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**Datasheet for the decision  
of 08 December 2009**

**Case Number:** T 0329/08 - 3.3.06

**Application Number:** 00908322.1

**Publication Number:** 1144585

**IPC:** C11D 17/00

**Language of the proceedings:** EN

**Title of invention:**

Detergent tablet

**Patentee:**

THE PROCTER & GAMBLE COMPANY

**Opponents:**

Henkel AG & Co. KGaA  
Reckitt Benckiser (UK) Limited  
UNILEVER N.V. / UNILEVER PLC

**Headword:**

Detergent tablet/PROCTER & GAMBLE

**Relevant legal provisions:**

EPC Art. 56

**Relevant legal provisions (EPC 1973):**

-

**Keyword:**

"Inventive step (all requests): no - obvious combination of components having known properties"

**Decisions cited:**

-

**Catchword:**

-



Case Number: T 0329/08 - 3.3.06

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.06  
of 08 December 2009

**Appellant:** Henkel AG & Co. KGaA  
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**Decision under appeal:**

Decision of the Opposition Division of the European Patent Office posted 21 December 2007 rejecting the opposition filed against European patent No. 1144585 pursuant to Article 102(2) EPC 1973.

**Composition of the Board:**

**Chairman:** P.-P. Bracke  
**Members:** L. Li Voti  
J. Van Moer

## Summary of Facts and Submissions

- I. The present appeal is from the decision of the Opposition Division to reject the oppositions against the European patent no. 1 144 585 concerning a detergent tablet.
- II. In their notices of opposition the Opponents 01, 02 and 03 sought revocation of the patent *inter alia* on the grounds of Article 100(a) EPC because of lack of inventive step of the claimed subject-matter.

The Opponents referred during the opposition proceedings *inter alia* to the following documents:

- (2): DE-A-19709991;
- (3): EP-A-0838519;
- (8): WO98/55590;
- (9): EP-A-355626 and
- (10): WO98/55582.

- III. The Opposition Division found in its decision that the claims as granted were novel over the cited prior art.

As regards inventive step, it found that the technical problem underlying the invention consisted in the provision of detergent tablets having improved dissolution characteristics and excellent long-term storage stability in terms of strength and robustness.

The burden of proof lied on the Opponents to show that this technical problem had not been solved. However, the Opponents had not submitted any evidence in this respect. Therefore, there were no doubts that the

claimed subject-matter solved the technical problem underlying the invention.

Since the prior art, though offering different solutions to this technical problem, did not suggest using polymeric disintegrants of small particle size in combination with highly water soluble hydrated salts and suggested to the contrary to use polymeric particles having a bigger particle size, the claimed subject-matter involved an inventive step.

IV. An appeal was filed against this decision by Opponent 01 (Appellant).

The Respondent (Patent Proprietor) submitted with the letter of 16 September 2008 two sets of amended claims as first and second auxiliary requests.

Oral proceedings, in which took part also Opponent 03 as party as of right to the proceedings under Article 107 EPC, were held before the Board on 08 December 2009.

V. Claim 1 of the set of claims according to the **main request** reads as follows:

"1. A detergent tablet for use in a washing machine, the tablet having one or more phases at least one of which is in the form of a compressed particulate solid comprising: a) a polymeric disintegrant selected from starch, cellulose and derivatives thereof, alginates, sugars, polyvinylpyrrolidones, swellable clays and mixtures thereof having a particle size distribution such that at least 90% by weight thereof has a particle

size below 0.3mm and at least 30% by weight thereof has a particle size below 0.2mm; and b) a water-soluble hydrated salt having a solubility in distilled water of at least 25g/100g at 25°C, wherein the detergent tablets contain from 0.5% to 10% by weight of each of the polymeric disintegrant and water-soluble hydrated salt."

Claim 1 according to the first auxiliary request differs from that according to the main request insofar as it contains at the end the additional wording:  
", wherein the compressed particulate solid is compressed at a pressure of at least 250 kg/cm<sup>2</sup>."

Claim 1 according to the second auxiliary request differs from that according to the main request insofar as it contains at the end the additional wording:  
", wherein the detergent tablet comprises a) a first phase in the form of a shaped body having at least one mould therein; and b) a second phase in the form of a particulate solid compressed within said mould and the first phase is compressed at a pressure of at least 350 kg/cm<sup>2</sup> and wherein the polymeric disintegrant (a) and the water-swellable hydrated salt (b) are incorporated in the first phase."

- VI. The Appellant and Opponent 03 submitted *inter alia* that
- the wording of claim 1 encompassed tablets containing granulated polymeric disintegrants made of polymeric disintegrant particles having the required small particle size;

- no improvement had been shown with respect to the cited prior art;

- starting from the teaching of document (3) that sodium acetate trihydrate improved the dissolution characteristics and the strength of tablets, it would have been obvious to the skilled person, faced with the technical problem of providing an alternative tablet of similar characteristics, to add to the tablets of document (3) further materials known for improving the dissolution properties without affecting strength;

- it was, for example, known from document (2) that cellulosic material of small particle size could be used for such a purpose;

- therefore, it would have been obvious to the skilled person to try the hydrated salts of document (3) in combination with the cellulosic material of document (2) and to expect a complementary effect arising from the known properties of these known components;

- therefore, the subject-matter of claim 1 according to the main request would lack an inventive step in the light of the combination of documents (3) and (2);

- since it was already known to prepare the tablets of document (3) by using a pressure as indicated in claim 1 according to the first auxiliary request, also this claim lacked an inventive step;

- furthermore, a tablet having the structure of claim 1 according to the second auxiliary request was already known in the prior art; therefore, it would have also

been obvious to prepare a tablet with such a structure by following the teaching of document (3); claim 1 according to the second auxiliary request thus lacked an inventive step.

VII. The Respondent submitted in writing and orally that

- the claimed invention related to the provision of tablets having good strength and dissolution properties;

- claim 1 did not encompass the use of polymeric disintegrants having, after granulation, a particle size greater than that required in claim 1,

- the use of a disintegrant of small particle size in combination with a hydrated salt in the same phase provided excellent properties especially when the tablet was prepared under high compression forces;

- this would have not been expected because of the known dichotomy of solubility and strength in compressed tablets;

- document (3) taught that the use of potassium acetate in a tablet provided better characteristics than the water-soluble hydrated salts and suggested to use concentrations of the hydrated salts higher than 10% by weight; therefore, the skilled person, looking for tablets having good strength and dissolution properties, would have tried to use potassium acetate rather than the water-soluble hydrated salts;

- moreover, document (2) taught away from using a polymeric disintegrant having small particle size for



solving the technical problem underlying the invention; a similar teaching was contained in documents (8) and (10); therefore, the skilled person would have not used a polymeric disintegrant having a particle size as required in claim 1 for solving the technical problem underlying the invention;

- the subject-matter of claim 1 according to the main request thus involved an inventive step;

- as regards the first auxiliary request, the additional feature of claim 1 underlined the importance of the selected combination of components for obtaining a tablet of excellent characteristics even if prepared under high compression forces;

- as regards the second auxiliary request, the prior art had not suggested or disclosed the type of structure claimed; moreover, the selected combination of components provided excellent solubility even if the portion of the tablet wherein they were contained had been prepared under higher compression forces.

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

IX. The Respondent requests that the appeal be dismissed or, in the alternative, that the patent be maintained on the basis of the first or second auxiliary requests submitted with letter of 16 September 2008.

## Reasons for the Decision

### 1. *Main request*

#### 1.1 Inventive step

##### 1.1.1 The invention of claim 1 relates to single and multi-phase detergent tablets (see paragraph 1 of the patent in suit).

As explained in the patent in suit, tablets are typically formed by compression of the components of a detergent composition so that the tablets produced are sufficiently robust to be able to withstand handling and transportation without sustaining damage. In addition to being robust, tablets must also dissolve sufficiently fast so that the detergent components are released into the wash water as soon as possible at the beginning of the wash cycle (paragraph 3).

However, a dichotomy exists in that as compression force is increased, the rate of dissolution of the tablets becomes slower. A low compression force, on the other hand, improves dissolution but at the expense of tablet strength (paragraph 4).

The technical problem underlying the invention thus is formulated in the patent in suit either generally as the provision of a tablet composition having improved tablet dissolution characteristics, strength and long-term storage characteristics (paragraph 6) or, with respect to the multi-phase tablet embodiment, as the provision of a detergent tablet that is not only sufficiently robust to withstand handling and

transportation, but also at least a significant portion of which dissolves rapidly in the wash water providing rapid delivery of detergent active (paragraph 17).

- 1.1.2 The most suitable starting point to be selected for assessing inventive step of a claimed subject-matter is, according to the jurisprudence of the Boards of Appeal of the EPO, a prior art document disclosing a subject-matter conceived or aiming at the same or similar objectives as the claimed invention and having the most possible number of relevant technical features in common (see Case Law of the Boards of Appeal of the EPO, 5th edition, 1006, I.D.3.1).

The parties indicated three possible starting points for the evaluation of inventive step, namely documents (2), (3) and (9). Indeed all these three prior art documents deal with a similar technical problem as that identified in the patent in suit, i.e. with the provision of a tablet which is sufficiently robust and dissolves rapidly in the wash water (see document (2), column 1, lines 63 to 67 in combination with column 2, lines 8 to 13; document (3), page 2, lines 30 to 33; document (9), page 2, lines 18 to 20).

However, claim 1 according to the main request requires the presence of a polymeric disintegrant selected from starch, cellulose and derivatives thereof, alginates, sugars, polyvinylpyrrolidones, swellable clays and mixtures thereof and of a water-soluble hydrated salt having a solubility in distilled water of at least 25g/100g at 25°C, each being present at an amount of 0.5% to 10% by weight.

Document (2) requires the presence of 3 to 6% by weight of a cellulosic polymeric disintegrant (see claims 1 and 9 and column 2, lines 12 to 14) but not that of a water-soluble hydrated salt whilst document (3) requires in one of its embodiments the presence of a sodium acetate trihydrate optionally in combination with sodium citrate dihydrate, both being water-soluble hydrated salts of the type of claim 1, at an amount so low as 7% by weight (see claims 1 and 3 as well as page 3, lines 1 to 2 and table on page 8 between lines 10 and 20) but not requiring the presence of a polymeric disintegrant. Conversely, document (9) does not require either the presence of a polymeric disintegrant or of a water-soluble hydrated salt (see claims and page 2, lines 22 to 28).

Therefore, document (9) is in the Board's view less suitable as starting point for the evaluation of inventive step.

Moreover, whilst document (2) relates explicitly only to single phase tablets (column 5, lines 29 to 37 and figure 3), document (3) relates to both single and multi-phase tablets (page 6, lines 31 to 36) and relates therefore also to the embodiment of the invention to which paragraph 17 of the patent in suit relates to.

Therefore, the Board finds that document (3) have more relevant features in common with the claimed subject-matter than document (2) and relates to more aspects of the technical problem identified in the patent in suit.

The Board thus takes document (3) as the starting point for the evaluation of inventive step.

1.1.3 As explained above, document (3) already solved the technical problem of providing a tablet having improved robustness and dissolution properties.

The patent in suit neither shows nor explicitly teaches that the claimed tablets are superior to the tablets of document (3). Moreover, the Respondent admitted during oral proceedings that the claimed subject-matter is not considered to be superior to the tablets of the prior art. As a consequence, the question of the burden of proof discussed in the decision under appeal (see point III above) is no longer relevant.

The Board thus finds that, in the light of the teaching of document (3), the technical problem underlying the invention can only be formulated as submitted by the Respondent at the oral proceedings, i.e. as the provision of an alternative tablet having excellent robustness and excellent dissolution properties.

The Board has no reason to doubt that the subject-matter of claim 1 solved the above mentioned technical problem.

1.1.4 As already indicated above, document (3) discloses tablets containing 7% by weight of water-soluble hydrated salts of the type used in the patent in suit and differing from those of claim 1 according to the main request only insofar as they do not comprise a polymeric disintegrant of the given particle size.

Even though this document teaches as an alternative the use of potassium acetate (see claim 1 as well as page 2, lines 33 to 34 and 56 to 57) and shows that this compound can confer to the tablets more solubility and robustness than the water-soluble hydrated salts (see table on page 12 between lines 25 and 43), the description of this document teaches clearly that potassium acetate is difficult to use because of its hygroscopicity (see page 3, lines 1 to 2) and that, therefore, sodium acetate trihydrate is to be preferred. In fact, the overall description of this document concentrates mainly on the use and the excellent properties of sodium acetate trihydrate (see e.g. page 2, lines 35 to 37; page 8, lines 1 to 3 and 21 to 22; page 9, lines 49 to 51).

Therefore, the Board finds that the teaching of document (3) would not have suggested to the skilled person to use potassium acetate as a practicable possible alternative to the use of sodium acetate trihydrate.

As regards the amount of water-soluble hydrated salts used, even though the examples of document (3) report amounts of water-soluble hydrated salts greater than 10% by weight, it is the clear teaching of this document that amounts so low as 7% by weight are sufficient for obtaining the desired results (see page 2, lines 41 to 42 and claims 1 and 3). Therefore, this document undoubtedly teaches also to use less than 10% by weight of the hydrated salts.

The Board thus finds that the skilled person, by looking for alternative tablets having excellent robustness and excellent dissolution properties would not have been led by the teaching to document (3) to renounce using sodium acetate trihydrate and would have been prompted, for example, to look for additional compounds which were already known to provide to tablets additional dissolution properties without affecting their strength and which could be incorporated without difficulty into a detergent tablet.

- 1.1.5 It is undisputed that polymeric disintegrants were known compounds commonly used in detergent tablets for improving their dissolution properties, as acknowledged in the patent in suit (paragraph 5). Therefore, it would have been obvious for the skilled person to look for polymeric disintegrants which could be incorporated into the tablets of document (3) without affecting their robustness.

Such kind of polymeric disintegrants were disclosed, for example, in document (2). In fact, document (2) teaches that granulated compacted cellulosic polymeric disintegrants are suitable for obtaining tablets having improved dissolution whilst maintaining their robustness (see column 1, lines 63 to 67; column 2, lines 8 to 12, 37 to 40 and 59 to 67).

Therefore, it would have been obvious for the skilled person to try these polymeric disintegrants also in a tablet containing water-soluble hydrated salts as disclosed in document (3).

Document (2) teaches also that such polymeric disintegrants should be used in an amount of 3 to 6% by

weight (column 3, lines 58 to 60), i.e. in amounts in accordance with those of claim 1 according to the main request and that the granulated product made of polymeric cellulosic disintegrant contains particles of the disintegrant having a size between 40 and 60  $\mu\text{m}$ , i.e. a size in accordance with the requirements of the patent in suit (column 3, lines 36 to 39).

The Board remarks also that claim 1 according to the main request does not exclude the use of such granulated products since it only requires that the compressed particulate solid, of which the tablets are made, comprises a polymeric disintegrant having the given particle size, wherein the term "particulate solid" encompasses granules and agglomerates as specified on page 4, lines 28 and 29 of the patent in suit.

Therefore, claim 1 encompasses the use of compressed granulates containing polymeric disintegrant particles of the required size such as those disclosed in document (2).

For the same reason, the argument submitted in writing by the Respondent with regard to the content of documents (8) and (10), that the prior art would suggest to use polymeric disintegrants of greater particle size only, cannot be accepted by the Board, since also in these documents, similarly to document (2), the commercially available polymeric disintegrant used is a granulate containing particles of the polymeric disintegrant having a size as required in claim 1 according to the main request (see document (8), page 7, line 22 to page 8, line 10 and document (10),



page 5, line 24 to page 6, line 12), i.e. a product encompassed by the wording of claim 1.

The Board thus concludes that it would have been obvious for the skilled person, faced with the technical problem mentioned above, to try the polymeric cellulosic disintegrants of document (2) within the teaching of document (3) because of their known technical properties.

Therefore, the Board concludes that the subject-matter of claim 1 lacks an inventive step.

## 2. *First auxiliary request*

### 2.1 Inventive step

Claim 1 according to the first auxiliary request differs from that according to the main request insofar as it contains at the end the additional wording: "*, wherein the compressed particulate solid is compressed at a pressure of at least 250 kg/cm<sup>2</sup>.*".

However, it was undisputed that the tablets disclosed in document (3), as submitted by the Appellant during oral proceedings, can be prepared by compressing them with a force of e.g. 20 kN (see page 7, lines 35 to 37), which corresponds to a pressure value greater than the lower limit specified in claim 1 in accordance with the first auxiliary request.

Moreover, the alleged particular suitability of the selected combination of components in a tablet prepared by compression at the pressure of claim 1, addressed to

by the Respondent during oral proceedings, has not been supported by any evidence. Therefore, this unsubstantiated argument has to be disregarded by the Board.

The Board concludes that the subject-matter of claim 1 according to the first auxiliary request lacks an inventive step for the same reasons given in point 1.1.5 above.

### 3. *Second auxiliary request*

#### 3.1 Inventive step

- 3.1.1 Claim 1 according to the second auxiliary request differs from that according to the main request insofar as it contains at the end the additional wording:  
", wherein the detergent tablet comprises a) a first phase in the form of a shaped body having at least one mould therein; and b) a second phase in the form of a particulate solid compressed within said mould and the first phase is compressed at a pressure of at least 350 kg/cm<sup>2</sup> and wherein the polymeric disintegrant (a) and the water-swellaible hydrated salt (b) are incorporated in the first phase."

The Board finds that document (3), as already explained above, relates to both single phase and multi-phase tablets. In particular, it teaches with regard to multi-phase tablets that they can contain layers and inserts each prepared by compaction of a particulate composition and that sodium acetate trihydrate can be contained only in one of the layers or inserts in order

to assist break up of the tablet (see page 6, lines 35 to 40).

Therefore, in the Board's view, it would have been obvious for the skilled person, by applying a conventional tableting process to the products envisaged by the teaching of document (3), to try different tablet structures suggested by this teaching, for example, various combinations of layers and inserts. One possibility readily apparent to the skilled person would be, for example, the provision of a layer and of an insert compressed therein, i.e. a structure corresponding to the wording of claim 1 which requires only a first phase in the form of a shaped body having at least one mould therein (a layer with a place for the insert) and a second phase in the form of a particulate solid compressed within said mould (the insert).

Moreover, by using a conventional tableting process, the layer surrounding the insert would have been subjected necessarily to a greater compression; therefore, it would have been obvious to the skilled person to introduce into this layer more components capable of increasing its dissolution properties. Therefore, it would have been also obvious to the skilled person to try the obvious combination of water-soluble hydrated salts and polymeric cellulosic disintegrants discussed hereinbefore in such a layer in order to increase its solubility without affecting the tablet strength.

As regards the alleged particular suitability of the selected combination of components in a tablet having

the structure required in claim 1, invoked by the Respondent during oral proceedings, no evidence was provided in support of this alleged advantage. Therefore, this Respondent's argument has to be disregarded by the Board.

The Board concludes that also the subject-matter of claim 1 according to the second auxiliary request lacks an inventive step.

## **Order**

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

The decision under appeal is set aside.

The patent is revoked.

The Registrar:

The Chairman:

G. Rauh

P.-P. Bracke