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Datasheet for the decision of 11 May 2023

Case Number: T 0715/20 - 3.3.06

Application Number: 10190218.7

Publication Number: 2365055

IPC: C11D3/00, C11D17/06, C11D3/22, C11D3/386, C11D3/39

Language of the proceedings: EN

Title of invention:
Composition comprising substituted cellulosic polymer and amylase

Patent Proprietor:
The Procter & Gamble Company

Opponent:
Henkel AG & Co. KGaA

Headword:
Detergent with CMC and Stainzyme Plus/ PROCTER & GAMBLE

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (no) - alleged synergic improvement not relevant and not convincingly proved

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 0715/20 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 11 May 2023

Appellant: (Opponent)	Henkel AG & Co. KGaA Henkelstrasse 67 40589 Düsseldorf (DE)
Representative:	Viering, Jentschura & Partner mbB Patent- und Rechtsanwälte Hamborner Straße 53 40472 Düsseldorf (DE)
Respondent: (Patent Proprietor)	The Procter & Gamble Company One Procter & Gamble Plaza Cincinnati, OH 45202 (US)
Representative:	Gill Jennings & Every LLP The Broadgate Tower 20 Primrose Street London EC2A 2ES (GB)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 12 February 2020 concerning maintenance of the European Patent No. 2365055 in amended form.**

Composition of the Board:

Chairman	J.-M. Schwaller
Members:	L. Li Voti
	C. Heath

Summary of Facts and Submissions

I. The opponent's appeal is against the interlocutory decision of the opposition division to maintain European Patent no. 2365055 in amended form on the basis of auxiliary request 2, claim 1 thereof reading:

"*1. A solid particulate laundry detergent composition comprising:*
(a) substituted cellulosic polymer comprising carboxymethyl substituent groups, and having a degree of substitution (DS) of at least 0.55, and having a degree of blockiness (DB) of at least 0.35, and having a DS+DB is in the range of from 1.05 to 2.00;
(b) amylase with greater than 90% identity to the AA560 alpha amylase endogenous to Bacillus sp. DSM 12649 and comprising:
(i) mutations at one or more of positions 9, 149. 182, 186, 202, 257, 295, 299, 323, 339 and 345; and
(ii) mutations at four or more of positions 118, 183, 184, 195, 320 and 458; and
(c) laundry detergent ingredients;
wherein upon dilution in de-ionized water to a concentration of 1wt% at 20°C, the composition has a pH of from 9 to 13."

II. In its grounds of appeal the appellant argued that the above subject-matter lacked novelty over **D9** (WO 2011/005905 A1) and inventive step over **D15** (WO 2009/154933 A2) taking into consideration the disclosures of **D18a** (Brochure "*A guide to Novozymes Household Care*" by Novozymes®) and **D19a** (Brochure "*Stainzyme® Plus – Superior performance under challenging conditions*", by Novozymes®).

III. In its reply the respondent (also patent proprietor) defended the patent as upheld by the opposition division and referred to documents **D42** (Technical data sheet for CM3587 of 17 November 2016, refiled as Annex 1, 14 February 2019), **D43** (corrected version filed 11 October 2019 of Technical data sheet for CM3587 filed as Annex 2, 14 February 2019), and **D44** (Technical data sheet - Annex 3, filed 11 October 2019). Moreover, it filed **D47** (Annex 4 - Experimental Report for European Patent No. EP2365055).

IV. In response to the board's preliminary opinion, the respondent filed additional comments.

V. At the oral proceedings held on 11 May 2023, the parties' final requests were as follows:

The appellant requested that the decision under appeal be set aside and the patent be revoked.

The respondent requested that the appeal be dismissed and the patent be maintained in the form as upheld by the opposition division. Further it requested that the new novelty objection based on D9 not be admitted into the proceedings and that D47 be admitted.

Reasons for the Decision

1. *Auxiliary request 2 - Inventive step*

1.1 Claim 1 at issue relates to a solid particulate laundry detergent composition comprising:
(a) a substituted cellulosic polymer comprising carboxymethyl substituent groups, and having defined degree of substitution and degree of blockiness (in the following **Blocky CMC**);

(b) an amylase having defined characteristics (in the following **Stainzyme Plus**);
(c) laundry detergent ingredients;
and having a pH, upon dilution in de-ionized water to a concentration of 1wt% at 20°C, of from 9 to 13.

1.2 According to the patent (paragraph [0003]) the whiteness and stain removal profiles of laundry detergent powders are significantly improved by combining the above specific amylase and specific substituted cellulosic polymer.

1.2.1 Document D15 - that both parties held as a suitable starting point for the evaluation of inventive step - relates (page 1, fourth full paragraph and page 19, last two lines) to a solid particulate laundry detergent which provides unexpected anti-redeposition performance (and thus improved whiteness profile). In particular, D15 (page 22, last full paragraph) shows that a specific substituted cellulosic polymer (the above mentioned Blocky CMC) significantly improves the anti-redeposition performance of a laundry detergent composition and that the presence of a cellulase further improves this performance. D15 thus has a similar goal as the patent in suit.

The closest prior art is thus represented by the best performing solid laundry detergent compositions of D15, namely those of examples 3, 5, 7 or 8 on page 23, which comprise a Blocky CMC, the cellulase Celluclean® and further laundry detergent ingredients such as bleaching agents, bleach activators and further unspecified enzymes powders. These compositions differ from the subject-matter of claim 1 at issue in that they do not comprise the enzyme Stainzyme Plus and in that their dilution pH is not disclosed.

1.3 As regards the allegedly improved whiteness and stain removal profiles, neither the patent in suit nor the experimental data D42-D44 contain a direct comparison with any of the compositions representing the closest prior art. There is thus no evidence that a composition comprising Blocky CMC and Stainzyme Plus performs better than those of the closest prior art.

Moreover, the dilution pH defined in claim 1 at issue is neither indicated in the patent as being of particular relevance for the achievement of the desired effect nor is there any data on file that shows the criticality of such a pH.

Under these circumstances the objective technical problem convincingly solved by the claimed subject-matter has to be formulated in less ambitious terms, namely as the provision of an alternative solid particulate laundry detergent composition providing similar whiteness benefits as the closest prior art. This formulation was by the way accepted by the respondent at the oral proceedings.

1.4 It is thus to be decided whether it was obvious for the skilled person faced with this technical problem to modify the composition of the closest prior art by adding Stainzyme Plus and adjusting its dilution pH within the range of 9 to 13.

1.4.1 For the board it was obvious for the skilled person to modify the closest prior art compositions by adding anyone of the optional components disclosed in D15 for maintaining the whiteness performance and known to be compatible with the other ingredients of said composition, in particular the bleaching agents. In this respect, the skilled person had thus merely to

choose one additional enzyme having such characteristics among the "other enzymes" explicitly listed as optional components in the compositions of departure.

1.4.2 Since D15 (page 11, line 8) cites in particular amylase as such a suitable additional enzyme, it was thus obvious for the skilled person to add to the closest prior art compositions an amylase known for its whiteness performance in solid laundry detergents and its compatibility with bleaching agents. In this particular circumstance the skilled person would look for those amylases available on the market and consider for instance those from Novozymes, a well-known enzyme producer, which also produces the cellulase Celluclean® contained in the compositions according to the closest prior art.

1.4.3 The brochure from Novozymes (D18a) describes enzymes which at the priority date of the patent in suit were inter alia suitable for laundry detergents, and in particular for maintaining whiteness. In the board's view, it was obvious for the skilled person to use any of these known enzymes, including amylase, in the compositions of the closest prior art depending on the desired efficiency on particular stains and their suitability for solid compositions comprising bleaching agents.

As regards in particular amylase, D18a (pages 47 and 49) cites in particular Duramyl® (this being outside the scope of claim 1 at issue) and Stainzyme® Plus (according to claim 1 at issue) available as granulates, and thus suitable for solid laundry detergents, and being further stable to bleach and providing stain removal and whiteness. D18a also states

(page 49) that Stainzyme® Plus "*prevents soil redeposition on starch stain to ensure that whites remain white*" - a property which is not disclosed for Duramyl® - and has "*Superior performance under the toughest conditions*", so that this enzyme manifestly represents the best choice for the skilled person confronted with the problem of whiteness maintenance.

This conclusion is confirmed by D19a, a flyer illustrating the properties of Stainzyme® Plus and showing its clear superiority over Duramyl® and other amylases, and the board cannot agree with the respondent's argument that this document would not be considered by the skilled person since it aims at advertising enzymes for marketing purposes. To the contrary, the board is convinced that the skilled person looking for further information about the enzyme possibly to be incorporated into the compositions of D15 would be prompted to consider the teaching of this older prior art since it confirms the superior properties of Stainzyme® Plus illustrated in D18a.

1.4.4 Therefore the board concludes that it was obvious for the skilled person to try the amylase Stainzyme Plus as part of the "other enzyme powders" in the compositions of the closest prior art with the expectation of obtaining at least similar results in whiteness profile.

1.5 The respondent referred to the experimental data D42-D44 and argued that the combination of Blocky CMC and Stainzyme Plus would provide an unexpected synergy not obtainable by using a combination with other known amylases, and for this reason the claimed composition provided a superior way of maintaining whiteness which was not obvious in the light of the prior art.

The board however does not find this argument convincing for the following reasons.

1.5.1 The data in D42-D44, which are not direct comparisons with any of the compositions disclosed in D15, compare a composition comprising the claimed combination of Blocky CMC and Stainzyme Plus (Example 1 according to the invention) with *inter alia* a composition comprising a similar combination but with an amylase not falling under the wording of claim 1 at issue (Comparative example H containing Natalase® in D42, Termamyl Ultra® in D43 and Duramyl® in D44).

The board notes that whilst D42 appears to support the respondent's allegation of an unexpected synergy in view of the better measured average reflectance of the combination of Example 1, D43 and D44 however show an average CIE value for the combination of Example 1 which is only of 1.06 and 0.42 units higher than the value measured for comparative example H. Much worse, by considering the standard deviations indicated in the data of Table 1 (in D43: 1.40 and 0.71 for Example 1 and Comp. Example H, respectively; in D44: 1.9 and 1.7), the invention cannot be held to provide a whiteness value significantly different from that measured for comparative example H. In this respect, the board cannot agree with the respondent's argument that the standard deviation indicated in said data should not be considered since figures possibly indicating the level of confidence of the measurements are missing. Rather, the standard deviation clearly indicates at least the spread of the measured values and it is directly apparent from the comparison of the (very close) average values according to Example 1 and Comparative example H in D43 and D44 that at least some of the measured values for the composition of Example 1

had to be necessarily worse than some of the values measured for comparative example H.

Therefore, in the board's view, the synergy values reported in Table 1 of D43 and D44 and based only on the measured average values without consideration of the standard deviation cannot be held to convincingly show the alleged synergy.

1.5.2 As regards the visual assessment of the cleanliness of washed swatch replicates reported in D43 (see Table 3), this test was made by four experts which all have identified the replicates washed with the composition of the invention as being cleaner than those washed with the comparative composition H.

However, the relevance of this test is in the board's view not convincing because D43 does not specify which pairs of replicates were compared with each other, which information is relevant since, as explained above, the average of all measured whiteness values differ only by 1.06 units, with some values measured for the replicates of the invention being necessarily worse than those of some comparative examples. Thus, at least some of the comparative replicates had to be reasonably considered whiter (and thus cleaner) also when visually evaluated. Moreover, the chosen way of evaluation did not allow the possibility of giving any graduation of preference but it was limited to state which of the two randomly compared replicates was considered to be cleaner, which choice could have been influenced by other visual factors extraneous to the investigated whiteness/anti-redeposition effect.

The board also cannot agree with the respondent's argument that in this technical field, a visual test

would be closer to the real customer perception than the machine spectrophotometric test otherwise used in D43 and thus more relevant. In fact, a spectrophotometric measurement, even though being limited to one part of the replicate surface, gives an objective result unaffected by external factors as regards the investigated improved property on which the invention is based. A visual assessment on the entire replicate surface could instead be influenced by external factors and by the subjective panelist impression.

1.5.3 It is further noted that the experimental data in D42-D44, even though being carried out on the same base composition and with a very similar experimental protocol, show very different measured average CIE values, those of D44 being even about the half of those measured in D43. Moreover, the average value measured for comparative example D, concerning a composition containing Blocky CMC but without an amylase, in D44 is better than that measured for the composition of the invention, whilst in D43 (and in D42) it is worse.

As stated at the oral proceedings by the respondent, these differences in results depend apparently on the application step of the starch soil onto the fabric swatches to be tested. However, if this step influences to such an extend the final results, the submitted data appear unreliable and unfit to show consistently the alleged improvement under any condition.

1.5.4 Therefore, for all the above reasons, the experimental data submitted by the respondent cannot be considered to be conclusive.

1.6 The board also notes that even if, for the sake of argument in the respondent's favour, the experimental data were considered to establish that the inventive combination is better than any combination with a different amylase, such an improvement would have been expected by the skilled person already in view of the known superior properties of Stainzyme Plus illustrated in D18a and D19a (see above).

1.7 As regards the selected dilution pH range, it was not disputed that such a pH is one commonly shown by solid laundry detergents and has no influence on the desired technical effect. Therefore, it was also obvious for the skilled person to provide the composition of the closest prior art with a dilution pH within the claimed range.

1.8 The board thus concludes that it was obvious for the skilled person, faced with the technical problem posed, to add Stainzyme Plus to the compositions of the closest prior art and to adjust the dilution pH within the limits of claim 1 at issue, so that the subject-matter of claim 1 thus lacks an inventive step within the meaning of Article 56 EPC.

2. Since the sole request on file is not allowable on this ground, it is neither necessary to discuss the admissibility of the appellant's new novelty objection based on D9 nor that of D47 filed by the respondent in reply thereto.

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:

A. Pinna J.-M. Schwaller

Decision electronically authenticated