

**Internal distribution code:**

- (A) [ - ] Publication in OJ  
(B) [ - ] To Chairmen and Members  
(C) [ - ] To Chairmen  
(D) [ X ] No distribution

**Datasheet for the decision  
of 15 July 2014**

**Case Number:** T 0713/12 - 3.3.06

**Application Number:** 97908958.8

**Publication Number:** 0885285

**IPC:** C11D3/386, C12N9/28

**Language of the proceedings:** EN

**Title of invention:**

DETERGENT COMPOSITIONS COMPRISING PROTEASES AND IMPROVED  
AMYLASES

**Patent Proprietor:**

THE PROCTER & GAMBLE COMPANY

**Opponents:**

Unilever N.V.  
Henkel AG & Co. KGaA

**Headword:**

Detergent with enzymes/ PROCTER & GAMBLE

**Relevant legal provisions:**

EPC Art. 52(1), 56

**Keyword:**

Inventive step - obvious alternative (all requests)

**Decisions cited:**

**Catchword:**



**Beschwerdekammern  
Boards of Appeal  
Chambres de recours**

European Patent Office  
D-80298 MUNICH  
GERMANY  
Tel. +49 (0) 89 2399-0  
Fax +49 (0) 89 2399-4465

Case Number: T 0713/12 - 3.3.06

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.06**  
**of 15 July 2014**

**Appellant 1:** Unilever N.V.  
(Opponent 1) Weena 455  
3013 AL Rotterdam (NL)

**Representative:** Kan, Jacob Hendrik  
Unilever Patent Group  
Olivier van Noortlaan 120  
3133 AT Vlaardingen (NL)

**Appellant 2:** THE PROCTER & GAMBLE COMPANY  
(Patent Proprietor) One Procter & Gamble Plaza  
Cincinnati, OH 45202 (US)

**Representative:** Ter Meer Steinmeister & Partner  
Patentanwälte  
Mauerkircherstrasse 45  
81679 München (DE)

**Respondent:** Henkel AG & Co. KGaA  
(Opponent 3) VTP Patente  
40191 Düsseldorf (DE)

**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
11 January 2012 concerning maintenance of the  
European Patent No. 0885285 in amended form.**

**Composition of the Board:**

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

## Summary of Facts and Submissions

I. The present appeals by Opponent 1 (Appellant 1) and the Proprietor of the patent (Appellant 2) are from the decision of the Opposition Division concerning maintenance of European Patent No. 0 885 285 in amended form.

II. The patent as granted relates to detergent compositions comprising a protease and an  $\alpha$ -amylase

III. During the opposition proceedings reference had been made, *inter alia*, to the following documents:

D1: WO 95/26397 A1

D6: WO 96/05295 A2

D9: WO 95/10603 A1

D10: EP 0 670 367 B1

D13: Statement dated 12 June 2003 including experimental data, filed by the Applicant during substantive examination of the case.

IV. At the oral proceedings held before the Opposition Division on 30 November 2011, the Patent Proprietor filed, *inter alia*, sets of amended claims respectively labelled 3. to 6. Auxiliary Requests.

V. Claim 1 of said 3. Auxiliary Request reads (emphasis added by the Board):

"1. A detergent composition comprising from 0.005% to 0.1% pure enzyme by weight of total composition of

*a protease and from 0.00024% to 0.048% pure enzyme by weight of total composition of :*

***an  $\alpha$ -amylase characterized by having a specified activity at least 25% higher than the specified activity of Termamyl<sup>®</sup> at a temperature range of 25°C to 55°C and at a pH value in the range of 8 to 10, measured by the Phadebas<sup>®</sup>  $\alpha$ -amylase activity assay comprising diluting said  $\alpha$ -amylase in 50 mM Britton-Robinson buffer, adding 1 ml of this  $\alpha$ -amylase solution to 5 ml 50 mM Britton-Robinson buffer containing one Phadebas<sup>®</sup> tablet suspended therein and measuring the absorbance at 620 nm after 10 or 15 minutes of incubation (testing time) in the range of 0.2 to 2.0 absorbance units; and;***

*wherein the  $\alpha$ -amylase comprises the amino sequence shown in SEQ ID No.2 or an  $\alpha$ -amylase being at least 80% identical with the amino acid sequence shown in SEQ ID No. 2;*

*wherein the  $\alpha$ -amylase is obtained from an alkalophilic Bacillus species and/or*

*is obtained from any of the strains NCIB 12289, NCIB 12512, NCIB 12513 and DSM 935."*

For the sake of conciseness, the acronym **AA** is used hereinafter to designate  $\alpha$ -amylase "*having a specified activity ...*" as defined in said claim 1 (see highlighted features above).

Claim 1 of the 4. Auxiliary Request (below also indicated as **claim 1 as allowed by the Opposition**

**Division**) differs from claim 1 of said 3. Auxiliary Request in that the passage of the latter reading:

*"wherein the  $\alpha$ -amylase comprises the amino sequence shown in SEQ ID No.2 or an  $\alpha$ -amylase being at least 80% identical with the amino acid sequence shown in SEQ ID No. 2;"*

is replaced with:

*"wherein the  $\alpha$ -amylase comprises the amino sequence shown in SEQ ID No.2;"*.

For the sake of conciseness,  $\alpha$ -amylase having said "specified activity ..." (i.e. AA) which also "comprises the amino sequence shown in SEQ ID No.2" and "is obtained from an alkalophilic *Bacillus* species" is designated by the acronym **AA-2** hereinafter.

- VI. In its decision the Opposition Division had found, *inter alia*, that document D1 rendered obvious the detergent compositions claimed in the then pending Main Request and 1. to 3. Auxiliary Requests, but that the amended form of the patent in suit on the basis of the set of claims of the 4. Auxiliary Request complied with the requirements of the EPC. The Opposition Division considered, in particular (see points 10.1 to 10.4 of the Reasons of the decision under appeal), that the data reported in document D13 proved the occurrence of an unexpected synergistic effect (below **the synergistic effect**) in term of measured stain removal index values, when using the detergent composition to which claim 1 of the 4. Auxiliary request was limited.
- VII. Only Opponent 1 / Appellant 1 (below **Opponent 1**) and the Patent Proprietor / Appellant 2 (below **Proprietor**)

appealed this decision.

VIII. The Proprietor filed with its statement of grounds of appeal several sets of claims, *inter alia*, a set labelled "3. Auxiliary Request", identical to that with the same numbering considered in the decision under appeal (see V *supra*), as well as document

D26: Additional experimental data.

The Proprietor also filed with its reply to the statement of grounds of appeal of Opponent 1, *inter alia*, two sets of amended claims labelled 5. and 6. Auxiliary Requests apparently identical to the sets of amended claims with the same numbering already on file before the Opposition Division.

IX. **Opponent 3** / Respondent (to the appeal of the Proprietor) and Party as of right (to the appeal of Opponent 1) did not file any comments or requests. With letter of 4 June 2014, although duly summoned, it announced that it was not going to be represented oral proceedings, scheduled to take place before the Board on 15 July 2014.

X. At the hearing, held as scheduled in the presence of Opponent 1 and of the Proprietor, this latter replaced all previously pending sets of claims by three sets of claims respectively labelled Main Request and "2. Auxiliary Request" and "3. Auxiliary Request", said final requests being respectively identical, except for their numbering, to the requests previously pending as 3., 5. and 6. Auxiliary Requests.

XI. Claim 1 of the **Main Request** filed at the oral proceedings is thus identical to claim 1 of the 3.

Auxiliary Request refused by the Opposition Division  
(see V *supra*).

The final (1.) **Auxiliary Request** of the Proprietor is a request to dismiss the appeal, i.e. to confirm the decision of the opposition division. The respective claim 1 to be considered according to this request is thus the one held allowable by the opposition division (see wording under V *supra*).

Claim 1 of the **2. Auxiliary Request** filed at the oral proceedings differs from claim 1 of the Main Request in that the portions of this latter reading

*"an  $\alpha$ -amylase characterized by"*

and

*"wherein the  $\alpha$ -amylase comprises the amino sequence shown in SEQ ID No.2 or an  $\alpha$ -amylase being at least 80% identical with the amino acid sequence shown in SEQ ID No. 2;*

*wherein the  $\alpha$ -amylase is obtained from an alkalophilic Bacillus species and/or*

*is obtained from any of the strains NCIB 12289, NCIB 12512, NCIB 12513 and DSM 935."*

are respectively replaced with:

*"(a) an  $\alpha$ -amylase characterized by"*

and

*"(b) the  $\alpha$ -amylase according (a) comprising the*



*amino sequence shown in SEQ ID No.1 or an  $\alpha$ -amylase being at least 80% identical with the amino acid sequence shown in SEQ ID No. 1 or;*

*(c) the  $\alpha$ -amylase according (a) comprising the amino sequence shown in SEQ ID No.2 or an  $\alpha$ -amylase being at least 80% identical with the amino acid sequence shown in SEQ ID No. 2;*

*wherein the  $\alpha$ -amylase is obtained from an alkalophilic Bacillus species and/or*

*is obtained from any of the strains NCIB 12513 and DSM 935."*

Claim 1 of the **3. Auxiliary Request** filed at the oral proceedings differs from that of the 2. Auxiliary Request in that the final portion of this latter reading

*"is obtained from any of the strains NCIB 12513 and DSM 935."*

is replaced with:

*"is obtained from any of the strains NCIB 12289, NCIB 12512, NCIB 12513 and DSM 935,*

*further comprising a complementary amylase, wherein the complementary amylase is comprised at a level of from 0.00024% to 0.048% pure enzyme by weight of the composition."*

XII. The final requests of the Parties present at the hearing were as follows:

- **Opponent 1 requested** that the decision under appeal be set aside and that the patent be revoked.

- The **Proprietor requested** that the decision under appeal be set aside and the patent be maintained on the basis of the claims according to the Main Request filed at the oral proceedings, or, in the alternative, that the appeal of Opponent 1 be dismissed, or, alternatively, that the patent be maintained on the basis of the claims according to one of 2. and 3. Auxiliary Requests filed at the oral proceeding.

XIII. The arguments of the Parties concerning the issue of inventive step with regard to the claims according to the Proprietor's requests at issue may be summarized as follows.

**Opponent 1** considered the evidence provided in D13 was not sufficient to render credible the Proprietor's allegation of an unexpected synergistic effect. It stressed instead that the patent in suit was silent as to the occurrence of any synergism between AA-2 and proteases and that the single experimental comparison carried out in document D13 was based on the use of a single specific protease in an amount very close to the maximum required by claim 1 according to the 1. Auxiliary Request, and was silent as to the error margins associated to the reported results. Thus, the data reported in this document:

- were too limited to justify any sound prediction as to the occurrence of any effect supposed to be proved across the whole breadth of the concentration ranges specified in claim 1 for the AA-2 and protease components, let alone for the whole class of proteases falling under the terms of claim 1;

and

- were no credible evidence at all of any synergistic effect, since, as also proved by document D26, the unspecified error margins possibly associated to the measured stain removal index values reported in D13 were possibly comparable or even larger than the differences among these measured values.

Opponent 1 concluded that the subject-matter of claim 1 according to the 1. Auxiliary Request was just an obvious alternative to the prior art disclosed in claim 16 of D1, which due to its back-reference also to claim 5, disclosed specifically detergent compositions containing a protease and AA-2, i.e. detergent composition with the same enzymes as those required in claim 1 at issue. Thus, to arrive at the subject-matter of claim 1 allowed by the Opposition Division only required to optimize the amount of these two enzymes in the detergent composition. It stressed also that in document D16:

- each of the several examples of detergent compositions disclosed in the tables at pages 15 to 30 suggested an amount range for the enzyme ingredients of "0.0001 - 0.1%" by weight of the composition;

- page 30, lines 21 to 26, instructed the skilled reader to formulate the detergent composition so that the amount of AA in the obtained "wash/dishwash liquor" was "0.00001 - 1 mg per liter";

and

- from Example 4 it was apparent that this last instruction could for instance be implemented by adding 0.50 mg of AA for each 4.0g of detergent composition, i.e. using an amount of AA in the detergent composition of about 0.0125wt%.

Hence, the subject-matter of claim 1 according to the 1. Auxiliary Request was not inventive.

The above reasoning applied identically also to claim 1 according to the Main Request and to claim 1 of the 2. Auxiliary Request, as the latter were also both directed to *inter alia* compositions containing AA-2.

Opponent 1 considered that the subject-matter of claim 1 of the 3. Auxiliary Request was obvious to a skilled person searching for an alternative to the detergent compositions defined in claim 16 of D1.

Indeed, in the absence of any indication in the patent in suit as to which technical effect was provided by the additional presence of complementary amylases (below **CAs**), the simple fact that the patent in suit disclosed some examples of detergent compositions containing a (not further specified) CA, without giving any information on their level of cleaning performance, did not justify any expectation that the CA resulted in some synergistic or unexpected technical effects. In the opinion of Opponent 1, documents D6, D9 and D10 proved that the addition of CAs to detergent compositions already containing a first amylase, was a conventional measure. Hence, the subject-matter of claim 1 of the 3. Auxiliary Request resulted from a combination of such conventional modification with the same obvious modifications of the prior art that rendered obvious the subject-matter of claim 1 according to the 1. Auxiliary Request.

**Opponent 3** presented no (written or oral) submission as to the substance of the case.

The **Proprietor** argued that the detergent compositions according to claim 1 of the 1. Auxiliary Request were inventive, stressing that:

- The technical problem solved was to be seen in achieving the enhanced level of cleaning performance resulting from the synergistic effect which was
  - i) proved by the data in document D13 and
  - ii) foreshadowed by the general statements in the patent in suit (see paragraphs [0001], [0007] and [0066]) and in the original application as published under the PCT (see page 1, lines 21 to 24; page 27, lines 11-13 and claim 3 of WO 97/372961 A2) on the enhanced overall cleaning and stain removal performance found when using AA-2 or any other AA in combination with a protease.
  
- Even if the technical problem solved were just the provision of an alternative to the prior art compositions disclosed in claim 16 of D1, still to arrive at the subject-matter of claim 1 of the 1. Auxiliary Request required to select: 1) an AA-2 as AA, 2) its amount and 3) the amount of protease. To consider obvious these selections was based on hindsight.

Hence, the detergent compositions comprising a protease and an AA-2 according to claim 1 of the 1. Auxiliary

Request, also encompassed by claim 1 of the Main Request and by claim 1 of the 2. Auxiliary Request, were not obvious in view of document D1.

As to the inventive step assessment regarding the subject-matter of claim 1 of the 3. Auxiliary Request, the Proprietor argued that considering the description in paragraph [0069] of the patent in suit of the enhancement of the overall cleaning and stain removal performance obtained when adding CAs, it was evident that the advantageous technical problem produced by the addition of these latter enzymes was to broaden the range of washing temperatures at which the detergent compositions provided optimal results.

Document D6, D9 and D10 were no evidence of common general knowledge, let alone of any common general knowledge in the light of which such broad range of optimal washing temperatures could possibly be considered to be obvious.

Moreover, none of these latter citations motivated the skilled person to use a CA in the amounts now claimed. Hence, the subject-matter of claim 1 of the 3.

Auxiliary Request was not obvious in view of the prior art cited by Opponent 1, even if the technical problem solved were just to be seen in the provision of an alternative to the prior art compositions disclosed in claim 16 of D1.

## **Reasons for the Decision**

### *Admissibility of the documents filed in the appeal proceedings*

1. Since the sets of claims according the requests at issue were already filed by the Proprietor as requests

(although under differing labels) before the Opposition Division, their admissibility is out of question.

2. The experimental report D26 was filed by the Proprietor under cover of its statement of grounds of appeal. It was filed in order to further corroborate the Proprietor's argument regarding the synergistic and unexpected effects allegedly achieved.

2.1 The filing of D26 was thus a direct response to the reasons given in the contested decision, according to which it had not been shown that such effects were achieved. D26 did not raise any particularly complex issue, and the adverse Parties did not challenge its admissibility.

2.2 The Board thus decided to admit D26 into the proceedings despite its late filing (Article 114(2) EPC and 12(4) RPBA).

*Proprietor's 1. Auxiliary Request - Inventive step - Claim 1*

3. The invention

The invention concerns enzyme-containing detergent compositions. The compositions according to the invention are supposed to display an enhanced overall cleaning and stain removal performance (see paragraphs [0001], [0007] and [0066] of the patent in suit).

4. The closest prior art

4.1 It was common ground between the Parties that detergent compositions according to dependent claim 16 of document D1, which in one alternative contain an  $\alpha$ -amylase with an activity as defined in claim 1 of D1

together with a protease, constituted the closest prior art. The increased activity of the  $\alpha$ -amylase according to claim 1 of D1 is undisputedly defined in the same manner as the increased activity of the AA according to claim 1 at issue. Moreover, according to D1, these detergent compositions have improved dishwashing and washing performance regarding the removal of starchy stains due to the presence therein of the AAs (see e.g. the whole page 1 of document D1). The presence therein of a protease can also be safely assumed to provide an enhanced performance of the detergent compositions as regards the removal of proteinaceous stains.

- 4.2 However, the Proprietor did not agree with the view of Opponent 1 that claim 16 of D1, by virtue of back-references to preceding claims, more specifically disclosed also detergent compositions in which a protease was combined with AA-2 (the SEQ. ID No.2 being explicitly referred to only in dependent claim 5 of D1). For the Proprietor, claim 16 of D1 **only** disclosed directly and unambiguously detergent compositions containing a protease as well as, more generally, the AAs referred to in claim 1 of D1.

Considering that the subject-matter of claim 1 at issue is obvious for the reasons indicated below even when adopting the view of the Proprietor in this respect, it need not be decided whether claim 16 of D1 also discloses detergent compositions specifically comprising a protease in combination with an amylase AA-2.

- 4.3 Accordingly, in the following assessment of obviousness, a detergent composition undisputedly disclosed in claim 16 of document D1, i.e. containing a protease and an AA as defined in general in claim 1 of



the same document D1, is taken as the closest prior art (below also indicated as **D1/(claims 16 + 1)**).

5. Technical problem solved according to the Proprietor
- 5.1 According to the Proprietor's line of reasoning the essential technical advantage of the claimed detergent compositions lied in the provision of an unexpected synergistic effect attributable to the combined use of protease and AA-2.
- 5.2 Accordingly, in the light of the closest prior art identified above, the technical problem solved had to be seen in the provision of detergent compositions showing a level of overall cleaning and stain removal performance improved to a surprisingly high level.

6. Proposed solution

In the Proprietor's opinion, this problem was solved by the detergent compositions according to claim 1 at issue, which are characterised in particular in that they comprise

*"from 0.005% to 0.1% by weight of the total composition of a protease"* and

*"from 0.00024% to 0.048% by weight of the total composition"* of an  $\alpha$ -amylase belonging to the AA-2 group (see V *supra*).

7. Alleged success of the solution
- 7.1 The Proprietor considered that, in the absence of any evidence to the contrary provided by the Opponents, it had to be accepted that the invoked synergistic effect of AA-2 and protease resulted in the solution of the posed technical problem in view of:

a) the indications in the description of the patent in suit (see paragraphs [0001], [0007] in combination with [0066]) and in the original application as published under the PCT (see page 1, lines 21 to 24, in combination with page 27, lines 11-13 and claim 3) which in the form of general statements at least foreshadowed such synergistic effect

and

b) the experimental data reported in document D13 which proved the occurrence of such synergistic effect when using an AA-2 and a protease.

7.1.1 As to "a)", the Board notes the undisputed absence in the patent in suit (as well as in the original application) of any further, more specific information as to the enhancement of "*the overall cleaning and stain removal performance*" allegedly generally achieved by the many conceivable embodiments of the invention as presented in the granted patent, including those in which (any kind of) a protease is present in the detergent compositions in addition to AA-2. Indeed, there are no quantitative data or qualitative statements (e.g. in the patent examples) as to the actually measured levels of cleaning and stain removal performance or as to some experimental comparison against any prior art.

Considering these circumstances, the Board understands that the general statements referred in "a)" *supra* (e.g. that contained in [0066] of the patent in suit, reading "*It has been found that combinations of the specific amylase enzyme with protease, enhance the*

*overall cleaning and stain removal performance*") merely expresses the reasonable expectation that the additional presence of (any) protease enhances the removal of any stain also comprising proteinaceous materials.

Moreover, even assuming (for the sake of argument and in favour of the Proprietor) that the possibility of a synergistic effect of the two sorts of enzymes were also implied in the referred general statements (e.g. in paragraph [0066]), still such an implicit foreshadowing of this effect would not justify to presume that it was the specific combination of **all the features** of claim 1 at issue which also necessarily correlated to the occurrence of such synergistic effect. In particular, such a (hypothetically) implicit disclosure, would be no reason to presume that such a synergistic effect was to be expected to occur across substantially all the concentration range given for the AA-2 in claim 1 at issue. Indeed, this range is **only disclosed** in the patent in suit and in the original application as preferable, or even as most preferable amount **of the AA per se**, i.e. regardless of the additional presence of protease in the same detergent composition (see e.g. [0008], [0010], [0011] or [0013] of the patent in suit).

In conclusion, the disclosure in the patent in suit (and in the corresponding original application) referred to by the Proprietor justifies no expectation of any synergistic effect between the proteases and AA-2, let alone of such a synergistic effect plausibly occurring across the whole group of embodiments of the subject-matter of claim 1 at issue based on the use of AA-2, i.e. for any for any amount of the relevant

enzymes falling within the terms of the claim referring to such claimed group of embodiments.

- 7.1.2 As to "b)", the preceding conclusion concerning "a)" leads the Board to the conviction that the **single** experimental comparison reported in document D13, based on the combined use of **a** specific concentration of **a** specific protease with **a** specific concentration of AA-2, is manifestly **not sufficient** to plausibly show that a similar surprising synergistic effect as allegedly observed in that single experimental comparison would also occur for the whole group of embodiments of the subject-matter of claim 1 at issue comprising AA-2.

Moreover, as convincingly stressed by Opponent 1, the data reported in document D26 (see the "LSD" values comparable to or sometimes even higher than the corresponding "synergy" values in each of the Test tables), prove that the error margins associated to the method for measuring stain removal in terms of delta % stain removal index (SRI) - i.e. the method also used in document D13 - can be so large to deprive of technical meaning some of the differences between the SRI values measured with that method. This was also not disputed by the Proprietor.

Thus, the Board accepts that the absence of any information in document D13 as to the error margin associated with the SRI results reported, deprives these latter of a sound technical meaning.

Hence, also the data in document D13 do not convincingly show any synergistic effect, let alone plausibly demonstrate a synergistic effect occurring across the whole group of embodiments of the subject-matter of claim 1 at issue, i.e. for any conceivable

protease and for any amount of the relevant AA-2 and protease enzymes embraced by the claim's wording.

7.1.3 In conclusion, the Proprietor did not convincingly show that the subject-matter of claim 1 at issue actually solved the stated technical problem (point 5.2 *supra*) across the full breadth of the claim.

7.2 Reformulation of the technical problem

Considering the above findings the technical problem solved by the subject-matter of claim 1 at issue must be reformulated in a less ambitious manner. In the light of the closest prior art D1/(claims 16 + 1) the solved technical problem can be seen in the provision of **further detergent compositions that are effective in removing starchy and proteinaceous soils**, i.e. in the provision of an alternative to the prior art.

7.3 Success of the solution

The Board sees no reason for calling into question that compositions according to claim 1 at issue solve this problem. This was also not disputed by the opponents.

7.4 Obviousness

Thus, it remains to be assessed whether the claimed solution was obvious in the light of the prior art.

7.4.1 The Proprietor stressed that in order to arrive at the subject-matter of claim 1 of the 1. Auxiliary Request, a skilled person starting from the detergent compositions disclosed in D1/(claim 16 + 1) had to make three selections. In particular, he had to **1) choose AA-2 among the AAs disclosed in this**

citation,

2) choose an amount of AA-2 such that it constitutes between 0.00024% and 0.048% by weight of the total detergent composition, and

3) to choose an amount of protease such that it constitutes between 0.005% and 0.1% by weight of the total detergent composition.

7.4.2 The Board notes that each of these selections can be made **within** the overall disclosure of document D1 itself:

- As to selection "1)", to arrive at a composition comprising AA-2 just requires combining the closest prior art (claims 16 + 1) with claims 5 and 7 of the same citation, i.e. with two claims to which claim 16 refers back indirectly.

- As to selection "2)", as pointed out by Opponent 1 (see XIII *supra*), the disclosure in document D1 provided by the tables at pages 15 to 30, and that of Example 4 in combination page 30, lines 21 to 26, not only suggests a concentration range for (all) "enzymes" present of "0.0001 - 0.1%" by weight of the composition, but also exemplifies the use of a concentration of AA of about 0.0125% by weight of the composition.

- As to selection "3)", in view of the same disclosure of document D1 considered relevant for selection "2)", it is apparent that most of the concentrations that a skilled reader of document D1 would take into consideration for the protease (i.e. from 0.0001% to less than 0.1% by weight of the composition) also fall in the range ("*from 0.005 to 0.1% by weight of the*

*composition*") defined for this ingredient in claim 1 at issue.

As to selections 2) and 3), the Board stresses additionally that, even in the hypothetical absence of any indication in document D1 of the amounts at which the relevant enzymes are to be added, it is part of the normal activity of the detergent formulator, deprived of inventive merits, to set also suitable amounts of enzymes in detergent composition in view of the cleaning results provided. Thus, a setting of the enzymes' amounts whereby the composition obtained falls within the terms of claim 1 at issue will be the obvious result of routine attempts to formulate such a detergent composition. This conclusion is also consistent with the fact that the patent in suit itself qualifies the claimed compositions as providing excellent cleaning results and, thus, implies that the broad disclosed concentration ranges of the enzymes are those suitable in view of the cleaning results to be achieved.

7.4.3 Hence, in the Board's judgement, choosing a preferred AA and suitable amounts of both enzymes considering the more general indications given in D1, and accordingly realizing an efficient composition according to D1/ (claims 16 + 1), so as to thereby arrive at a composition falling within the terms of claim 1, was one option (among others) readily available to the skilled person seeking to solve the less ambitious technical problem of providing a mere alternative composition.

7.4.4 Therefore, the subject-matter of claim 1 according to the 1. Auxiliary Request is obvious in view of the prior art and, hence, the subject-matter of claim 1 at

issue does not involve an inventive step (Articles 52(1) and 56 EPC).

- 7.5 Thus, the Proprietor's 1. Auxiliary Request (claims allowed by the Opposition Division) is not allowable.

*Proprietor's Main Request and 2. Auxiliary Request*

8. It is apparent and undisputed that both claim 1 according to the Main Request and claim 1 according to the 2. Auxiliary request are also expressly directed to *inter alia* detergent compositions as defined in claim 1 according to 1. Auxiliary Request (compare V and XI *supra*).

- 8.1 Accordingly, both Parties at the oral proceedings have presented no further argument in respect of these Requests and have not disputed the Chairman's statement that the finding of the Board as to the issue of inventive step for claim 1 allowed by the Opposition Division, would also appear to apply to the respective claims 1 of the Main Request and of the 2. Auxiliary Request insofar as these latter were also directed to the same subject-matter as the former.

- 8.2 Since of the respective claims 1 according to the Proprietor's Main Request and 2. Auxiliary Request are expressly directed *inter alia* to the non-inventive subject-matter of claim 1 according to the 1. Auxiliary Request, they do not meet the requirement of inventive step either (Articles 52(1) and 56 EPC).

- 8.3 Hence, the Proprietor's Main and 2. Auxiliary Requests are not allowable either.



*Proprietor's 3. Auxiliary Request - Inventive step - Claim 1*

9. Compared to claim 1 according to the 1. Auxiliary Request, claim 1 according to the 3. Auxiliary Request (see XI *supra*) requires that the detergent composition comprising protease and an AA with the specified activity, such as the AA-2, must additionally comprise a "complementary amylase", i.e. a CA, "at a level of from 0.00024% to 0.048% by weight of the composition".

9.1 The closest prior art

It was common ground between the Parties that the closest prior art was still the one identified under point 4.3 *supra* and the Board sees no reason to take another stance.

9.2 Technical problem solved according to the Proprietor

The Proprietor's line of reasoning (see XIII *supra*) implies that, in the light of the closest prior art D1/ (claims 16 + 1), the technical problem solved by the claimed subject-matter had to be seen in the provision of detergent compositions with an enhanced stain removal performance in respect of starchy soils, across a broad range of washing temperatures.

9.3 The solution

According to the Proprietor this technical problem is solved by the detergent compositions defined in claim 1 at issue, which are characterised in particular in that they comprise from 0.005% to 0.1% by weight of the total composition of protease and from 0.00024% to 0.048% by weight of the total composition of a (first) AA, which according to one alternative is AA-2, and

from 0.00024% to 0.048% by weight of the composition of (any) CA.

9.4 Alleged success of the solution

9.4.1 The only element invoked by the Proprietor regarding the alleged success of the above solution to the technical problem posed was the content of paragraph [0069] of the patent in suit, which reads:

*"It has been found that combination of specific amylase enzyme according to the present invention with a complementary amylase, enhances the overall cleaning and stain removal performance of the detergent composition of the present invention. In particular, it has been found that the inclusion of a multiple amylase system comprising amylases with different temperature optima significantly improves the cleaning performance over a broad range of temperature, especially from 40°C to 65°C. Indeed, the specific amylases according to the present invention demonstrate improved cleaning properties at low temperature versus complementary amylases such as Termamyl. Combinations of low temperature active with high temperature active amylases is therefore contemplated."*

9.4.2 As already indicated at 7.1.1 *supra*, the patent in suit contains no further information as to the enhancement of *"the overall cleaning and stain removal performance"* allegedly achieved by the many embodiments of the invention, including those in which (any kind of) a CA is present in the detergent compositions in addition to the AA. Under these circumstances, the general statement in the first sentence of paragraph [0069] of the patent in suit cannot, in the Board's judgement, be considered to express more than the technically

reasonable expectation that the additional presence of (any) CA in an appropriate amount will further contribute to, and hence enhance, the removal of stains comprising starchy materials.

- 9.4.3 The advantage in terms of an ability of the detergent compositions to display amylolytic activity at different temperatures expressed in the second part of that paragraph, is clearly limited to the case in which the selected pair of AA and CA possessed "*different temperature optima*".

However, claim 1 of the 3. Auxiliary Request does not require the CA to have a temperature optimum differing from the one of the AA. The Board notes further that the definition in paragraph [0070] of the patent in suit reading "*By "complementary" it is meant the addition of one or more amylase suitable for detergency purposes*" excludes any possibility to consider that the term "*complementary amylase*" implies any kind of restriction as to the thermal stability, and thus the temperature optimum, for this enzyme.

- 9.4.4 Hence, neither paragraphs [0069] and [0070] of the patent in suit nor claim 1 at issue unambiguously states or plausibly implies that an enhanced removal of starchy soils is achieved across a broad range of washing temperatures, for substantially all the possible pairs of AA and CA embraced by the detergent composition's definition in that claim.

- 9.4.5 The Board concludes, therefore, that the Proprietor did not make credible, let alone demonstrate, that the subject-matter of claim 1 at issue actually solved the technical problem identified by the Proprietor.

9.5 Reformulation of the technical problem

Considering the above findings the technical problem must be reformulated in a less ambitious manner. In the light of the closest prior art D1/(claims 16 + 1) it can be seen in the provision of **further detergent compositions that are effective in removing starchy and proteinaceous soils**, i.e. in the provision of an alternative to the prior art.

9.6 Success of the solution

The Board sees no reason for calling into question the ability of compositions according to claim 1 at issue to solve this problem. This was also not disputed by the Opponents.

9.7 Obviousness

Thus, it remains to be assessed whether the claimed solution was obvious in the light of the prior art.

9.7.1 The Proprietor stressed that in order to arrive at the subject-matter of claim 1 of the 3.Auxiliary Request, e.g. to any of the embodiments of the subject-matter of claim 1 at issue that comprise AA-2, a skilled person starting from the detergent compositions disclosed in D1/(claims 16 + 1) had not only to envisage the modifications 1) to 3) listed at 7.4.1 *supra*, but also to envisage adding to the detergent composition a CA in the claimed amounts.

9.7.2 As discussed at 7.4.2 *supra*, the three selections indicated at 7.4.1 are substantially all made within the general disclosure of document D1, and it is part of the normal activity of the detergent formulator to

choose suitable concentrations of enzymes in detergent compositions in view of the cleaning results provided. Thus, as already indicated at point 7.4.3 *supra*, the setting of the protease and AA-2 concentrations at values falling within the ranges defined in claim 1 at issue just is one way of realizing alternative embodiments of the detergent compositions disclosed in D1/(claims 16 + 1) without ingenious activity.

- 9.7.3 The Board notes, moreover, that in the available prior art there are several examples of detergent compositions containing more than one sort of amylases.

Indeed, each of documents D6 (see the last full sentence on page 12), D9 (see the paragraph bridging pages 40 and 41) and D10 (see the paragraph bridging pages 7 and 8) suggests the possibility to include a multiple amylase system into detergent compositions.

Hence, even assuming that these citations did not establish that the use of more than one amylase in detergent compositions was conventional, each of documents D6, D9 or D10 shows that incorporating a further, and hence complementary amylase within a detergent composition was one option available to the skilled person seeking to provide a further detergent composition effective in removing starchy stains.

- 9.7.4 In conclusion, starting out from the composition according to D1/(claims 16 + 1) and seeking to solve the technical problem posed, identifying suitable enzymes (e.g. any protease and any AA-2) and their concentrations within the disclosure of D1, and further adding thereto a CA in a suitable concentration as suggested by document D6 (or D9 or D10), thereby providing a AA-2-comprising composition falling within

the terms of claim 1 at issue, was an option readily available to the skilled person.

Hence, also the subject-matter of claim 1 of the 3. Auxiliary Request does not involve an inventive step (Articles 52(1) and 56 EPC).

9.8 Thus, the Proprietor's 3. Auxiliary Request is not allowable either.

## Order

### **For these reasons it is decided that:**

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

The Registrar:

The Chairman:



G. Nachtigall

B. Czech

Decision electronically authenticated