BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

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File Number: T 593/91 - 3.3.1

Application No.: 87 200 466.8

Publication No.: 0 240 057

Title of invention: Granular non-phosphorus-containing bleach activator compositions and use thereof in granular detergent bleach compositions

Classification: C11D 3/39

D E C I S I O N
of 9 February 1993

Applicant: Unilever NV
Unilever PLC

Opponent: Henkel Kommanditgesellschaft auf Aktien

Headword: Bleach activator granules/UNILEVER

EPC Articles 54 and 56

Keyword: "Novelty (confirmed) and Inventive step (confirmed) - after amendment"

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number : T 593/91 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 9 February 1993

Appellant : (Opponent)
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Decision under appeal :
Decision of the Opposition Division of the European Patent Office of 23 April 1991, with written reasons issued on 24 June 1991, rejecting the opposition filed against European patent No. 0 240 057 pursuant to Article 102(2) EPC.

Composition of the Board :

Chairman : K.J.A. Jahn
Members : R.W. Andrews
J-C. Saisset

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Summary of Facts and Submissions

I. European patent No. 0 240 057 in respect of European patent application No. 87 200 466.8, which was filed on 12 March 1987, was granted on 1 March 1989 (cf. Bulletin 89/9).

II. On 11 November 1989 a notice of opposition was filed in which the revocation of the patent was requested on the ground that its subject-matter did not involve an inventive step. The opposition was supported, inter alia, by the following document:

(1) EP-A-0 037 026.

III. By a decision issued orally on 23 April 1991, with written reasons being issued on 24 June 1991, the Opposition Division rejected the opposition.

The Opposition Division held that the proposed solution to the technical problem of providing a granular non-phosphorus containing bleach activator composition, which is stable and can be effectively used in phosphorus-free detergent compositions and which shows physical properties and performance characteristics comparable to the conventional phosphorus-containing bleach activator granules referred to in the sentence bridging pages 2 and 3 of the printed patent specification, was inventive.

IV. An appeal was lodged against this decision on 3 August 1991 with payment of the prescribed fee. In his statement of grounds of appeal filed on 28 September 1991 and during the oral proceedings held on 9 February 1993, the Appellant alleged that the claimed subject-matter lacked novelty having regard to the disclosure of Example VII of EP-B-0 028 432 (document (3)). Insofar as the subject-

matter of the main claims in accordance with the Respondent's several auxiliary requests is concerned, the Appellant argued that it did not involve an inventive step in the light of the combined teaching of documents (1) and (3) since the skilled person would realise from the later published document (1) that the alkoxylated non-ionic surfactant, which was considered to be an essential constituent of the compositions of document (3), could be omitted.

The Appellant also considered that the presence in the main claims of all the Respondent's requests of the expressions "non-phosphorus containing bleach activator composition" and "non-phosphate ... salt" rendered the claims unclear.

The Appellant also referred to the fact that the deletion of sodium citrate from the description meant that there were no examples of an inert organic salt and contended that sodium nitrate could not be considered to be an inert inorganic salt.

V. In response to a novelty objection having regard to the disclosure of document (1) raised by the Board at the commencement of oral proceedings, the Respondents requested that the third auxiliary request filed on 1 February 1993 should now represent their main request. The Respondents argued that the requirement in Claim 1 of this request that the four ingredients of the composition should be present in specified amounts rendered its subject-matter novel.

The Respondents contended that document (3) taught that the bleach activator is protected by wrapping it in a matrix of silicate and non-ionic surfactant. Therefore, the skilled person, even with the knowledge of the later

published document (1), would not consider omitting the non-ionic surfactant from these prior art compositions.

The Respondents also maintained that it could not be predicted that the present composition would perform as well as the prior art ones containing phosphorus. With respect to document (1), the Respondents argued that there was nothing to indicate that, if the preferred phosphate were to be replaced by a non-phosphate salt, the resulting composition would perform as well as the phosphate containing one. In their opinion document (1) rather than pointing in the direction of the present invention, pointed in all manner of directions.

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

The Respondents requested that the patent be maintained on the basis of the main request or on the basis of one of the four auxiliary requests; all requests filed during oral proceedings. Additionally they requested the deletion of the words "sodium citrate" from page 4, line 11 of the description.

Independent Claims 1 and 4 of the main request read as follows:

"1. Granular non-phosphorus-containing bleach activator composition comprising:

(i) from 55-90% by weight of a finely divided activator;
(ii) from 3-20% by weight of an inert, non-alkaline, non-phosphate, water-soluble inorganic or organic salt;
(iii) from 1-10% by weight of a water-soluble, film forming polymeric material of average molecular weight of from about 500-1 000 000; and

(iv) from 0.5-15% by weight of a smectite or alumino silicate clay material.

4. A detergent bleach composition which is substantially free of phosphorus-containing material, comprising:
(a) a detergent active material;
(b) a non-phosphorus-containing detergency builder;
(c) a peroxygen bleaching agent; and
(d) a granular non-phosphorus-containing bleach activator composition comprising

(i) a finely divided bleach activator;
(ii) an inert, non-alkaline, non-phosphate, water-soluble inorganic or organic salt;
(iii) a water-soluble, film-forming polymeric material of average molecular weight of from about 500-1 000 000; and
(iv) a smectite or alumino silicate clay material."

Claims 1 and 4 of the first auxiliary request are identical to Claims 1 and 4 of the main request apart from the requirement that the finely divided bleach activator has a particle size of less than 200 μm.

The claims in accordance with the second auxiliary request are directed to detergent bleach compositions. The only independent claim of this set of claims is identical to Claim 4 of the main request.

Claims 1 and 4 of the third auxiliary request are identical to Claim 1 and 4 of the main request except for the addition of the words "granules of" after the word "comprising" in Claims 1 and 4.

Independent Claims 1 and 4 in accordance with the fourth auxiliary request read as follows:

"1. Granular non-phosphorus-containing bleach activator composition obtained by granulating together a mixture of
(i) from 55-90% by weight of a finely divided activator;
(ii) from 3-20% by weight of an inert, non-alkaline, non-phosphate, water-soluble inorganic or organic salt;
(iii) from 1-10% by weight of a water-soluble, film forming polymeric material of average molecular weight of from about 500-1 000 000; and
(iv) from 0.5-15% by weight of a smectite or alumino silicate clay material.

4. A detergent bleach composition which is substantially free of phosphorus-containing material, comprising:
(a) a detergent active material;
(b) a non-phosphorus-containing detergency builder;
(c) a peroxygen bleaching agent; and
(d) a granular non-phosphorus-containing bleach activator composition obtained by granulating together a mixture of
(i) a finely divided bleach activator;
(ii) an inert, non-alkaline, non-phosphate, water-soluble inorganic or organic salt;
(iii) a water-soluble, film-forming polymeric material of average molecular weight of from about 500-1 000 000; and
(iv) a smectite or alumino silicate clay material."

VII. At the conclusion of the oral proceedings, the Board's decision to maintain the patent on the basis of the Respondents' fourth auxiliary request was announced.

Reasons for the Decision

1. The appeal is admissible.

2. There are no objections under Article 123 EPC to any of the claims of the various requests.

In particular, Claims 1 to 3 and 5 to 7 of the main request correspond to Claims 2 to 7 as filed and granted. Claim 4 is based on a combination of Claims 1 and 5 as filed and granted.

Claims 1 to 7 in accordance with the first auxiliary request are based on the same filed and granted claims as the main request in combination with page 7, lines 1 and 2 of the printed patent specification (cf. also page 7, lines 43 and 44 of the published patent application).

Claims 1 to 7 of the second auxiliary request find support in Claims 1 to 7 as filed and granted.

Claims 1 to 7 in accordance with the third and fourth auxiliary requests correspond to the same filed and granted claims as the main request in combination with page 3, lines 56 to 60 of the printed patent specification (cf. also page 4, lines 12 to 16 of the published patent application).

2.1 In the Board's judgment, the claims in accordance with all requests are to be construed as encompassing bleach activator compositions or detergent bleach compositions which are free from phosphorus in any form. Although the expressions "non-phosphate ... salt" and "a non-phosphorus-containing detergency builder" are superfluous in view of the references to "non-phosphorus-containing" and "substantially free of phosphorus-containing material", their presence does not render the claims unclear.

2.2 With respect to the term "inert" as used to qualify the inorganic and organic salts, it is clearly intended that

such salts should be inert to the other ingredients of the bleach activator granules or the detergent bleach compositions. In these circumstances and in the absence of any evidence to the contrary, the Board sees no reason why sodium nitrate should not be considered to be inert.

2.3 Although with the deletion of sodium citrate from the list of suitable salts on page 4, lines 10 and 11 means that there is no example of an inert non-alkaline non-phosphate, water-soluble organic salt, there is no reason to delete such salts from the claims since provided it is plausible that a particular embodiment will solve the problem underlying the invention, it is not necessary for there to be a specific example thereof.

3. After examining the cited prior art, the Board is satisfied that the subject-matter claimed in accordance with all the Respondent's request is novel. Since, during the oral proceedings, the Appellant conceded that the subject-matter as claimed in the various requests was novel, it is not necessary to consider this matter in further detail.

4. The disputed patent, insofar as the main request and the first, third and fourth auxiliary requests are concerned, relate to granular non-phosphorus containing bleach activator compositions.

4.1 In accordance with the second auxiliary request, the patent in suit relates to a detergent bleach composition which is substantially free of phosphorus containing material, comprising detergent active material, a detergency builder, a peroxy bleaching agent and a granular bleach activator composition.

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4.2 Document (1) is considered to represent the closest prior art for the subject-matter of all requests. This document discloses a granular non-phosphorus containing bleach activator composition comprising bleach activator, granulating adjuvants and, if desired, swelling agents and salts containing water of crystallisation (cf. Claims 1 and 12 in combination with page 6, lines 22 to 32) and their use in detergent compositions (cf. page 8, lines 27 and 28 and page 10, lines 17 to 21).

4.3 In the light of this closest prior art the technical problem underlying the patent in suit is either (a) to provide further granular non-phosphorus containing bleach activator composition or (b) to provide detergent compositions containing such bleach activator compositions. The granular bleach activator composition should have physical properties and performance characteristics comparable to conventional phosphorus-containing bleach activator granules. In other words, besides having good granular physical characteristics, they should be stable and dissolve/disperse rapidly in the wash liquor.

4.4.1 According to the main request, the technical problem (a) is essentially solved by granular compositions comprising (i) from 55 to 90% by weight of finely divided activator; (ii) from 3 to 20% by weight of an inert, non-alkaline, water-soluble organic or inorganic salt; (iii) from 1 to 10% of a water-soluble, film forming polymeric material of specified molecular weight range and (iv) 0.5 to 15% by weight of a smectite or alumino silicate clay material.

In the light of the results reported in Example 1 of the disputed patent, in particular the table at the bottom of page 7 and the middle table on page 8, the Board is

satisfied that the above-defined technical problem has been solved.

As previously mentioned, document (1) discloses granular bleach activator compositions comprising these four ingredients. According to this document the compositions are obtained by mixing powdered bleach activator of a specified mean particle size with a granulating adjuvant consisting of a water-soluble cellulose ether, starch or starch ether, such as sodium carboxymethylcellulose, of a certain mean particle size, moistening the resulting homogeneous mixture with water or an aqueous solution of part of the granulating adjuvant, granulating this moist mixture and drying the moist granules by admixing them with at least one anhydrous salt or a salt with low water content such as sodium sulphate (cf. Claims 1 and 12 and the first paragraph on page 6 and the paragraph bridging pages 8 and 9). Additionally, in order to accelerate the dissolving process during use in bleaching baths, the composition may contain from 0 to 2% by weight of the anhydrous granule of a swelling agent, such as magnesium aluminosilictes (Veegum) (cf. last paragraph on page 6).

Therefore, the only difference between the bleach activator compositions in accordance with the main request and those of this document lies in that the amount of each of the four ingredients of the present compositions is specified whereas the amounts of the ingredients (i) to (iii) of the prior art ones depends on the water binding capacity of the salt used to dry the moist granules and their moisture content, which according to Claim 8 lies between 10 and 35% by weight.

However, given the incentive provided by legal regulations concerning the use of phosphates in detergents and the obvious desirability of compositions containing high

percentages of bleach activity, it would be a routine matter for the skilled person following the teaching of Example 6 of document (1) to arrive at compositions falling within the scope of Claim 1 of the main request. Therefore, this proposed solution to technical problem (a) is obvious. Consequently Claim 1 of the main request is unallowable and, in the absence of an allowable Claim 1, this request must be refused.

4.4.2 The technical problem (a) is successfully solved in accordance with the first auxiliary request by the compositions of Claim 1 of the main request except that it is required that the finely divided bleach activator contained therein has a particle size of less than 200 μm.

However, according to document (1), the mean particle size of the powdered bleach activator is between 10 and 800 μm (cf. Claim 1). It is well within the competence of the skilled person to determine a suitable particle size from within this known range. Since, for the reasons given above, the compositions having no restriction with respect to the particle size of the finely divided bleach activator were found to be obvious, the subject-matter of Claim 1 of the first auxiliary request also does not involve an inventive step. Therefore, Claim 1 according to the first auxiliary request is unallowable and this request must also be rejected.

4.4.3 The technical problem (b) is successfully solved according to the second auxiliary request by a phosphorus-free detergent bleach composition comprising a detergent active material, a detergency builder, a peroxy bleaching agent and a granular bleach activator composition comprising a finely divided bleach activator, an inert non-alkaline, water-soluble inorganic or organic salt, a water-soluble,

film forming polymeric material of average molecular weight of from about 500 to 1 000 000 and a smectite or alumino silicate clay material.

In the Board's judgment, granular bleach compositions falling within the above definition are disclosed in document (1). Thus, document (1) makes available to the public, granular bleach compositions comprising finely divided bleach activator, sodium carboxymethylcellulose, magnesium aluminosilicates (Veegum) and sodium sulphate (cf. Claims 1 and 12 in combination with page 6, lines 7 and 30 and page 9, line 3). This document also suggests the incorporation of these bleach activator compositions in detergent compositions (cf. page 10, lines 17 to 21).

Therefore, the solution according to the second auxiliary request to technical problem (b) is obvious since the skilled person would automatically include these known non-phosphorus containing bleach activator compositions in conventional phosphorus-free detergent compositions.

Therefore, the subject-matter of Claim 1 of the second auxiliary request does not involve an inventive step and this request must be refused.

4.4.4 According to the third auxiliary request, technical problem (a) is successfully solved by granules of the bleach activator composition as defined in Claim 1 of the main request.

Since drying the moist granules of document (1) comprising powdered bleach activator, magnesium aluminosilicates and sodium carboxymethylcellulose with, for example, sodium sulphate would result in at least some of the drying agent being present in the dried granules, the Board considers

that document (1) discloses granules comprising all four constituents of the present compositions.

Therefore, for the reasons given above in paragraph 4.4.1 the solution to technical problem (a) according to the third auxiliary request is obvious. Thus, the third auxiliary request is refused.

4.4.5 According to the fourth auxiliary request, the technical problem (a) as defined above is successfully solved by non-phosphorus-containing bleach activator compositions which have been obtained by granulating together a mixture of the ingredients (i) to (iv).

As previously mentioned in paragraph 4.4.1, the bleach activator compositions of document (1), which contain all four essential constituents of the present compositions, are obtained if the moist granules containing the present ingredients (i), (iii) and (iv) are dried by admixing them with an anhydrous salt or a salt of low moisture content partly corresponding to the present ingredient (ii)) i.e. the process of Claim 12 of document (1).

Therefore, the ingredient of these prior art compositions at least partly corresponding to the present ingredient (ii) is used solely to dry the moist granules containing the other three ingredients. Moreover, there is no suggestion in document (1) that these water-removing salts could be used in conjunction with a water-soluble cellulose ether, starch or starch ether as a granulating adjuvant.

From the teaching of document (1), therefore, the skilled person would not be in a position to conclude that technical problem (a) would be solved by granulating together all four essential ingredients. Thus, in the

light of the disclosure of document (1) the solution proposed according to the fourth auxiliary request is inventive.

Document (3) discloses a granular laundry composition comprising 0.5 to 100% by weight of granules having a pH in aqueous dispersion of from 2.0 to 9.0 comprising

(a) finely divided water-insoluble natural or synthetic silica or silicate having a specified particle size and moisture content;

(b) finely divided peroxy bleach activator having a particle size of less than 500 μm in a weight ratio of (a) to (b) of from 20:1 to 1:10; and

(c) alkoxylated non-ionic surfactant in a weight ratio of (a) to (c) from 20:1 to 1:3 (cf. Claim 1).

It is clear from the whole disclosure of this document that the alkoxylated non-ionic surfactant is absolutely essential as a component of the matrix consisting of it and a water-insoluble silica or silicate in which the bleach activator is embedded and protected from degradation by hydrolysis and perhydrolysis reactions under the alkaline and oxidising conditions typically encountered in detergent compositions during storage. In these circumstances the skilled person would never contemplate omitting this essential ingredient from these prior art conditions, notwithstanding its absence from the compositions disclosed in the later published document (1).

In the Board's judgment, the combined teaching of documents (1) and (3) would not lead the present solution to the above-defined technical problem (a).

Therefore, Claim 1 and dependent Claims 2 and 3, which relate to preferred embodiments of the compositions according to Claim 1, are allowable.

For the reasons given above, the bleach activator composition according to Claim 4 of this request would not be obvious to the skilled person. Therefore, Claim 4, which is directed to a detergent bleach composition containing it, is also allowable. Claims 5 to 7, which relate to preferred embodiments of the compositions of Claim 4, are likewise allowable.

Therefore, in the Board's judgment, the subject-matter of the claims of the fourth auxiliary request involves an inventive step.

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 on the basis of the fourth auxiliary request submitted during oral proceedings and with the deletion of the words "sodium citrate" from page 4, line 11 of the description.

The Registrar: The Chairman:

E. Görgmaier K.J.A. Jahn