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D E C I S I O N
of 19 July 1994
as corrected by the decision of 18 August 1994

Case Number: T 0202/92 - 3.3.1

Application Number: 85308578.5

Publication Number: 0203239

IPC: C11D 17/00

Language of the proceedings: EN

Title of invention:
Encapsulated halogen bleaches

Patentee:
ECOLAB INC.

Opponent:
Unilever N.V.

Headword:
Coated bleach agent/ECOLAB

Relevant legal norms:
EPC Art. 56, 111(1), 113(1)

Keyword:
"Inventive step (yes, after amendment)"
"Request for remittal to the first instance (not allowed)"

Decisions cited:
G 0004/92

Catchword:
Restricted claims filed during oral proceedings in the absence of the Opponent - remittal not necessary.

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Case Number: T 0202/92 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 19 July 1994
as corrected by the decision of 18 August 1994

Appellant: (Proprietor of the patent)
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Decision under appeal: Decision of the Opposition Division of the European Patent Office of 28 October 1991 posted on 14 January 1992 revoking European patent No. 0 203 239 pursuant to Article 102(1) EPC.

Composition of the Board:

Chairman: A. Jahn
Members: J. M. Jonk
R. E. Teschemacher

Summary of Facts and Submissions

I. The grant of European patent No. 0 203 239 in respect of European patent application No. 85 308 578.5 was announced on 24 May 1989 (cf. Bulletin 89/21). The patent was based on 15 claims, independent Claim 1 reading as follows:

"A halogen bleach composition, compatible with an alkaline cleaning composition, that neither degrades the active components of the cleaning composition nor interferes with their action, which halogen bleach composition comprises an encapsulated composition having a core and at least one encapsulating coating effective to isolate the core, the core comprising a source of active-halogen, characterised in that the coating is a synthetic detergent other than a soap."

Dependent Claims 2 to 15, Claim 9 reading as follows:

"A composition as claimed in any of Claims 1 to 5, wherein an additional coating, namely a coating of a soluble inorganic coating agent, is disposed between the core and the coating of synthetic detergent."

concerned further embodiments of the composition of Claim 1.

II. A Notice of Opposition was filed on 23 February 1990 by Unilever N.V., requesting the revocation of the patent on the ground of lack of inventive step. The opposition was supported by the following documents:

(1) US-A-1 950 956
(2) US-A-4 126 573
(3) US-A-4 327 151

(4) US-A-3 650 961
(5) US-A-3 983 254 and
(5a) US-A-3 637 509.

III. By a decision announced on 28 October 1991 with written reasons notified on 14 January 1992, the Opposition Division revoked the patent on the ground that the subject-matter of the claims did not involve an inventive step. Regarding Claim 9 the Opposition Division held that the closest state of the art was document (4) or document

(7) US-A-4 279 764

which already disclosed two layer coated bleaches. The bleach composition as claimed in Claim 9 differed from the products disclosed in these documents only in that it comprised a second coating of a synthetic detergent other than soap. However, in the absence of any advantage with respect to this closest state of the art, the claimed product comprising this additional outer coating was considered obvious to the skilled person in the light of the disclosure of document (3) or (5) in combination with document (2).

IV. An appeal was lodged against this decision on 9 March 1992 by the Patentee, and the appeal fee was paid on the next day.

A Statement of Grounds of Appeal was submitted on 22 May 1992. Together with this Statement the Appellant filed new Claims 1 to 15 (first request) and two auxiliary requests, Claim 1 of the first request reading as follows:

"An encapsulated active-halogen bleach composition that is chemically compatible with alkaline cleaning compositions and does not interfere with their action, which encapsulated active-halogen bleach composition comprises:

(a) 30 wt-% to 80 wt-% of an active-halogen bleach core;

(b) 5 wt-% to 50 wt-% of an inorganic coating agent coated over the active-halogen bleach core; and

(c) 5 wt-% to 50 wt-% of an n-alkyl sulphate or sulphonate synthetic detergent coated over the inorganic coating agent."

V. The Appellant argued that the claimed bleach composition was advantageous in that it was stable in a highly alkaline environment and did not degrade or react with other components of detergent compositions. He also disputed that the claimed subject-matter would be obvious to the skilled person in the light of the cited documents.

VI. The Respondent fully agreed with the reasoning of the Opposition Division regarding lack of inventive step. In this connection he argued that for the purpose of assessing inventive step according to the problem-solution approach only proven effects could be taken into account.

VII. In reply the Appellant filed a test-report on 27 October 1992. In addition he submitted on 30 June 1993 an Affidavit of Dr. Lentsch which would confirm that the skilled person, on the basis of the prior art, would have regarded synthetic detergents as unsuitable for coating active-halogen bleaches.

VIII. By a facsimile of 17 March 1994 the Respondent informed the Board that he did not intend to attend oral proceedings. Moreover, he requested that the case be remitted to the Opposition Division if requests other than those presented by the Appellant up to then would be considered during the oral proceedings.

IX. Oral proceedings, at which the Respondent was not represented, took place before the Board on 19 July 1994.

X. At this hearing the Board objected to the claims as they then stood because they had no counterpart in the patent as granted and/or could not be fairly said to arise out of the grounds of opposition (cf. T 406/86, OJ 1989, 302 and T 295/87, OJ 1990, 470).

In response to these objections the Appellant filed new Claims 1 to 6 and an adapted description.

Claim 1 of this set of claims differed from the main claim of the first request filed on 22 May 1992 only in that the passage "chemically ..... action" (lines 2 and 3) was replaced by "compatible with highly alkaline cleaning compositions that neither degrades the active components of the cleaning composition nor interferes with their action", and in that before "inorganic coating" (line 7) the term "soluble" was inserted.

Moreover, relying upon the test-report filed on 27 October 1992, the Appellant argued with respect to document (2) that the teaching of this document was clearly limited to the coating of peroxyacid bleaches and that it would have been known to the skilled person that such bleaches were stable with respect to both

synthetic detergents and soaps, whereas active-halogen bleaches were stable with respect to soaps but not to synthetic detergents.

XI. The Appellant (Patentee) requested that the decision under appeal be set aside, and that the patent be maintained with claims and description as submitted in the oral proceedings.

The Respondent (Opponent) requested, as followed from his written submissions, that the appeal be dismissed, or that the case be remitted to the first instance if any other request than those on file would be considered during oral proceedings.

XII. At the conclusion of the oral proceedings the Board's decision to maintain the patent as requested by the Appellant was pronounced.

Reasons for the Decision

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

2. The subject-matter of present Claim 1 is based on granted Claims 1, 4 and 9 in combination with page 4, lines 51 to 53, page 5, lines 13 and 14, and page 3, line 46, of the printed patent specification, and is also supported by Claims 9 and 14 in combination with page 9, lines 17 to 21, page 5 lines 29 and 30, and page 10, lines 13 and 14, of the patent application as filed.

Present Claims 2 to 6 correspond to Claims 10, 11 and 13 to 15 as granted, and are supported by Claims 12, 13 and 17 to 19 of the originally filed patent application.

Thus, all claims filed during oral proceedings comply with the requirements of Article 123 EPC.

3. After examination of the cited prior art, the Board has reached the conclusion that the subject-matter as defined in all claims is novel. Since this issue was not in dispute, it is not necessary to give detailed reasons for this finding.

4. The remaining issue to be dealt with is whether the subject-matter of the claims involves an inventive step.

4.1 The Board considers that document (5) represents the closest state of the art, since it relates - like the disputed patent - to a double coated active-halogen bleach composition showing a good stability.

This document discloses coated particles of a reactive-chlorine releasing bleaching agent having a first coating of a solidifiable saturated fatty acid and a second coating of a soap of the fatty acid (cf. column 3, lines 46 to 54). This dual coating prevents the reaction of the bleach agent with its environment during storage, provides good chlorine release during the wash cycle, and precludes pinholing of textiles and attack on the dyestuffs thereon in the washing process (cf. column 3, lines 1 to 15). The encapsulated bleaching agents find utility in detergent compositions formulated for mechanical dishwashers (cf. column 14, lines 23 to 30).

The Appellant found that these prior art coated bleaching agents were not sufficiently stable in highly alkaline environments, such as solid cast alkaline detergent compositions for dishwashing machines.

4.2 Therefore, the technical problem underlying the disputed patent, in the light of the closest state of the art as represented by document (5), is the provision of an encapsulated particulate active-halogen bleach composition having improved stability in highly alkaline detergent compositions (cf. also page 2, lines 36 to 43, of the specification of the disputed patent).

4.3 According to the patent in suit, this technical problem is solved by an active-halogen bleach composition which comprises (a) 30 to 80 wt-% of an active-halogen bleach core, (b) 5 to 50 wt-% of a soluble inorganic coating agent coated over the active-halogen bleach core, and (c) 5 to 50 wt-% of a n-alkyl sulphate or sulphonate synthetic detergent coated over the inorganic coating.

4.4 The experimental results of the test-report submitted on 27 October 1992 show (cf. in particular Table 1) that the composition of Comparative Example 4A, which essentially corresponds to the composition of Example 1 of document (5) (cf. also column 4, lines 20 and 21, indicating that instead of potassium dichloroisocyanurate also the corresponding sodium salt can be used), has less than 50% available chlorine retained after storage of 28 days, while two compositions as claimed in the disputed patent (Examples 1 and 2 of the test-report) essentially kept their original level of chlorine activity. Thus, having regard

to these unchallenged test-results, the Board finds it credible that the technical problem as defined above has been solved.

4.5 The issue of inventive step hinges on the question of whether there was an incentive for the skilled person in the cited documents to improve the stability of the encapsulated active-halogen bleach in a highly alkaline environment by the compositions as claimed.

4.6 Document (5) relates to encapsulated, free-flowing, non-agglomerated particles having a core of a chlorine releasing substance, a first coating of a saturated fatty acid from 12 to 20 carbon atoms and a second coating of a soap of the fatty acid (cf. column 3; lines 39 to 54, and Claim 1). This document, of course, does not give any pointer to the skilled person to the use of a soluble inorganic material for the inner coating and a n-alkyl sulphate or sulphonate for the outer coating.

4.7 Document (3) relates to encapsulated bleaching agents, comprising two or three coatings if the bleaching agent is a halogen-releasing compound, such as a dichloroisocyanurate (cf. column 5, lines 1 to 14 and 28 to 32; and column 7, line 64 to column 8, line 31). They can be used in admixture with particulate detergent compositions having therein anionic and/or nonionic detergent species, such as compositions for dishwashing machines (cf. column 8, lines 62 to 66; and column 13, lines 6 to 14). The first coating of the disclosed encapsulated bleaching agents contains a major portion of a saturated fatty acid (cf. column 5, line 51 to column 6, line 5, and column 7, lines 1 to 9 and 29 to 33). In addition, this first coating contains a wax in an amount of preferably 5 to 15% to insure a proper plasticity of the coating without undue stickiness and

to allow the application of the coating in the absence of a solvent (cf. column 6, lines 6 to 33, and column 3, line 59 to column 4, line 15). Furthermore, the second coating preferably comprises a major amount of a fatty acid corresponding to that of the first coating and additionally contains an inversely soluble material, i.e. a material that is less soluble in hot water than in cold water, which is preferably a pluronic surfactant, so that the release of the active-chlorine containing substance in cold water is improved and a sufficient delayed release is provided in hot water to avoid pinholing (cf. column 5, lines 16 to 25; column 6, lines 34 to 61; and column 7, lines 10 to 21 and 34 to 48). Thus, this document also does not provide any hint to the skilled person that the existing technical problem could be solved by a coating system as claimed which comprises, as indicated above, an inorganic inner coating and an outer coating of a specific synthetic detergent.

4.8 The cited documents (4), (5a) and (7) all relate to a granular bleaching composition comprising a particulate chlorine-releasing bleaching agent, such as a dichloroisocyanurate, that is coated by a single coating comprising a soluble inorganic compound to increase its chemical and physical stability.

4.8.1 In particular, document (4) discloses a process for the preparation of a composition composed of particles comprising a chlorine-releasing bleaching core component and a single coating of a partially hydrated inorganic salt, wherein the partially hydrated form of the inorganic salt is obtained without the necessity of a separate drying step (cf. column 2, lines 22 to 33). According to this process droplets of an aqueous slurry of the core component is introduced into a fluidised bed of particulate inorganic salt, which must be capable of

taking up the water from the droplets as water of hydration (cf. column 2, lines 34 to 39; and column 3, lines 38 to 51). A particularly suitable coating material is sodium tripolyphosphate (cf. column 3, lines 51 to 55; and column 5, lines 45 to 54).

4.8.2 Furthermore, document (5a) discloses a bleaching composition comprising a bleaching core component, including a mixture of the chlorine-releasing agent and an alkali metal tripolyphosphate, and a coating of tetrapotassium pyrophosphate (cf. column 2, lines 8 to 24).

4.8.3 Finally, document (7) relates to a bleaching composition comprising a core component consisting of a halogen bleaching agent having at least one reactive N-halogen atom which releases hypohalite ions under aqueous bleaching conditions, such as a dichloroisocyanurate, and a single coating of a soluble, hydrated, silicate bound inorganic salt in admixture with an N-H compound (cf. column 2, line 56 to column 3, line 5). Preferably the coating mixture contains a major portion of a mixture of a hydratable inorganic salt and sodium silicate and a minor portion of the N-H compound (cf.column 4, line 61 to column 5, line 4; and Claim 5). A particularly preferred inorganic salt is sodium carbonate (cf. Claim 13).

4.8.4 Thus, although these three documents all disclose a coating for a particulate chlorine-releasing bleaching agent, which coating essentially comprises a soluble inorganic compound falling under the scope of those which can be used as coating agents for the first coating as claimed in the disputed patent (cf. page 3, line 57 to page 4, line 3), they do not give any pointer to the skilled person that the present technical problem could be solved by the claimed coating system which

comprises a coating of a soluble inorganic salt as an inner coat and a coating of the specified synthetic detergent as an outer one.

4.9 Document (1) relates to particulate chloramine coated with a single protective layer of sodium stearate to improve its storage stability and to prevent the reaction of the chloramine with starch (cf. page 1, line 74 to page 2, line 10). The disclosure of this document is less relevant than that of the documents discussed above, since the soap is neither a constituent of the first coating of the claimed coating system nor of the second one.

4.10 Document (2) discloses bleaching particles comprising a core of a solid peroxyacid compound and a single coating of a surfactant, which coated particles have an improved stability (cf. column 1, lines 26 to 42 and 60 to 64). However, as follows from the statement that the two essential components of the disclosed composition are the peroxyacid compound and the surfactant (cf. column 2, lines 4 to 8), the disclosure of this document clearly excludes the use of a halogen releasing bleaching compound. Furthermore, it was well known to the skilled person at the priority date of the patent in suit, that halogen bleaches were much more reactive than bleaches of the peroxyacid type and, therefore, needed a more effective coating (cf., for instance, document (7), column 1, lines 20 to 30; document (5), column 3, lines 39 to 54, column 4, lines 7 to 16, and column 8, lines 14 to 25); and document (3), column 1, lines 45 to 57, column 5, lines 1 to 4, column 14, lines 33 to 35, and column 5, lines 28 to 32 and 40 to 46). Thus, in the Board's judgment, a skilled person faced with the problem of providing an improved protecting coating for halogen bleaches would not try to find the solution of this problem in documents which specifically concern the

protection of peroxyacid compounds which - as he knew - would need less protection than halogen bleaches.

4.11 In view of the above considerations, in the Board's judgment, the skilled person did not have any reason to combine the teaching of document (2) with that of any of the other cited documents. Even if he had combined the teaching of document (2) with that of e.g. documents (3) and (4) he could not have provided the particular coating system as claimed in the expectation that he would achieve an improvement of the stability of halogen bleaches. In this context, it is observed by the Board that the Opposition Division considered the claimed coating system to be obvious in the light of the combined disclosure of the same documents. However, this judgment was based on different facts, i.e. on its finding that the claimed composition was not associated with any advantage with respect to the prior art. The submission of the test-report on 27 October 1992 substantially changed these facts, because it proved that according to the disputed patent a more ambitious technical problem existed, the solution of which - as indicated above - was not obvious to the skilled person.

4.12 In conclusion, the Board finds that the encapsulated bleach composition according to Claim 1 involves an inventive step, because it would not have been obvious to the skilled person to solve the above defined technical problem by the dual coating system as defined in Claim 1.

5. Dependent Claims 2 to 6, which relate to the preferred embodiments of the compositions claimed in Claim 1, are also allowable for the reasons stated above.

6. The Respondent additionally requested to have the case remitted to the first instance if Appellant's existing requests are amended. This request, in the Board's judgment, does not prevent the Board from considering and deciding in substance on the maintenance of the patent on the basis of the present claims as amended during oral proceedings. In this context, the Board finds that the decision of the Enlarged Board of Appeal G 4/92 (OJ EPC 1994, 149) does not apply in the present case. According to this decision, a party who fails to appear at oral proceedings must have the opportunity, in accordance with Article 113(1) EPC, to comment on new facts and evidence submitted in these proceedings. In the present case, the Appellant made a clarifying restriction in Claim 1 and removed formal deficiencies. In such a situation, the Board sees no reason why the Respondent (Opponent) could have been taken by surprise, in interference of Article 113(1) EPC, because he had to expect that the Appellant (Patentee) would try to overcome any objections.

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 with Claims 1 to 6 and the description (pages 2 to 5) as submitted during oral proceedings on 19 July 1994.

The Registrar: The Chairman:

E. Görgmaier K.J.A. Jahn