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Datasheet for the decision of 13 May 2019

Case Number: T 0583/16 - 3.3.06

Application Number: 07805063.0

Publication Number: 2038395

IPC: C11D3/39, C11D3/386

Language of the proceedings: EN

Title of invention:
A COMPOSITION COMPRISING A CELLULASE AND A BLEACH CATALYST

Patent Proprietor:
The Procter & Gamble Company

Opponent:
UNILEVER NV

Headword:
Enzymes-iminium/Procter and Gamble

Relevant legal provisions:
EPC Art. 54, 56
RPBA Art. 12(4)

Keyword:
Novelty - (yes)
Inventive step - could-would approach
Late-filed evidence - request could have been filed in first instance proceedings (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 0583/16 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 13 May 2019

Appellant: (Opponent)	UNILEVER NV Weena 455 3013 AL Rotterdam (NL)
Representative:	Brooijmans, Rob Josephina Wilhelmus Unilever Patent Group Olivier van Noortlaan 120 NL-3133 AT Vlaardingen (NL)
Respondent: (Patent Proprietor)	The Procter & Gamble Company One Procter & Gamble Plaza Cincinnati, OH 45202 (US)
Representative:	Russell, Tim Venner Shipley LLP 200 Aldersgate London EC1A 4HD (GB)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 15 December 2015 rejecting the opposition filed against European patent No. 2038395 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	J.-M. Schwaller
Members:	S. Arrojo
	R. Cramer

Summary of Facts and Submissions

I. In its statement of grounds of appeal the opponent (from now on "the appellant") requested to set aside the decision of the opposition division to reject the opposition against European patent Nr. 2 038 395 and to revoke the patent in its entirety. Further it referred to document D15 (US 2006/0089284 A1).

II. Claim 1 as granted reads:

"A composition comprising:
(a) a bacterial alkaline enzyme exhibiting endo-beta-1,4-glucanase activity (E.C. 3.2.1.4); and
(b) a bleach catalyst comprising an iminium functional group and that is capable of accepting an oxygen atom from a peroxyacid and transferring the oxygen atom to an oxidizeable substrate."

III. With its reply the patentee (from now on "the respondent") filed amended claims as auxiliary requests 1-9 and requested not to admit document D15 as late filed.

IV. In response to the preliminary opinion of the Board, the appellant submitted objections under Article 56 EPC against auxiliary requests 1-9 and argued that these requests being divergent, they should not be admitted into the proceedings.

V. At the oral proceedings the discussion focused on assessing compliance of the claims as granted (main request) with the requirements of Articles 54 and 56 EPC. Novelty was assessed in view of document D4 (WO 00/42156 A1) (with the support of documents D3 ("Developmnent of new cellulases, Enzymes in

Detergency", 1997) and D10 ("Enzymatic properties of cellulases from *Humicola insolens*", 1997)) whereas inventive step was discussed in view of the combined teachings of documents D1 (WO 2004/053039 A1) and D4. Additionally the Board decided not to admit document D15 into the proceedings as late filed.

VI. After closure of the debate, the requests were as follows:

The appellant requested to set aside the decision and to revoke the patent in its entirety.

The respondent requested that the appeal be dismissed or, auxiliarly, that the patent be maintained on the basis of one of auxiliary requests 1-9 filed with its reply to the statement of grounds of appeal.

Reasons for the Decision

1. Admittance of late filed document D15

1.1 The Board has decided to exercise its discretion under Article 12(4) RPBA not to admit document D15 into the proceedings.

1.2 The appellant argued that D15 was referred to in response to the arguments brought forward for the first time in the contested decision, whereby the opposition division concluded that it would not be obvious to combine documents D1 and D4 because the results obtained when an imidium-based catalyst was added to different enzymes (reference was made here to the experimental data referred as D9 and D13 in the file) raised questions of compatibility between certain sub-sets of enzymes and this catalyst. Document D15 would

represent a *prima facie* relevant response to this argumentation, because it disclosed (par. [0006]) that imidium-based catalysts provide an "enhanced compatibility".

1.3 The Board notes that the problem of compatibility between imidium-based catalysts and enzymes was already a key issue of the application (page 2, lines 21-24) which led to the patent in suit. Furthermore, the test results D9 which were filed during opposition proceedings had already been filed during examination proceedings (on 10 November 2010), precisely to underline the different and inconsistent results obtained when combining different sub-sets of enzymes with an imidium-based catalyst. Document D15 was furthermore cited in that test report as the basis for producing the bleach catalyst of the invention, so the appellant should have been aware of its existence since the start of the opposition proceedings.

Moreover, the Board considers that D15 is *prima facie* not relevant for the underlying key questions because besides the general reference to the "enhanced compatibility" of the catalyst in paragraph [0006], no relevant information is provided in this document concerning the compatibility of imidium-based catalysts with different sub-sets of enzymes (let alone with the sub-set defined in claim 1 of the patent in suit).

1.4 The Board therefore concludes that document D15 is not admitted because it could and should have been filed during first instance proceedings and, on a *prima facie* basis, it would be unlikely to influence the final outcome of the proceedings in any meaningful way.

2. Main request - Article 100(a)/54 EPC

2.1 The Board has concluded that the ground under Article 100(a) EPC in conjunction with Article 54 EPC does not prejudice the maintenance of the patent as granted.

2.2 Document D4 (page 29, line 10 - page 30, line 20) discloses compositions comprising iminium-based bleach catalysts and cellulases, such as the 43kD endogluganase derived from the fungus *Humicola Insolens* (D4, page 69, line 28).

2.3 The appellant referred to page 183 of D3 to support the idea that the terms "bacterial" and "fungal" represented an outdated classification system for enzymes and could therefore not be used as a distinguishing feature. In particular, it considered that the feature "bacterial enzyme" did not imply that the enzyme must be endogenous to a member of the genus Bacillus, because this was described as being optional in the patent in suit (par. [0026]). Furthermore, the terms "bacterial" and "fungal" would be purely functional and have no clear structural implications, which would give rise to significant overlaps between both, in particular considering that with the current cloning technologies enzymes from one specie could be easily expressed in other species.

Thus, the term "bacterial" could merely imply that the enzyme was obtainable from bacteria, or, alternatively, this term could simply be regarded as a non-limiting feature. Since according to document D10 Carezyme ® (a cellulase from *Humicola insolens* disclosed in D4) was an alkaline enzyme (figure 2), document D4 would anticipate the subject-matter of claim 1.

2.4 The Board cannot follow this argumentation, because while it is clear that there are more precise, specific and/or up-to-date ways than the one used in claim 1 to classify enzymes, this does not lead to the conclusion that the term "bacterial" does not limit the scope of the claim. Document D3 itself indicates in page 181, section D that "from a practical point of view, the cellulases used in detergent (...) are often differentiated by their origin from fungal or bacterial sources". In this same paragraph, the enzymes from *Humicola Insolens* (the ones described in D4) are explicitly identified as fungal enzymes. Table 3 at page 188 of D3 (reproduced below) moreover distinguishes fungal and bacterial cellulases, and respectively associates each of these classes to different properties.

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).

It is therefore apparent to the Board that the terms "bacterial" and "fungal" provide a technically meaningful distinction for a skilled reader.

Document D4 can thus not be regarded as anticipating the subject-matter of claim 1 of the main request, which therefore complies with the requirements of Article 54 EPC.

3. Main request - Article 56 EPC

3.1 The Board has concluded that the ground under Article 100(a) in conjunction with Article 56 EPC does not prejudice the maintenance of the patent as granted.

3.2 Closest prior art

3.2.1 Document D1 discloses (page 1, lines 1-6) a detergent composition comprising a bacterial alkaline enzyme exhibiting endo-beta-1,4-glucanase activity, in particular an endo-glucanase derived from Bacillus sp. AA349, DSM 12648 (also cited as preferred enzyme in par. [0028] of the patent in suit). Reference is made in D1, page 19, lines 3-5, to the possibility of adding manganese-based bleaching catalysts to the composition. This document also deals with the problem of compatibility of the enzyme with other components such as the surfactant (par. [0051]).

Claim 1 differs from D1 in that the bleach catalyst comprises an iminium functional group.

3.2.2 As explained above document D4 discloses compositions comprising iminium-based bleach catalysts and enzymes such as endogluganases derived from *Humicola Insolens* [fungal]. This document (page 16, lines 8-10) also refers to the importance of ensuring compatibility between the selected enzymes and the other components.

Document D4 does however not disclose a sub-set of bacterial alkaline enzyme exhibiting endo-beta-1,4-glucanase activity.

3.2.3 The Board considers that either one of D1 or D4 could be regarded as closest prior art, as both documents are

concerned with similar technical problems and each one discloses compositions including one of the two main components defined in claim 1.

In line with the discussion at the oral proceedings, document D1 is used as closest prior art, but the arguments and conclusions would be analogous if document D4 were used as closest prior art.

3.3 Technical problem

The problem underlying the invention in the patent in suit (par. [0005] and [0006]) is to provide a detergent composition which improves the cleaning and whitening performance while minimising negative interactions such as oxidative decomposition of the cellulase during the wash process or during storage.

3.4 Solution and success thereof

3.4.1 The solution proposed in claim 1 is to select a bleach catalyst comprising an iminium functional group.

3.4.2 The appellant argued that the experimental report D9 and the corresponding statistical analysis D13 only showed minor improvements in terms of cleaning and whitening performance, and that these results could in any case not be used to support a technical effect vis-a-vis document D1, because no comparison was made between compositions comprising iminium-based and manganese-based bleach catalysts. The appellant also pointed out that the reduced or detrimental effect of the iminium-based bleach catalyst in some of the examples could be attributed to the absence of a bleach activator (e.g. TAED), since this component would be

required for the bleach to show activity at the relatively low temperature (40°C) used in these tests.

3.4.3 The Board agrees on the one hand with the appellant in that the data in documents D9 and D13 do not support any benefit of the invention in terms of cleaning/whitening performance with respect to document D1. On the other hand, as pointed out by the respondent, document D9 shows that iminium-based catalysts give rise to problems of compatibility when combined with some sub-sets of cellulases. In particular, when comparing the SRIs of examples D and E respectively with those of examples F and G, it is apparent that the addition of an imidium-based catalyst to the fungal cellulases used in these tests had a detrimental effect in terms of cleaning performance. This negative effect was however not observed in the example according to the invention, which in fact gave rise to an improvement when compared to the enzyme or the bleach catalyst alone (see comparison to examples B and C). In other words, from the three tested sub-sets of cellulases, the one defined in claim 1 is the only which does not give rise to compatibility issues when combined with imidium-based catalysts.

3.4.4 The Board thus concludes that the subject-matter of claim 1 successfully solves the problem of preventing negative interactions between the enzyme and the bleach catalyst during storage or the washing process.

3.5 Obviousness of the proposed solution

3.5.1 There is no information in either D1 or D4 concerning the problems of compatibility between the iminium-based catalyst and some sub-sets of cellulases, and in particular no indication which would lead the skilled

reader to the combination of the iminium-based bleach catalyst and the sub-set of bacterial alkaline enzymes exhibiting endo-beta-1,4-glucanase activity as a way to prevent negative interactions.

3.5.2 The appellant argued that there was no need to justify the selection of bacterial alkaline enzyme exhibiting endo-beta-1,4-glucanase activity, since this sub-set of enzymes was already part of the composition of D1. From this starting point the skilled person would consider the selection of imidium-based bleach catalysts in D4 as an obvious alternative to the manganese-based bleach catalyst, because this would represent adding a well-functioning enzyme to a well-functioning bleach catalyst and no particular information in these documents would prevent him from considering this combination.

3.5.3 The Board cannot agree with this argumentation because it is based on the wrong assumption that the problem solved by the invention is merely to propose an alternative composition. In other words, it might be accepted that two well-functioning components disclosed as preferred in respective documents could be combined with one another and that such combination would likely be considered as obvious if the problem to be solved were simply to provide an alternative composition.

However, in the present case the problem to be solved is to prevent negative interactions between the enzyme and the bleach catalyst. Thus, in the absence of any information indicating that the sub-set of enzymes in D1 and the catalysts in D4 would successfully solve this problem, it must be concluded that the skilled person would have no reason to consider substituting the manganese-based catalyst in D1 by the iminium-based

catalyst described in D4 for the purpose of preventing negative interactions between these elements.

3.5.4 The Board thus concludes that the subject-matter of claim 1 is not rendered obvious by the combined teachings of documents D1 and D4.

3.5.5 The remaining documents cited in the opposition proceedings have no longer been relied upon by the appellant in particular at the oral proceedings before the Board. In the Board's judgment none of these documents contain further information which would point towards the claimed solution of the problem stated above.

3.5.6 Accordingly, for the reasons indicated above, the subject-matter of claim 1, and by the same token that of dependent claims 2 to 25 which include all the features of claim 1, involves an inventive step within the meaning of Articles 52(1) and 56 EPC

4. As the appellant has not succeeded in showing that the claims as granted do not meet the requirements of the EPC, its appeal must fail and the decision of the opposition division becomes final.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

A. Pinna J.-M. Schwaller

Decision electronically authenticated