BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

A		B		C	X

File Number: T 95/90 - 3.3.1

Application No.: 82 301 776.9

Publication No.: 0 063 017

Title of invention: Detergent compositions

Classification: C11D 3/395

D E C I S I O N
of 30 October 1992

Applicant: THE PROCTER & GAMBLE COMPANY, et al

Opponent: 01) Henkel Kommanditgesellschaft auf Aktien
02) Unilever / Unilever N.V.

Headword: Detergent compositions/PROCTER & GAMBLE

EPC Articles 54(2) and 56

Keyword: "Inventive step (no)"
"Obvious selection of amounts"

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number : T 95/90 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 30 October 1992

Appellant :
(Proprietor of the patent)

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Decision under appeal :

Decision of Opposition Division of the European Patent Office delivered orally on 18 October 1989, with written reasons posted on 1 December 1989, revoking European patent No. 0 063 017 pursuant to Article 102(1) EPC.

Composition of the Board :

Chairman : K. Jahn
Members : J. Jonk
J. Stephens-Ofner

Summary of Facts and Submissions

I. The grant of European patent No. 0 063 017 in respect of European patent application No. 82 301 776.9 was announced on 10 December 1986 (cf. Bulletin 86/50). The patent was based on 10 claims, the only independent Claim 1 reading as follows:

"A granular detergent composition comprising

(a) from 2% to 35% by weight of organic surfactant selected from anionic, nonionic, amphoteric and zwitterionic surfactants and mixtures thereof,

(b) from 5% to 90% by weight of phosphate detergency builder comprising at least 6% by weight thereof of a mixture of water-soluble orthophosphate and pyrophosphate salts in a weight ratio of from 3:7 to 1:20, and

(c) from 0.1% to 2% by weight of a homo- or copolymeric polycarboxylic acid, or salt or anhydride thereof, wherein the polycarboxylic acid comprises at least two carboxyl radicals separated from one another by not more than two carbon atoms,

characterised in that the composition additionally comprises from 0.5% to 20% by weight of organic peroxy acid bleach precursor wherein the weight ratio of organic peroxy acid bleach precursor to polymeric polycarboxylic acid is from 10:1 to 1:3."

II. Notices of opposition were filed on 20 August 1987 by Henkel KGaA (OI), on 9 September 1987 by Unilever N.V., et al. (OII) and on 11 September 1987 by AKZO N.V. (OIII) requesting that the patent be revoked on the grounds that its subject-matter lacked novelty and did not involve an inventive step. The oppositions were supported, inter alia, by:

(4) US-A-4 192 761
(6) DE-A-2 816 770 (GB-A-1 596 756)
(7) DE-A-3 024 912 and
(8) GB-A-2 033 937.

On 19 February 1988 the Formalities Officer gave notice that the opposition proceedings were terminated for OIII because of loss of rights pursuant to Rule 69(1) EPC.

III. By a decision delivered orally on 18 October 1989, with written reasons posted on 1 December 1989, the Opposition Division revoked the patent under Article 102(1) EPC because the subject-matter of the patent lacked inventive step.

Regarding novelty, the Opposition Division considered that document (4) disclosed the presence of a phosphate detergency builder, a polymeric polycarboxylic acid (or salt or anhydride thereof) and an organic peroxy acid precursor only as optional components among still other optional ingredients. Similarly, the compositions described in document (6) contained the phosphate builder and the organic peroxy acid precursor as optional components. Moreover, document (6) did not disclose the amounts of the organic peroxy acid precursor. In these circumstances they held that the compositions of Claim 1 were novel.

Regarding inventive step, the Opposition Division held that the skilled person, faced with the problem of providing a detergent composition having improved low temperature bleaching performance, would have obviously added an organic peroxy acid bleach precursor (bleach activator) to compositions like those of Examples 20, 22 and 23 of document (6), because it was common general knowledge that the bleaching performance of detergent

compositions comprising a persalt bleaching agent could be improved at low temperatures by the addition of a peracid forming bleach activator. The amounts of bleach activator indicated in Claim 1 of the patent in suit were conventional as, for instance, could be seen from document (4), and furthermore, did not provide any special effect. The improvement of the whiteness maintenance performance shown in the filed test reports was to be expected in the light of the disclosure of document (6) since this document taught that the deposition of ortho- and pyrophosphates on the fabrics causing greyness and hardness of feel could be avoided by the addition of an auxiliary builder, comprising a polymeric polycarboxylate corresponding to claimed component (c). The surprising fact, that the addition of component (c) to a composition not containing bleach activator did not lead to the expected significant improvement of the whiteness maintenance performance, only showed that the tests were not reliable.

IV. A notice of appeal was filed against this decision on 5 February 1990 by the Proprietors of the patent in suit and the appeal fee was paid on the same date.

A Statement of Grounds of Appeal and an additional test report were submitted on 5 April 1990.

V. The Appellants argued that the subject-matter of Claim 1 involved an inventive step, because the problem identified in the patent, namely that bleach activators can have a detrimental effect on the soil redeposition and whiteness maintenance performance of compositions which contain significant proportions of ortho- and pyrophosphate builders, was new and the claimed solution of this problem had the surprising advantage, shown in the filed test reports, that the particular polycarboxylate polymers

(component (c)) provided a significantly greater improvement in whiteness maintenance performance in the presence of the bleach activator (component (d)) than in its absence.

VI. Opponent (II), the only Opponent who filed a counter-statement, rebutted the Appellants' pleading. He argued that the claimed compositions differed from those of document (6) only in that they comprised 0.5 to 20% by weight of the peroxy acid bleach precursor (bleach activator), whereas in document (6) no amounts were indicated for this component. However, the claimed amounts were normally used and recommended for bleach activators as indicated in documents (4), (7) and (8). The subject-matter of Claim 1 was, therefore, prima facie obvious to the skilled person.

In addition he submitted that the solution of the problem indicated in the patent in suit, namely to provide a built detergent composition having improved low temperature bleaching performance together with undiminished soil deposition and whiteness maintenance characteristics by the combined use of a polymeric polycarboxylate (component (c)) and a peroxy acid bleach precursor (component (d)) lacked inventive step, since the use of component (c) as auxiliary builder to improve the whiteness maintenance was known from document (6) and the use of component (d) to provide low temperature bleaching performance was also well known in the art.

VII. The Appellants requested that the decision under appeal be set aside and that the patent be maintained as granted.

The Respondent requested that the appeal be dismissed.

VIII: At the conclusion of the oral proceedings, the Board's decision to dismiss the appeal was announced.

Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is admissible.

2. After examination of the cited prior art, the Board has reached the conclusion that the subject-matter of the present claims is novel. Since novelty is no longer in dispute, it is not necessary to give detailed reasons for this finding.

3. The only issue that falls to be decided is whether the subject-matter of the claims involves an inventive step.

4. The Board considers document (6) to represent the closest state of the art. This document relates to detergent compositions incorporating ortho-, pyro- and/or tripolyphosphate builders and, additionally, an auxiliary builder system comprising a combination of specific polyacids for improving the cleaning and whiteness maintenance performance of the compositions (cf. page 1, lines 6 to 12 and page 2, lines 44 to 51, of the British patent publication). It describes that the problems of whiteness loss and ash depositions are particularly pronounced when the composition contains a significant amount of water-soluble ortho- and/or pyrophosphate, which are known to occur as degradation products of tripolyphosphate builders in amounts greater than 10% by weight of the phosphate builder when a detergent composition containing it is prepared by spray-drying (cf. page 1, lines 13 to 29).

In particular, document (6) discloses detergent compositions comprising:

(a) an organic detergent selected from anionic, nonionic, amphoteric, and zwitterionic detergents, and mixtures thereof, in amounts of from 1 to 90% by weight and, in the case of granular compositions, preferably 10 to 30% by weight (cf. page 2, lines 55 and 56; page 3, lines 10 to 17; and Examples 20, 22 and 23),

(b) a phosphate builder selected from ortho-, pyro-, and tripolyphosphate in amounts of from 1 to 70% by weight, preferably 5 to 50% by weight, whereby the preferred builder is penta sodium tripolyphosphate containing, as the result of degradation of the builder during conventional spray-drying, at least 2% by weight of the builder of orthophosphate salts and at least 7% by weight of the builder of pyrophosphate salts (cf. page 2, lines 57 and 58; page 5, lines 25 to 43; and Examples 20, 22 and 23, including page 16, lines 11 to 14), and

(c) an auxiliary builder in an amount of at least 0.2% by weight of the compositions comprising a mixture of

(i) up to 4% by weight of a polyphosphonic acid or salt thereof (cf. page 2, line 60; page 6, line 38 to page 8, line 14; and Examples 20, 22 and 23), and

(ii) up to 4% by weight of a polymeric polycarboxylic acid or salt or anhydrid thereof, said polymeric acid comprising monomer units of polycarboxylic acid having at least two carboxyl radicals separated from each other by not more than two

carbon atoms (cf. page 2, lines 61 to 64; page 8, line 15 to page 10, line 38; and Examples 20, 22 and 23, including page 16, lines 16 to 29).

Moreover, it discloses that the compositions preferably contain a bleach activator, especially tetraacetyl ethylene diamine (TAED) and tetraacetyl glycouril (cf. page 12, lines 6 to 9).

4.1 Regarding this closest state of the art the Appellants contend that the compositions as claimed additionally contain an organic peroxy acid bleach precursor (bleach activator) and that the presence of this additional component surprisingly provides a significant improvement of the whiteness maintenance performance.

On the other hand, the Respondents argue that document (6) discloses compositions including the claimed bleach activator without specifically stating its amount.

Therefore, the question is whether document (6) makes available to the public compositions not only comprising the components (a) to (c) as claimed but also the claimed bleach activator.

4.2 According to the established jurisprudence of the Boards of Appeal, when examining what has been made available by a document, the disclosure of the document has to be considered as a whole and not only on the basis of the examples contained in it (cf. for instance T 12/81, OJ EPO 1982, 296, paragraph 7 of the reasons; T 332/87 (unpublished), paragraph 2.2 of the reasons; and T 666/89 (headnote published in OJ EPO 6/1992), paragraphs 5 to 7 of the reasons).

This means that different passages of one document may be combined provided that there are no reasons which would prevent a skilled person from such a combination. Moreover, the technical teaching of examples may be combined with that disclosed elsewhere in the same document provided that the examples concerned are indeed representative of the general technical teaching disclosed in the document in question.

4.3 Document (6), as indicated above, discloses compositions comprising an organic detergent (component (a)), a phosphate builder selected from orthophosphate, pyrophosphate and tripolyphosphate salts, and mixtures thereof (component (b)), and an auxiliary builder comprising a polymeric polycarboxylic acid, or salt thereof (component (c)(ii)). The preferred phosphate builder is a tripolyphosphate salt containing at least 2% by weight of the builder of an orthophosphate salt and at least 7% by weight of the builder of a pyrophosphate salt resulting from partial degradation of the builder in conventional spray-drying (cf. page 5, lines 36 to 43). Moreover, the highly preferred compositions described on page 12, lines 11 to 33, not only contain this preferred phosphate builder but also up to 40% of a persalt bleaching agent. Therefore, the compositions of Examples 20, 22 and 23 comprising pentasodium tripolyphosphate (25.0%, 28.0% and 13.0% respectively), disodium orthophosphate (1.0%, 1.0% and 1.0% respectively), tetrasodium pyrophosphate (7.0%, 7.0% and 4.0% respectively), and sodium perborate tetrahydrate (10.0%, 15.0% and 30.0% respectively), which compositions are prepared by spray-drying detergent compositions built with "pure" sodium triphosphate (cf. page 16, lines 12 to 15), are all in line with this teaching.

It also discloses that the compositions can advantageously include a bleach activator which is normally an organic compound containing an N-acyl or an O-acyl (preferably acetyl) group and that preferred materials are tetraacetyl ethylene diamine (TAED) and tetraacetyl glycouril (cf. page 12, lines 6 to 9). This technical teaching apparently relates to the highly preferred compositions containing a persalt bleaching agent indicated in the preceding passage (page 11, line 60 to page 12, line 5). Moreover, there is no indication to be found in (6) that this technical teaching should apply only to a part of such compositions as disclosed in (6). Consequently, the skilled person would immediately understand this technical teaching with respect to the bleach activators as being generally applicable to all persalt bleaching agent containing compositions according to (6) including those of Examples 20, 22 and 23.

Therefore, the presence of a bleach activator such as TAED cannot constitute a distinguishing feature.

For the sake of completeness, the Board observes that a polyphosphonic acid or salt thereof is an essential constituent of the compositions according to document (6) (component (c)(i)), whereas this component does not expressly form part of the compositions according to Claim 1 of the patent in suit. However, this fact does not constitute a distinguishing feature either because it is clear from the description of the present patent that this particular component is also preferably present in the claimed compositions (cf. page 11, line 63 to page 12, line 9; page 12, lines 59 to 63; and all the examples of the present patent in comparison with the disclosure of document (6), page 8, lines 7 to 14, and the examples).

Thus, in the Board's judgment, the compositions according to Claim 1 only differ from those of document (6) in that they disclose a specific amount of the bleach activator.

4.4 The Appellants have argued, as indicated above, that the claimed compositions show a surprising improvement of the whiteness maintenance performance, as can be seen from the results of the test reports.

In these test reports a detergent composition comprising a tripolyphosphate/orthophosphate/pyrophosphate builder mixture and a polymeric polycarboxylate was compared with a composition that additionally contained a bleach activator (cf. in particular the comparison between the compositions D and C in the test report of 5 April 1990). Thus, the comparison was not made with a composition according to the closest state of the art, namely one that - as set out above - comprised both a polymeric polycarboxylate and a bleach activator.

Moreover, there is no experimental evidence, either in the patent in suit or in the comparative tests as filed, that the claimed compositions containing a polymeric polycarboxylate and a bleach activator show the alleged improved whiteness maintenance improvement as a result of a specific amount of the bleach activator.

Consequently, the advantage referred to by the Appellants cannot be taken into consideration in respect of the determination of the technical problem underlying the subject-matter of the present Claim 1 and, therefore, the assessment of inventive step.

4.5 That problem can, in the light of the closest state of the art, be seen to be the provision of a further detergent composition on the basis of an organic surfactant, a

tripolyphosphate/orthophosphate/ pyrophosphate builder, a polymeric polycarboxylic acid component and a bleach activator having a sufficient whiteness maintenance performance.

According to Claim 1 this technical problem is solved by compositions of the above type containing the organic peroxyacid bleach precursor (bleach activator) in an amount of 0.5 to 20% by weight and in a weight ratio of the bleach activator to the polymeric polycarboxylic acid component in the range from 10:1 to 1:3.

In view of the examples in the present patent and the comparative tests as filed, the Board is satisfied that the above technical problem is credibly solved.

4.6 It remains to be decided whether the claimed solution of the above technical problem meets the requirement of inventive step.

4.7 Document (6) describes - as set out above - in the Examples 20, 22 and 23, which are completely in line with the technical teaching of this document (cf. section 4.4 above, first paragraph; and page 6, lines 49 to 51, of (6)), corresponding detergent compositions comprising a bleaching agent (sodium perborate tetrahydrate) in amounts of 10.0%, 15.0% and 30.0% respectively and a polymeric polycarboxylic acid component as defined under (c) of present Claim 1 (Gantrez AN 139 and/or AN 119) in total amounts of 0.5%, 1.0% and 1.0%, respectively. These compositions show good cleaning and whiteness maintenance characteristics (cf. page 16, lines 16 to 29). Moreover, this document teaches that such compositions preferably additionally contain a bleach activator as defined in the characterising part of present Claim 1 (cf. section 4.4 above, second paragraph). Thus, the question is whether in

the light of the other prior art the selection of the amount of the bleach activator and the ratio activator/polymeric polycarboxylic acid component as claimed involves an inventive step.

4.8 Document (4) relates to detergent compositions such as those disclosed in Examples IX and X, which are closely related to the compositions according to present Claim 1, because they comprise organic detergents, a sodium tri-polyphosphate builder (that will contain orthophosphate and pyrophosphate as the result of spray-drying as explained in document (6) with respect to the Examples 20, 22 and 23), sodium perborate tetrahydrate in amounts of 25% and 20% respectively, and a copolymer of maleic anhydride and vinylmethylether falling under the scope of component (c) as claimed in present Claim 1 in an amount of 1.0%. This document teaches that such compositions preferably additionally contain a bleach activator, such as TAED, in amounts of from 0.5 to 15%, preferably 3 to 7% (cf. column 10, line 68 to column 11, line 10).

Document (7) relates to granular bleaching compositions on the basis of peroxy salt bleaching agent and TAED as bleaching activator (cf. page 1 to page 2, paragraph 2). These compositions are characterised by a particular average particle size of the TAED of less than 150 micrometer (cf. page 5, paragraph 2, lines 1 to 17). Such a particle size is also preferred according to the patent in suit (cf. page 6, lines 36 to 40). With respect to detergent compositions comprising this bleaching system, document (7) discloses that they generally contain the granular TAED in amounts ranging from 0.25 to 15%, preferably 1 to 10% by weight of the detergent compositions (cf. page 9, paragraph 2 to page 11, paragraph 3; particularly page 11, paragraph 2).

Document (8) also relates to activator/percompound bleaching systems (cf. page 1, lines 5 to 75). It teaches that the bleaching performance of such systems can be improved to a substantial degree by including chelating agents, such as diethylene triamine penta(methylene phosphonic acid) (cf. page 1, lines 71 to 119; and page 2, lines 64 to 78). Such chelating agents are also highly preferred constituents of the compositions according to the patent in suit (cf. page 3, lines 56 to 62; page 12, lines 59 to 63; and the examples). Detergent compositions according to document (8) comprising the activator/ percompound/chelating agent bleaching system contain the activator in an amount of from 0.5 to 15% by weight, preferably 4.5% by weight (cf. page 4, lines 44 and 45; and the examples).

It is true, that the detergent compositions according to documents (7) and (8) do not contain a polymeric polycarboxylic acid component as defined under (c) in present Claim 1 (cf. for instance the composition indicated on page 12 of (7); and compositions C and D' on page 4 of (8)). However, in the Board's judgment, it would be clear to the skilled person that the essential teaching of these documents is concerned with the activator/peracid compound bleaching system and that detergent compositions comprising such a system can further contain any other components which are generally incorporated in such compositions (cf. also page 3, lines 18 to 22 of (8); and page 9, lines 6 to 11 of (7)), so that he would immediately understand that the amounts of activator as disclosed in (7) and (8) are generally applicable to detergent compositions including those disclosed in document (6).

Thus, documents (4), (7) and (8) give a clear incentive to the skilled person to choose amounts of bleach activator

as claimed and in particular the apparently preferred lower amounts ranging from 0.5 to 4% as used in the examples of the patent in suit.

With respect to the ratio of the activator to the polymeric polycarboxylic acid component according to present Claim 1 of 10:1 to 3:1 the Board considers that the most preferred amounts of the activator indicated in documents (4), (7) and (8) - as set out above - are in the range of 0.5 to 10%, particularly 0.5 to 4% by weight of the compositions, that the most preferred amounts of the polymeric polycarboxylic acid component indicated in documents (4) and (6) with respect to the closest detergent compositions are 0.5 to 1.0% by weight as shown in Examples IX and X of (4) and Examples 20, 22 and 23 of (6), and that the selection of such highly preferred amounts (cf. the examples of the present patent) generally leads to ratios falling within the claimed range of from 10:1 to 1:3.

4.9 From the above considerations the Board concludes that the the solution of the technical problem underlying the patent in suit would have been obvious to the skilled person in the light of the disclosure of documents (6), (4), (7) and (8). Therefore, the subject-matter of Claim 1 does not involve the required inventive step.

4.10 The dependent Claims 2 to 10 fall with Claim 1.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar:

E. Görgmaier

The Chairman:

K.J.A. Jahn