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**Datasheet for the decision
of 18 September 2013**

Case Number: T 1513/10 - 3.3.06
Application Number: 04809978.2
Publication Number: 1675935
IPC: C11D3/08, C11D3/30, C11D3/16,
C11D3/02
Language of the proceedings: EN

Title of invention:

Stable compositions of spores, bacteria and/or fungi

Patent Proprietor:

ECOLAB INC.

Opponent:

The Procter & Gamble Company

Headword:

Cleaning composition with spores/ECOLAB

Relevant legal provisions:

EPC Art. 52(1), 56, 84, 100(b), 123(2)

Keyword:

Inventive step - main request (no) obvious alternative - first
auxiliary request (yes) improved composition

Decisions cited:

Catchword:



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Case Number: T 1513/10 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 18 September 2013

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
11 May 2010 concerning maintenance of European
Patent No. 1675935 in amended form.**

Composition of the Board:

Chairman: B. Czech
Members: P. Ammendola
J. Geschwind

Summary of Facts and Submissions

I. This appeal of the Opponent is from the decision of the Opposition Division concerning maintenance of European Patent No. 1 675 935 in amended form.

II. In its notice of opposition, the Opponent had referred *inter alia* to the following document in support of its objections under Article 100(a) EPC (lack of novelty and lack of inventive step):

D1: US 6,506,261 B1.

About one month before the date of the oral proceedings, the Opponent had filed, *inter alia*, the following documents:

D4: US 5,705,382 A;

D5: "*Stabilization and Preservation of Lactobacillus acidophilus in Saccharide Matrices*" Conrad P.B. *et al.*, *Cryobiology*, Vol.41, 2000, pages 17 to 24;

D8: "*Microbiological Methods*", Butterworth & Co. Ltd. Publishers, 1964; Table of "Contents" and Chapter 17, pages 127 to 135;

and

D9: WO 99/24541 A1.

III. The set of claims held allowable by the Opposition Division (first auxiliary request then on file) comprises three independent claims, which read:

"1. A cleaning composition comprising:

*1x10³ to 1x10⁹ CFU/mL spore, bacteria, or fungi;
and
boric acid salt."*

*"30. A method of cleaning a hard surface, comprising applying to the surface a cleaning composition comprising:
spore or bacteria;
borate salt;
about 0.5 to about 35 wt-% nonionic surfactant;
and
about 0.1 to about 35 wt-% silicone surfactant."*

*"32. A method of cleaning grout, comprising applying to the grout a cleaning composition comprising:
spore or bacteria;
borate salt;
about 0.5 to about 35 wt-% nonionic surfactant;
and
about 0.1 to about 35 wt-% silicone surfactant."*

IV. In the decision under appeal the Opposition Division found, *inter alia*, that:

- The compositions disclosed in documents D4 and D9 contained "pathogenic" or "undesirable" bacteria which "would not be considered by the man skilled in the art of detergency as being suitable for adding to deterative compositions destined for cleaning surfaces" or "are considered unsuitable for the purpose of cleaning" (see point 4.3 of the reasons). Accordingly, considering that these citations had undisputedly been filed belatedly, they were not admitted in view of their lack of *prima facie* relevance.

- Documents D5 and D8 were, however, admitted into the proceedings despite their late filing considering inter alia that the compositions disclosed in document D5 did not appear to comprise any adjuvant which would be detrimental to cleaning processes and that document D8 disclosed relevant background art.

- The amended version of the patent in suit according to the first auxiliary request then on file complied with the requirements of the EPC. More particularly , claim 1 thereof met the requirements of Articles 123(2), (3), 83 and 84 EPC 1973 and the subject-matter of claims 1, 30 and 32 was novel and non-obvious in view of the closest prior art represented by document D1 and of the other prior art documents considered.

V. In its statement of grounds of appeal, the Appellant argued that the Opposition Division had made a substantial procedural violation in not admitting documents D4 and D9 into the proceedings and therefore requested the refund of the appeal fee. It also requested the Board to admit documents D4 and D9 and to revoke the patent considering that the subject-matter of the claims held allowable by the Opposition Division lacked sufficiency, novelty and inventive step over the prior art, inter alia over document D1 taken alone.

VI. In its reply dated 22 December 2010, the Respondent (Patent Proprietor) rebutted all the objections raised by the Appellant and defended (as its main request) the patent in the version held allowable by the Opposition Division. However, it also enclosed four sets of amended claims as first to fourth auxiliary requests.

VII. The Board summoned the parties to oral proceedings. In a communication issued in preparation for the oral proceedings, the Board expressed the reasoned preliminary opinion that no substantial procedural violation appeared to have been made by the Opposition Division and, hence, that a reimbursement of the appeal fee did not appear to be equitable. The Board also expressed the following preliminary considerations in respect of the Appellant's request to admit into the proceedings documents D4 and D9:

"3.1 According to the established jurisprudence of the Boards (see G 7/93, OJ 1994, 775, point 2.6 of the reasons) a Board of Appeal will overrule the way in which a first-instance department has exercised a discretionary power attributed to it by the EPC, if the Board comes to the conclusion either that the department has not exercised its discretion in accordance with the proper principles, or that it has done so in an unreasonable way, and has thus exceeded the proper limits of its discretion. Whether the decision of the Opposition Division was right or wrong and whether the members of the Board would have reached the same decision or not is not the relevant criterion (see e.g. R 0009/11, point 3.2.1 of the reasons, last paragraph).

3.2 However, ... it is clear from the decision under appeal that the Opposition Division has refused the admission of documents D4 and D9 because of the lack of relevance of these latter, i.e. it appears that the First Instance has logically used a criterion that is usually applied in determining the admissibility of submissions filed late.

Since the reasons of the Opposition Division appear to be logically structured and based on the application of the proper principles, a reversal of the Opposition Division's discretion in refusing the admission of documents D4 and D9 would not appear to be justified."

In that communication the Board also expressed the following preliminary opinion on the meaning of the "CFU/mL" feature in claim 1 at issue:

"6. ... in order to fall under the scope of the maintained version of claim 1, a composition must show a CFU/mL value in the claimed range, irrespective of the point in time at which the composition is tested."

VIII. At the oral proceedings, the Appellant:

- stated that it no longer maintained that a substantial procedural violation had occurred and withdrew the corresponding request for reimbursement of the appeal fee;

but

- nevertheless pleaded in favour of the admittance of documents D4 and D9 into the proceedings by, *inter alia*, referring - for the first time - to the lists of genera and species of bacteria given in paragraphs [0033] and [0034] of the patent in suit, alleging that these lists, too, included pathogenic bacteria. This argument is hereinafter referred to as **the new argument based on the lists of bacteria.**

At the oral proceedings, the Respondent:

- disputed the admissibility of said new argument based on the lists of bacteria in view of its late submission

and

- filed a further set of amended claims as new first auxiliary request replacing the first auxiliary request previously on file.

IX. This **new first auxiliary request** comprises 33 claims.

Claim 1 thereof differs from claim 1 according to the main request only by the appended wording

", the composition further comprising about 0.003 to about 35 wt-% nonionic surfactant".

Claims 30 and 32 according to the new first auxiliary request are identical to claims 30 and 32 (see point III supra) according to the main request.

Claims 2 to 29 of said request define preferred embodiments of the composition of claim 1, claim 31 defines a preferred embodiment of the method of claim 30 and claims 33 and 34 define preferred embodiments of the method of claim 32.

X. The Appellant requested that the decision under appeal be set aside, that documents D4 and D9 be admitted into the proceedings, and that European patent No. 1 675 935 be revoked.

The Respondent requested that the appeal be dismissed (main request) or, alternatively, that the patent be maintained in amended form on the basis of the claims according to the new first Auxiliary Request filed during oral proceedings or one of the second to fourth Auxiliary Requests filed with its letter dated 22 December 2010.

XI. The Parties' arguments of relevance here can be summarised as follows.

The **Appellant** argued in its written and oral submissions that the decision of the Opposition Division not to admit documents D4 and D9 was based on the erroneous assumption that the compositions disclosed in these citations lacked *prima facie* relevance in respect of the claimed compositions. In the Appellant's opinion, the conventional meaning of the expression "*cleaning composition*" in claim 1 according to the main request encompassed *per se* any composition suitable for removing any undesired soil. Hence, and in the absence of any definition in claim 1 or in any other portion of the patent in suit justifying a restrictive interpretation of the expression "*cleaning composition*", this latter could as well embrace compositions containing pathogenic bacteria, because many cleaning uses were possible even for such compositions that were not safe for direct human use. Accordingly, the Opposition Division had erred in denying the *prima facie* relevance of documents D4 and D9 simply because the compositions disclosed therein comprised pathogenic bacteria.

At the oral proceedings, the Appellant supported this objection with the new argument based on the lists of bacteria which in its view proved that also the claimed

cleaning compositions could encompass pathogenic bacteria.

Concerning the assessment of inventive step in respect of claim 1 according to the Respondent's main request (see wording recited in point III supra), the Appellant argued that an improvement of the stability of the **spore, bacteria or fungi** (hereinafter the term **SBoF** is used to indicate collectively the three alternatives) resulting from the addition of borate salt and the consequent improvement of cleaning results produced by such SBoF (i.e. the advantageous technical effect allegedly observed in the patent examples) could not possibly be obtained across the whole scope of claim 1 for the following reasons:

i) The patent in suit only mentioned and addressed the improvement of the stability of the SBoF against the adverse effects of the chemical cleaners, i.e. of the surfactants; this was also confirmed by the data in Table 2 of the patent in suit proving that the addition of borate salt to compositions containing no surfactants provided no improvement in spore stability.

ii) The data in the patent in suit would at most proved a beneficial effect of certain borate salts on the stability of certain SBoF in the presence of a substantial amount of specific surfactants;

iii) A stability of the cleaning results comparable to that observed in Examples 5 and 6, which only referred to a single specific composition, was even less likely across the whole scope of claim 1.

iv) On the contrary, claim 1 according to the main request not only allowed for any kind of SBoF and any

amount of any borate salt but was neither limited to compositions comprising chemical cleaners nor to compositions to be formulated and applied so that the SBoF contained therein necessarily contributed to the cleaning.

Thus, the sole technical problem plausibly solved across the whole scope of claim 1 according to the main request was the provision of further cleaning compositions, i.e. the provision of an alternative to the prior art disclosed e.g. in examples 23, 25 or 26 of document D1. As this citation already suggested the advantageous use in cleaning compositions of SBoF as well as of borate salts (see D1, examples 23, 25 and 26 as well as the sentence bridging columns 12 and 13, lines 29 to 36 of column 13, and lines 54 to 63 of column 14), it was apparent upon considering document D1 *per se* that the claimed compositions were an obvious alternative to the prior art.

The Appellant disputed the compliance of claim 1 of the new first auxiliary request with the requirements of the EPC because:

a) it was not clear at what moment in time the claimed compositions had to possess a "CFU/mL" value in the prescribed range (Article 84 EPC 1973);

b) if the Board concurred with the Respondent that claim 1 implicitly required that the SBoF mentioned in the claim provided some undefined cleaning effect, then it was not clear how to identify which SBoF were encompassed by the claim and which ones were not (Articles 100(b) EPC / 83 EPC 1973);

c) it would be impossible to determine the "CFU/mL" values of the claimed compositions and, thus, to carry out the invention (Articles 100(b)/83 EPC 1973), because the sole disclosed method for measuring these values was that mentioned in paragraphs [0234] and [0235] of the patent in suit, which was only applicable to SBoF with a lipolytic activity, and because, as apparent from document D8, measured "CFU/mL" values were associated with extremely high uncertainty;

d) the possible presence of 0.003 to 35 wt-% of nonionic surfactant was only disclosed in the application as originally filed in combination with other features which were not mentioned in claim 1 of the new first auxiliary request, thereby rendering this latter objectionable under Article 123(2) EPC;

e) the same arguments i) to iv) given above (in respect of the lack of plausibility of the alleged advantageous technical effect across the scope of claim 1 according to the main request) also applied to claim 1 of the new first auxiliary request, even more so because this latter allowed for the presence of minuscule amounts of surfactants; hence, at least part of the subject-matter claimed would still represent an obvious alternative to the prior art disclosed in document D1;

and

f) if the Board were nevertheless to consider the subject-matter of claim 1 of the new first auxiliary request credibly to solve the technical problem of increasing the stability of one-part cleaning compositions comprising SBoF, then the proposed solution would be obvious in view of the combination of document D1 with the teaching in document D5 that

borate (possibly in combination with trehalose) stabilised SBoF.

The Appellant finally maintained that the same objections as to the obviousness of the cleaning compositions of claim 1 of the new first auxiliary request applied also to the methods of claims 29 and 31 of the same request, since it was apparent from document D1 that the compositions disclosed and suggested therein could be used on hard surfaces and grout.

The **Respondent** considered the decision of the Opposition Division not to admit documents D4 and D9 to be justified not only in view of the lack of *prima facie* relevance of these citations (as apparent from the fact that these documents did not relate at all to "*cleaning compositions*" and contained pathogenic bacteria) but also because their filing only a few weeks before the oral proceedings in opposition had confronted the Respondent with a completely new opposition.

The Respondent held that the new argument based on the lists of bacteria should not be admitted since it had been presented for the first time at the oral proceedings. A postponement thereof would thus be necessary in order to obtain detailed input from technical experts and then to comment appropriately on said new argument.

The Respondent acknowledged that the patent in suit explicitly mentioned only the problem of the stability of SBoF in cleaning compositions arising from the presence of surfactant ingredients, but rebutted the Appellant's objection that the technical problem of

stability improvement had not been solved across the whole scope of claim 1 according to the main request, arguing:

- that the skilled person would also expect stability problems for SBoF in cleaning compositions containing no surfactant, such as those only consisting of spore, borate and water

and

- that the skilled person reading claim 1 according to the main request in the light of the whole content of the patent in suit would conclude that the claimed subject-matter was implicitly limited to compositions suitable for cleaning soils such as grease, protein or carbohydrate by virtue of suitable SBoF which digested (at least one of) these soils or produced soil-degrading enzymes.

Hence the improvement in SBoF stability obtained according to the present invention also inevitably resulted in a consequential improvement in cleaning results achieved by compositions as claimed containing surfactants as well as by compositions as claimed not necessarily comprising surfactants (hereinafter referred to **surfactant-free cleaning compositions or **SFC compositions**).**

The Respondent also stressed that the Appellant had provided neither experimental evidence contradicting the patent examples nor evidence of general knowledge corroborating the allegations that the borate salt could not be expected to promote the stability of the SBoF in cleaning compositions in which the surfactant was not present.

The wording introduced in claim 1 of the new first auxiliary request complied with Article 123(2) EPC since it was based on, *inter alia*, the disclosure at page 19, lines 3 to 7, of the original patent application (published as WO 2005/040320 A2).

The Respondent's objection as to the clarity and the sufficiency of disclosure of the parameter "CFU/mL" did not take into account that these values could be obtained by a well-established standard method, generally applied by the person skilled in the art who knew how to achieve (e.g. by repeating the measurements) a sufficiently reliable measured value.

In respect of the assessment of inventive step for the subject-matter of the independent claims of the new first auxiliary request, the Respondent stressed that all the claimed compositions manifestly addressed the technical problem of improving the stability of SBoF in the presence of a nonionic surfactant, and hence the stability over time of the cleaning efficacy of the composition. As neither document D1 nor D5 even indirectly implied such effect of borate or of compositions comprising borate, the available prior art could not possibly render obvious the subject-matter of this auxiliary request.

Reasons for the Decision

Non-admissibility of documents D4 and D9.

1. The Appellant contested the decision of the Opposition Division not to admit into the proceedings the late-filed documents D4 and D9 considering their alleged

lack of relevance. More particularly, in its opinion, the Opposition Division had erred in assuming that a skilled person would **not** consider compositions containing pathogenic bacteria to be **suitable** components of cleaning compositions.

1.1 In its written submissions in the appeal proceedings, the Appellant based this line of reasoning in essence on the following two arguments:

a) the patent in suit neither excluded pathogenic SBoF nor provided any definition at all for the expression "*cleaning composition*";

and

b) the skilled person would consider any composition capable of removing some kind of undesirable soil as a "*cleaning composition*" within the broadest meaning of these terms, regardless of whether that composition also comprised ingredients which are harmful for humans and, thus, might require special handling measures for safety reasons.

1.2 As already indicated in the Board's communication (see above point VII), these arguments neither call into question the principle (i.e. relevance assessment) on which the Opposition Division relied in exercising its discretion, nor are they sufficient to prove that it exercised its discretion in an unreasonable way.

Accordingly, in the Board's judgement, the above-mentioned arguments do not justify overruling the Opposition Division's discretionary decision not to admit and consider documents D4 and D9.

- 1.3 At the oral proceedings the Appellant additionally mentioned for the first time the argument based on the lists of bacteria (see point VIII *supra*).
- 1.3.1 The only justification offered by the Appellant for the late submission of this new argument was that only during the preparation for the hearing had it noted that the lists of bacteria given in the patent in suit included pathogenic bacteria species.
- 1.3.2 Article 13(3) RPBA provides that amendments sought to be made to a party's case after oral proceedings have been arranged shall not be admitted if they raise issues which the board or the other party cannot reasonably be expected to deal with without adjournment of the oral proceedings.
- 1.3.3 The Board accepts that the Respondent needed detailed input from experts in the technology in order to address said new objection properly and, thus, that the Respondent could not reasonably be expected to deal with this new argument without an adjournment of the oral proceedings.
- 1.3.4 Thus, pursuant to the provisions of Article 114(2) EPC and Article 13(3) RPBA, the Board decided not to admit into the appeal proceedings the new argument based on the lists of bacteria.
- 1.4 Consequently, the Board decided to refuse the Appellant's request to overrule the decision of the Opposition Division not to admit documents D4 and D9 into the proceedings.

Respondent's Main Request

2. Construction of claim 1

2.1 Claim 1 defines a cleaning composition comprising

- a) active SBoF in a specified concentration
and
- b) boric acid salt.

2.2 The Respondent maintained that the skilled reader of this claim in the context of the whole disclosure of the patent in suit would conclude that the claimed subject-matter was implicitly limited to compositions which were suitable for cleaning soils such as grease, protein or carbohydrate because they contained SBoF able to digest (at least one of) these types of soil (by means of the enzymes that they produce). This would be apparent from the fact that the patent referred to SBoF conventionally used for cleaning purposes because of their ability to degrade one or more among lipids, carbohydrates and/or proteins (see paragraphs [0008], [0016], [0032] and [0057], which are identically worded in the granted patent and in the amended description considered allowable by the Opposition Division), and from the fact that the SBoF were the sole component with a cleaning function expressly mentioned in the claim.

2.3 This reasoning of the Respondent is not convincing, if only for the following reasons:

- i) Even though the patent in suit only reminds its skilled reader of the abundant background art in respect of the SBoF used in cleaning compositions due to their ability to digest most types of organic soils,

there is no compelling reason for considering that the wording of current claim 1 does not encompass compositions including a known SBoF component suitable for providing some other technical effect possibly also desirable in cleaning compositions.

ii) Only the patent description, but not claim 1, mentions compositions wherein the SBoF can digest or degrade "*soils such as fat, oil, grease, sugar, protein, carbohydrate, or the like*". This disclosure is only given as corresponding to examples of the invention (see, *inter alia*, the already cited paragraphs [0008], [0016], [0032] and [0057]). Hence, it cannot be inferred from the description that the SBoF contained in the composition according to claim 1 necessarily must contain such soil-digesting SBoF.

iii) On the contrary, although the SBoF are the only ingredients specifically mentioned in claim 1 which could possibly possess the ability to remove a soil, the presence of some further ingredient(s) able to contribute to the removal of soils such as, for instance, water, can be considered to be implied by the preceding term "*cleaning composition*".

iv) Moreover, the description of the patent in suit (see e.g. paragraphs [0032], [0047], [0218] and [0219]) explicitly teaches the use of embodiments of the invention for cleaning "*inorganic*" soils or soils which, although organic, are nevertheless different from the typical fat, protein or carbohydrate soils and, thus, relates to the removal of soils that cannot possibly be seen as the consequence of one of the typical digesting activities of the SBoF conventionally used for cleaning purposes.

Hence, the skilled reader of claim 1 in the context of the whole disclosure of the patent in suit can only conclude that the claimed subject-matter, rather than being limited to compositions suitable for cleaning fat, protein or carbohydrate soils (also) by virtue of the appreciable contribution thereto of the digesting or degrading activity of SBoF, also encompass compositions in which the SBoF (due to their e.g. low digesting activities and/or concentrations) may be unable to provide any substantial contribution to any cleaning effect, but may nevertheless be able to produce some other desired effect.

2.4 In view of these considerations, the Board concludes that a skilled reader of claim 1 taking into account the whole disclosure of the patent in suit will conclude that this claim embraces any composition apt to remove at least one type of inorganic and/or organic soil and comprising any conceivable pair of the two defined ingredients, i.e. regardless of whether or not the composition is, in particular, suitable for removing fat, protein or carbohydrate soils by virtue of the SBoF comprised therein.

3. Inventive step - Claim 1

3.1 The invention

The invention concerns a cleaning composition comprising a certain amount of SBoF and boric acid salt, as well as methods for cleaning a hard surface or grout using a cleaning composition comprising spore or bacteria, boric acid salt and certain amounts of surfactants (see claims 1, 30 and 32).

3.2 Closest prior art

3.2.1 For the board, document D1, acknowledged in the patent in suit (see [0002]), is to be considered as the closest prior art since it also relates to cleaning compositions and mentions borates and grease digesting spores/bacteria as possible ingredients (column 14, lines 54 to 63).

3.2.2 More particularly, D1 (see table 8; column 25, lines 50 to 58) comprises an example of an aqueous cleaning composition comprising grease-digesting bacteria (example 23) and two examples comprising boric acid in conjunction with ethanolamine (examples 25 to 26).

3.3 Technical problem according to the Respondent

3.3.1 At the oral proceedings, the Respondent held that starting from the cleaning composition described in example 23 of D1 as the closest prior art, the technical problem consisted in the provision of cleaning compositions comprising SBoF having an improved stability over time in terms of microbiological activity and, hence, also in terms their cleaning effect.

3.4 Solution

3.4.1 According to the Respondent, this problem is solved by the provision of the cleaning composition according to claim 1 at issue, which is characterised in particular in that it comprises

" 1×10^3 to 1×10^9 CFU/mL spore, bacteria, or fungi and boric acid salt".

3.4.2 It is to be noted that claim 1 does not require the presence of a further specific cleaning agent such as a surfactant or an alkaline agent

3.5 Alleged success of the claimed solution

3.5.1 The patent in suit states in paragraph [0002] that previously known cleaning compositions comprising SBoF had been typically provided as "two-part" products, because of the *"adverse effects of the chemical cleaners"* on the stability of the SBoF. Hence (see last sentence of paragraph [0002]) *"there remains a need for stable cleaning compositions (e.g. "one-part" compositions) including both chemical cleaners and spores"*.

3.6 According to the Respondent the skilled person would expect similar stability problems also to occur in the case of SBoF contained in compositions with no additional chemical cleaners. Hence, the stabilizing effect of borate observed in the patent examples containing surfactants (see Tables 1, 2 and 3 of the patent in suit) was also to be expected for SFC compositions.

3.6.1 The Board notes, however, that this allegation of the Respondent (which was disputed by the Appellant) is neither self-evident nor supported by any evidence.

In particular, the patent in suit merely suggests (see [0017] that *"the boric acid salt **can** provide advantageous stability to the microbial preparation ... employed in, for example, **cleaning** compositions"* in general. Moreover, the patent in suit comprises no example showing that the addition of a boric acid salt would improve the stability over time of a composition

comprising SBoF but no specific chemical cleaning agent, such as the control aqueous microbial preparations referred to as compositions 8, 9 and 10 in paragraph [0237] and tables 1 and 2 of the patent in suit.

The Board is not aware of reasons for which the skilled person would expect any SFC composition (i.e. irrespective of its components) to be unstable over time. In the absence of any chemical cleaners, there are no potential "*adverse effects of the chemical cleaners*" on the SBoF activity to be remedied in SFC compositions.

- 3.6.2 Hence, the Respondent has not discharged the burden of proof, which rests on it in view of the above, for the allegation that the skilled reader of the patent in suit would expect:
- that a similar stability problem also existed in SBoF compositions not containing chemical cleaners; and
 - that the nature of this latter problem was known or could be predicted to be so similar to the stability problem arising in the presence of chemical cleaners that it would also appear plausible that the stability problem occurring in the absence of chemical cleaners could be overcome by the addition of a borate salt.

- 3.7 The Board concludes that, at least in so far as claim 1 encompasses cleaning compositions comprising no surfactants, the alleged improvement cannot be accepted. The technical problem invoked by the Respondent is, thus, not credibly solved across the full breadth of claim 1.

3.8 Technical problem effectively solved

3.8.1 Since, for the above reasons, the alleged improvement cannot be taken into account, the technical problem must be reformulated in a less ambitious manner.

3.8.2 The technical problem effectively solved across the full breadth of claim 1 can indisputably be seen in the provision of a further cleaning composition comprising SBoF.

3.9 Obviousness

3.9.1 It remains to be decided whether or not the claimed solution, i.e. the provision of a cleaning composition according to claim 1 at issue would have been obvious to the person skilled in the art having regard to the cited prior art.

3.9.2 The Board notes that document D1 (see claims 1 and 2; examples 23, 25 and 26; the sentence bridging columns 12 and 13; column 13, lines 29 to 36; and column 14, lines 54 to 63) explicitly acknowledges that
i) borate salts (due to the importance of their pH-regulating function in cleaning), and
ii) grease-digesting bacteria/spores (whose cleaning efficacy at least in respect of organic greasy soils of biological origin is already self-evident from their definition) were conventional ingredients of cleaning compositions.

3.9.3 For the Board, any modification of the composition according to example 23 of D1 on the basis of such technical information which may reasonably be expected to result in an effective cleaning composition, would represent for the skilled person an equally obvious

solution to the problem of providing a further cleaning composition.

3.9.4 Such a further cleaning composition need not necessarily be better in terms of cleaning performance than any of the compositions exemplified in D1. Hence, providing an aqueous composition comprising a borate salt as pH regulating agent, grease-digesting bacteria/spores and no surfactant, i.e. a "*cleaning composition*" within the meaning of claim 1 (see point 2.4 supra), is one out of several options readily available to the skilled person trying to solve the stated technical problem.

3.9.5 Hence, the skilled person starting from the disclosure of document D1 and wishing to provide a further cleaning composition would, considering the whole content of D1 taken alone, envisage providing borate-containing SFC compositions and would thereby arrive at compositions falling within the ambit of claim 1 at issue without the involvement of an inventive step.

3.10 Therefore, the subject-matter of claim 1 at issue does not, in the Board's judgement, involve an inventive step (Articles 52(1) and 56 EPC 1973).

3.11 The Respondent's main request is thus not allowable.

First auxiliary request

4. Admissibility of the request

4.1 The set of claims according to the first auxiliary request at issue is identical with the set of claims filed as the first auxiliary request in response to the statement of grounds of appeal, except from some minor

corrections of obvious deficiencies (renumbering of claims 18 to 33) and the deletion of the incorrect term "*further*" in claims 17 and 19.

4.2 The necessity for these amendments, which are more of editorial nature and do not raise any complex issues, became apparent at the oral proceedings. The Appellant did not object to the filing of this amended claims set.

4.3 The Board therefore decided to admit this new first auxiliary request despite its late filing (Article 13(1), (3) RPBA).

5. Amendments

5.1 Allowability under Article 123(2) EPC

The Appellant's sole objection under Article 123(2) EPC is based on the alleged absence of support in the application as originally filed for the insertion of the feature "*about 0,003 to 35 wt-% of nonionic surfactant*" into claim 1.

5.1.1 For the Board, this amendment finds a basis in the first four lines of the paragraph starting at line 3 of page 19 of the application as filed (published as WO 2005/040320 A2) reading: "*In an embodiment, the present cleaning composition includes spore, bacteria, or fungi; and borate salt, e.g., alkanol amine borate. In **certain embodiments**, the composition can **also** include about 0.003 to 35 wt-% of nonionic surfactant, for example...*" (emphasis added by the Board). For the Board, the presence of the word "*also*" implies that the wording defining said "*certain embodiments*" must be read in connection with the immediately preceding

definition of "*an embodiment*", in the sense that the latter is complemented by the definition of additional components.

5.1.2 Hence, in the Board's judgement amended claim 1 according the first auxiliary request is not objectionable under Article 123(2) EPC.

5.2 Clarity (Article 84 EPC 1973)

5.2.1 According to the Appellant it was not clear at what moment in time the claimed compositions had to possess a "*CFU/mL*" value as (also) indicated in claim 1 of this auxiliary request. At the oral proceedings, the Appellant did not put forward any argument potentially refuting the considerations under point 6 of the Board's communication (see point VI *supra*).

5.2.2 Hence, the Board has no reason to depart from its preliminary opinion that in order to fall under the scope of claim 1, a composition must show a CFU/mL value in the claimed range, irrespective of the point in time at which the composition is tested.

5.2.3 Accordingly, the Board finds that the introduction of the range " 1×10^3 to 1×10^9 CFU/mL" into claim 1 does not make the latter objectionable on the ground of lack of clarity (Article 84 EPC 1973).

6. Sufficiency of disclosure (Article 100(b) EPC)

6.1 The Appellant considered that the disclosure of the claimed invention was insufficient in two respects:

i) On the one hand, if the Board concurred with the Respondent that claim 1 of the new first auxiliary

request implicitly required that the SBoF mentioned therein had to provide a cleaning effect, then it was not clear how such SBoF could be identified.

ii) On the other hand, the determination of the CFU/mL values of a compositions as claimed was not possible because the sole disclosed method for measuring these values was the one indicated in paragraphs [0234] and [0235] of the patent in suit. However, this method was only applicable to bacteria with a lipolytic activity. Moreover, as apparent from the last paragraph on page 127 of document D8, CFU/mL values measured for diluted bacteria compositions were associated with extremely large errors.

For these reasons, the claimed invention could not be carried out by the skilled person, at least not across the whole ambit of claim 1.

6.2 The Board finds neither of the two objections convincing.

6.2.1 Firstly, for the reasons indicated under point 2 *supra*, the Board considers that also claim 1 according to the first auxiliary request embraces any composition which comprises the defined ingredients and which can be used to remove a soil, regardless of whether or not the kind of SBoF present therein contribute significantly to the intended cleaning effect in one or more of the possible cleaning uses of such composition. Thus, the identification of a specific subgroup among the SBoF that can be used in a cleaning composition is not necessarily required to enable the skilled person to carry out the invention.

6.2.2 Secondly, the so-called "viable count" is one of the most frequently used methods for measuring the level of active micro-organisms present in a composition of matter. The very content of document D8 (see in particular the final sentence in the paragraph bridging pages 127 and 128) implicitly confirms that a skilled person is aware that measures have to be taken (e.g. increasing the number of repetitions of the measurement) in order to ensure that the obtained value is reliable. The Appellant has provided no evidence to the contrary, i.e. evidence that a skilled person encounters difficulties in the reproducibility of results that he cannot overcome on the basis of his experience with this conventional method. Nor has the Appellant provided evidence that, despite the indisputable fact (also reflected in the general content of the whole document D8) that these biological counting methods are conventionally used on all sorts of microorganisms, there would be certain aspects of the method used in the patent in suit (for bacteria with lipolytic activity) that a skilled person would not know how to modify when testing SBoF with no substantial lipolytic activity.

6.3 Thus, the Board sees no reason for reversing the finding of the Opposition Division regarding the issue of sufficiency of disclosure. In the Board's judgement the invention as claimed is disclosed in a manner sufficiently clear and complete to be carried out by the person skilled in the art across the full ambit of the claims (Article 100(b) EPC).

7. Inventive step

7.1 Claim 1 at issue (see point VIII *supra*) differs from claim 1 according to the main request in that it

- further requires the presence of nonionic surfactant in a specified amount.
- 7.2 There is no reason to depart from considering D1, and more particularly example 23 thereof, as the most appropriate starting point for the assessment of inventive step. Indeed, even though this citation is silent as to the stability of the SBoF present in cleaning compositions also containing chemical cleaners, example 23 therein actually contains two of the three ingredients required by claim 1 at issue, i.e. bacteria and non-ionic surfactants.
- 7.3 The technical problem can be seen in the provision of a composition comprising SBoF and surfactants having improved stability over time in terms of microbiological activity.
- 7.4 As a solution to this technical problem, claim 1 at issue proposes the provision of a composition which is characterised in that it comprises
- " 1×10^3 to 1×10^9 CFU/mL spore, bacteria, or fungi",*
*"about **0.003 to about 35 wt-% nonionic surfactant**"*
and a *"**boric acid salt**"* (emphasis added).
- 7.5 The Board accepts that the claimed solution effectively solves the stated technical problem across the full breadth of claim 1.
- 7.5.1 Indeed, the experimental data in the examples of the patent in suit convincingly show that the incorporation of a borate salt provides the desired improvement in the stability of the SBoF present in the composition also containing non-ionic surfactants: samples of comparative composition (5), comprising spores and

protease but no borate, show a drop in Aerobic Plate Count Results of up to about one order of magnitude after 6 days (Table 2, data rows 3 and 4) and from 4 to 5 weeks ageing (Table 3, data rows 4 and 5), whereas the similar samples of composition (1) according to the invention, additionally comprising borate, provide Aerobic Plate Count Results of the same order of magnitude after 6 days (Table 2, data rows 1 and 2) as well as after ageing from 4 to up to 10 weeks (Table 3, data rows 1 to 3).

7.5.2 In view of these results it is plausible for the Board that an improvement in terms of stability is not only achieved in the case of compositions comprising SBoF actually contributing to a desired cleaning effect but also in the case of SBoF used to provide another technical effect (see point 2.3 *supra*).

7.5.3 The Appellant questioned the success of the claimed solution, arguing that it was not plausible that a surfactant content at the lower end of the claimed range (0.003 wt.%) could actually occasion a stability problem that needed to be overcome, in particular when the amount of SBoF was very high.

The Board finds the Respondent's rebuttal of this argument convincing and therefore disregards the argument. In particular, the Respondent stressed that cleaning compositions are usually evaluated as to their stability over time spans of several months, so that even very slow spore inactivation processes at very low surfactant concentrations could not be ignored. Moreover, the Appellant's argument is not supported by corroborating experimental evidence or common general knowledge.

7.5.4 As to the plausibility of the success of this solution across the whole ambit of the claim 1, the Appellant also argued that the experimental data in the patent in suit would at most justify the expectation of a similar beneficial effect in similar compositions, i.e. in compositions wherein the amounts and the kinds of borate salt, spore and nonionic surfactant were similar to those used in the examples.

7.6 In the absence of any evidence to the contrary, the Board has, however, no reason to consider that the advantageous technical effect of the borate salt observed in the patent examples cannot be observed in other embodiments of the claimed subject-matter.

7.7 Non-obviousness

7.7.1 The Board finds that neither D1 nor any of the other prior art documents relied upon by the Appellant renders obvious the proposed solution. Indeed, none of the cited documents mentions or suggests the possibility of using a boric acid salt or a composition comprising a boric acid salt for the purpose of rendering the SBoF contained in cleaning compositions more resistant to the adverse effects of the nonionic surfactants also present in these compositions.

7.7.2 More particularly, the Board finds that, contrary to the Appellant's line of argument, document D5 (see the section entitled "Effects of Borate" on pages 21 and 22 referring to Fig. 4 and Table 3) merely states that the stabilising effect of trehaloses on the cryopreservation of bacteria is increased by the additional presence of borate, and hence does not suggest using a borate for the purpose of stabilising bacteria against surfactants in a cleaning composition.

7.7.3 According to another line of argument of the Appellant, the skilled person could arrive in an obvious manner at the subject-matter of claim 1 at issue when starting from Examples 25 or 26 of document D1, which contained borate but no SBoF.

This argument does not, however, convince the Board either. The Board observes that the stability issue addressed in the patent in suit is not an issue when using a composition according to said Examples 25 and 26, since the latter do not even contain the two ingredients giving rise to said stability issue. Hence, for the Board, the prior art compositions according to Examples 25 and 26 of D1 are not the most appropriate starting point for the assessment of inventive step, and this line of argument is thus based on hindsight considerations.

7.7.4 Therefore, the subject-matter of claim 1 at issue and, consequently, the subject-matter of claims 2 to 28 dependent thereon, is found to involve an inventive step (Articles 52(1) and 56 EPC).

7.7.5 The methods of cleaning a hard surface according to claims 29 and 30, as well as the methods of cleaning grout according to claims 31 to 33, involve applying a cleaning composition comprising "*spore or bacteria*", a "*borate salt*" and "*about 0.5 to about 35 wt-% nonionic surfactant*". The considerations under points 7 to 7.7.3 also apply to the latter compositions. Since said methods comprise the use of non-obvious improved compositions, the subject-matter of claims 29 to 33 likewise involves an inventive step (Articles 52(1) and 56 EPC).

8. Thus, the Respondent's first auxiliary request is allowable.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance with the order to maintain the patent in amended form on the basis of the following documents:
 - claims 1 to 33 according to the new first auxiliary request filed during the oral proceedings,
 - figures 1, 2A, 2B and 3 of the patent as granted,
 - and a description to be adapted where appropriate.

The Registrar:

The Chairman:



D. Magliano

B. Czech

Decision electronically authenticated