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Datasheet for the decision of 7 December 2021

Case Number: T 0191/19 - 3.3.06

Application Number: 09169740.9

Publication Number: 2302025

IPC: C11D3/22

Language of the proceedings: EN

Title of invention:
A laundry detergent composition comprising a highly water-soluble carboxmethyl cellulose particle

Patent Proprietor:
The Procter & Gamble Company

Opponents:
Reckitt Benckiser Vanish B.V.
Henkel AG & Co. KGaA

Headword:
Detergent with carboxmethyl cellulose particle/P & G

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

Keyword:
Novelty - (yes)
Inventive step - unexpected improvement shown

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 0191/19 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 7 December 2021

Appellant: (Opponent 2)	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 and Gamble Plaza Cincinnati, OH 45202 (US)
Representative:	Gill Jennings & Every LLP The Broadgate Tower 20 Primrose Street London EC2A 2ES (GB)
Party as of right: (Opponent 1)	Reckitt Benckiser Vanish B.V. Siriusdreef 14 2132 WT Hoofddorp (NL)
Representative:	Cawdell, Karen Teresa Reckitt Benckiser Corporate Services Limited Legal Department - Patents Group Dansom Lane Hull HU8 7DS (GB)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 29 November 2018 rejecting the opposition filed against European patent No. 2302025 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	J.-M. Schwaller
Members:	P. Ammendola
	R. Cramer

Summary of Facts and Submissions

I. This appeal lies from the decision of the opposition division to reject the oppositions filed against European patent No. 2 302 025, claim 1 thereof reading:

"*A solid laundry detergent composition comprising:*
(a) a detersive surfactant; and
(b) from 0.05 wt% to 20 wt% carboxymethyl cellulose particle,
wherein the carboxymethyl cellulose particle comprises:
(i) *from 70 wt% to 98 wt% carboxymethyl cellulose having an average degree of carboxymethyl substitution of from 0.6 to 0.9;*
(ii) *from 2 wt% to 12 wt% water;*
(iii) *optionally from 0 wt% to 4 wt% sodium glycolate; and*
(iv) *optionally from 0 wt% to 4 wt% sodium chloride.*"

Claims 2 and 15 define preferred embodiments of the solid laundry detergent composition of claim 1.

II. In its decision the opposition division found that the subject-matter of above claim 1 was anticipated neither by D5 (EP 1 867 708 A1) nor by D6 (WO 2007/087243 A2) and that the objection of lack of inventive step starting from D1 (US 2008/0287339 A1) as well as that starting from D2 (WO 2006/087664 A1) were not convincing, *inter alia*, because some experimental data rendered plausible the technical advantage of the patented composition vis-à-vis the prior art.

III. The following documents are also relevant for the present decision:

D4: EP 2 135 932 A1;
D7: "Finnfix® BDA", Noviant, Technical Data Sheet;
D8: "Finnfix® 700", CP Kelco, Technical Data Sheet;
D9: "Aqualon® Physical and Chemical Properties", Hercules;
D10: "Purity, degree of substitution (DS), and moisture content of carboxymethyl cellulose (CMC)", NIR Application Note NIR-31, and
D11: "CMC Book" CP Kelco.

IV. Both opponents (hereinafter **appellant 1** and **appellant 2**) appealed the decision. Appellant 2 further filed **D16** (Technischer Bericht) with its grounds of appeal.

V. The patent proprietor (hereinafter **respondent**) replied with letter of 20 August 2019 and filed three sets of amended claims labelled as **first to third auxiliary requests** and **D17** (Data Report).

VI. At the oral proceedings, held on 7 December 2021, appellant 1 withdrew its appeal. At the closure of the debate, the parties final requests were as follows:

Appellant 2 requested that the decision be set aside and the patent be revoked.

The respondent requested that the appeal be dismissed (main request), or alternatively that the decision under appeal be set aside and the patent be maintained in amended form on the basis of the claims of one of the first to third auxiliary requests filed with letter of 20 August 2019.

Reasons for the Decision

1. Admittance of D16 and D17

1.1 The board found that the filing of D16 was in reaction to the conclusions of the opposition division in reason 4.2.2.5 of the decision under appeal. This was finally undisputed so that the board saw no reason to disregard this document under the provisions of Article 12(4) RPBA 2007 (applicable pursuant to Article 25(2) RPBA 2020).

1.2 The board also saw no reason to disregard under the provisions of Article 12(4) RPBA 2007 the further data of D17 that had undisputedly been filed in reaction to the filing of D16.

Main request (patent as granted)

2. Novelty

The appellants argued that the subject-matter of claim 1 at issue would be anticipated by Examples 1 and 2 of D5 and Examples 1 to 10 of D6.

2.1 Novelty over D5

2.1.1 In the appellants view, the laundry detergent compositions of Examples 1 and 2 of D5 were novelty destroying, *inter alia*, because D7 would prove that the Finnfix® BDA particle present in these compositions possessed the three features of the CMC particle recited in "*(i)*" and "*(ii)*" of claim 1 at issue.

2.1.2 The board notes however that according to D7 CMC particulates sold under the trade name Finnfix® BDA

can, *inter alia*, have a degree of substitution (**DS**) between 0.5 and 0.7.

It is therefore immediately apparent that the information in D7 implies the possibility that the Finnfix® BDA particulates disclosed in D5 could as well display a DS as low as 0.5 (i.e. less than the minimum DS of 0.6 required in claim 1). Thus, D7 confirms that the commercial products disclosed by this trade name in D5 could as well not display this feature of the CMC particle recited in claim 1.

Moreover, the possibility that the CMC particle present in the examples of D5 might indeed have a DS below 0.6 is further supported by the disclosure in D4, according to which at least certain samples of Finnfix® BDA may have a DS of 0.53 (see Example 1 in page 12 of D4).

If only for these reasons, Examples 1 and 2 of D5 are found to provide no direct and unambiguous disclosure of the subject-matter of claim 1.

2.1.3 Appellant 1 additionally argued that the disclosure of Finnfix® BDA in D7 (which discloses, *inter alia*, that the CMC of this particle constitutes at least 72% thereof and, in addition to a DS ranging between 0.5 and 0.7, may have a maximum water content of 10%) should be considered incorporated into the disclosure of Examples 1 and 2 of D5. It concluded therefrom that it would be possible to combine the end points of the ranges disclosed in D7 for the CMC content, the DS and the water content. Accordingly, the CMC particle of Examples 1 and 2 of D5 would be disclosed to comprise at least 72 wt% of a CMC with a DS of 0.7 and water in an amount of 10 wt%.

2.1.4 The board finds this line of reasoning manifestly flawed. Even assuming, for the sake of argument, that the disclosure of D7 were recited in D5 (e.g. as hypothetical description of the ingredient Finnfix® BDA of Examples 1 and 2) and that this would result in the disclosure of a particle in which the CMC had in combination a DS of 0.7 and a water content of 10 wt%, still the sole "end value" disclosed in D7 for the CMC content in the Finnfix® BDA particle, namely a minimum of 72 wt%, is explicitly stated in D7 to be a value measured on a "dry basis". Hence, as correctly observed by the respondent and undisputed by the appellants, such "dry basis" minimum CMC content would inevitably correspond in the hypothetical Finnfix® BDA particle comprising 10 wt% water that appellant 1 considers implicitly disclosed in D7, to a CMC content therein well below the 70 wt% minimum required in claim 1.

2.1.5 Hence, the prior art disclosed in D5, even when considered in combination with D7, does not directly and unambiguously disclose the presence of a CMC particle having in combination the three features recited in "*(i)*" and "*(ii)*" of claim 1 at issue. Accordingly, the novelty objection based on this prior art is found unconvincing.

2.2 Novelty over D6

As Finnfix® BDA is also the CMC particle used in Examples 1 to 10 of D6, the similar novelty objection based on this prior art in combination with D7 is found unconvincing for the same reasons indicated above.

2.3 It follows that the subject-matter of claim 1 is not anticipated by the cited prior art. Thus, and since the other claims of the patent as granted define preferred

embodiments of the laundry detergent composition of claim 1, the board sees no reason to deviate from the finding in the appealed decision that the ground of opposition of Article 100(a) EPC in combination with Articles 52(1) and 54 EPC does not prejudice the maintenance of the patent as granted.

3. Inventive step

3.1 The technical problem addressed in the patent in suit

It is undisputed that the patent (paragraphs [0003] and [0004]) aims at improving the dissolution properties of solid laundry detergent compositions comprising CMC-containing particles.

3.2 The closest prior art

The appellants considered either the solid laundry detergent compositions comprising CMC disclosed in D1 or those disclosed in D2 as closest prior art. The board finds however that only the latter represents a suitable starting point for assessing inventive step of the subject-matter of claim 1, for the following reasons.

3.2.1 It is undisputed that both D1 (see e.g. paragraph [0002] and claim 1) and D2 (see e.g. page 1, lines 6 to 7 and claim 1) provide solid laundry detergent compositions comprising CMC-containing particles and having improved dissolution properties.

3.2.2 In particular D2 discloses a (fully formulated) solid laundry detergent composition in which:

- a first particulate comprises detergent surfactant and optionally less than 5 wt% of cellulosic polymer,
- a second particulate that can be mostly made of a cellulosic polymer, and
- the cellulosic polymer is preferably a CMC with a DS of 0.5 or more

(see in D2, claim 1 and the corresponding definition in page 3 of the description, in combination with the formula of the most preferred cellulosic polymer at the bottom of page 7 and the amount ranges of "at least 70wt%, at least 80wt%, or even at least 90wt%" of cellulosic polymer in the second particulate, disclosed in the first paragraph on page 10).

Thus the presence of particles (those of the second particulate) with at least 70wt% of CMC renders at least part of the prior art disclosed in D2 similar to the patented subject-matter, which relates to solid laundry detergent compositions comprising CMC-containing particles that consist mainly of CMC (as apparent from feature "*(ii)*" of claim 1 requiring that the CMC particle comprises "*at least 70 wt%*" CMC).

3.2.3 Instead, it is apparent to the board that the sole CMC-containing particles present in the granular laundry detergent composition disclosed in D1 (see e.g. claims 9 and 1 in combination and paragraphs [0042] to [0044]) are those of the "detergent additive extrudate", namely particles which may at most comprise 15% of CMC (see the amount range disclosed in claim 1, point "(b)", of D1, for the "water soluble carboxylate-containing polymer").

3.2.4 The allegation of appellant 1 that the extrudate of D1 would (still) comprise "particles" that consist mainly

of the "water soluble carboxylate-containing polymer" (such as e.g. Finnfix® BDA particles consisting mainly of CMC that are suggested in D1 as a "water soluble carboxylate-containing polymer" ingredient of the extrudate), is found unconvincing.

For the board, an "extrudate" is normally the result of a combination of mixing and extrusion steps that transform distinct starting materials - including one or more solids - not just into a simple physical mixture but rather into a new and different particulate. The description in D1 (see paragraphs [0033] to [0040], in particular the passages describing that the starting ingredients are mixed to form "a substantially homogeneous lump", then formed into strands of set dimensions by means of the extruder) explicitly confirms that this is the case also for the processing steps used for obtaining the "detergent additive extrudate". Hence, in the absence of any evidence of the contrary, the "detergent additive extrudate" present in the laundry detergent composition of D1 is expected to no longer comprise the distinct particles initially used in the process for producing the extrudate (and thus also no longer comprises particles of Finnfix® BDA as such, in any extrudate prepared therefrom).

Accordingly, the sole particles comprising CMC that are present in the laundry detergent compositions disclosed in D1 are those of the "extrudate", which contain CMC up to a maximum amount of 15%.

It is apparent to the board that such particles of D1 in which the CMC content is at most 15% may have substantially different dissolution properties in comparison to those present in the patented

composition, with at least 70 wt% CMC. Such substantial difference in terms of chemical composition plausibly renders the dissolution properties of this prior art composition substantially different from those of the solid laundry detergent of the opposed patent.

3.2.5 Hence, the prior art disclosed in D1 is found substantially more distant from the subject-matter of claim 1 than that disclosed in D2, and therefore the composition according to D2 is held to represent the closest state of the art for assessing inventive step of the subject-matter of claim 1 at issue.

3.3 The solution

It is undisputed that, according to the patent in suit (see paragraphs [0003] and [0004] in combination with the passage reading: "*... the inventors have found that pre-hydrating the carboxymethyl cellulose particles with a carefully controlled amount of water reduces the risk of unwanted surface gelling phenomena*"), the addressed technical problem is solved by the solid laundry detergent composition defined in claim 1 wherein the CMC-containing particle, *inter alia,* comprises from 2 to 12 wt% water.

3.4 The success of the solution

The disputed issue in this respect is whether it is plausible or not that the presence of an amount of water from 2 to 12 wt% water in the CMC-containing particle allows the patented composition to maximise the dissolution and thus, to solve the posed technical problem.

3.4.1 Appellant 2 submitted in this respect essentially two arguments:

- in spite of the fact that the patent in suit implicitly acknowledged in paragraph [0004] that the presence of uncontrolled amounts of electrolytes would hamper the achievement of the aimed dissolution properties, claim 1 did not impose any limitation as to the amount of electrolytes present in the detergent composition;

- the data of D16 proved that electrolytes interfere with the achievement of the maximisation of the dissolution properties allegedly due to the water content of the CMC-containing particle in the range defined in claim 1.

3.4.2 The respondent rebutted these objections by submitting in essence that:

- paragraph [0004] of the patent in suit did not implicitly acknowledge that the presence of electrolytes in the detergent composition would in general hamper the achievement of the aimed dissolution properties;

- the additional experimental data D17 proved that the amount of water present in the CMC-containing particles in accordance with the teaching of claim 1 corresponded to a maximum of solubility of fully formulated detergent compositions comprising such particles.

Instead, no sound conclusion as to the achievement of the aimed dissolution properties could be gathered from the solubility data provided in D16, which did not

relate to the dissolution of fully formulated detergent compositions containing such particles.

3.4.3 As to the debated point whether paragraph [0004] of the patent in suit does or not acknowledge that the presence of uncontrolled amounts of electrolytes in the claimed composition would hamper the achievement of the aimed dissolution properties, the board notes that the first sentence in this paragraph explicitly refers to the amount of water in the CMC-containing particle, and the second sentence discloses that the undesired surface gelling phenomena is impeded by "*removing or carefully controlling*" to very low levels "*electrolytes such as sodium chloride and sodium glycolate*". This thus refers to the gelling phenomena of the CMC-containing particles described in the preceding paragraph [0003]. Hence, also the teaching in the second sentence of paragraph [0004] is found to plausibly only relate to the chemical composition of the CMC-containing particles, and the features "*(iii)*" and "*(iv)*" of claim 1 appear to manifestly correspond to such teaching.

The board finally notes that there appears to be no other teaching in the whole patent disclosure that could imply that the instruction in paragraph [0004] to remove or control in particular the amount of sodium chloride and sodium glycolate also refers to these electrolytes when present in the remainder of the detergent composition.

Therefore, the board concludes that paragraph [0004] of the patent in suit does not implicitly acknowledge that the presence of sodium chloride and sodium glycolate in parts of the detergent composition that are different from the CMC-containing particle would also in general

hamper the achievement of the aimed dissolution properties.

3.4.4 As to the further debated point whether the experimental data in D16 rendered it plausible that the embodiments of the claimed laundry detergent composition that contained electrolytes would not display the aimed improvement of dissolution properties (even though comprising an amount of water in the CMC-containing particles as required in "*(ii)*" of claim 1), the board notes that these data relate to the dissolution of CMC-containing particles in an aqueous solution containing two specific electrolytes (namely the same sodium chloride and sodium glycolate whose amounts in the CMC-containing particle is limited in claim 1 under consideration). The board notes therefore that these data refer to the dissolution of CMC-containing particles in a medium that is manifestly different from any wash liquor resulting from the dissolution into water of the other components (different from the CMC-containing particles) of a fully formulated detergent composition in accordance with claim 1. Indeed, in the liquid medium used for the experiments of D16 there is no detersive surfactant. Moreover, as stated by the respondent and undisputed by appellant 2, the two specific electrolytes dissolved in the aqueous solution used in D16 are not conventionally found in wash liquors at the levels of concentration used in these experiments.

Therefore, the board concludes that D16 does not provide experimental evidence apt at supporting the allegation that the presence of electrolytes would hamper the achievement of the dissolution properties aimed at by the claimed solid detergent composition.

3.4.5 Accordingly, even when considering paragraph [0004] of the patent in suit and the data in D16, the objection that the subject-matter claim 1 would not plausibly solve the posed technical problem across the whole scope of the claim because the latter did not impose any limitation as to the amount of electrolytes present in the detergent composition, is found to amount to a mere allegation, lacking any supporting evidence.

3.4.6 The board notes further that the data provided with D17 have instead been produced using a dissolving solution that can be representative of a wash liquor in which the CMC-containing particles would dissolve when using the composition of claim 1. Indeed, the dissolving solution used in D17 not only contains a surfactant, but also other ingredients normally present in fully formulated detergent compositions. The board also notes that one of such other ingredients present in the solution of D17 is sodium carbonate. As correctly pointed out by the respondent, this conventional ingredient of fully formulated detergent compositions also is an electrolyte.

3.4.7 Therefore, and since the data in D17 show a superior dissolution in said solution of CMC-particles with 8 wt% water, in comparison to similar CMC-containing particles with 1 wt% or 14 wt% water, the board concludes that the experimental data in D17 represent convincing evidence that the solid detergent composition of claim 1 under consideration displays the improved dissolution properties mentioned in paragraph [0004] of the patent in suit.

3.4.8 Hence, and in the absence of any sound evidence of the contrary, the board concludes that the subject-matter

of claim 1 successfully solves the addressed technical problem across the whole scope of the claim.

3.5 Inventive step

None of the appellants' submissions states or implies that the prior art cited in support of their objections of lack of inventive step, namely D1 and D7 to D11, suggests the possibility to maximise the dissolution of solid detergent compositions which comprise CMC-containing particles mostly made of CMC, by controlling the amount of water present in these particles (let alone by setting such amount in the specific range of 2 wt% to 12 wt% required by feature "*(ii)*" of claim 1).

Hence, it is immediately apparent to the board that the other cited prior art documents cannot have rendered it obvious for the skilled person starting from the prior art of D2 (in which no specific water contents are disclosed for the CMC-containing particle) to solve the posed technical problem by setting the amount of water in the CMC-containing particle as required in feature "*(ii)*" of claim 1.

Thus, none of D1 and D7 to D11 renders it obvious to solve the posed technical problem by modifying the disclosure in D2 so as to arrive at the subject-matter of claim 1.

Accordingly, the board concludes that the subject-matter of claim 1 involves an inventive step over the cited prior art.

4. Thus, and since also the other claims of the patent as granted define preferred embodiments of the solid laundry detergent composition of claim 1, the board

sees no reason to deviate from the finding of the opposition division in the appealed decision that the ground of opposition of Article 100(a) EPC in combination with Article 56 EPC does not prejudice the maintenance of the patent as granted.

5. Hence, the appeal of the sole remaining appellant fails 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