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D E C I S I O N
of 20 April 2004

Case Number: T 0446/02 - 3.3.6

Application Number: 93924343.2

Publication Number: 0665876

IPC: C11D 3/386

Language of the proceedings: EN

Title of invention:

Granular detergents with protease enzyme and bleach

Patentee:

THE PROCTER & GAMBLE COMPANY

Opponent:

Unilever N.V.

Headword:

Second enzyme/THE PROCTER & GAMBLE COMPANY

Relevant legal provisions:

EPC Art.

Keyword:

"Inventive step (no)"

Decisions cited:

-

Catchword:

-



Case Number: T 0446/02 - 3.3.6

D E C I S I O N
of the Technical Board of Appeal 3.3.6
of 20 April 2004

Appellant: Unilever N.V.
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Representative: Kan, Jacob Hendrik
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Respondent: THE PROCTER & GAMBLE COMPANY
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Representative: Alexander, Sean Matthew
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
22 February 2002 concerning maintenance of
European patent No. 0665876 in amended form.

Composition of the Board:

Chairman: P. Krasa
Members: G. N. C. Raths
U. J. Tronser

Summary of Facts and Submissions

I. This appeal is from the interlocutory decision of the Opposition Division concerning the maintenance of the European patent No. 0 665 876 in amended form, said patent relating to granular detergents with protease enzyme and bleach.

II. In a notice of opposition based on lack of novelty and inventive step, *inter alia*, the following document was cited:

(6) WO-A-9 206 155.

III. In its decision the Opposition Division found that the patent as amended met the requirements of the EPC.

Amended Claim 1 read as follows:

"1. A method for cleaning fabrics in the wash by contacting the fabrics with a wash solution which contains an effective amount of a granular detergent composition which provides especially effective surface cleaning of textiles, which composition comprises:

A. from 0.5% to 20% by weight of the composition of a bleaching agent which is a substantially insoluble organic peroxyacid, the corresponding carboxylic acid of which has a Hydrophilic-Lipophilic Balance value which ranges from 3 to 6.5, preferably from 4.0 to 6.5;

B. from 0.064 to 0.64 mg, preferably from 0.096 to 0.32 mg, of active protease enzyme per gram of composition; and

C. from 1% to 40% by weight of the composition of a detergent surfactant selected from anionic, nonionic, ampholytic and zwitterionic surfactants and combinations thereof; preferably from 2% to 20% by weight of an anionic surfactant,

D. from 0,0001 to 1,0 % by weight of the composition on an active basis of a second enzyme

with said protease enzyme further being present in an amount sufficient to provide a ratio of mg of active protease per 100 grams of composition to ppm theoretical Available O₂ from the peroxyacid in the wash liquor ranging from 1:1 to 20:1."

IV. The appellant (opponent) filed an appeal against this decision. It argued that the existence of a synergistic cleaning effect of the peroxyacid and the protease as alleged in the patent in suit was not supported by experimental data:

In respect of the experimental results of the patent in suit there was no evidence of a synergistic effect caused by the ratio of protease to theoretically available oxygen (abbreviated by ratio E/B) because the cleaning effect was measured visually; the human visual system responds however on a logarithmic scale and not on a linear scale so that the mere addition of effects caused by the bleaching agent and the protease is not allowed. In the experiments submitted by the respondent (patent proprietor) under cover of the letter dated 4 March 1988, information on the amounts of the components used was missing.

Furthermore, the second enzyme was not at all involved in the experiments submitted by the respondent.

The appellant concluded that in the absence of any supporting experimental evidence the subject-matter claimed in the patent in suit lacked an inventive step.

V. The respondent contested this. The method for evaluating the stain removal comprised a scale open ended on both ends which explained that in the tables of the patent in suit ratings of above 4 were displayed for the soil removal in spite of the fact that only definitions for the values 0, 1, 2, 3 and 4 were existing for the scale. The ranges of the Hydrophilic-Lipophilic Balance (abbreviated by HLB) values and the ratio E/B given for the composition used according to the method of Claim 1 were not derivable from document (6). Therefore, the subject-matter of Claim 1 involved an inventive step.

VI. The appellant requests that the decision under appeal be set aside and the patent be revoked.

The respondent requests that the appeal be dismissed.

Reasons for the Decision

1. *Articles 84 and 123 EPC*

The Board is satisfied that the claims comply with the requirements of Articles 84 and 123 EPC. Since the

respondent's request fails for other reasons, no further details need to be given.

2. *Novelty*

Claim 1 requires, *inter alia*, that the second enzyme is present in an amount of 0,0001 to 1,0% by weight of the composition on an active basis.

The granular detergent compositions of examples 1 and 2 of document (6) contain, *inter alia*, "water and miscellaneous (filler, salts, enzymes, soil release polymers, etc)" in an amount of 9,2 and 15,1 g/100 g of composition, respectively (page 47, lines 36 and 37).

It is not possible to derive the proportion of enzymes from the total amount of the components listed under "miscellaneous". Concrete values for the concentration of the second enzyme are hence not unambiguously and directly disclosed by document (6).

Therefore, the subject-matter of Claim 1 is new and, thus, satisfies the requirements of Article 54(1) and (2) EPC.

3. *Inventive step*

3.1 Claim 1 is directed to a method for cleaning fabrics in the wash which contains an effective amount of a granular detergent composition which contains, *inter alia*, a bleach activator, a protease enzyme and a second enzyme (see point III, above).

3.2 A similar process is disclosed in document (6).

Taking the nomenclature of Claim 1 of the patent in suit for designating the respective components by the capital letters (A), (B), (C) and (D), the granular detergent composition according to example 2 of document (6) contains (A) nonyl amido succinic peracid, (B) protease, (C) C₁₄₋₁₅ alkyl sulfate, C₁₄₋₁₅ alkyl ethoxy (2.25) sulfate, N-methyl N-1-deoxyglucityl cocamide and (D) enzymes.

Example 2 of document (6) thus embodies the state of the art being closest to the claimed subject-matter. Since document (6) aims at reducing the level of linear alkyl benzene sulfonate while preserving an excellent overall cleaning performance (page 1, lines 33 to 35), and since the goal of the patent in suit was also to obtain effective cleaning (page 2, line 14), the Board takes example (2) of document (6) as the starting point for evaluating inventive step as did the parties.

3.3 Claim 1 differs, in particular, from the composition according to example 2 of document (6) in that the range of concentrations of 0,0001 to 1,0% by weight of the composition on an active basis of the second enzyme is missing in document (6).

However, neither the examples of the patent in suit nor the examples submitted by the respondent under cover of the letter dated 4 March 1998 described a method for cleaning fabrics applying a detergent composition comprising a second enzyme. Therefore, during oral proceedings before the Board, the respondent explicitly renounced to rely on the presence of a second enzyme in

the granular detergent composition when considering inventive step.

Since there is no evidence on file that a specific technical effect is caused by the concentration range of the second enzyme given in Claim 1, said range is arbitrary and, hence, not relevant for assessing inventive step.

3.4 So, the respondent in defending the non-obviousness of the claimed subject-matter relied only on a synergistic cleaning effect of the peroxyacid and the protease as outlined in the patent in suit (page 2, lines 14 to 18), and maintained that the figures given in the tables 1, 1A, 2 2A3, 3A 4 and 4A are evidence for the said synergism.

3.5 The Board cannot accept this argument for the following reasons:

First of all, it is not clear how a value of e.g. 4,25 (table 1, page 15, line 15) can result from an evaluation according to a scale which comprises only the values 0, 1, 2, 3 and 4 with the respective definitions (page 14, line 56 to page 15, line 4). Even if the Board would accept the respondent's submission during oral proceedings that this scale was "open-ended" - a feature which cannot be taken from the description of the patent in suit - this would not be sufficient, in the absence of further information, to explain a value of 4.25.

But even if values which are obviously outside of the range of the scale as defined were disregarded, it

remains that the ratings concern detergent compositions not meeting the requirements of Claim 1 according to which they have to comprise a protease and a second enzyme (see point 3.3, above).

It follows that there is no evidence available for the existence of a synergistic cleaning effect of the claimed composition.

- 3.6 Therefore, and in view of the teaching of document (6) the objective problem underlying the patent in suit can be seen in the provision of an alternative method for cleaning fabrics.
- 3.7 The Board has no reason to doubt that this problem was solved by the method according to Claim 1 of the patent in suit. Thus, the only question which remains to be decided is whether this method, i.e. whether, in particular, the use in an alternative cleaning method of a protease together with a second enzyme involves an inventive step or not.
- 3.8 Document (6) already taught that deterative enzymes can be included in the detergent formulations for a variety of purposes. The enzymes to be incorporated include proteases, amylases, lipases, cellulases and peroxidases, as well as mixtures thereof (page 26, lines 11 to 17). Enzymes are normally incorporated at levels sufficient to provide up to 5 mg by weight, more typically about 0.05 mg to about 3 mg, of active enzyme per g of composition.
- 3.9 Hence the use of a protease with an additional enzyme was taught by document (6).

3.10 The respondent argued that starting from example 2 of document (6) would be an *ex post facto* analysis. There would be 17 examples in document (6) and the Board, after knowing the invention, would have focused on example 2.

The Board does not agree. Any evaluation of inventive step of an invention - and in fact also any evaluation of its novelty - requires as a mandatory precondition the knowledge of the invention concerned, otherwise no comparison with the state of the art would be possible. Thus, a definition of the starting point for evaluating inventive step cannot be said to be flawed by an *ex post facto* analysis only because it is done knowing the respective invention. After having established an appropriate starting point, this is an embodiment (or a group of embodiments) of the state of the art dealing with the same or a similar objective as does the patent in suit and having most technical features in common with the invention concerned, the technical problem to be solved in view of such state of the art has to be defined. When it comes to judge whether or not the means claimed as a solution for this technical problem involve an inventive step, then, however, any means described in this state of the art have to be left aside which a skilled person would not have considered as (possibly contributing to) a solution to the technical problem at stake without knowing the claimed invention. Otherwise, the evaluation of inventive step would involve an *ex post facto* analysis.

By identifying the detergent composition of example 2 as a composition having the most relevant technical

feature in common with the subject-matter of Claim 1 of the patent in suit, the Board only follows the scheme of the problem-solution approach.

3.11 In this case, the granular detergent composition according to example 2 of document (6) contains all the relevant components as defined in Claim 1 of the patent in suit. Therefore, example 2 of document (6) offered already a pointer to the technical solution of the existing technical problem as defined. Hence, the use of a second enzyme together with a protease in order to obtain an alternative method for manufacturing a granular detergent composition was obvious.

3.12 The respondent had also argued that the ranges of the HLB value and of the ratio E/B were not taught by document (6).

However, no effects having been demonstrated as being dependent on these features, the Board has to conclude that they have been arbitrarily incorporated into Claim 1. Neither did the respondent submit nor is the Board aware that these features were not common for the respective compositions.

In the absence of any information, let alone corroborating evidence to that end, these features cannot contribute to an inventive step.

3.13 For all these reasons, the subject-matter of Claim 1 was rendered obvious by document (6) and does not meet the requirements of Article 56 EPC.

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