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Bezeichnung der Erfindung: Detergent bleach compositions  
Title of invention:

Titre de l'invention :

Klassifikation / Classification / Classement : C11D 3/39

## ENTSCHEIDUNG / DECISION

vom / of / du 3 October 1990

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /  
Titulaire du brevet :

Unilever N.V.

Unilever PLC

Einsprechender / Opponent / Opposant :

01) Degussa AG, Frankfurt

02) Henkel KGaA

Stichwort / Headword / Référence : Bleach compositions/Unilever

EPÜ / EPC / CBE Article 56

Schlagwort / Keyword / Mot clé : "Inventive step (denied) - improvement to be expected"

Leitsatz / Headnote / Sommaire



Case Number : T 275/86 - 3.3.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.1  
of 3 October 1990

**Appellant :**  
(Opponent OI)

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**Appellant :**  
(Opponent O2)

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**Decision under appeal :**

Decision of the Opposition Division of the European  
Patent Office of 3 June 1986, posted on  
30 July 1986, rejecting the opposition filed  
against European patent No. 0 037 146  
pursuant to Article 102(2) EPC.

**Composition of the Board :**

**Chairman :** R.W. Andrews

**Members :** J. Jonk

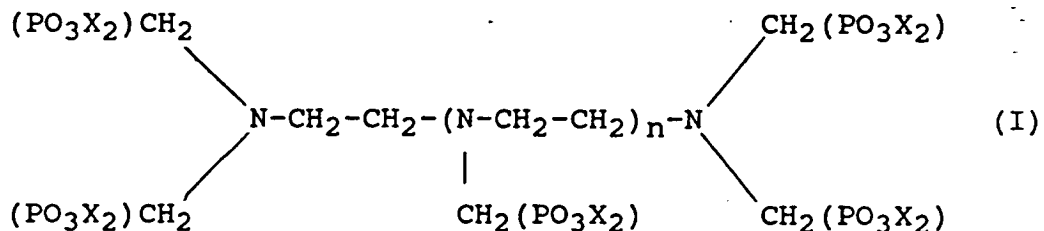
J. Stephens-Ofner

Summary of Facts and Submissions

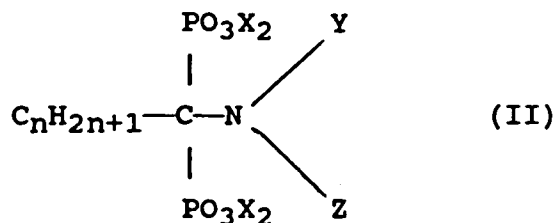
I. The grant of European patent 37 146 in respect of European patent application No. 81 200 323.4, filed on 24 March 1981 and claiming priorities of 27 March 1980 from GB-8 010 318 and of 16 June 1980 from GB-8 019 605, was announced on 13 June 1984 (cf. Bulletin 84/24). The patent is based on four claims, the only independent Claim 1 reading as follows:

1. Solid detergent bleach composition adapted for use at substantially any washing temperature, comprising a detergent active compound and a solid organic peroxy acid compound, characterised in that it comprises:

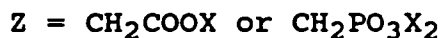
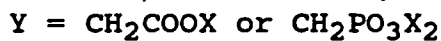
- (a) from 3 to 40% by weight of a detergent active compound;
- (b) from 1 to 25% by weight of a solid organic peroxy acid compound;
- (c) from 2 to 40% by weight of an inorganic peroxy compound generating hydrogen peroxide in solution; and
- (d) from 0.05 to 5% by weight of a stabilising sequestering agent, selected from the group consisting of compounds having the general formulae:



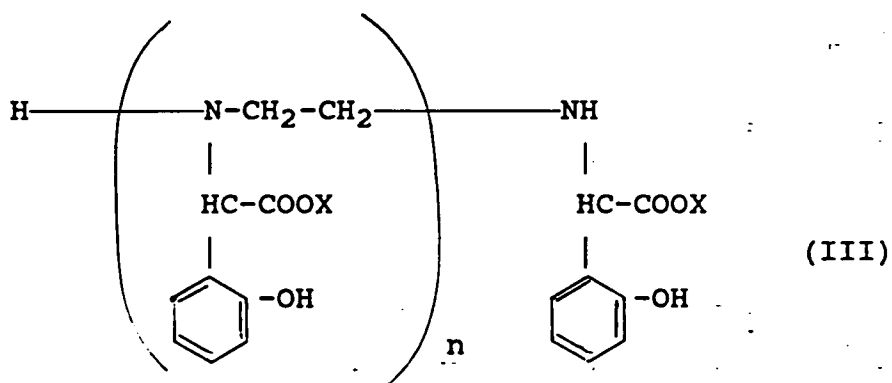
wherein n is an integer from 0 to 4, and X is H or an alkalimetal, alkaline earth metal or ammonium cation,



wherein n is an integer from 0 to 2; X is H or an alkali metal, alkaline earth metal or ammonium cation;



(X is H or alkali metal, alkaline earth metal or ammonium cation), or



wherein n is 1-3, and X is H, or an alkalimetal, alkaline earth metal or ammonium cation.

II. Notices of opposition were filed on 22 February 1985 by Degussa AG (OI) and on 11 March 1985 by Henkel KGaA (OII) requesting the revocation of the patent on the grounds

that its subject-matter lacked novelty and did not involve an inventive step. The oppositions were supported, inter alia, by:

(5) GB-A-1 392 284 and

(10) GB-A-1 387 167

After expiry of the time allowed for filing notice of opposition, Opponent OII referred to GB-A-1 355 855 (14).

III. By a decision delivered orally on 3 June 1986, with written reasons posted on 30 July 1986, the Opposition Division rejected the oppositions. The Opposition Division concluded that the proposed solution to the underlying technical problem of providing a detergent bleach composition having an improved bleaching effect at substantially all washing temperatures was novel and inventive in the light of the cited prior art.

The Opposition Division considered that this problem had been solved by a combination of three essential components (b) (an organic peroxy acid), (c) (an inorganic peroxy compound) and (d) (a stabilising sequestering agent) as indicated in Claim 1. In contrast, it is disclosed in document (10) that detergent compositions comprising the components (b) and (c) have less bleaching efficiency than component (b) alone. It was also observed that this disclosure of the combination of (b) and (c) is not supported by a concrete example.

Furthermore, it was acknowledged that a stabilising sequestering agent, namely ethylene diamine tetra-(methylene phosphonic acid) (EDTMP), falling under the scope of present component (d) has already been recognised as a stabiliser for component (b) in document (14) and for component (c) in document (5), but there was no indication

anywhere in the prior art of its possible effect in combination with those two components and it was not possible to predict what the effect, if any, would be. Moreover, document (5) is only concerned with the use of this stabiliser (d) during bleaching at high temperatures in order to overcome fabric damages and document (14) discloses the importance of, inter alia, this stabiliser (d), particularly at temperatures above 60°C, in order to avoid a decrease in bleach efficiency.

- IV. A notice of appeal was filed against this decision by Opponent OI on 16 August 1986 and the appeal fee was paid on the same date.

A notice of appeal filed by Opponent OII was not received in due time, but the appeal fee was paid on 24 September 1986. In connection with the missing notice of appeal, Opponent OII requested that the "Abbuchungsauftrag" (EPO Form 4212 05.80) should be accepted as such a notice.

Statements of Grounds of Appeal were submitted on 26 November 1986 and 27 November 1986.

- V. The arguments presented by the Appellants can be summarised as follows:

According to document (10), a preferred bleaching composition is one comprising the components (b) and (c). This composition may also contain sequestering agents. In the light of the disclosure in documents (5) and (14), it is regarded as obvious to replace the sequestering agents of these prior art compositions by the agents (d) because they are known to show improved bleaching properties both for organic and for inorganic types of peroxides. An

additional document was cited to support this view, namely:

- (B) The provisional specification filed in respect of document (5).

Documents (5) and (14) also indicate that the improvements with agent (d) are obtained at lower temperatures.

Furthermore, it was argued that the examples in the subject patent do not show a synergistic effect. A test report was filed by Appellant OII with his letter of 17 November 1986 to support this argument.

- VI. The arguments presented by the Respondents in their counter-statement can be summarised as follows:

Following the reasoning of the Opposition Division, it was, in particular, observed that none of the cited documents recommends (b) + (c) as a combination likely to have an enhanced bleaching effect with or without a stabiliser and the combination itself is not an obvious choice for a skilled person. The newly cited document (B) does not provide any more evidence from which the claimed invention can be obviously derived.

Moreover, in order to show the effective bleach response at lower temperatures, results of further tests were provided in their letters of 26 June 1987 and 21 February 1989.

In connection with the Appellant's experiments, it was observed that they confirm the claimed technical benefit rather than showing its absence.

VII. During the oral proceedings held on 3 October 1990, it was admitted by the Appellants that the combination of the components (b) + (c) + (d) gives a better bleaching action, but it was emphasised that the effect is not synergistic as suggested in the subject patent and also not surprising in the light of the cited prior art.

VIII. Both Appellants requested that the decision under appeal be set aside and the patent revoked.

The Respondents requested that the appeals be rejected.

IX. At the conclusion of the oral proceedings, the Board's decision to set aside the decision of the Opposition Division and to revoke the patent was announced.

#### Reasons for the Decision

1. The appeals comply with Articles 106-108 and Rule 64 EPC and are, therefore, admissible. In relation to the missing notice of appeal it is observed that the completed "Abbuchungsauftrag" (EPO Form 4212 05.80), which was received within two months after the date of notification of the decision of the Opposition Division, contains essentially the same information that is required in a notice of appeal in the sense of Rule 64 EPC, i.e. name and address of the Appellant, the number of the patent to identify the decision which is impugned and that the purpose of the payment is to pay the fee for the appeal. Therefore, the appeal of Appellant OII is also considered to be admissible.
2. The only issue to be dealt with is whether the subject-matter of Claim 1 involves an inventive step as required by Article 56 EPC.



2.1 Considering the prior art documents cited during the proceedings, it is the Board's opinion that document (10) represents the closest state of the art.

This document discloses a solid detergent bleach composition comprising a detergent active compound, a bleaching agent, which is effective at temperatures from about 30°C up to boiling, comprising an organic peroxy acid and an inorganic peroxy compound generating hydrogen peroxide in solution and optionally a sequestering builder, such as a salt of ethane-1-hydroxy-1,1-diphosphonic acid (EHDP) (see Claim 1; page 1, lines 33-42 and lines 59 to 64; page 3, lines 77-120; page 4, lines 116-121; and page 5, lines 22-31). However, the bleaching action of these prior art combinations was considered not to be entirely satisfactory, particularly at lower temperatures.

2.2 In the light of this closest state of the art, the technical problem underlying the subject patent may be seen in providing detergent bleach compositions having an improved bleaching efficiency at substantially all washing temperatures and, in particular, at lower temperatures.

2.3 According to Claim 1 of the subject patent, this technical problem is solved by the specific selection of stabilising sequestering agents as defined in the characterising part of Claim 1 (component (d)).

In view of the examples, the comparative examples and the results filed on 26 June 1987 and 21 February 1989, the Board is satisfied that the above technical problem is solved. Moreover, the Appellants did not deny that the stabilising sequestering agents have a positive effect on the bleaching action of components (b) and (c).

2.4 The Respondent defended the inventive step by arguing that it was not obvious to a skilled person to start from a composition containing a bleaching agent which comprises an organic peroxy acid (component (b)) and an inorganic peroxy compound (component (c)) if a detergent composition having an improved bleaching action, in particular, in the lower temperature range, i.e. at those temperatures whereby substantially the organic peroxy acid develops the bleaching activity, is desired, because it is indicated in document (10) that a bleaching agent comprising components (b) and (c) shows less bleaching activity than a bleaching agent comprising component (b) alone, and document (10) only concretely discloses compositions containing bleaching agents which comprise precursors of component (b) and components (c).

2.5 In the Board's view, this argumentation cannot be accepted for the following reasons:

It is true that document (10) discloses that a bleaching agent comprising components (b) and (c) provides slightly less bleaching action than an equivalent amount of (b) alone, nevertheless, this combination is stated to be a preferred bleaching agent because it provides considerably more bleaching action in domestic laundering conditions than component (c) alone and because the tendency of the low temperature active components (b) to cause some overall fading of colours is reduced by the presence of component (c) (cf. page 3, lines 92-108).

Furthermore, document (10) not only discloses the combination of components (b) and (c) as a preferred bleaching agent in a solid detergent composition, but it also indicates the preferred ratio of the components, suitable examples of both components, and the properties of the combination (see page 3, lines 78-108 and Claim 22).

Therefore, in the Board's judgement, even in the absence of specific examples, a solid detergent bleach composition containing such a bleaching agent forms part of the state of the art and may be considered by a skilled person to be a suitable starting point for the development of detergent bleach compositions providing an improved bleaching action.

2.6 It was also argued by the Respondents that the claimed subject-matter was not obvious, since it was surprising that the use of a stabilising sequestering agent (d) as defined in Claim 1 in a detergent bleach composition according to document (10), i.e. containing components (b) and (c), provides a better bleaching action.

2.7 However, in the Board's judgement, the use of a stabilising sequestering agent (d), e.g. ethylene diamine tetra(methylene phosphonic acid) (EDTMP), does not involve an inventive step in the view of the teaching in documents (5) and (B) (which is the priority document of (5)).

These documents disclose that stabilising sequestering agents, such as EHDP (which is indicated in document (10) as an optional component), are necessary in detergent bleach compositions containing bleach components of type (c) to prevent damage to textiles during washing (see document (5), page 1, lines 9-35 and document (B), page 2, lines 6 to 27). Furthermore, it is disclosed that compositions containing the stabilising sequestering agent EDTMP (or its salts) falling under the scope of component (d) and sodium perborate (c) show better bleaching properties than similar compositions containing

known stabilising agents, e.g. EHDP and EDTA, in particular an improved bleaching action (cf. document B, the column headed % BE AFTER 1 WASH in the Table on page 6) and a reduced fabric damage (cf. the column headed % LOSS IN TENSILE STRENGTH AFTER 40 WASHES in Table I of document (5)).

It is true that the improvement of these bleaching properties as disclosed in documents (5) and (B) have only been shown in relation to bleaching component (c) alone.

However, it is clearly indicated in document (5) (cf. page 2, lines 19 to 25) that the invention as disclosed therein also contemplates the use of bleaching components of type (b) which are known (see e.g. document (10), page 1, lines 32-58) to develop their bleaching activity at lower temperatures.

Furthermore, document (14) discloses that a combination of components (b) and (d) enhance bleaching performance at all washing temperatures (see Claims 1, 8, 9 and 10; and page 1, lines 11-15).

Therefore, in the Board's judgement, documents 5, B and 14 clearly teach that stabilising sequestering agents corresponding to component (d) of the present compositions improve the bleaching performance of both organic peroxy acids (component (b)) and inorganic peroxy compounds generating hydrogen peroxide in solution (component (c)). Thus, the combined teaching of documents 5, B and 14 would provide the skilled person, faced with the problem of improving the bleaching action of the compositions disclosed in document (10), with the incentive to use stabilising sequestering agents falling within the terms of the definition in the present Claim 1.

Moreover, it is credibly demonstrated in the tests filed on 17 November 1986 by Appellant OII that the effect of component (d) on a combination of components (b) and (c) is not synergistic as suggested in the subject patent (see page 2, lines 33 to 35). The results for the combination b + c + d are those that the skilled person would have expected from those obtained for the combinations (b) + (d) and (c) + (d), i.e. the combinations disclosed in documents (5), (B) and (14).

Additionally, the results of Example II and III of the disputed patent and those reported in the Respondents' letters of 26 June 1987 and 21 February 1989 are unsuitable to substantiate the allegation that a mixture of components (b) + (c) + (d) is synergistic.

2.8 Therefore, the subject-matter of Claim 1 does not involve the required inventive step (Article 52(1) and 56 EPC). In this connection it is observed that the ratios of the components as indicated in Claim 1 would be obvious to a skilled person since they are essentially disclosed in document (10) (cf. the ratio of components (b) and (c) on page 3, lines 96-100); and in document (5) (cf. the amount of the stabiliser (d) as indicated on page 2, lines 44-46).

3. Dependent Claims 2-4 relate to preferred embodiments of the compositions in accordance with Claim 1. It was not argued that these claims contain any independent features, nor can any such features be recognised. Therefore, these claims are unacceptable in the absence of an allowable main claim.

Order

For these reasons, it is decided that:

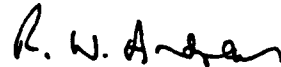
1. The appeal is allowed.
2. The decision under appeal is set aside.
3. The patent is revoked.

The Registrar:

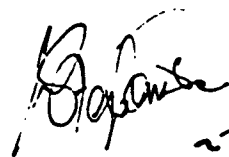


M. Beer

The Chairman:



R.W. Andrews



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