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D E C I S I O N
of 20 December 1994

Case Number: T 0453/92 - 3.3.1

Application Number: 85870062.8

Publication Number: 0162033

IPC: C11D 3/386

Language of the proceedings: EN

Title of invention:
Liquid detergents containing boric acid to stabilize enzymes

Patentee:
THE PROCTER & GAMBLE COMPANY

Opponent:
Unilever PLC / Unilever N.V.

Headword:
Enzymatic detergents/PROCTER & GAMLE

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (no)"
"Prejudice in the art (no)"
"Evidence"

Decisions cited:
-

Catchword:

Case Number: T 0453/92 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 20 December 1994

Appellant: (Proprietor of the patent)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office of 23 January 1992, with written reasons notified on 4 March 1992 revoking European patent No. 0 162 033 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. 0 162 033 in respect of European patent application No. 85 870 062.8 was announced on 13 December 1989 (cf. Bulletin 89/50). The patent was based on 15 claims, the only independent Claim 1 reading as follows:

"A heavy-duty liquid detergent composition comprising, by weight:

(a) from 10% to 50% of an anionic synthetic surfactant;

(b) from 3% to 30% of a C_{10}-C_{22} fatty acid;

(c) from 2% to 15% of a water-soluble detergency builder;

(d) from 0.01% to 5% of a proteolytic or amylolytic enzyme;

(e) from 0.25% to 10% of boric acid or a boron compound capable of forming boric acid in the composition;

characterized in that it further comprises

(f) from 1 to 30 millimoles of calcium ion per liter of composition; and

(g) from 20% to 80% of water,

with the proviso that if polyols are present the weight ratio of said polyol to said boric acid is at least 1.3."

II. A notice of opposition was filed on 11 September 1990 by Unilever N.V. and Unilever PLC requesting the revocation of the patent on several grounds inter alia lack of novelty and lack of inventive step. The opposition was supported by five documents (numbered 2 to 6) of which only

(2) GB-A-2 126 242,
(4) US-A-4 318 818 and
(6) GB-A-2 079 305

are relevant to this decision.

III. By a decision pronounced on 23 January 1992 with written reasons notified on 4 March 1992 the Opposition Division revoked the patent.

The decision was based on Claims 1 to 15 filed on 21 February 1991 (main request) and on Claims 1 to 14 filed on 23 January 1992 (auxiliary request). Claim 1 of the main request corresponded to Claim 1 as granted and Claim 1 of the auxiliary request resulted from a combination of Claims 1 and 4 as granted.

The Opposition Division held that the subject-matter of the disputed patent according to both requests did not involve an inventive step. The detergent composition according to Claim 1 of both requests only differed from the substantially unbuilt compositions disclosed in document (2) in that it comprised from 2 to 10 % by weight of a water-soluble builder. However, in the absence of any unexpected effect with respect to this closest state of the art and having regard to the fact that the enzyme-stabilising system specified in Claim 1 of the patent in suit was known to stabilise enzyme containing aqueous detergent compositions, the claimed built detergent composition was considered obvious to the skilled person. In this context, the Opposition Division contended that no prejudice had been overcome in using the claimed enzyme-stabilising system in built compositions. Even if calcium ions were sequestered by the builder, it would have been sufficient to increase the amount of calcium ions in the composition to obtain the desired effective amount.

IV. An appeal was lodged against this decision on 13 May 1992 by The Procter & Gamble Company (Patentee) and Procter & Gamble European Technical Center, and the appeal fee was paid on 5 May 1992.

A Statement of Grounds of Appeal was submitted on 29 June 1992.

Oral proceedings took place before the Board on 20 December 1994.

V. At this hearing the Board observed that, according to Article 107 EPC, Procter & Gamble European Technical Center did not appear to be entitled to appeal. Moreover, the Board objected to some of the then standing claims.

In response to these objections, the Appellants' representative requested to delete the company in question as a party. Furthermore, the Appellant filed in the course of the oral proceedings two sets of new Claims 1 to 14 (main request and auxiliary request). Claim 1 of the main request differed from that of the granted version in that the feature (c) was replaced by:

"(c) from 3% to 15% of a water-soluble detergency builder selected from citrates and polyphosphates;"

and in that the following feature was inserted after "at least 1.3" (last line):

", and optionally from 0.1% to 1% by weight of water-soluble salts of ethylenediamine tetramethylene phosphonic acid, diethylenetriamine pentamethylene-phosphonic acid, ethylenediamine tetraacetic acid, or diethylenetriamine pentaacetic acid".

Claim 1 of the auxiliary request differed from Claim 1 of this main request only by the replacement of feature (c) by:

"(c) from 3% to 15% of a water-soluble detergency builder which is a citrate;"

The dependent Claims 2 to 14 of these requests concerned further embodiments of the compositions of both main claims.

The Appellant argued that the teaching of document (4) and the common general knowledge at the priority date represented by

(7) Kirk-Othmer, Vol. 22 (1983), 396-405,
(8) "Novo's Handbook of Practical Biotechnology", March 1987, 54 to 56, and
(9) "Detergent Enzymes - Past, Present and Future", JAOCS, Vol. 60, no. 5 (May, 1983), 1025-1027

showed that there was a strong prejudice against the addition of a builder to enzymatic detergent compositions such as disclosed in Document (2) since the skilled person would have expected that the addition of a builder would result in destabilisation of the enzyme owing to the sequestering activity of builders with respect to the enzyme-stabilising calcium ions. He also argued that in the skilled person's opinion the addition of higher amounts of calcium leaving unsequestered calcium ions in the composition would render the builder useless and therefore its introduction into the detergent composition senseless. In this context, he pointed out that the claimed amount of calcium ions was much lower than the sequestering capacity of the claimed minimum amount of builder.

Referring to the examples of the patent in suit, Appellant's test-report filed on 30 June 1992 and Opponent's evidence submitted on 11 September 1990, he also contended that the experimental data showed that the claimed combination of calcium ions and boric acid provided about the same enzyme-stabilisation as in unbuilt compositions and a better stabilising effect in built detergent compositions compared with those having a formate as stabiliser as described in document (4). This effect was, in the light of the existing prejudice indicated above, entirely unexpected. Moreover, the claimed compositions showed an improved cleaning performance compared with the substantially unbuilt compositions of document (2).

In addition, he argued with respect to document (2) that boric acid was clearly a less preferred stabilising agent compared with the described dicarboxylic acids, that the sequestering agents which could be used in amounts of only 1% or less were no builders in the sense of the patent in suit and that its disclosure did not provide any indication that the calcium ions in the compositions were used for the purpose of enzyme stabilisation. Furthermore, he submitted that document (6) related to a different problem, namely the provision of built enzymatic detergents having an improved physical stability. Moreover, this document only related to "unstressed" compositions, i.e. such compositions comprising a low soap and a low anionic surfactant content.

Having regard to these considerations, the addition of a builder to enzymatic detergent compositions such as disclosed in document (2) would not have been obvious to the skilled person.

VI. The Respondents fully agreed with the reasoning of the Opposition Division regarding lack of inventive step. They submitted that documents (2) and (6) showed that there was no prejudice against the use of builders in enzyme containing compositions. In this context they argued by referring to

(12) Marshall Sittig, "Detergent Manufacture Including Zeolite Builders and Other New Materials", 1979, Noyes Data Corporation, New Jersey, U.S.A, pages X and 347,

that it was common general knowledge that the water-soluble salts of dicarboxylic acids, such as malonic acid and succinic acid, used according to document (2) in amounts up to 10% by weight for the stabilisation of the enzyme were also builders. Thus, the compositions disclosed in document (2) comprising a salt of a dicarboxylic acid in the indicated amounts, a sequestrant (being a builder) in amounts up to about 1% and a soap (acting as a builder) in preferred amounts of 10% to 18% would be considered by the skilled person as being (weakly) built enzymatic detergent compositions like the compositions of the patent in suit.

Regarding document (6) they contended that the enzymatic compositions of this document contained builders even in amounts up to 60%, preferably 5% to 50%. Therefore, having regard to the fact that it was common general knowledge that builders improve the cleaning performance of detergent compositions, the addition of low amounts of the builders as claimed in both requests to compositions disclosed in document (2) did not involve an inventive step.

VII. The Appellant (Patentee) requested that the decision under appeal be set aside and that the patent be maintained on the basis of the main request, alternatively on the basis of the auxiliary request, both as submitted during the oral proceedings. Furthermore, he requested that Procter & Gamble European Technical Center be deleted from the notice of appeal.

VIII. The Respondents (Opponents) requested that the appeal be dismissed.

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

Reasons for the Decision

1. After deleting Procter & Gamble European Technical Center as co-appellant in the Notice of Appeal, the appeal complies with Articles 106 to 108 and to Rule 64 EPC and is, therefore, admissible.

2. *Main request*

2.1 The subject-matter of present Claim 1 is based on Claim 1, in combination with page 4, lines 47 to 59 and page 5, lines 25 to 28, of the specification of the patent as granted, and also supported by Claim 1, in combination with page 9, first paragraph, page 11, lines 14 to 21, and page 14, lines 28 to 30, of the patent application as filed.

The subject-matter of present dependent Claim 2 is based on page 6, lines 6 to 14, of the originally filed application and on Claim 2 in combination with page 3, lines 50 to 52, of the patent as granted.

Present Claims 3 to 5 and 7 to 14 are identical with the respective Claims 3 to 5 and 8 to 15 of the patent as granted and Claims 2 to 4 and 7 to 14 of the originally filed patent application.

The subject-matter of present Claim 6 is based on Claims 5 and 6 of the patent application as filed and on Claims 6 and 7 of the patent in suit as granted.

Thus, all claims of the new set of claims of the main request comply with the requirements of Article 123 EPC.

2.2 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 is no longer in dispute, it is not necessary to give reasons for this finding.

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

2.3.1 Both parties agreed that document (2) is the closest state of the art. The Board does not object to this position.

This document relates to stabilised enzyme-containing detergent compositions comprising from about 5 to about 75% by weight of at least one non-soap detergent such as an anionic surfactant, from about 0.1 to about 20 millimoles of calcium ion per litre composition, from about 0.05 to about 5% by weight of a proteolytic or amylolytic enzyme, from about 0.1 to 10% by weight of a stabilising agent such as a water-soluble salt of a dicarboxylic acid including succinic acid or boric acid, from about 0 to about 25% by weight of a soap, optionally a sequestrant, and the balance water (cf. page 1, lines 26 to 41 and 55 to 60).

It is true, that the document does not explicitly indicate the purpose of the calcium ions in the specified amounts. However, having regard to the discussion of the prior art indicating that enzymes in detergents are stabilised by calcium ions alone or in combination with other components [polyacids, saturated fatty acids or a short chain carboxylic acids, or salts thereof] (cf. page 1, lines 18 to 25), the fact that the presence of the specified amounts is apparently an important feature for the provision of enzyme-containing compositions having the desired high enzyme-stability (cf. page 1, lines 31 to 41; the examples which all contain calcium ions; Claims 14 and 15; and the statement on page 2, lines 2 to 4, that high levels of calcium ions are generally employed to correspond to the use of soap in the detergent composition), as well as the fact that the document does not give any pointer to another function, in the Board's judgment, a skilled person in reading document (2) would assume that the calcium ions are used in the specified amounts as a co-stabiliser for the stabilisation of the enzyme component.

Document (2) also describes that sequestrants, including organic polyphosphonates, are advantageously used and that they are preferably present in amounts up to about 1% by weight (cf. page 4, lines 15 to 22, and Claim 29). Other preferred additives generally employed in amounts of from about 2 to about 20% by weight are lower alcohols, preferably lower polyols such as propylene glycol (cf. page 4, lines 6 to 14, and also page 6, lines 23 to 29, of the patent in suit). Sodium borate provides about the same stabilising effect as the dicarboxylic acids (cf. the Table on page 7, particularly composition K compared with compositions B to J).

Representative examples of such compositions are given in Tables 1B and 2B. The composition W indicated in Table 2B comprises 20% by weight of sodium linear C_{10}-C_{13} alkyl benzene sulphonate, 15% by weight of ethoxylated C_{11}-C_{18} alcohol (7 moles EO per mole alcohol), 15% by weight of soap (75% lauric, 25% oleic), 9% by weight of ethanol, 3.5% by weight of propylene glycol-1,2, 0.5% by weight of proteolytic enzyme, 10 millimoles per litre of calcium, 0.3% by weight of Dequest 2060 (diethylene triamine pentamethylene phosphonic acid), 2% by weight of sodium borate and water (balance), and composition K indicated in Table 1B, differs from this composition W only in that the ethanol is omitted and the propylene glycol-1,2 is present in an amount of 12.5% by weight.

Therefore, the disclosure of document (2) as a whole makes available to the skilled person detergent compositions which only differ from the compositions as claimed in that the compositions according to present Claim 1 contain a water-soluble detergent builder selected from citrates and polyphosphates in the specified amounts.

The Appellant relied on the fact that these prior art stabilised enzyme-containing heavy duty liquid detergent compositions provided an unsatisfactory cleaning performance.

2.3.2 The Board accepts in the Appellant's favour that the technical problem underlying the disputed patent vis-à-vis the closest state of the art as represented by document (2), can be seen in the provision of a heavy-duty enzyme-containing liquid detergent composition having an improved cleaning performance without impairing the enzyme stability.

2.3.3 The patent in suit solves this technical problem according to Claim 1 by enzyme-containing detergent compositions of the above type containing from 3% to 15% by weight of a water-soluble builder selected from citrates and polyphosphates.

2.3.4 The experimental results of the test-report submitted by the Appellant on 30 June 1992 show (cf. page 6, third paragraph to page 7, first paragraph under the Table) that a composition identical to composition W of document (2) specified above except that 7.5% of soap was replaced by 7.5% citric acid builder, has about the same residual enzyme activity (2,3% less) after 7 days storage at 43 °C compared with the prior art composition W. Furthermore, the test-report filed by the Respondent on 11 September 1990 also shows (cf. page 3, third paragraph to page 4, first paragraph after the Table) that a composition according to present Claim 1 of the disputed patent which corresponds essentially to the above indicated composition K of document (2) save the presence of 4% citric acid as a builder in the composition according to the disputed patent, has practically the same residual enzyme activity (3% more) after 8 weeks storage at 37 °C compared with the known composition K. Thus, having regard to these unchallenged test-results and to the fact that - as contended by the Appellant and confirmed by the Respondents - it was common general knowledge that the presence of a citrate or polyphosphate builder in the claimed amounts gives a relevant improvement of the cleaning performance, the Board finds it credible that the technical problem as defined above has been solved.

2.3.5 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 cleaning performance of the conventional enzyme-containing compositions as

disclosed in document (2), whilst retaining their satisfactory enzyme stability, by adding the particular selected builders, namely a citrate or a polyphosphate, in amounts of from 3% to 15% by weight.

2.3.6 The Appellant argued that documents (4), (7), (8) and (9) substantiate a prejudice against the use of builders in enzyme-containing detergent compositions, since builders would destabilise enzymes owing to their sequestering properties with respect to the calcium ions needed for the stability of the enzyme molecules in the composition.

In this context, he also contended that, having regard to the calcium ion sequestering capacity of builders (about 4.9 millimoles per gram citrate as indicated in Appellants letter of 18 November 1994, page 11, last paragraph) it is surprising that the minimum amount of builder specified in present Claim 1, namely 3% by weight (corresponding to about 30g per litre), is a large excess compared to the maximum amount of calcium ion as claimed, namely 30 millimoles/l. However, having regard to the Board's observation that according to this calculation document (4) would describe compositions comprising a large excess of citrate compared with the amount of added calcium ion (cf. Example III, compositions I and IV to VIII, particularly composition V containing 0.3% of citric acid and 1.5 mmole/l of calcium, i.e. an amount of citrate capable of complexing about ten times the amount of calcium), the Appellant admitted that in the case of builders such as citric acid an equilibrium of "free" calcium and complexed calcium within the composition would exist providing sufficient calcium to stabilise the enzyme. This explanation which, in the Board's judgment, destroys Appellant's argument that the presence of an excess of builder with respect to the amount of the enzyme

stabilising calcium ion would support inventive step, is confirmed by document (2) which describes the use of calcium citrate as a source of calcium ion (cf. page 2, lines 4 and 5).

2.3.7 Regarding the alleged presence of a prejudice against the use of a builder in enzyme-containing detergent compositions it is observed by the Board that, according to the established jurisprudence of the Boards of Appeal, the existence of a prejudice only can be demonstrated by common general expert knowledge in the field concerned, as represented in general in a standard work or textbook, since the technical information in a patent specification or a scientific article may be based on special premises or on the view of the drafter (cf. "Case Law of the Boards of Appeal of the EPO", 1987 to 1992, I D 3.4).

2.3.8 Therefore, Appellant's reference to Document (4) being a patent publication cannot be accepted by the Board to demonstrate a prejudice.

Furthermore, the same appears to apply for document (9) which concerns a publication in the JAOCS by a sales manager of NOVO (a company which produces enzymes for detergent compositions). However, even if this document would be accepted by the Board for the purpose of demonstrating the alleged prejudice, the assertion therein that liquids containing builders generally are not a stable matrix for enzymes primarily due to sequestering of divalent cations needed for stabilisation of enzyme molecules in the solution, cannot be accorded general validity since it is weakened by the term "generally" and preceded by the statement that today a heavy duty enzyme-containing detergent liquid may be found on a supermarket shelf in a number of product types including built liquids which may be

further divided into phosphate and nonphosphate categories (cf. page 1026, right column, third complete paragraph).

Document (8) concerning Novo's Handbook of Practical Biotechnology, although published after the priority date of the disputed patent, may be regarded as showing, in the Board's judgment, the common general knowledge in the field of enzyme-containing heavy duty liquid detergents (HDLD) at about the priority date and may be, therefore, considered by the Board as evidence which is in its nature suitable to proof the existence of a prejudice. It describes that small amounts of calcium ions are necessary for a good enzyme stability and that builders, which bind calcium ions, destabilise enzymes (cf. page 55, the last two paragraphs). Furthermore, it is stated in this document that: "Therefore enzymes are more frequently used in HDLD products that do not have builders in them (i.e. nonbuilt HDLD). Examples of such compounds are tetrapotassium pyrophosphate (TKPP) and sodium citrate." (cf. page 55, last line to page 56, line 3). However, this technical information, in the Board's judgment, does not exclude the use of enzymes in built HDLD products as follows from the terms "more frequently used" in said statement.

2.3.9 In addition, the technical information provided by document (2) in combination with the common general knowledge supported by document (12) and document (6) casts serious doubts on the existence of the alleged prejudice.

Document (2) discloses - as indicated above - enzymatic heavy duty liquid detergent compositions of the type as claimed in the disputed patent. They contain advantageously sequestrants, preferably organic polyphosphonates, preferably in amounts up to about 1%

by weight, particularly in the presence of soap (cf. page 4, lines 15 to 22). These polyphosphonates have, according to the common general knowledge, the same function as a builder as follows from document (7) (cf. page 396, first paragraph under "Phosphates", in combination with page 399, last paragraph) and document (12) (cf. page X).

A typical example in this document for such compositions (composition K) shows essentially the same enzyme stability as the most preferred compositions (cf. page 1, lines 31 to 60) which comprise as a stabiliser a dicarboxylic acid in an amount of 2% by weight instead of boric acid (cf. the Table on page 7, particularly compositions B to J compared with composition K). Furthermore, it is indicated that the stabilising dicarboxylic acids can be used in an amount of from about 0.1% to about 10%, preferably from about 1% to about 5%, by weight of the composition.

In addition it can be derived from the Table on page 7 of document (2), that composition K owing to its higher propylene glycol-1,2 content shows a remarkable improvement of the stability of the enzyme compared with composition W so that the skilled person would expect that in such more stable compositions higher amounts of probably enzyme destabilising components such as builders and anionic surfactants might be tolerated.

Having regard to this technical information and in the light of the disclosure of document (12), which concerns general textbook knowledge, indicating that dicarboxylic acid derivatives (particularly salts of oxalic acid or succinic acid) are such effective builders that no polyphosphates are required (cf. page X and page 347 under "Oxalic Acid Derivatives"), in the Board's judgment, the skilled person in reading document (2)

would have realised on the basis of his common general knowledge that the "substantially unbuilt" compositions (containing, as indicated above, preferably up to about 1% of a sequestrant and/or up to 5% of a salt of a dicarboxylic acid) might contain builders other than salts of dicarboxylic acids in amounts falling under the scope of present Claim 1 of the disputed patent, particularly close to the lower limit (3% by weight).

Furthermore, document (6) which relates to stable highly built enzyme-containing liquid detergent compositions comprising a mixture of a polyol, boric acid and a polyacrylate polymer to stabilise the enzyme and to improve the physical stability of the composition, as well as relatively high amounts of builders such as citrates or polyphosphates (preferably 5% to 50%) (cf. page 1, lines 21 to 80 and page 2, lines 84 to 102), provides an additional indication that relatively high amounts of builders (such as citrates or polyphosphates as claimed in the disputed patent) are not generally incompatible with enzymes used in detergent compositions. The Appellant's argument that this document is concerned with a different technical problem, namely the improvement of the physical stability of the enzyme-containing detergent compositions, and therefore would not be relevant, cannot be accepted by the Board. Although the teaching of document (6) with respect to the state of the art discussed therein indeed relates to the improvement of the physical stability of the liquid compositions by using a polyacrylate and a ratio of the polyol to the boric acid higher than 1 (cf. page 1, lines 21 to 40), it is the Board's position that this document clearly discloses that by using these three components, highly built compositions having both a satisfactory enzyme stability and a satisfactory physical storage stability

can be obtained (cf. page 1, lines 40 to 45, and e.g. Example 1, which concerns a composition comprising 20% by weight of a polyphosphate builder and 10% by weight of an anionic surfactant). Moreover, the point at issue is whether a prejudice existed with respect to the incompatibility of builders and detergent enzymes. Since document (6) relates as indicated above to detergent compositions containing enzymes and builders, the Board does not see any reason why this document would not be relevant to this question.

2.3.10 Although it is true, that the cited prior art taken as a whole shows that the use of builders in enzyme-containing liquid detergent compositions is not free of problems, the skilled person would have derived from it, that satisfactory stable enzyme-containing built detergent compositions can be achieved provided that the builder concentrations are kept relatively low and/or the enzyme stabilising agents such as polyols are used in relatively high amounts.

Therefore, in the Board's judgment, the Appellant's submissions with respect to the existence of the prejudice against the use of builders in enzyme-containing HDLD-compositions, which has to be in its nature unambiguous and of general validity, fail on the ground of lack of convincing evidence.

2.3.11 The remaining question to be answerded is whether, in the absence of the alleged prejudice, it would have been obvious to the the skilled person, on the basis of his common general knowledge and the cited prior art, to improve the cleaning performance of the compositions according to document (2) by raising the builder content above the amounts indicated therein.

2.3.12 In the Board's judgment, it was common general knowledge that the detersive effect of surfactants can be increased by means of builders (cf. e.g. document (7), page 396, under the heading "Builders"). Furthermore, it is the Board's position that this also holds true in cases where "minor amounts" of builders are already present as taught by document (2). Having regard to the fact that these "minor amounts" are not specified in this document save by the indication that the upper limit is preferably about 1% by weight, the skilled person would have deduced from the teaching of document (2) on the basis of his common general knowledge that the technical problem underlying the disputed patent as defined above would have been solved by increasing the builder content beyond this preferred upper limit. The lower limit of 3% by weight for the amount of builder as claimed according to the disputed patent is so close to the preferred upper limit mentioned in document (2) that the increase of the builder content into the claimed range of 3 to 15% by weight did not involve any inventive activity. Furthermore, it is the Board's position that the replacement of the preferred polyposphonates indicated in document (2) by the widely used polyphosphates was a measure which the person skilled in the art would have seriously contemplated.

3. Thus, the Respondent's main request must be refused on the ground of lack of inventive step.

4. *Auxiliary request*

4.1 The subject-matter of Claim 1 of the auxiliary request differs from that of the main request only in that the builder is further restricted to a citrate.

4.2 It is the Board's position, that the considerations with respect to the main request are also applicable to the auxiliary request. Furthermore, having regard to the fact that citrates are known builders and commonly known alternatives for polyphosphates if these compounds cannot be used or only in reduced amounts because of legislatively mandated reductions in detergent phosphate concentrations (cf. document (12), page X; and document (7), the paragraph bridging pages 396 and 397, and page 401, third paragraph), the selection of citrates would also have been obvious to the skilled person. Therefore, the subject-matter of Claim 1 of the auxiliary request does not involve the required inventive step either.

4.3 The dependent Claims 2 to 14 of this request fall together with Claim 1, since the Board can only decide on the request as a whole.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

E. Görgmaier A. Jahn