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Datasheet for the decision of 9 March 2016

Case Number: T 2005/13 - 3.3.06

Application Number: 06116784.7

Publication Number: 1876227

IPC: C11D3/386, C11D3/37, C11D3/00

Language of the proceedings: EN

Title of invention:
Detergent Compositions

Patent Proprietor:
The Procter & Gamble Company

Opponents:
Henkel AG & Co. KGaA
UNILEVER N.V. / UNILEVER PLC

Headword:
Glucanase/polymer detergent compositions/P&G

Relevant legal provisions:
EPC Art. 123(2), 84, 52(1), 54, 56
RPBA Art. 12(4)

Keyword:
Amendments - added subject-matter (no) auxiliary request 4
Claims - clarity (yes) auxiliary request 4
Novelty - main request (no) auxiliary request 4 (yes)
Inventive step - auxiliary requests 1 to 3 (no) - auxiliary request 4 (yes)

Decisions cited:
G 0003/99, G 0003/14, R 0018/09, T 0848/04

Catchword:

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Case Number: T 2005/13 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 9 March 2016

Appellant III: (Patent Proprietor)	The Procter & Gamble Company One Procter & Gamble Plaza Cincinnati, OH 45202 (US)
Representative:	Jump, Timothy John Simon Venner Shipley LLP 200 Aldersgate London EC1A 4HD (GB)
Appellant I: (Opponent 1)	Henkel AG & Co. KGaA Henkelstrasse 57 40589 Düsseldorf (DE)
Representative:	Henkel AG & Co. KGaA CLI Patents Z01 40191 Düsseldorf (DE)
Appellant II: (Opponent 2)	UNILEVER N.V. / UNILEVER PLC Weena 455/100 Victoria Embankment 3013 AL Rotterdam/London, Greater London EC4Y 0DY (NL)
Representative:	Webster, Jeremy Mark Mewburn Ellis LLP City Tower 40 Basinghall Street London EC2V 5DE (GB)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 26 July 2013 concerning maintenance of the European Patent No. 1876227 in amended form.**

Composition of the Board:

Chairman	B. Czech
Members:	E. Bendl
	S. Fernández de Córdoba

Summary of Facts and Submissions

I. The three appeals by the patent proprietor and both opponents lie from the interlocutory decision of the opposition division concerning maintenance of European patent No. 1 876 227 in amended form.

II. Claim 1 of the patent as granted reads as follows:

"*1. A detergent composition comprising a bacterial alkaline enzyme exhibiting endo-beta-1,4-glucanase activity (E.C. 3.2.1.4) and a* [sic] *ethoxylated polymer selected from the group consisting of*

(a) a random graft copolymer having a hydrophilic backbone comprising monomers selected from the group consisting of unsaturated C_{1-6} acids, ethers, alcohols, aldehydes, ketones or esters, sugar units, alkoxy units, maleic anhydride and saturated polyalcohols such as glycerol, and mixtures thereof, and hydrophobic side chains selected from the group comprising a C_{4-25} alkyl group, polypropylene; polybutylene, a vinyl ester of a saturated monocarboxylic acid containing from about 1 to about 6 carbon atoms; a C_{1-6} alkyl ester of acrylic or methacrylic acid; and a mixture thereof;

(b) a modified polyethyleneimine polymer wherein the modified polyethyleneimine polymer comprises a polyethyleneimine backbone of about 300 to about 10000 weight average molecular weight; the modification of the polyethyleneimine backbone is:

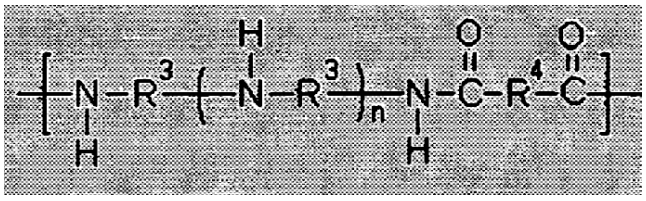
(1) one or two alkoxylation modifications per nitrogen atom in the polyethyleneimine backbone, the alkoxylation modification comprising the replacement of a hydrogen atom by a polyalkoxylene chain having an

average of about 1 to about 40 alkoxy moieties per modification, wherein the terminal alkoxy moiety of the alkoxylation modification is capped with hydrogen, a C_1-C_4 alkyl or mixtures thereof;

(2) a substitution of one C_1-C_4 alkyl moiety and one or two alkoxylation modifications per nitrogen atom in the polyethyleneimine backbone, the alkoxylation modification comprising the replacement of a hydrogen atom by a polyalkoxylene chain having an average of about 1 to about 40 alkoxy moieties per modification wherein the terminal alkoxy moiety is capped with hydrogen, a C_1-C_4 alkyl or mixtures thereof; or

(3) a combination thereof;

(c) a modified polyaminoamide comprising formula (I)



(I)

wherein n of formula (I) is an integer from 1 to 500; R^3 formula (I) is selected from an C_2-C_8 alkanediyl, preferably 1,2-ethanediyl or 1,3-propane diyl; R^4 formula (I) is selected from a chemical bond, C_1-C_{20}-alkanediyl, C_1-C_{20} alkanediyl comprising 1 to 6 heteroatoms selected from the group consisting of oxygen, sulfur, and nitrogen, C_1-C_{20}-alkanediyl comprising 1 to 6 heteroatoms selected from the group consisting of oxygen, sulfur, and nitrogen further comprising one or more hydroxyl groups, a substituted or unsubstituted divalent aromatic radical, and mixtures thereof; wherein formula (I) comprises secondary amino

groups of the polymer backbone, the amino hydrogens are selectively substituted in the modified polyaminoamide such that the modified polyaminoamide comprises partial quaternization of the secondary amino groups by selectively substituting at least one amino hydrogen with at least one alkoxy moiety of formula (II):

- $(CH_2-CR^1R^20-)_pA$ (II)

wherein A of formula (II) is selected from a hydrogen or an acidic group, the acidic group being selected from $-B^1-PO(OH)_2$, $-B^1-S(O)_2OH$ and $-B^2-COOH$; such that B^1 of formula (II) is a single bond or C_1-C_6-alkanediyl; and B^2 of formula(II) is C_1-C_6-alkanediyl; R^1 of formula (II) is independently selected from hydrogen, C_1-C_{12}-alkyl, C_2-C_8-alkenyl, C_6-C_{16}-aryl or C_6-C_{16}-aryl-C_1-C_4-alkyl; R^2 of formula (II) is independently selected from hydrogen or methyl; and p of formula (II) is an integer comprising a number average of at least 10;
With the remainder of the amino hydrogens of the secondary amino groups being selected from the group comprising electron pairs, hydrogen, C_1-C_6-alkyl, C_6-C_{16}-aryl-C_1-C_4-alkyl and formula (III) Alk-O-A, wherein: A of formula (III) is hydrogen or an acidic group, the acidic group being selected from $-B^1-PO(OH)_2$, $-B^1-S(O)_2OH$ and $-B^2-COOH$; such that B^1 of formula (III) is selected from a single bond or a C_1-C_6-alkanediyl; and B^2 of formula (III) is selected from a C_1-C_6-alkanediyl, and Alk of formula (III) is C_2-C_6-alkane-1,2-diyl; the secondary amino groups of formula (I) are further selected to comprise at least one alkylating moiety of formula (IV):

- RX (IV)

Wherein R of formula (IV) is selected from the group

consisting of: C_1-C_6-alkyl, C_6-C_{16}-aryl-C_1-C_4-alkyl and formula (III) Alk-O-A, and formula (II) -$(CH_2$-CR^1-R^2-O-$)_p$A; and X of formula (IV) is a leaving group selected from a halogen, an alkyl-halogen, a sulfate, an alkylsulfonate, an arylsulfonate, an alkyl sulfate, and mixtures thereof;

(d) a non-hydrophobically modified, acrylic/polyether comb-branched copolymer wherein the polyether portion comprises moieties derived from at least 2 constituents selected from the group consisting of ethylene oxide, propylene oxide and butylene oxide; and

(e) mixtures thereof."

III. The opponents had requested the revocation of the patent on the grounds of Articles 100(a) and (b) EPC. The evidence filed in the opposition proceedings and considered in the decision under appeal includes

D1: WO 98/15608 A2;

D8: WO 02/099091 A2;

D9: WO 2004/053039 A2;

D15: "Enzymes in Detergency", ed. J. H. van Ee et al., Marcel Dekker Inc., 1997; pages 174 to 203;

D17: Experimental report filed by opponent 2 on 22 May 2013; and

"Annex A": an experimental report submitted by the proprietor with letter of 25 September 2012.

IV. In the appealed decision the opposition division came to the conclusion that the claimed invention was sufficiently disclosed, but that the subject-matter of claim 1 of the granted patent (i.e. according to the then pending main request) lacked novelty in view of *inter alia* document D1.
The subject-matter of the then pending auxiliary claim requests 1 to 5 was found to extend beyond the content of the application as filed and/or to lack an inventive step in the light of document D1 taken as the closest prior art.
The patent in amended form, with the claims according to the then pending auxiliary request 6, was, however, found to meet the requirements of the EPC.

V. With its statement of grounds of appeal, opponent 1 (appellant I) referred to two further prior art documents

DA: WO 97/09359 A1 (correct document number supplied with follow-up letter of 21 October 2013) and

DB: WO 97/35949 A1.

It argued that the subject-matter of the claim request maintained by the opposition division was obvious in the light of document D8 (taken as closest prior art) in combination with either of DA or DB.

VI. In its statement of grounds of appeal, opponent 2 (appellant II) argued that claim 1 held allowable by the opposition division was objectionable under Article 123(2) EPC, lacked clarity (Article 84 EPC) and that its subject-matter did not involve an inventive step in the light of D9, taken as the closest prior art. In this

connection it referred also to two further documents

DS1: Technical Information sheet "Sokalan® HP22" from BASF, September 1991, and

DS2: Brochure "Sokalan® Polymeric Dispersing Agents" from BASF.

VII. In its statement of grounds of appeal of 5 December 2013, the proprietor (appellant III) defended the patent in its granted version (main request), arguing that the opposition division had erred in its decision, since the subject-matter of claim 1 as granted was novel and inventive. In this connection, it referred *inter alia* to the experimental data of Annex A, D17 and of newly filed document

"Annex B": An experimental report by the proprietor.

The proprietor nevertheless also submitted four sets of amended claims as auxiliary requests 1 to 4 and (at least implicitly) also defended the patent in the amended version held allowable by the opposition division.

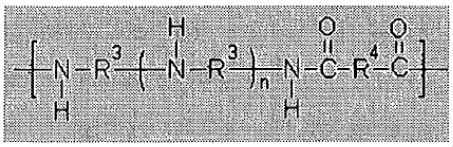
Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that it comprises the appended features

"*wherein the enzyme is a polypeptide containing (i) at least one family 17 carbohydrate binding module and/or (ii) at least one family 28 carbohydrate binding module*".

Claim 1 of auxiliary request 2 differs from claim 1 of auxiliary request 1 in that (only) parts of items (c)

and (d) are deleted, the hard-copy of the relevant pages on file looking as follows:

~~(c) a modified polyaminoamide comprising formula (I)~~



(I)

wherein n of formula (I) is an integer from 1 to 500; R^3 formula (I) is selected from an C_2-C_8 alkanediyl, preferably 1, 2-ethanediyl or 1,3-propane diyl; R^4 formula (I) is selected from a chemical bond, C_1-C_{20}-alkanediyl, C_1-C_{20}-alkanediyl comprising 1 to 6 heteroatoms selected from the group consisting of oxygen, sulfur, and nitrogen, C_1-C_{20}-alkanediyl comprising 1 to 6 heteroatoms selected from the group consisting of oxygen, sulfur, and nitrogen further comprising one or more hydroxyl groups, a substituted or unsubstituted divalent aromatic radical, and mixtures thereof; wherein formula (I) comprises secondary amino groups of the polymer backbone, the amino hydrogens are selectively substituted in the modified polyaminoamide such that the modified polyaminoamide comprises partial quaternization of the secondary amino groups by selectively substituting at least one amino hydrogen with at least one alkoxy moiety of formula (II):

$$-(CH_2\text{-}CR^1R^2O\text{-})_pA \quad \text{(II)}$$

wherein A of formula (II) is selected from a hydrogen or an acidic group, the acidic group being selected from $-B^1\text{-}PO(OH)_2$, $-B^1\text{-}S(O)_2OH$ and $-B^2\text{-}COOH$; such that B^1 of formula (II) is a single bond or C_1-C_6-alkanediyl; and B^2 of formula (II) is C_1-C_6-alkanediyl; R^1 of formula (II) is independently selected from hydrogen, C_1-C_{12}-alkyl, C_2-C_8-alkenyl, C_6-C_{16}-aryl or C_6-C_{16}-aryl-C_1-C_4-alkyl; R^2 of formula (II) is independently selected from hydrogen or methyl; and p of formula (II) is an integer comprising a number average of at least 10;
With the remainder of the amino hydrogens of the secondary amino groups being selected from the group comprising electron pairs, hydrogen, C_1-C_6-alkyl, C_6-C_{16}-aryl-C_1-C_4-alkyl and formula (III) Alk-O-A, wherein: A of formula (III) is hydrogen or an acidic group, the acidic group being selected from $-B^1\text{-}PO(OH)_2$, $-B^1\text{-}S(O)_2OH$ and $-B^2\text{-}COOH$; such that B^1 of formula (III) is selected from a single bond or a C_1-C_6-alkanediyl; and B^2 of formula (III) is selected from a C_1-C_6-alkanediyl, and Alk of formula (III) is C_2-C_6-alkane-1,2-diyl; the secondary amino groups of formula (I) are further selected to comprise at least one alkylating moiety of formula (IV):

Wherein R of formula (IV) is selected from the group consisting of: C_1-C_6-alkyl, C_6-C_{16}-aryl-C_1-C_4-alkyl and formula (III) Alk-O-A, and formula (II) $-(CH_2\text{-}CR^1\text{-}R^2\text{-}O\text{-})_pA$; and X of formula (IV) is a leaving group selected from a halogen, an alkyl-halogen, a sulfate, an alkylsulfonate, an arylsulfonate, an alkyl sulfate, and mixtures thereof;
(d) a non-hydrophobically modified, acrylic/polyether comb-branched copolymer wherein the polyether portion ~~comprises moieties derived from at least 2 constituents selected from the group consisting of ethylene oxide, propylene oxide and butylene oxide;~~ and
(e) ~~(d)~~ mixtures thereof.'

Claim 1 of auxiliary request 3 differs from claim 1 of auxiliary request 1 in that items (a), (c), (d) and (e) are fully deleted from the latter, so as to to read as follows:

"*1. A detergent composition comprising a bacterial alkaline enzyme exhibiting endo-beta-1,4-glucanase activity (E.C. 3.2.1.4) and an ethoxylated ~~polymer selected from the group consisting of ...~~*

~~(a) ...~~

~~(b) a~~ *polyethyleneimine polymer wherein ... modification of the backbone is:*

(1) ...

(2) ...

(3) a combination thereof;

~~(c) ...~~

~~(d) ...~~

~~(e) ...~~

wherein the enzyme ... carbohydrate binding module."

The independent claims 1 and 17 of auxiliary request 4 read as follows (differences compared to claims 1 and 23 as granted made apparent by the board):

"*1. A detergent composition comprising a bacterial alkaline enzyme exhibiting endo-beta-1,4-glucanase activity (E.C. 3.2.1.4) and a* [sic] *ethoxylated* ~~*polymer selected from the group consisting of*~~

~~(a) a~~ *random graft copolymer having a hydrophilic backbone comprising monomers selected from the group consisting of unsaturated* C_{1-6} *acids, ethers, alcohols, aldehydes, ketones or esters, sugar units, alkoxy units, maleic anhydride and saturated polyalcohols such as glycerol, and mixtures thereof, and hydrophobic side chains selected from the group comprising a* C_{4-25} *alkyl group, polypropylene; polybutylene, a vinyl ester of a saturated monocarboxylic acid containing from about 1 to about 6 carbon atoms; a* C_{1-6} *alkyl ester of acrylic or methacrylic acid; and a mixture thereof;*

~~(b) ...~~

~~(c) ...~~

~~(d) ...~~

~~(e) ...~~

wherein the enzyme is a polypeptide containing (i) at least one family 17 carbohydrate binding module and/or

(ii) at least one family 28 carbohydrate binding module."

"*17. A process of cleaning and/or treating a surface or fabric comprising the steps of optionally washing and/or rinsing said surface or fabric, contacting said surface or fabric with the composition of any of the preceding claims, then optionally washing and/or rinsing said surface or fabric.*"

Claims 2 to 16 of this request are dependent on claim 1 are directed to preferred embodiments of the claimed composition.

VIII. In its reply of 22 April 2014 to the appeal by the proprietor, opponent 1 maintained its earlier objections and added that the claims according to all pending auxiliary claim requests, including the claims held allowable by the opposition division, were objectionable under Article 123(2) EPC and/or did not involve an inventive step.

IX. In its reply of 22 April 2014 to the appeals by the opponents, the proprietor rebutted all the objections raised regarding clarity, added matter an inventive step. It also questioned the admissibility of documents DA, DB, DS1 and DS2 into the proceedings.

X. By letter of 23 April 2014, opponent 2 replied to the proprietor's statement of grounds, maintaining its position regarding the claims as granted, and extending its objections under Articles 84 and 123(2) EPC and regarding inventive step to the pending auxiliary requests of the proprietor. In connection with inventive step, it referred *inter alia* to documents D1 and D8 and

to a newly item of evidence, namely

ERB: Experimental report by Dr. S. Batchelor dated 17 April 2014.

XI. In preparation for oral proceedings, the board issued a communication expressing its preliminary opinion on some salient issues of the case, questioning also whether the appeal had actually been filed in the name of both/joint opponent(s) 02, i.e. Unilever N.V. and Unilever PLC.

XII. This was confirmed by the common representative of Unilever N.V. and Unilever PLC in its letter of 18 January 2016.

XIII. Oral proceedings were held on 9 March 2016. The parties were heard in particular on
- novelty of the subject-matter of claim 1 of the main request over D1,
- inventive step of the subject-matter of claim 1 (auxiliary requests 1 to 3) starting from D9 as the closest prior art and
- admissibility into the proceedings of documents DA, DB, DS1 and DS2.

XIV. Final requests

Appellants I and II (opponents 1 and 2) requested that the decision under appeal be set aside and the patent be revoked.

Appellant III (patent proprietor) requested that the decision under appeal be set aside and the patent be maintained as granted, alternatively, that the patent be maintained on the basis of the claims according to one of auxiliary requests 1 to 4, submitted with letter of 5

December 2013, or that the appeals of appellants I and II be dismissed (auxiliary request 5).

XV. The arguments of opponents 1 and 2, as far as relevant to the present decision, can be summarised as follows:

Admissibility of the appeal by opponent 2

- At the oral proceedings, the representative of opponent 2 re-confirmed that the appeal had been filed by the (then) common representative (Dr. Kan), on behalf of the joint opponents Unilever N.V. and Unilever PLC.

Admissibility of documents newly cited in the appeal proceedings

- The filing of documents DA and DB was a reaction to the submission of the claims of the auxiliary request 6 presented for the first time in the oral proceedings before the opposition division. The submission of the statement of grounds of appeal was thus the first opportunity to react to the amended set of claims by filing additional evidence.
- Documents DS1 and DS2 were also filed in support of the inventive step objection based on D9, raised by opponent 1 against claim 1 of the claims allowed by the opposition division.

Main request

Novelty - claim 1

- D1, in particular examples II to IV disclosed detergent compositions comprising a polymer

according to item (b) of claim 1, in combination with a fungal endo-beta-1,4 glucanase.

- As the term "*bacterial*" did not imply further characterising features of the glucanase, it could not be used as a distinguishing feature.
- In particular in view of paragraph [0032] of the patent in suit it was apparent that any variants of endo-beta-1,4-glucanases were also encompassed by the wording of claim 1; the properties of such variants being even more undefined.
- D1 was, therefore, novelty-destroying for the subject-matter of claim 1.

Auxiliary requests 1 to 3

Inventive step - claim 1

- The experimental data submitted by the opponents did not demonstrate that a synergistic effect or, more generally, at least improved reflectance was achieved over the entire breadth of the claim.
- Taking D9 as the closest state of the art, the problem solved consisted merely in providing an alternative detergent composition.
- Modified polyethyleneimine polymers (PEI hereinafter) were known as redeposition inhibitors. D9 recommended on page 19 to use redeposition inhibitors in combination with enzymes falling within the definition of claim 1.
- Therefore, making use of the known property of PEIs by combining them with the enzyme, as suggested by D9, was a measure obvious to the person skilled in the art.
- The claimed subject-matter thus encompassed embodiments not involving an inventive step.

Auxiliary request 4

Article 123(2) EPC

- Limiting the polymer component to one or more of those copolymers listed under item (a) of claim 1 as granted amounted to singling out one type of polymer, the result thereof being combined with the further feature regarding the binding module(s).
- This was not supported by the disclosure of the application as filed.
- Claim 1 did thus not comply with Article 123(2) EPC.

Article 84 EPC

- The deletion of the wording "*polymer selected from the group consisting of*" from claim 1 resulted in claim 1 reading "*... and a ethoxylated random graft copolymer having ...*".
- The random graft copolymers could comprise ethoxy units in their backbone (e.g. the PEG/VA mentioned in the description of the patent). However, the amended wording of claim 1 could also be understood to mean that the copolymer had to be (additionally) ethoxylated.
- Due to this amendment claim 1 was not clear and concise.

Inventive step

- D9 qualified as the closest prior art.
- The comparative tests presented by the proprietor showed reflectance values of greater than 100. This could only be caused by the use of a fluorescing agent or by an error in the measurement.

- In any case, no synergistic/additive effect was rendered credible by these tests.
- Moreover, it was not plausible that any such effect could be achieved across the very broad ambit of the claim. Decision T 848/04 of 19 October 2005 was cited in this context.
- Thus, incorporating a known anti-redeposition (a) type polymer when using into a detergent composition according to D9 was obvious to the skilled person. D1 was mentioned in this respect at the oral proceedings.

The arguments of the patent proprietor, as far as relevant to the present decision, can be summarised as follows:

Admissibility of the appeal by opponent 2

- The proprietor acknowledged the statement made by opponent 2 and did not raise any objection in this respect.

Admissibility of newly cited documents

- Documents DA, DB, DS1 and DS2 were filed too late and should thus not be admitted.
- In particular, it had to be considered that in the opposition procedure no inventive step objection had been raised against the set of claims as allowed by the opposition division (then pending auxiliary request 6).
- As the filing of these documents was justified by the opponents with reference to inventive step objections only raised against these claims on appeal, they should not be admitted into the procedure.

Main request

Novelty - claim 1

- The skilled person knew that bacterial and fungal glucanases were different and had different properties.
- Concerning said differences, reference was made to table 3 of D15.
- Therefore, as the prior art documents cited against novelty only mentioned fungal glucanases, the subject-matter of claim 1 was novel.

Auxiliary requests 1 to 3

Inventive step

- The experimental data presented in Annex A and Annex B showed an unexpected synergy in reflectance due to the combination of the specific glucanase and polymer.
- Claims using the term "*comprising*" could always encompass some embodiments that did not work, i.e. did not provide the desired effect. Nevertheless such claims would, according to standing EPO practice, not be refused.
- The claims subject-matter therefore involved an inventive step.

Auxiliary request 4

Article 123(2) EPC

- Claim 1 was based on claims 1 and 3 of the application as filed.
- Each of the four polymer types (a) to (d) listed in claim 1 had to be regarded as a separate alternative.

- Hence, the claimed subject-matter did not extend beyond the content of the application as filed.
- The requirements of Article 123(2) EPC were therefore met.

Article 84 EPC
- The amendment to the wording of claim 1 did not imply a change in meaning, and was based on the wording of granted claims only. It was thus not open to clarity objections.
- Since the wording in question was clear, the requirements of Article 84 EPC were met.

Inventive step
- The adverse parties did not disprove that an additive, or even more than additive increase in reflectance, could be achieved by using detergent compositions combinations of the specific glucanase with any polymer(s) of type (a).
- Thus, the improvements in terms of the increased reflectance achieved as demonstrated in Annex A and Annex B had to be accepted.
- It was not derivable from the prior art that such a pronounced increase in reflectance could be achieved.
- Therefore, the claimed subject-matter involved an inventive step.

Reasons for the Decision

Procedural issues

1. Admissibility of the appeal by opponent 2

1.1 The representative of Opponent 2 (Unilever N.V. and

Unilever PLC) clarified in its letter of 19 January 2016 and confirmed at the oral proceedings that the joint opponents Unilever N.V. and Unilever PLC, had filed the appeal jointly via their joint representative.

1.2 The board notes that this approach is in line with the procedural requirements defined in the decision of the Enlarged Board of Appeal G 3/99 (OJ EPO 2002, 347; Reasons, 17) and R 18/09 of September 2010 (Reasons, 4 to 7).

1.3 The proprietor did not object or comment in this respect.

1.4 The board is satisfied that the appeal of opponent 2 meets all formal requirements of Rule 99 EPC, in particular of Rule 99 (1) a) EPC as regards the identity of the appellant and is admissible (Article 108 EPC).

2. Admissibility of new auxiliary claim requests

2.1 The proprietor's requests submitted with the statement of grounds had either already been pending before the opposition division (main and first auxiliary requests; admissibility not at stake), or comprised amendments narrowing down the ambit of the claims of the first auxiliary request as regards the type of polymeric component to type (a) and/or (b) only (supposedly, see point 7.2, *infra*), type (b) only, and type (a) only (second, third and fourth auxiliary requests, respectively).

2.2 No objections were raised by the opponents as regards the late filing of the (new) second to fourth auxiliary requests, which were filed in reaction to the detailed reasons given in the decision under appeal.

2.3 The board thus decided to admit these three auxiliary requests into the proceedings (Article 12(4) RPBA). All claim requests of the proprietor were thus considered.

3. Admissibility of new evidence into the procedure

3.1 Documents DA and DB were filed by opponent 1 under cover of its statement of grounds of appeal, in support of an inventive step objection raised against the set of amended claims ultimately held allowable by the opposition division.

Opponent 1 submitted that these documents had been filed in reaction to the filing of the set of claims of auxiliary request 6 ultimately held allowable by the opposition division. Since these claims had only been filed during the oral proceedings before the opposition division, documents DA and DB could not have been filed earlier.

3.2 Documents DS1 (1991) and DS2 (bearing no publication date), i.e. the technical information concerning Sokalan® HP 22 mentioned in the patent in suit, were cited by opponent 2 in its statement of grounds of appeal in support of an inventive step objection against claim 1 of the auxiliary request 6 held allowable by the opposition division.

3.3 The proprietor pointed out that, as apparent from the minutes of these oral proceedings (point 10.3) and from the decision under appeal (point 14.1), the opponents had, when given the opportunity, refrained from raising inventive step objections with regard to this set of claims.

3.3.1 The board does not accept Opponent 1's counter-argument that the cited passages of the minutes and the description merely meant that no additional comments were submitted. In particular, as apparent from the minutes of said oral proceedings (items 10.1, 10.2 and 10.3), the claims of said auxiliary request 6, directed to a combination of features not discussed before, were objected to by the opponents under Article 123(2) EPC, but not for lack of novelty or inventive step. In the minutes, it is even explicitly indicated that "O1 and O2 had no comments on the topic of inventive step".

3.3.2 Thus, the board holds that the opponents' subsequent change of mind is not a sufficient justification for the filing, on appeal, of prior art documents in support of an inventive step objection not raised before the first instance, despite the opportunity to do so.

3.4 Consequently, the board decided to not to admit any of these four documents into the proceedings (Article 114(2) and Article 12(4) RPBA).

3.5 Experimental data

3.5.1 The proprietor and opponent 2 filed further experimental data (Annex B and document ERB mentioned *supra*, respectively) in the course of the appeal proceedings.

3.5.2 These data were filed to further corroborate the parties respective positions regarding inventive step. No objections were raised regarding the timing of these filings.

3.5.3 Hence, these experimental data were admitted (Article 114(2) EPC and Articles 12 and 13 RPBA) into the

proceedings and taken into consideration by the board.

Main request

4. Novelty - claim 1

4.1 It was common ground at the oral proceedings that D1 disclosed in examples II to IV detergent compositions comprising a polymer as defined in claim 1, item (b) (ethoxylated PEI) in combination with an endo-beta-1,4-glucanase of **fungal origin** (contained in the commercial product Carezyme™).

At the oral proceedings the parties controversially debated whether the term "***bacterial***", used to qualify the "*endo-beta-1,4-glucanase*" in claim 1 at issue, implied a clear distinction from compositions comprising the "fungal" glucanase used according to D1.

4.2 For the board, "*bacterial*" endo-beta-1,4-glucanases encompass not only enzymes endogenously produced by bacteria, but also glucanases originally derived from bacteria, but produced by different hosts like fungi, or vice versa. This possibility was not disputed by the proprietor. As stressed by opponent 1, it is stated in textbook D15 (Section "D. Fungal and Bacterial Cellulases", page 183, last full paragraph) that "*[t]he oversimplified view on detergent cellulases divided in enzymes from fungal and bacterial origin has changed with the introduction of cellulase classification based on their amino acid sequence homology and with the availability of cloned enzymes.*". Given the fact that the book was published in 1997, the board considers this statement to be even more of relevance on the filing date of the patent in suit (2006).

4.3 In the course of the oral proceedings the board invited the proprietor to express its view regarding the meaning to be given to the term "*bacterial*". The representative essentially replied that the enzyme referred to in claim 1 had to possess the fundamental characteristics of a glucanase derived from bacteria.

4.3.1 However, no proof was submitted showing that such "fundamental characteristics" are well defined and include properties permitting to distinguish glucanases having these properties from other enzymes. Neither does the patent in suit contain any detailed indications regarding such properties.

4.3.2 In an attempt to exemplify said "fundamental characteristics", the proprietor referred to table 3 of D15 (page 188) illustrating a qualitative differentiation between fungal and bacterial cellulases used in laundry detergents as follows:

TABLE 3 Effect of Fungal and Bacterial Cellulases in Laundry Detergents

Effect	Fungal cellulases[a]	Bacillus cellulases[a]
Antipilling	+/+	(+)
Fabric softening	+/+	+
Color revival	++	-
Detergency/cleaning	+	++
Antiredeposition	+	++
Fiber damage accumulation	–	+/–

[a] –, Negative effect (unwanted), +, positive effect (wanted).

Table 3 of D15

4.4 In particular with regard to the detergency/cleaning and anti-redeposition properties of relevance here, but also with regard to the further characteristics described, the board does not see how a purely qualitative distinction between ratings such "+" and "++" could be used to determine whether a given endo-beta-1,4-glucanase of unknown origin fulfills the requirement of being "*bacterial*" in the sense of the patent in suit.

4.5 Thus, in the board's judgement, there is no proof on file convincingly showing that, in the present context, the qualifier term "*bacterial*" can be regarded as a feature establishing novelty of the claimed composition over the compositions disclosed in D1.

4.6 The Board also took into account that in paragraph [0032] of the patent in suit it is expressly stated that "*[a]lso encompassed in the present invention are variants of the above described enzymes obtained by various techniques known by persons skilled in the art such as directed evolution.*".

Thus, even assuming (*arguendo*) that distinguishing properties common to endogenous bacterial alkaline enzymes exhibiting endo-beta-1,4-glucanase activity were clearly defined, the properties of "*variants*" thereof, which are also encompassed by the ambit of claim 1 at issue, would still not be defined in an unambiguous manner.

4.7 Therefore, in the board's judgement, the subject-matter of claim 1 lacks novelty over disclosure of D1 (example II to IV) and, consequently, does not meet the requirements of Articles 52(1) and 54 EPC.

4.8 The proprietor's main request is thus not allowable.

First auxiliary request

5. Novelty

5.1 The board accepts and it is not in dispute that a composition as defined in claim 1 at issue comprising a more precise definition of the enzyme, specifying that it has to contain "*(i) at least one family 17 and/or (ii) at least one family 28 carbohydrate binding module*", is novel over D1.

5.2 Moreover, the opponents did not raise novelty objections based on any of the other prior art documents on file, and the board has no reason to take another stance in this respect.

6. Inventive step

6.1 The invention

6.1.1 The invention relates to a detergent composition comprising an enzyme exhibiting endo-beta-1,4-glucanase activity and ethoxylated polymer(s) (see patent in suit, paragraph [0001].

6.1.2 According to the description of the patent (see paragraph [0005]) "*the combination of alkaline bacterial endoglucanases and certain ethoxylated polymers deliver surprising improvements in cleaning and whitening performance. Without wishing to be bound by theory, it is believed that the ethoxylated polymer assists the endoglucanase enzyme in liberating soil from the fabric surface, especially the soils of a greasy or particulate nature. Once soil removal has been effected, the combination of the endoglucanase-modified fabric surface and presence of ethoxylated polymer in the wash liquor,*

is believed to reduce the tendency of soils to redeposit resulting in good whiteness maintenance."

6.2 Closest prior art

6.2.1 For the Board, document D9 represents the closest state of the art, considering the similarity of technical issues addressed and the compositions disclosed, respectively, in D9 and the patent in suit.

6.2.2 Indeed, D9 (see claim 1 and page 2, lines 1 to 27), acknowledged as prior art in the application as filed and the patent in suit, relates to detergent compositions comprising specific endoglucanases falling within the definition according to claim 1, this endoglucanase exhibiting an anti-redeposition effect when used in washing fabrics. Moreover, it is mentioned in D9 (page 19, lines 30/31) that the detergent compositions may additionally contain further soil-suspending or anti-redeposition agents.

6.2.3 A preferred endoglucanase used according to D9 (page 3, lines 19 *et seq.*), derived from *Bacillus so.* AA349, DSM 12648, which is also expressly mentioned as an example of a "*suitable endoglucanase*" in the patent in suit (page 4, first data row in the table).

6.3 Technical problem formulated by the proprietor

6.3.1 According to paragraph [0005] of the patent in suit "*the combination of alkaline bacterial endoglucanases and certain ethoxylated polymers deliver surprising improvements in cleaning and whitening performance. Without wishing to be bound by theory, it is believed that the ethoxylated polymer assists the endoglucanase enzyme in liberating soil from the fabric surface,*

especially the soils of a greasy or particulate nature. Once soil removal has been effected, the combination of the endoglucanase-modified fabric surface and presence of ethoxylated polymer in the wash liquor, is believed to reduce the tendency of soils to redeposit resulting in good whiteness maintenance."

6.3.2 Thus, the problem vis-à-vis D9 is the providing of detergent compositions showing such improved performance.

6.4 Solution

As the solution to this technical problem, the patent in suit proposes detergent compositions according to claim 1 at issue (for full wording see II and VII, *supra*), which are characterised in that they contain, in combination with the enzyme exhibiting endo-beta-1,4-glucanase activity and containing binding modules as specified, "*at least one ethoxylated polymer selected from the group consisting of*" the polymers defined under items (a) to (d) of claim 1.

6.5 Success of the solution

6.5.1 According to the proprietor, improvements in terms of whiteness of cloth washed with the claimed detergent composition are proven by the test results presented in Annex A and Annex B.

6.5.2 Opponent 2 reproduced (experimental report ERB) the experiments of Annex B ("test wash procedure 2") with formulation differing essentially only in that the bleach components, enzyme cocktail and fluorescers (comprised in "Persil Bio Powder" used according to

Annex B) were replaced by sodium phosphate ("Persil Base Powder").
i) The results presented in the table on page 3 of ERB demonstrate that, irrespective of whether the measurement is carried out "UV included" or "UV excluded", the reflectance of a fabric washed with a detergent mixture containing Celluclean™, i.e. a cellulase as defined in claim 1 was higher than of a fabric washed with a mixture containing both Celluclean™ and an ethoxylated polyethylene imine polymer (PEI(600)20EO)), i.e. a polymer of type (b) as defined in claim 1.

6.6 For the board, document ERB convincingly shows that the combined use of the specific glucanase defined in claim 1 and of type (b) polymer in a laundry detergent composition does not necessarily result in improved cleaning/whiteness benefits, as compared to the use of the enzyme without the added type (b) polymer. The board thus concludes that the technical problem formulated by the proprietor is not effectively solved over the entire breadth of claim 1.

The Board holds, in contrast to the proprietor's view, that the experimental example of document ERB suffices to discharge the burden, resting with the opponent, of proving that this is the case, in particular since it has not been shown that the experiment described in ERB involved some unusual or nonsensical measures.

6.7 Reformulated technical problem actually solved

The problem underlying the claimed invention has, therefore, to be reformulated in a less ambitious way. In the light of the closest prior art D9, it can be seen in providing a further detergent composition providing

cleaning and whitening in washing laundry.

6.8 Obviousness

6.8.1 As pointed out under item 6.2.2, *supra*, D9 contains a hint towards combining glucanases as claimed with additional polymeric anti-redeposition agents. At the oral proceedings before the board, the representative of the proprietor expressly conceded that at the relevant date, it was common general knowledge that ethoxylated polyethylene imine polymers (PEI) were suitable for being used as anti-redeposition agents in laundry washing.

6.8.2 Thus, absent any demonstrated unexpected improvement attributable to the incorporation of a type (b) polymer, i.e. of an ethoxylated PEI, into a laundry detergent composition according to D9 containing the specific glucanase (already providing *per* se an anti-redeposition effect: D9, page 2, line 2) defined in claim 1 at issue, the incorporation of such a polymer component, known to also have an anti-redeposition effect, is merely one of many equally obvious options readily available to the skilled person, i.e. requiring no ingenuity.

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

6.9 Auxiliary request 1 is thus not allowable either.

Auxiliary request 2

7. Clarity

7.1 As foreshadowed in the board's communication in

preparation for the oral proceedings, the wording of claim 1 of the second auxiliary request is found to lack clarity, because the text defining polymers of types (c) and (d) is only partially deleted (see the the reproduction of the amended page under item VII, *supra*).

As a consequence, the ambit of so amended claim 1 is not unambiguously clear in terms of the possible ethoxylated polymer component(s).

7.2 At the oral proceedings, the proprietor submitted that this was a merely an editorial mistake and that claim was intended to be restricted to polymers of the types (a) and (b) only. A corrected version of claim 1 was, however, not provided.

7.3 Thus, if only for this lack of clarity (Article 84 EPC) of claim 1, auxiliary request 2 is not allowable.

8. Inventive step

8.1 However, even if claim 1 were to be understood (*arguendo*) as indicated by the proprietor (7.2, *supra*), the claimed detergent composition would still encompass compositions comprising a polymer of of type (b), i.e. an ethoxylated polyethylene imine polymer.

8.2 As regards such compositions, the reasoning under points 6. to 6.8.3 , *supra,* thus applies *mutatis mutandis.*

8.3 Hence, despite the amendment made, claim 1 at issue still encompasses subject-matter not involving an inventive step (Article 52(1) and 56 EPC).
Auxiliary request 2 would not, therefore, be allowable for this reason either.

Auxiliary request 3

9. Inventive step

9.1 Claim 1 of the auxiliary request 3 is directed to a combination of a "*bacterial enzyme exhibiting endo-beta-1,4-glucanase activity*" with a polymer selected exclusively from those of type (b) (as defined in granted claim 1.

9.2 Thus, the reasoning given in respect of claim 1 of the auxiliary request 1 (points 6 to 6.8.3, *supra*) applies *mutatis mutandis*. Hence, the subject-matter of claim 1 does not involve an inventive step (Articles 52(19 and 56 EPC).

9.3 Therefore, auxiliary request 3 is not allowable either.

Auxiliary request 4

10. Amendments

10.1 Compliance with Article 123(2) EPC

10.1.1 Claim 1 of auxiliary request 4 (wording under VII, *supra*) is based on a combination of claims 1 and 3 (binding module(s)) of the application as filed, the phrase "*polymer selected from the group consisting of (a) a*" and items (b) to (e) being deleted therefrom.

10.1.2 The board does not see any reason possibly justifying the conclusion that the subject-matter defined by the resulting combination of features was not directly and unambiguously derivable from the application as filed, as alleged by opponent 2.
i) More particularly, for the Board, the deletion of

features (b) to (e) does not amount to a "singling out" of one or more individual polymer(s). Instead, by virtue of this deletion, the four distinct, express alternatives in terms of the type of polymer to be used (i.e. (a), (b)), (c) and/or (d)) are merely restricted to one type of polymers (defined by the same list of polymers that was referred to under item "*(a)*" of claim 1 of the application as filed). The definition of the ethoxylated polymer component to be used is, thus, still generic but limited to one of said four alternatives.
ii) The deletion of the phrase quoted above and of item (e) ("*mixtures thereof*") merely eliminates redundant language ("*selected from*" and "*mixtures thereof*") and thus provides the required conciseness.

10.1.3 In the Board's judgement, the amendments made thus meet the requirements of Article 123(2).

10.2 Compliance with Article 84 EPC

10.2.1 For the board, no difference in meaning arises from changing the wording of claim 1 as granted reading "*and a* [sic] *ethoxylated polymer selected from the group consisting of (a) a random craft polymer having...*" to "*and an ethoxylated random graft polymer having ...*".

10.2.2 Both formulations clearly require the copolymer to be "*ethoxylated*", i.e. to comprise ethoxylate units, but do not further specify their configuration within the graft copolymer and/or the degree of ethoxylation. Hence, the argument of opponent 2 that the wording "*ethoxylated random craft polymer having ...*" lacked conciseness and clarity and left the skilled person in doubt as to whether or not the "*random graft copolymer*" as defined in the feature following "*having ...*" had to be further ethoxylated is not convincing.

10.2.3 In the Board's judgement the amendment in question does not bring about a lack of clarity of claim 1 and is thus not objectionable under Article 84 EPC (see decision G 3/14, OJ 2015, 102; Order).

11. Novelty

11.1 The board is satisfied that a detergent composition according to claim 1 comprising, in combination, a polymer selected from a list of "*ethoxylated random graft copolymer[s]*" with "*hydrophilic backbone*" and "*hydrophobic side chains*" and an enzyme exhibiting endo-beta-1,4-glucanase activity and containing at least one family 17 and/or 28 carbohydrate binding module, is not disclosed in any of the prior art documents cited in the appeal procedure. This was not disputed by the opponents.

11.2 The detergent compositions according to claim 1 are thus novel (Articles 52(1) and 54 EPC. Consequently, the more specific compositions as defined in dependent claims 2 to 17, as well as the process according to claim 17, making use of the novel composition of claim 1, are novel too.

12. Inventive step

12.1 For the board, D9 is still the closest piece of prior art.

12.2 According to the proprietor, the technical problem in the light of D9 still consists in making available a laundry detergent composition providing improved cleaning/whitening benefits.

12.3 The composition proposed as the solution to the

technical problem, i.e. the composition according to claim 1 of auxiliary request 4 is more limited in that the "*ethoxylated polymer*" component must be of type (a) (as defined in claim 1 as granted), i.e. must be selected from a list of "*random graft copolymer[s]*" with "*hydrophilic backbone*" and "*hydrophobic side chains*". Ethoxylated PEIs of type (b) are no longer encompassed.

12.4 Success of the claimed solution

12.4.1 Annex A ("Test 1") reports the reflectance (at 460 nm under specified measurement conditions) of fabrics washed using *inter alia* wash solutions containing

- a base detergent formulation only (reference; "comparative example A");

- the reference formulation complemented by 0.1 ppm of "Celluclean®" ("comparative example B), i.e. an endo-beta-1,4-glucanase undisputedly containing at least one family 17 and/or 28 binding module as defined in claim 1;

- the reference formulation complemented by 20 ppm of a polymer ("comparative example E" which is a polyethylene glycol/vinyl acetate graft copolymer (PEG-PVAc hereinafter), i.e. a polymer of type (a), and

- the reference formulation complemented by a combination of both enzyme and polymer components in the given concentrations ("Example X" according to the invention as defined in claim 1 at issue).

12.4.2 The results reported in annex A (Table 1a) show that, compared to the reflectance achieved according to reference/comparative example A, the increase in

reflectance achieved using Celluclean® enzyme and PEG/ PVAc copolymer in combination (103.01 - 72.02 = **30.99**) is higher than the value that could be expected when adding up the increases achievable using only Celluclean® (85.44 - 72.02 (reference) = **13.42**) and using only PEG-PVAc (85.17 - 72.02 (reference) = **13.15**). These values are also identified in D17 of opponent 2 (table on page 17).

12.4.3 The opponents called into question the probatory value of Annex A, arguing that a reflectance value of 100 meant that all the light irradiated onto the washed fabric was reflected, and that reflectances values above 100 (as in example X) therefore implied that more light was reflected than irradiated. Such values above 100 may either be caused by the additional presence of a fluorescing agent or by errors of measurement. The invoked unexpected improvement was thus not credibly shown to occur or was, in any case, within the margin of error.

12.4.4 The board does not find the arguments of the opponents convincing for the following reasons.

i) Commercial detergent compositions contain fluorescing agents and the board therefore cannot see why such compound should not be included in the test compositions (see reference to "optical brightener" in Annex A, section "Preparation of the test composition", first sentence). In the tests described, the same detergent base composition was used in all the examples compared.

ii) With regard to the various comments of opponent 2 regarding the significance of the results presented in Annex A the board observes the following:

- D17 only describes tests supposed to reproduce the examples of Annex A involving the use of the ethoxylated PEI, and not those involving the use of the PEG-PVAc polymer. With regard to the latter, opponent 2 (see e.g. D17, pages 6 and 7, "Analysis of P&G Experiments") merely commented on the results and conclusions presented by the proprietor.

- Even though the number of measurement results presented in Annex A is rather limited, the board is satisfied in view of these data that the combination of Celluclean® and type (a) polymers gives an increase in reflectance which could not be expected. Moreover, experimental report ERB of opponent 2 (see the table on page 3) appears to show that such a pronounced increase of reflectance is **not** achieved with the combination of Celluclean® and a polymer which is not of type (a), i.e. with an ethoxylated polyethylene imine polymer (PEI(600) 20 EO).

- The argument of Opponent 2 that the increase observed according to Annex A was within the margin of error is not convincing either, since the margin of error considered applicable (D17: ΔR_{460} ~4 units) is derived from values measured in experiment involving another enzyme (Carezyme®). The argument based on the "Kubelka Munk" theory is only fully developed as regards the data of Annex A concerning the use of ethoxylated PEI.

12.4.5 The board is thus satisfied that the use of a laundry detergent composition comprising, in addition to a specific (in terms of its binding module(s)) endo-beta-1,4-glucanase having an anti-redeposition effect, a type (a) ethoxylated copolymer, brings about an improvement in the whiteness of the washed fabric which is greater than the increase that could have been

expected by the skilled person having regard to the state of the art.

12.4.6 Absent any conclusive proof to the contrary, e.g. in form of further comparative experimental data, the board sees no reason for doubting that a similar improvement will also be achieved when using, in combination, significant amounts of every specific enzyme meeting the defined given in claim 1 and of one or more of the other type (a) "*ethoxylated random graft copolymer[s]*" with "*hydrophilic backbone*" and "*hydrophobic side chains*" listed in claim 1.

Hence, the board accepts that the technical problem stated by the proprietor (12.2, *supra*) is effectively solved by the claimed compositions.

12.5 The opponents also argued that no unexpected improvement should be recognised in the formulation of the technical problem solved since, given the breadth of claim 1, it was not credible that such an effect would always be achieved. Decision T 848/04 was cited in support of this view.

i) This decision deals with laundry detergent compositions containing a lipolytic enzyme and an amine. The board entrusted with the case judged that in the absence of any proof that a synergistic grease removal effect was achieved over the entire range claimed in terms of concentrations or ratio of these two components, the problem underlying the invention was merely to be seen in providing a further detergent composition having similar grease removal properties (see Reasons, points 2.7 and 2.8).

ii) This decision is, however, of no particular

relevance to the present case, as it relates specifically to a situation where a synergism was invoked, i.e. to a situation where the concentrations/ ratio of the two components are usually a key factor.

12.6 (Non-)Obviousness

12.6.1 For the skilled person, it was not derivable from D9 or the other evidence to be considered here (including documents D1 and D8) that such an increase in reflectance could be achieved using a glucanase-containing detergent composition according to D9, complemented by a type (a) copolymer component. In other words, starting from detergent compositions according to D9, comprising an enzyme as defined in claim 1 at issue, as the closest state of the art, the person skilled in the art seeking to solve the technical problem would not get any hint that the selection and incorporation of one or more type (a) copolymer(s) as anti-redeposition agent would lead to an increase in reflectance reaching and even going beyond the sum of the increases achievable using either the enzyme of the copolymer component alone.

12.6.2 This finding would apply even considering (*arguendo*) that some PEG-PVAc copolymers were known anti-redeposition agents, as argued by opponent 2 with reference to the late-filed documents DS1 and DS2.

12.6.3 Document D8 discloses the specific bacterial enzyme endogenous to *Bacillus sp.* AA349 (DSM12648) having endo-beta-1,4-glucanase activity and providing decreased soil redeposition, as a component of laundry detergent compositions (page 2, "Summary of the invention"; page 18, section "Laundry"). It does not mention the possibility of additionally incorporating a polymeric

anti-redeposition agent, let alone a copolymer of type (a) in order to further improve cleaning and decrease redeposition, nor does it suggest that unexpected improvements in reflectance could be obtained in this manner. This document is thus farther away from the claimed subject-matter than document D9. Taking, however, D8 as the closest state of the art (*arguendo*), as suggested by opponent 1, the board thus comes to no other conclusion as regards the non-obviousness of the claimed composition.

12.6.4 Document D1 generally discloses laundry detergent compositions that may comprise fungal (e.g. Carezyme®, Celluzyme®) or bacterial cellulases (page 30, second paragraph), as well as "soil **release** agents" (emphasis added), e.g. polyalkoxylene oxide polyvinylacetate copolymers such as Sokalan HP 22 (page 32, last paragraph; page 34, second paragraph). Alkoxylated quaternary polyamines (AQP) are, however, mentioned as components specifically added for reducing or eliminating soil **redeposition** (page 51, penultimate line, to page 52, second paragraph; emphasis added)

Hence, D1 does not suggest to the skilled person seeking to solve the technical problem posed to modify the detergent compositions of D9 or D8 such as to arrive at composition falling within the ambit of claim 1.

12.6.5 Based on the above considerations, the board concludes that the subject-matter of claim 1 involves an inventive step (Articles 52(1) and 56 EPC) having regard to the state of the art. Consequently, the more specific detergent compositions of claims 2 to 16 dependent on claim 1, as well as the process of claim 17 making use of the inventive detergent composition according to claim 1 likewise involve an inventive step.

12.7 In the Board's judgement, the requirements of Articles 52(1) and 56 EPC are, therefore, also met.

Conclusion

13. The grounds invoked by the opposing parties do not prejudice maintenance of the patent with the claims according to the proprietor's auxiliary request 4.

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 with the claims according to the fourth auxiliary request filed with the letter of 5 December 2013 and a description to be adapted where appropriate.

The Registrar: The Chairman:

D. Magliano B. Czech

Decision electronically authenticated