selected from the group consisting of C12-C22 fatty acids, adipidic acid, C8-C13 dicarboxylic acids, or mixtures thereof.

4. A tablet according to either of claims 1 or 2 wherein the coating material is selected from the group consisting of C12-C22 fatty alcohols, preferably C14-C18 fatty alcohols.

5. A process for making a tablet comprising the steps of:

(a) forming a core by compressing a particulate material, the particulate material comprising surfactant and detergent builder;

(b) applying a coating material to the core, the coating material being in the form of a melt;  
(c) allowing the molten coating material to solidify; characterised in that the coating material comprises a material, or mixtures of materials, which is substantially insoluble in water at 25°C.

6. A process according to claim 5 wherein the coating material, or mixture of materials, has a melting point of from 40°C to 180°C.

7. A process for making a tablet comprising the steps of:

(a) forming a core by compressing a particulate material, the particulate material comprising surfactant and detergent builder;  
(b) applying a coating material to the core, the coating material being dissolved in a solvent;  
(c) allowing the solvent to evaporate;

characterised in that the coating material comprises a material, or mixtures of materials, which is substantially insoluble in water at 25°C."

III. In its decision, which was based on the set of 7 claims as filed, the Examining Division held the claimed subject-matter not to involve an inventive step, in view of documents

(1) EP-A-0 716 144 and

(3) WO-A-95 18215.

In particular, the Examining Division took document (1) as the starting point for evaluating inventive step.

The problem as stated in document (1) was to reduce the friability of the tablet surface and to increase the resistance to abrasion although the presence of the coating may not greatly alter the visual appearance of the tablet (page 2, lines 36 to 39).

According to document (1) this problem was solved with a tablet of compacted particulate detergent composition comprising detergent active and detergency builder whereby the tablet is provided with an external coating of a water-soluble material (page 2, lines 46 to 49).

According to the Examining Division the problem underlying the present application was to provide an alternative coating.

This problem was solved with a material which was substantially insoluble in water at 25°C (see Claim 1).

According to the application in suit such water-insoluble material may be fatty acids, adipic acid, C<sub>8</sub> to C<sub>13</sub> dicarboxylic acids, fatty alcohols, diols, esters and ethers (page 3, lines 51 and 52).

The article according to document (3) was an alkaline detergent article comprising a solid block detergent mass having a barrier coating. The barrier coating provided safety and stability to the detergent mass (page 4, lines 33 to 36); water-soluble and water-insoluble materials may be used; water-insoluble coatings could be wax materials, hydrogenated fatty acids and fatty acid amides (page 17, lines 24 and 37; page 18, line 4) and stearic acid diethanol amide (example 1). Once coated, the detergent article could be packaged in a separate film envelope. The envelope

could be water soluble or water-insoluble (page 19, lines 5 to 7).

The Examining Division found that a skilled person, therefore, would have found a hint in document (3) relating to a stable hygroscopic detergent article to apply such a material and that the claimed solution of the existing technical problem was obvious for the skilled person.

- IV. The applicant (hereinafter appellant) lodged an appeal against this decision. In the grounds of appeal, the appellant disputed the finding of the Examining Division that the problem to be solved over document (1) would directly relate to the coating and that the nature of the core would not be related to the problem. The essence of the invention would be a combination of the relatively soft core and the hard coating. The water-insoluble coating would serve the dual role of protecting the soft core and, when broken, release very quickly the soft core in the wash liquor.

Document (1) taken by the Examining Division as the starting point for evaluating inventive step would not be a suitable starting point.

As to document (3), the way in which the detergent article according to document (3) was made (i.e. casting a solid block) and the way in which it was dispersed (by the user cutting or breaking the coating) would be different from the method of manufacture and the method of application of the detergent tablet of document (1).

In particular, the appellant argued

- that the detergent article according to document (3) was a large solid block composition of the type made by casting;
- that according to document (3) cast articles were not suitable for use in most dispensing apparatus;
- that the teaching of document (3) was concerned with preventing water-absorption by large cast articles;
- that the user of the product according to document (3) had to break the dispensing hydrophobic coatings to provide an initial surface of caustic detergent exposed to water spray. The water spray could then dispense the detergent and either melt or dissolve the hydrophobic coating (see also document (3), page 6, lines 3 to 9).

It further argued that the dispensing rate of stearic diethanol amide coating (example 1 of document (3)) would not be an appropriate example since the institutional and industrial washing machines with wash cycles over days or weeks would be different from domestic washing machines with a dispensing cycle of minutes (present application), compressed tablets according to the application in suit being not comparable to cast blocks according to document (3).

The appellant concluded that document (3) provided no guidance as to how a skilled person could have solved the technical problem in view of document (1) and further that the problem solution approach was not correctly applied by the Examining Division.

- Document (1) would teach away from the invention since it was directed to a water insoluble coating in contrast to the water soluble coating of the invention.
- V. In a communication dated 5 July 2005 the Board indicated that the appellant had not convincingly demonstrated how differences in the material to be protected - if the existence of such differences could be acknowledged - could influence the properties of the protective coating and indicated that document (1) would be an appropriate starting point for evaluating inventive step and that in view of Claim 1 as filed the Board would have to follow the line of arguments of the Examining Division.
- VI. During the oral proceedings held on 16 September 2005, the appellant withdrew all requests then on file and replaced them by a new main request and three new auxiliary requests.

Main request

The main request consisted of 5 claims:

Claim 1 of the main request read:

"1. A tablet comprising a core and a coating, the core being formed by compressing a particulate material, the particulate material comprising surfactant and detergent builder, characterised in that the coating comprises adipidic acid, C8-C13 dicarboxylic acids or mixtures thereof which has a solubility in water at 25°C of less than 20 g/l."

Claim 2 was identical to Claim 2 as filed.

Claims 3 and 5 differed from the respective Claims 5 and 7 as filed in that

"a material or mixtures of materials, which is substantially insoluble in water at 25°C."

was replaced in each case by

"adipidic acid, C8-C13 dicarboxylic acids or mixtures thereof which has a solubility in water at 25°C of less than 20 g/l."

Claim 4 differed from Claim 6 as filed only in that

"claim 5"

was replaced by

"claim 3".

The first to third auxiliary requests need not to be copied here for understanding this decision.

- VII. The appellant requested that the decision under appeal be set aside and that a patent may be granted on the basis of the claims of the main request or of the first to third auxiliary requests as submitted during the oral proceedings.

## **Reasons for the Decision**

1. *Main request*

1.1 Articles 84 and 123(2) EPC

In Claims 1, 5 and 7 as filed the passage

"a material or mixtures of materials, which is substantially insoluble in water at 25°C."

was replaced by

"adipidic acid, C8-C13 dicarboxylic acids or mixtures thereof which has a solubility in water at 25°C of less than 20 g/l."

and the claims were renumbered as 1, 3 and 5, respectively.

The passage now present in Claims 1, 3 and 5 (see also point VI above) finds its support in the description as filed (page 7, lines 22 and 23; page 8, lines 15 to 17; page 8, lines 2 to 8 and lines 22 to 23).

The Board is, therefore, satisfied that the provisions under Articles 84 and 123(2) EPC are met.

1.2 Novelty

The subject-matter of Claims 1, 3 and 5 differs from the subject-matter disclosed by documents (1) and (3) in that the water solubility of the coating of less than 20 g/l has not been mentioned in said documents.

The coating according to document (1) is a copolymer of (meth)acrylic acid and maleic acid/or anhydride or

sugars and according to document (3) the coating is made of a waxy material or vegetable fat or oil, or hydrogenated fatty acids or fatty acid amides whereas according to Claims 1, 3 and 5 of the application in suit the coating comprises adipidic acid, C<sub>8</sub>-C<sub>13</sub> dicarboxylic acids and mixtures thereof.

The Board is satisfied that the subject-matter of the respective independent claims is not anticipated by any of the cited prior art documents and complies with the requirements of Articles 52(1) and 54(1), (2) EPC.

2. *Inventive step*

2.1 The state of the art discussed in the application in suit comprised also documents (1) and (3). It was mentioned that document (1) disclosed laundry detergent tablets with water soluble coatings which may be organic polymers including acrylic/maleic co-polymer, polyethylene glycol, PVPA, and sugar. Document (3) disclosed water-insoluble coatings for solid cast tablets. The tablets were provided with hydrophobic coatings including wax, fatty acid, fatty acid amides, and polyethylene glycol.

2.2 The application in suit "provides a means by which tablets with a core which is formed by compressing a particulate material, the particulate material comprising surfactant and detergent builder, can be provided with a hard and thin coating so that they can be stored, shipped and handled, but the coating is broken when the tablet is in the washing machine exposing the soft core which breaks up easily and

rapidly, releasing the active ingredients into the wash solution." (page 2, lines 30 to 33).

2.3 The objective of the invention as stated in the application in suit was to provide a tablet which completely disintegrates and disperses in alkaline or surfactant-rich solutions such as the wash liquor (page 2, lines 34 to 35).

2.4 According to document (1) an external coating of a water-soluble material does not have a deleterious effect on the disintegration of the tablet as measured by the amount of residue remaining after a period of exposure to water (page 2, lines 40 to 42).

Since the application in suit and document (1) address both the problem of disintegration of the tablet, document (1) qualifies as the starting point for evaluating inventive step.

2.5 This problem is solved according to document (1) by providing a tablet having an external coating of a water-soluble material (page 2, line 49) which - as agreed by the appellant - differs from that of Claim 1 only in that the coating of the latter comprises adipidic acid, C<sub>8</sub>-C<sub>13</sub> dicarboxylic acids or mixtures thereof which has a solubility in water at 25°C of less than 20 g/l.

Therefore, the problem underlying the application in suit in the light of document (1) was to find an alternative solution to the tablet having an external coating of a water-soluble material.

The Board has no reason to doubt that the criterion of solubility (i.e. the coating has a solubility of less than 20 g/l at 25°C) is met by coatings as defined in Claim 1.

2.6 The issue to be decided is whether or not the claimed solution to the above technical problem involved an inventive step, or in other words, whether or not it was obvious for someone skilled in the art to replace the water-soluble coating according to document (1) with a coating comprising adipidic acid, C<sub>8</sub>-C<sub>13</sub> dicarboxylic acids or mixtures thereof which has a limited solubility in water at 25°C of less than 20 g/l.

2.7 The question is whether the skilled person got a hint in the prior art to manufacture coatings with adipidic or C<sub>8</sub>-C<sub>13</sub> dicarboxylic acids or mixtures thereof.

Document (3) suggests detergent articles comprising a solid block detergent mass having a barrier coating. The barrier coating provides safety and stability to the detergent mass (page 4, lines 33 to 36); water-soluble and water-insoluble materials may be used; water-insoluble coatings may be waxy materials, hydrogenated fatty acids and fatty acid amides (page 17, lines 24 and 37; page 18, line 4) and in particular stearic acid diethanolamide (example 1). Once coated, the detergent article can be packaged in a separate film envelope. The envelope can be water soluble or water-insoluble (page 19, lines 5 to 7).

Thus, document (3) did not disclose or suggest to replace the water soluble coatings known from document (1) by adipidic or C<sub>8</sub>-C<sub>13</sub> dicarboxylic acids or mixtures

thereof which should be used to manufacture a coating material having a solubility in water at 25°C of less than 20 g/l.

2.8 The Board, therefore, concludes that it was not obvious to manufacture a coating material having a solubility in water at 25°C of less than 20 g/l, the coating being made of adipidic or C<sub>8</sub>-C<sub>13</sub> dicarboxylic acids or mixtures thereof.

2.8.1 Therefore, the subject-matter of Claim 1 involves an inventive step.

The same conclusion holds for the subject-matter of independent Claims 3 and 5 relating to a process for making a tablet according to Claim 1, said tablet comprising a core and a coating made of adipidic or C<sub>8</sub>-C<sub>13</sub> dicarboxylic acids or mixtures thereof.

2.9 The subject-matter of Claims 1, 3 and 5 meets the requirements of Article 56 EPC.

The dependent Claims 2 and 4 derive their patentability from the subject-matter of the independent Claims 1 and 3, respectively.

**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 grant a patent with the claims according to the main request submitted during oral proceedings and a description to be adapted.

The Registrar:

The Chairman:

G. Rauh

P. Krasa