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Datasheet for the decision of 20 April 2016

Case Number: T 2283/13 - 3.3.06

Application Number: 06116780.5

Publication Number: 1876226

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Title of invention:
Detergent compositions

Patent Proprietor:
The Procter & Gamble Company

Opponents:
UNILEVER PLC / UNILEVER NV
Henkel AG & Co. KGaA

Headword:

Relevant legal provisions:
EPC Art. 123(2), 52(1), 56

Keyword:
Inventive step (no) - main request and auxiliary request 1
Amendments - allowable (no) auxiliary requests 2 to 5

Decisions cited:

Catchword:

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Case Number: T 2283/13 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 20 April 2016

Appellant II: (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)	UNILEVER PLC / UNILEVER NV Unilever House, Blackfriars/Weena 455 London EC4P 4BQ/3013 AL Rotterdam (GB)
Representative:	Webster, Jeremy Mark Mewburn Ellis LLP City Tower 40 Basinghall Street London EC2V 5DE (GB)
Party as of right/ Respondent: (Opponent 2)	Henkel AG & Co. KGaA Henkelstrasse 57 40589 Düsseldorf (DE)
Representative:	Henkel AG & Co. KGaA CLI Patents Z01 40191 Düsseldorf (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 6 September 2013 concerning maintenance of the European Patent No. 1876226 in amended form.**

Composition of the Board:

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

Summary of Facts and Submissions

I. The appeals by the proprietor and opponent 1 lie from the decision of the opposition division concerning maintenance of European patent No. 1 876 226 in amended form.

II. The patent had been opposed on the grounds of Articles 100(a), (b) and (c) EPC. The evidence invoked by the parties includes experimental reports as well as the following prior art documents:

D8: WO 2006/055787 A1;
D9: WO 02/099091 A2; and
D16: "Enzymes in detergency", ed. J.H. van Ee et al., Marcel Dekker Inc., 1997; pages 174 to 203.

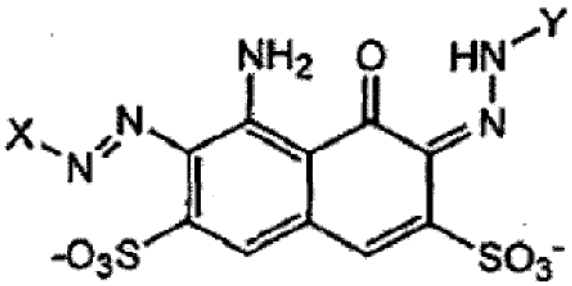
In the appealed decision the opposition division concluded that the subject-matter of the amended claims according to the then pending main request were not objectionable under Article 123(2) EPC, for insufficiency of disclosure or for lack of novelty, but that the claimed subject matter lacked an inventive step in the light of D8 taken as the closest prior art, in combination with D9.

However, the claims according to the then pending auxiliary request 1 were considered to meet all the requirements of the EPC, in particular the requirement of Article 123(2) EPC and the inventive step requirement.

III. Claim 1 of the then pending **main request** (not allowed by the opposition division) reads as follows:

"*1. A composition comprising a fabric hueing agent and*

a bacterial alkaline enzyme exhibiting endo-beta-1,4-glucanase activity (E.C. 3.2.1.4), and from 0.1% to 60% by weight of surfactant, wherein the fabric hueing agent is a photobleach-dye conjugate; a polymeric dye; a small molecule dye falling within the Colour Index classification of Direct Red, Direct Violet, Acid Violet, Basic Blue, Basic Violet or Basic Red; or a blue or red acid dye of the formula (3)



where at least one of X and Y is an aromatic group."

Claim 1 of **auxiliary request 1 held allowable by the opposition division** differs from claim 1 of the then pending main request (*supra*) in that it comprises the appended features

"*wherein the bacterial alkaline enzyme exhibiting endo-beta-1,4-glucanase activity is comprised at a level of from 0.0002% to 0.02% by weight of pure enzyme; and wherein said hueing agent is comprised at a level of from 0.0001 % to 0.04% by weight;*

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

IV. In its statement of grounds of appeal, opponent 1 (appellant I) maintained that the claims held allowable by the opposition division were objectionable under

Article 123(2) EPC and that their subject-matter did not involve an inventive step, *inter alia* when taking D8 as the closest state of the art. In this connection, it called into question the limiting effect of the term "*bacterial*" as used in claim 1.

In support of its argumentation it relied *inter alia* on
- experimental data submitted during the opposition proceedings,
- a newly filed document (labelled D51; post-published in 2008; comprising commercial information by Novozymes A/S regarding *inter alia* Celluclean(TM), a commercial detergent enzyme also mentioned in the patent in suit as enzyme according to D9), and
- on a newly filed, further experimental report (referred to as "Annex 1" hereinafter).

V. In its statement of grounds of appeal of 16 January 2014, the patent proprietor (appellant II) argued that the opposition division had erred in rejecting its then pending main claim request and continued to defend the patent in the amended version according to this request (wording of claim 1 under III, *supra*).

With its statement, it nevertheless also filed a further set of amended claims as **auxiliary request 1**. Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that it additionally 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***".

The description and **claims held allowable by the opposition division** (wording of claim 1 under III, *supra*) were now presented as **auxiliary request 2**.

In support of its arguments, the patent proprietor referred *inter alia* to test results submitted during the opposition proceedings on 24 August 2012 (referred to as "Annex A'" hereinafter) and to two newly filed test reports (referred to as "Annex B" and "Annex C" hereinafter) allegedly demonstrating a synergy effect. It also referred to document D52 (cited in opposition; a product catalogue from the Society of Dyers and Colourists) supposed to call into question the probatory force of some of the data submitted by opponent 1 during the opposition proceedings.

VI. In a further letter dated 2 June 2014 the patent proprietor rebutted the added matter and inventive step objections raised by opponent 1.

Under cover of this letter, it submitted *inter alia* three sets of amended claims as auxiliary requests 3 to 5. The respective claims 1 of these auxiliary requests 3 to 5 differ from claim 1 according to the now pending auxiliary request 2 (held allowable by the opposition division; wording under point III, *supra*) in terms of appended, more restricted definitions of the "*fabric hueing agent*" reading as follows (changes made apparent by the Board).

In claim 1 of auxiliary request 3:

"*wherein the fabric hueing agent is a* ***polymeric dye; a small molecule dye falling within the Colour Index classification of Direct Violet or Acid Violet,***"

In claim 1 of auxiliary request 4:

"*wherein the fabric hueing agent is* ***a small molecule dye falling within the Colour Index classification of Direct Violet,***"

In claim 1 of auxiliary request 5:

"*wherein the fabric hueing agent is* ***a Direct Violet 9***".

Under cover of the same letter, it also filed a further document D52' (WO 2006/021285 A1, a Unilever patent application), also supposed to call into question the probatory force of the new data submitted by opponent 1 on appeal.

VII. The parties were summoned to oral proceedings. In preparation for the oral proceedings the board issued a communication addressing some salient issues regarding *inter alia* compliance with Article 123(2) EPC and inventive step.

VIII. In a further letter, opponent 1 extended its objections and arguments concerning added matter and inventive step to auxiliary requests 3 to 5.

IX. Opponent 2 (respondent to the appeal by the proprietor) did not make any submissions in writing with regard to the substance of the case.

X. Oral proceedings took place on 20 April 2016 in the presence of all parties, which were heard, in particular,

- on the disclosure of document D8,

- on inventive step in the light of D8 as the closest prior art (regarding the main request and auxiliary request 1), and
- on compliance with Article 123(2) EPC (regarding auxiliary requests 2 to 5).

XI. Requests

Appellant I (opponent 1) requested that the decision under appeal be set aside and the patent be revoked.

Appellant II (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained on the basis of the claims according to the main request or the auxiliary request 1, both submitted with its statement of grounds of appeal, or, alternatively, that the appeal by opponent 1/appellant I be dismissed (auxiliary request 2) or, alternatively, that the patent be maintained on the basis of the claims according to one of auxiliary requests 3 to 5, filed with letter of 2 June 2014.

XII. The arguments of the opponents of relevance here can be summarised as follows:

Main request - inventive step

- D8 was the closest state of the art.
- Examples 10/I and III of D8 disclosed detergent compositions providing enhanced fabric whiteness, said compositions containing a detergent, a cellulase and a polymeric dye in amounts as prescribed by claim 1 at issue.
- The feature "*bacterial*" did not distinguish the enzyme component according to claim 1 from the ones mentioned in D8, page 20.

- As it had not been convincingly demonstrated that a particular effect was attributable to the claimed compositions, as compared to the closest prior art compositions of D8, the subject-matter of claim 1 did not involve an inventive step.

Auxiliary request 1 - inventive step

- The test described in Annex 1 showed that the effect, if any, allegedly obtainable using the claimed compositions could not be obtained across the full breadth of claim 1. Example 3 of the test report of opponent filed on 26 April 2013 (referred to as "Annex 2" hereinafter) comprised using a relative amount of Direct Violet 9 (0.0043 wt%) identical to the one used according to test report Annex B of the Proprietor. This allowed a proper comparison of the results achieved. The tests according to Annex 2 showed that small relative amounts of Direct Violet 9, still within the claimed range, did not necessarily provide any effect across the full breadth of claim 1.
- Therefore, the technical problem underlying the claimed invention was merely to be seen in making available an alternative composition providing fabric whitening.
- D8 taught that any cellulase could be used to provide a whitening effect. In particular, the cellulases according to D9, a document explicitly referred to in D8 in this respect, were known to provide beneficial effects in detergent compositions.
- Combining the teachings of documents D8 and D9 and arriving, thereby, at the subject-matter falling within the ambit of claim 1 was obvious to the person skilled in the art.

Auxiliary requests 2 to 5 - Article 123(2) EPC

- The subject-matter defined in the respective claims 1 of auxiliary requests 2 to 5 resulted from multiple selections of features from several lists disclosed in the claims and the description of the application as filed.
- The subject-matter defined by virtue of the particular combinations of features retained in these claims thus extended beyond the content of the application as filed.
- The amended claims 1 did thus not meet the requirements of Article 123(2) EPC.

The relevant counter-arguments of the patent proprietor can be summarised as follows:

Main request - inventive step

- Bacterial alkaline cellulases as referred to in claim 1 were distinct from fungal cellulases.
- This was confirmed by D16, page 188, Table 3, which showed the different properties of these two types of cellulases.
- Irrespective of the way in which a cellulase was obtained, its final properties qualified it as a "*bacterial*" cellulase.
- Since it was not derivable from D8 that an improvement in whitening could be obtained using bacterial glucanase in the compositions claimed, as evidenced by the test results of Annex A', Annex B and Annex C, the claimed subject-matter involved an inventive step.

Auxiliary request 1 - inventive step

- The comparative tests of Annex A', Annex B and Annex C demonstrated that compositions as claimed led to improved whitening compared to prior art compositions not comprising a cellulase as defined in claim 1.
- The tests of Annex 1 were flawed, because the detergent composition used was inappropriate and test conditions applied differed in several aspects (including water hardness, high level of builder, number of cycles)from the ones used in tests according to Annex A'.
- Moreover, according to Annex 1 (table on penultimate page "26"), adding only colourant and no enzyme to a control formulation actually resulted in a worsening of the Whitening Index.
- Thus, the comparative examples of Annex 1 provided by opponent 1 were flawed and could not be used to disprove the occurrence of the effects achieved using the compositions of the invention.

Auxiliary requests 2 to 5 - Article 123(2) EPC

- The respective claims 1 of these auxiliary requests were based on a combination of claims 1, 3, 13 and 15 of the application as filed with a limited list of dyes taken from the description of the application as filed.
- The requirements of Article 123(2) EPC were therefore met.

Reasons for the Decision

Admissibility of the requests of the patent proprietor

1. The claims according to the current main request and the auxiliary request 2 filed with the statement of grounds of the patent proprietor are those which were, respectively, refused (then pending main request) and held allowable (then pending auxiliary request 1) by the opposition division.

   Their admissibility into the proceedings was thus not at stake.

   The pending auxiliary request 1, filed with the statement of grounds of the patent proprietor, and the currently pending auxiliary requests 3 to 5, filed in reply to the statement of grounds of opponent 1, only comprise amendments foreshadowed in the opposition proceedings and not giving rise to new and unexpected or particularly complex issues, but rather focusing the debate.

   No objections were raised by the adverse parties as regards their admissibility into the proceedings. The board also saw no reason for not admitting and considering them (Article 12 RPBA).

Admissibility of the experimental data filed in the appeal procedure

2. The test reports filed on appeal by opponent 1 ("Annex 1", *supra*) and the patent proprietor ("Annex B" and "Annex C", *supra*) were submitted to further corroborate the parties' respective positions regarding effects obtained with the claimed compositions. No objections

were raised regarding their admissibility into the proceedings.

The board thus also admitted and considered these test reports (Article 114(2) EPC and Article 12 RPBA).

Main request

3. Meaning of claim 1 - the term "*bacterial*"

3.1 At the oral proceedings, it was common ground between the parties that the examples of D8, e.g. examples #10 /I and #10 /III, disclosed detergent compositions comprising a polymeric hueing agent together with a detergent in relative amounts as required by claim 1, and a cellulase enzyme. It also remained undisputed that the four kinds of enzymes mentioned on page 20 of D8, i.e. "*Carezyme(TM), Celluzyme(TM) and/or Endolase(TM) by Novozymes or a Glucanase enzyme*" are the ones to be incorporated into the detergent compositions exemplified in D8 (page 19, line 8).

3.2 It was, however, in dispute whether the term "*bacterial*" permitted to distinguish the enzyme to be used in the compositions according to claim 1 from the cellulases listed on page 20 of D8.
In this respect, the Board notes the following:

3.2.1 It can be gathered from Annex A' submitted by the proprietor (see page 2, first paragraph, page 4, last paragraph) that at least the commercial enzyme products Carezyme(TM) and Endolase(TM) comprise enzymes of fungal origin exhibiting alkaline endo-beta-1,4-glucanase activity. The proprietor did also not dispute the statement of opponent 1 that Celluzyme(R) likewise comprises an enzyme of fungal origin having endo-beta-

1,4-glucanase activity in detergents (usually alkaline), as confirmed by D16 (page 186, left-hand column, last two paragraphs).

Whereas the first three trade names listed on page 20 of D8 correspond to alkaline cellulase enzymes with endo-beta-1,4-glucanase activity, the term "Glucanase enzyme" refers to a general class of enzymes (glucanases) without specifying its origin or properties.

3.2.2 In support of its argument that the skilled person could distinguish bacterial from fungal enzymes on the basis of their respective properties, the proprietor referred to table 3 on page 188 of textbook D16. This table contains a comparison of the respective properties (when used in laundry detergents) of bacterial and fungal cellulases 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).

The board observes that his table only gives rather vague qualitative indications regarding these properties. The rating shown (-, +, ++) does not

appear to be based on objective, let alone well-defined criteria and does therefore not allow the skilled person to determine whether an observed or measured property of a given cellulase enzyme unambiguously qualifies it as being of either bacterial or fungal origin.

3.2.3 Furthermore, bacterial DNA encoding for an enzyme may be expressed in another host organism, e.g. a fungus, and vice versa. Enzymes may be mutated or otherwise modified. This understanding is also supported
- by paragraph [0017] of the patent in suit reading "*Also encompassed in the present invention are variants of the above described enzymes obtained by various techniques known by persons skilled in the art...*", as well as
- by the indication of a minimum percentage of sequence identity (paragraph [0016]) to known glucanases and, in particular, by the express reference in section [0016] (paragraph bridging pages 3 and 4 of the patent) to document D9, the latter comprising (pages 13 to 16) indications concerning cloning and expression of vectors in host cells ("*... the enzyme is produced or can be produced by a specific source, or by a cell in which a gene from the source have* [sic] *been inserted*" (D9, page 13, lines 8 to 11).

3.2.4 At the oral proceedings, the proprietor did not dispute that such possibilities were also encompassed by the wording of claim 1, but merely emphasised with regard to "*bacterial*" enzymes that "*it is the final properties of the product that count*".

3.2.5 In this connection, the board also takes into account the following statement in D16 (Section "D. Fungal and Bacterial Cellulases", page 183, penultimate

paragraph), a textbook from 1997, which paragraph is also referred to in the decision under appeal, point 4.1 of the reasons and reads: "*The 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.*"

3.3 Based on the above considerations, the board concludes that in the present case no clear distinction can be drawn between "*fungal*" and "*bacterial*" enzymes. In the context of the patent in suit, the term "*bacterial*"
- neither describes properties in such a way that they can be used to unambiguously distinguish bacterial from fungal enzymes,
- nor unambiguously defines the original source of the enzyme or the host organism used for its production.

3.4 Thus, the board holds that in the context of the patent in suit the term "*bacterial*" does not even implicitly require unambiguously some further specific property of the alkaline enzyme exhibiting endo-beta-1,4-glucanase activity, which property would be attributable only to enzymes of bacterial origin.

4. Novelty

Since it is not specified in the examples of D8 which specific cellulase is actually incorporated into the specific compositions described, the board is not convinced that these examples are novelty-destroying. Considering that the claimed subject-matter is not, in any case, inventive for the reasons set out below, there is no need to address this issue in more detail.

5. Inventive step

5.1 The invention

5.1.1 The invention relates to laundry detergent compositions (see paragraph [0001] of the patent in suit; claim 1 at issue).

5.1.2 More particularly, it is indicated in paragraph [0005] that the composition according to the invention, comprising surfactant, a fabric hueing agent and a bacterial alkaline cellulase with 1,4-endo-glucanase activity delivers "*improved, synergistic whitening benefits*".

5.2 The closest prior art

5.2.1 D8 was cited by opponent 1 as the closest prior art and as a suitable starting point for the problem and solution approach.

Considering the similarities between the disclosure of D8 and the patent in suit in terms of the compositions disclosed and the problems addressed, the board sees no reason for taking another stance.

5.2.2 Indeed, D8 (page 3, lines 12 to 19) generally teaches that the whiteness of fabrics can be "dramatically improved" by incorporating dye polymer conjugates (pages 4 to 6) into a cleaning and/or fabric treatment composition comprising 0.1 to 60% by weight of surfactant (page 11, line 26). D8 (page 13, lines 22 *et seq*.) also mentions the incorporation of enzymes, *inter alia* cellulase, into the cleaning composition to provide cleaning and/or fabric care benefits. The cellulase enzymes to be incorporated into the exemplified detergent compositions may be of one of the

four kinds mentioned on page 20 (see 3.1, *supra*).

5.2.3 More particularly, examples 10/I and 10/III disclose compositions comprising a surfactant (sodium linear C_{11-13} alkyl benzene sulphonate, i.e. "LAS") in a relative amount falling within the range specified in claim 1, a "cellulase" (not further specified on page 22 listing ingredients) and, as dye-polymer conjugate, "CMC-Blue".

Each of these examples thus represents a most appropriate starting point for the assessment of inventive step.

5.3 The technical problem according to the proprietor

The proprietor's argued that also in the light of D8 (not mentioned in the application as filed) taken as the closest prior art, the technical problem consisted in making available detergent compositions providing improved, even synergistic, whitening effects.

5.4 The solution

This problem is allegedly solved by the composition according to amended claim 1 at issue which is characterised in particular in that it comprises, in combination, a "*bacterial alkaline enzyme exhibiting endo-beta-1,4-glucanase activity (E.C. 3.2.1.4)*", "*0.1% to 60 % by weight of surfactant*" and a "*fabric hueing agent*" selected from the specific classes of dyes listed in claim 1 (wording under III, *supra*).

5.5 The alleged success of the solution

5.5.1 The patent proprietor argued that claimed compositions showed an improved (synergistic) whiteness level compared to the levels achievable with compositions comprising a "fungal" instead of a "bacterial" cellulase enzyme, invoking annexes A', B and C as proof therefor.

5.5.2 However, for the reasons given under point 3 *et seq., supra*), the board holds that "*bacterial alkaline enzymes exhibiting endo-beta-1,4-glucanase* activity *(E.C. 3.2.1.4)*" as referred to in claim 1 are not distinguishable from alkaline "fungal" cellulase enzymes with endo-beta-1,4-glucanase acitivty, such as those comprised in the commercial products Carezyme(TM), Celluzyme(TM) and Endolase(TM), expressly recommended for use according to D8.

5.5.3 Thus, for the board, at least compositions comprising Carezyme(TM), Celluzyme(TM) or Endolase(TM), presented as comparative compositions, by the proprietor in its experimental test reports, are also encompassed by claim 1 at issue. Since the "comparative" glucanases used fall within the definition of claim 1 at issue, these tests are not suitable for conclusively demonstrating an effect/improvement over the prior art.

5.6 Reformulated technical problem - successfully solved

5.6.1 Hence, the technical problem actually solved in the light of D8, examples # 10/I and #10 /III must be reformulated in less ambitious terms. It can be seen in making available further (detergent) compositions comprising cellulase and surfactant, providing perceived whiteness to the treated fabric.

5.6.2 Considering the indications in the patent in suit and the test results on file, the board accepts that this less ambitious technical problem is effectively solved by the compositions according to claim 1. This was not in dispute.

5.7 Obviousness

5.7.1 It remains to be decided whether the claimed solution was obvious to the skilled person having regard to the state of the art.

5.7.2 D8 expressly mentions *inter alia* Carezyme(TM), Celluzyme(TM) and Endolase(TM) as cellulase components suitable for being incorporated into cleaning and/or fabric treatment compositions also comprising a surfactant and a dye-polymer conjugate as hueing agent.

5.7.3 Considering the explicit hint given in D8 to use these enzymes, the skilled person would consider the incorporation of one of these recommended cellulases as a most straightforward option for putting into practice the formulations of e.g. examples 10/I and 10/III with a specific cellulase component. Doing so, he would arrive at a composition falling within the ambit of claim 1 without the need for ingenious ideas.

5.8 Therefore, the subject-matter of claim 1 does not involve an inventive step (Articles 52(1) and 56 EPC).

Auxiliary request 1

6. Inventive step

6.1 Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that it further specifies the

enzyme used in terms of its carbohydrate binding modules.

6.2 For the proprietor, the closest prior art and the technical problem to be considered as being solved remain the same as with regard to the main request (points 5.2 and 5.3, *supra*).

6.3 The solution proposed is the composition according to claim 1 at issue, which is characterised more specifically by a feature defining more precisely the nature of the enzymes that may be used, namely

"*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*".

6.4 As regards the success of the claimed solution, the board notes the following:

6.4.1 The data presented in Annex 1 appear to show that no significant, let alone synergetic, improvement in whiteness, results from the combined use of Celluclean(TM), a cellulase according to claim 1 at issue, and Direct Violet 9 as the hueing agent, in the washing of laundry with detergents, as compared to the use of a detergent composition comprising none or only one of said two components.

6.4.2 In the proprietor's opinion, the tests of Annex 1 were flawed for various reasons. A more direct comparison could, however, be made between the results presented in Annex B and Annex 2 (example 3), respectively, as in each case an identical level (0.0043 wt%) of Direct Violet 9 was used as hueing agent together with an IEC-

B base detergent in the experiments described. The data presented in Annex B clearly showed a synergistic increase in whiteness obtained when using a combination of Celluclean® with Direct Violet (DV9)

6.4.3 Considering the rather limited scope (in terms of dyes, enzymes and relative amounts used) of the tests provided by the proprietor, the board is not convinced that a significant, let alone synergistic increase in whiteness improvement, will always be obtained when using a composition as claimed, i.e.
for a(ny) dye out of the various broad classes listed in claim 1 in combination with a cellulase with the specified binding module(s) at any conceivable ratios of the individual ingredients of the composition under undefined treatment conditions, e.g. regarding the concentration of the laundry detergent composition in the washing solution, the washing temperature, the length of treatment or number of cycles etc.

6.5 Even accepting *arguendo* (in favour of the proprietor) that the comparative tests of opponent 1 (specifically example 3 of Annex 2) are based on inappropriate experimental conditions, very different from the ones used according to Annex A', and thus not suitable for demonstrating that the intended improvement is not achieved, the Board nevertheless gathers from the tests of Annex 2, example 3 that the obtention of such improved whitening depends also on the relative amounts of enzyme and dye (compare the CIE whiteness index values (151.7; 151.7; 153.1) obtained with the formulations comprising Direct Violet 9 only and in combination 0.0005 wt% or 0.01 wt%, respectively, of Celluclean®). As the conditions are identical within these tests, the whiteness values obtained are directly comparable. Furthermore, Direct Violet 9 was also used

in the proprietor's tests of Annex B, involving IEC-B base detergent.

6.6 Moreover, the proprietor made submissions (implicitly) corroborating, for the Board, that the claimed compositions are not effective under all sensibly conceivable conditions of use (i.e. in the treatment of textiles).

6.6.1 For instance, in reply to an objection by opponent 1 as to the absence of concentrations ranges for the cellulase and the hueing agent in claim 1 (see proprietor's letter of 16 January 2014, page 7, last paragraph), the proprietor replied that "... *the design of detergent compositions with respect to* ***the conditions under which each component is effective*** *is part of the art of detergent composition formulation*" (letter of 16 January 2014, page 8, first full paragraph; emphasis added).

6.6.2 For the board, this statement of the proprietor confirms that for the compositions to effectively provide the intended result in terms of improvement in whiteness, certain further, but undefined compositional conditions may have to be met, depending on the specific components actually used. This is, however, in no way reflected by the wording of the claim.

6.7 Thus, based on the preceding considerations, the board accepts that the tests of Annex 2 demonstrate that factors such as the respective relative amounts of the components, play a significant role in achieving the desired result, i.e. an improved whiteness.

6.8 The proprietor indicated that varying conditions of use may have to be applied in order for each component to

be effective. The claimed compositions, however, do not merely comprise a single essential component, but comprise a mixture of at least three relevant ingredients (enzyme, dye and detergent), for which such conditions have, respectively, to be met simultaneously.

6.9 Therefore, the board is not convinced that any composition falling within the ambit of claim 1 at issue may bring about, upon use, an improvement, let alone a synergistic increase, in whiteness, attributable to the claimed combination of cellulases and hueing agents as defined in claim 1.

Quite to the contrary, as already touched upon under point 6.5, *supra,* the only two sets of experimental results allowing a more direct comparison between the data provided by the proprietor (Annex B) and by opponent 1 (Annex 2, example 3) show that at least at the specific concentration of Celluclean® of 0.0005 wt%, no improvement could be achieved compared to the use of Direct Violet 9 alone (no enzyme present), whereas this was the case at an enzyme concentration of 0.01 wt%.

6.10 Hence, the technical problem actually solved has to be reformulated in less ambitious terms, as in the case of the main request.

For the board, it can still only be seen in making available further (detergent) compositions of the type disclosed in D8, i.e. comprising cellulase and hueing agent, suitable for providing perceived whiteness to the treated fabric.

6.11 Obviousness

6.11.1 Document D8 not only discloses improvements in whiteness achievable by adding dye conjugates to fabric cleaning and/or treatment compositions (page 3, lines 12 to 19). It also explicitly acknowledges that adjunct materials like enzymes, in particular cellulase, present in the compositions comprising the dye conjugate in order to "assist or enhance cleaning performance" (see page 9, lines 5 to 15; page 13, lines 20 to 22; page 7, lines 1 to 8 and 21 to 27).

6.11.2 Considering also these more general indications, the person skilled in the art would understand that D8 is not at all limited to the use of the four kinds of cellulase expressly mentioned in D8 (page 20), but that the teaching of D8 could also be in put into practice by incorporating other available and suitable cellulases of similar type into detergent compositions as exemplified.

6.11.3 D9 discloses (see page 2, lines 24 to 36; page 29, lines 1 and 2; page 30, lines 22 and 23) a cellulase that is preferred according to the patent in suit (see paragraph [0016]), i.e. an alkaline cellulase with endo-beta 1,4-glucanase activity (EC 3.2.1.4) obtainable from bacterial origin (page 13, lines 7 to 18). It was not in dispute that the cellulase according to D9 also meets the additional requirement of claim 1 at issue concerning the specific binding module(s). The patent in suit expressly refers to the endoglucanase of SEQ ID NO:2 of D9, commercialised under the trademark Celluclean(TM), as an enzyme suitable for carrying out the invention which was, moreover, also used in proprietor's comparative tests. Furthermore, D9 expressly mentions that said cellulase is suitable for

use in detergent compositions for washing/treating textiles (page 4, lines 13 to 16; example 7), and even for increasing the removal of stain/soil, as demonstrated by increased reflectance. This was not disputed by the proprietor.

6.11.4 Thus, for the board, incorporating the specific glucanases described in D9 as cellulase components in compositions according to the cleaning and/or fabric treatment compositions according to the closest prior art D8 (examples 10/I or 10/III), is one of several equally obvious possibilities readily available to the skilled person seeking to solve the technical problem posed.

6.12 The board therefore concludes that the subject-matter of claim 1 of auxiliary request 1 does not to involve an inventive step either (Articles 52(1) and 56 EPC).

Auxiliary request 2

7. Allowability of the amendments - Article 123(2) EPC

7.1 The proprietor considered claim 1 of auxiliary request 2 to be fairly based on a combination of some claims of the application as filed with a list of fabric hueing agents which is more restricted than the list of suitable hueing agents mentioned in the description. More particularly, the proprietor took the view that amended claim 1 found sufficient basis in the following claims and passages of the description of the application as filed which, taken in combination, disclosed all the feature of the claimed compositions:

Claim 1: Composition comprising, in combination, a fabric hueing agent and a bacterial alkaline enzyme

exhibiting endo-beta-1,4-glucanase activity (E.C. 3.2.1.4).

Page 24, lines 16 to 20: most general level (0.1 to 60 wt%) of the optional surfactant component.

Page 19, line 18: photobleach-dye conjugates as fabric hueing dyes.

Page 10, lines 13 to 19: Mention of polymeric dyes, small molecule dyes falling within the Colour Index classifications of Direct Violet, Acid Violet, basic Violet or Basic Red, amongst many other possible fabric hueing agents.

Page 11, lines 8 to 10: A blue or red acid dye of the formula (3) as possible small molecule dyes.

Claim 13: The concentration range of from 0.0002% to 0.02 wt% for the relative amount of enzyme is mentioned as a preferred range, intercalated between a less preferred broader range and a more preferred narrower range.

Claim 15: The most preferred range of 0.0001% to 0.04% wt% for the relative amount of hueing agent is mentioned together with two broader, less preferred and least preferred ranges.

Claim 3: An enzyme with at least one of family 17 and at least on family 28 carbohydrate binding modules is presented as one out of three possibilities.

7.2 Thus, claim 1 as amended is not the result of a combination of original claim 1 and a mere selection of some specific fabric hueing dyes or dye types, out of a

long list in the description, but combines this narrowed list of specific dyes with

- the broadest, most general range for the concentration of an optional component (surfactant) disclosed only in the description,
- the preferred, respectively more preferred, concentration ranges indicated for the enzyme and the fabric hueing agent components, these two ranges being selected from several options listed in two different claims, and
- the choice of enzymes with two different specific carbohydrate binding modules amongst three alternative options listed in a claim.

7.3 Absent any particular pointers towards the claimed combination of various features, taken from orignal claims and description passages and involving multiple choices among lists of compounds and alternatives of varying degrees of genericity, the board does not accept that the subject-matter as now defined in claim 1 is directly and unambiguously derivable from the application as filed. Instead, the Board holds that it is the result of a kind of intermediate generalisation which is not allowable since the subject-matter so-defined extends beyond the content of the application as filed.

7.4 In the board's judgement, claim 1 of auxiliary request 2 does not, therefore, meet the requirement of Article 123(2) EPC.

Auxiliary requests 3, 4 and 5

8. Allowability of the amendments - Article 123(2) EPC

8.1 The respective claims 1 of auxiliary request 3, 4 and 5

differ from claim 1 of auxiliary request 2 in that the "*fabric hueing agent*" to be used is defined in an increasingly restricted manner (see wordings under VI, *supra*).

8.2 Although compared to claim 1 of auxiliary request 2 the definition of dyes that may be used as fabric hueing agent is more limited, the board's above considerations concerning the multiple choices made to arrive at the subject-matter as defined by claim 1 of auxiliary request 1 apply analogously to auxiliary requests 3 to 5. For the board, the further restriction of possible hueing agents to certain dye types or even to a specific dye compound (auxiliary request 5) does not reduce the total number of choices (within the total disclosure of the application as filed) resulting in the subject-matters defined by the amended claims 1 to such a degree that the latter could be considered to be directly and unambiguously derivable from the application as filed.

8.3 Therefore, in the board's judgement, the respective claims 1 of auxiliary requests 3, 4 and 5 do not meet the requirements of Article 123(2) EPC either.

Conclusion

9. For the above reasons, none of the requests of appellant II (patent proprietor) is allowable.

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:

D. Magliano B. Czech

Decision electronically authenticated