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**Datasheet for the decision
of 19 April 2018**

Case Number: T 0834/15 - 3.3.06

Application Number: 08158707.3

Publication Number: 2135932

IPC: C11D3/22

Language of the proceedings: EN

Title of invention:

Laundry composition

Patent Proprietor:

The Procter & Gamble Company

Opponent:

Henkel AG & Co. KGaA

Headword:

Blocky CMC II / Procter & Gamble

Relevant legal provisions:

EPC Art. 100(a), 100(b), 52(1), 54, 56

Keyword:

Proper construction of "either ... or" (Reasons, 2.3 ff.)

Fresh ground for opposition raised by the Respondent (not considered) - no approval of the patentee

Sufficiency of the disclosure (yes)

Novelty - (yes) "extrinsic characteristic" (G 1/92) of an allegedly novelty-destroying commercial composition only accessible by subjecting said prior art composition to a kind of reverse engineering (by fractionation) based on hindsight (Reasons, 7)

Inventive step - (yes)

Decisions cited:

G 0010/91, G 0001/92

Catchword:



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Case Number: T 0834/15 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 19 April 2018

Appellant: The Procter & Gamble Company
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 13 February
2015 revoking European patent No. 2135932
pursuant to Article 101(3) (b) EPC.**

Composition of the Board:

Chairman B. Czech
Members: M. Maremonti
J. Hoppe

Summary of Facts and Submissions

I. The appeal by the Patent Proprietor lies from the decision of the Opposition Division to revoke European Patent No. 2 135 932.

II. The sole independent claim of the patent as granted reads as follows:

"1. A composition being a laundry treatment composition or component thereof, comprising:

- a substituted cellulose being carboxymethylcellulose and having a degree of substitution according to the method herein defined, DS, of from 0.01 to 0.99 and a degree of blockiness according to the method herein defined, DB, such that either DS+DB is of at least 1.00 or $DB+2DS-DS^2$ is of at least 1.20 and*
- from 2% to 90% by weight of a surfactant system."*

Dependent claims 2 to 9 are directed to more specific embodiments of the composition according to claim 1.

III. The Opponent had raised objections on the grounds of Articles 100(a) and (b) EPC.

The evidence cited during the opposition procedure includes

D1: WO 2007/087243 A2;

D2: WO 2004/041982 A1;

D3: EP 1 867 708 A1;

D4: V. Stigsson *et al.*, *The influence of the solvent system used during manufacturing of CMC; Cellulose*, 2006, 13, pages 705 to 712; and

D8: Technical Report filed by the Patent Proprietor on 23 December 2014.

The Opposition Division came *inter alia* to the conclusions

- that Article 100(b) EPC did not prejudice the maintenance of the patent as granted,
- that the subject-matter of claim 1 as granted was novel over each of documents D1, D2 and D3, but
- that the subject-matter of claim 1 as granted did not involve an inventive step in view of D3 taken as the closest prior art; and
- that the amended claims according to the then pending first auxiliary request were not objectionable under Article 123(2), (3) EPC, but the subject-matter of claim 1 did not involve an inventive step either, in view of D3 taken as the closest prior art.

IV. In its statement of grounds, the Appellant (Patent Proprietor) *inter alia* contested the reasoning given by the Opposition Division and defended the patent as granted, maintaining that the claimed subject-matter did involve an inventive step. It nevertheless filed amended sets of claims as auxiliary requests 1 to 3. In support of its arguments regarding the meaning to be given to claim 1, it also relied on the following new item of evidence:

D9: "Oxford Dictionary of English Grammar", Oxford University Press Inc, New York, 1994, entry "disjunctive".

- V. In its reply, the Respondent (Opponent) rebutted the arguments of the Appellant and maintained that the claimed invention was insufficiently disclosed, lacked novelty over each of documents D1 to D3 and did not involve an inventive step.
- VI. Under cover of a further letter dated 5 February 2016, the Respondent additionally raised objections under Article 123(2) EPC, *inter alia* against claim 1 as granted.
- VII. In a further letter, the Appellant commented on the arguments of the Respondent and maintained its pending requests.
- VIII. The parties were summoned to oral proceedings. In preparation therefor, the Board issued a communication expressing its preliminary opinion on salient issues, *inter alia* that the claimed subject-matter appeared to be sufficiently disclosed and novel.
- IX. In a further letter, the Respondent replied to the Board's comments and maintained all previously raised objections.
- X. Under cover of a letter dated 28 March 2018, the Appellant also replied to the Board's comments and filed, as document D10, a series of graphical plots 1 to 6.

It also expressly objected to the introduction of the new ground for opposition raised by the Opponent under Article 100(c)/123(2) EPC into the proceedings.

- XI. Oral proceedings before the Board were held on 19 April 2018.

XII. Final Requests

The **Appellant** (Patent Proprietor) requested that the decision under appeal be set aside and that the patent be maintained as granted (main request) or, if this is not possible, that the patent be maintained on the basis of the claims according to one of auxiliary requests 1 to 3 filed with the statement of grounds of appeal, to be considered in their numerical order.

The **Respondent** requested that the appeal be dismissed.

XIII. The Appellant's arguments of relevance for the present decision can be summarised as follows.

Objections under Article 100(b) EPC

- The "either ... or" wording in claim 1 at issue was ambiguous, as confirmed by e.g. D9. It was thus necessary to consult also the description when seeking to attribute a more precise meaning to said wording.
- Considering the examples of the patent in suit, the person skilled in the art would immediately understand that said wording in claim 1 had to be understood in the sense that the first (additive) inequality, the second (quadratic) inequality, or both, had to be met (this understanding is referred to herein below as **inclusive or**).
- The fact that in claim 9 of the patent the alternative "and/or" terminology was used to express an *inclusive or* had no bearing on this conclusion.
- Paragraphs [0031] to [0034] of the contested patent

referred to by the Respondent had to be read in context with claim 1. The person skilled in the art would thus not contemplate couples of (DS, DB) values (DS = degree of substitution; DB = degree of blockiness) that did not satisfy at least one of the two inequalities defined in claim 1.

- As confirmed by D4, the person skilled in the art of cellulosic polymer chemistry was able to independently tailor DS and DB values. Even carboxymethylcelluloses meeting only one of the two inequalities could thus readily be synthesised.
- The fractionation of the product Finnfix® BDA carried out by the Appellant showed that a desired carboxymethylcellulose ("CMC" in the following) could be obtained by using (other) techniques well-known in chemistry.

Objections under Article 100(a) EPC:

- None of D1 to D3 mentioned that Finnfix® BDA comprised a CMC as defined in claim 1 at issue.
- The fact that Finnfix® BDA could be fractionated to obtain an artificially distributed sample of CMC falling within the ambit of claim 1 did not mean that such information had been made available to the public.
- The claimed compositions were, thus, novel.
- Document D3 disclosed the closest prior art.
- The claimed compositions displayed an improved antiredeposition performance.
- The burden to prove that no technical effect was

plausibly attained across the full breadth of claim 1 lied with the Respondent, who had not, however, discharged it.

- Having obtained a fraction of CMC falling within the ambit of claim 1, the Respondent did not, however, make any attempt to show that with such a fraction no improvement in antiredeposition performances could be achieved.
- The claimed compositions thus involved an inventive step.

XIV. The Respondent essentially counter-argued as follows.

Objection under Article 100(b) EPC:

- The "*either ... or*" wording used in claim 1 had clearly to be understood in the sense that either the first (additive) or the second (quadratic) inequality mentioned in claim 1 at issue had to be fulfilled, but not both (this understanding is referred to herein below as **exclusive or**). No interpretation in the light of the description was thus necessary.
- If the Appellant had intended to express that the first inequality, the second inequality or both had to be met, it would have adopted the "*and/or*" wording, as confirmed by dependent claim 9 of the patent in suit, where such "*and/or*" wording was used to express an *inclusive or*.
- No clear information could be gathered from the description as regards the meaning of the "*either ... or*" wording. Paragraphs [0031] to [0034] also disclosed combinations of DS and DB values not fulfilling any of the two inequalities

of claim 1 at issue.

- Whereas claim 1 required that the CMC component of the composition had to meet only one of the mentioned inequalities but not both, the example of the patent only disclosed CMCs fulfilling either none or both of the two inequalities.
- Also document D4, cited in paragraph [0048] of the contested patent, only disclosed CMCs fulfilling both inequalities. The skilled person thus found insufficient guidance in the patent in suit as regards the preparation of a CMC meeting only one of these two inequalities.
- This lack of disclosure was also virulent in case the "*either ... or*" wording were regarded as an *inclusive or* since the invention had to be reproducible over the whole breadth.
- Paragraph [0048] of the contested patent disclosed that many parameters influenced the DB of a substituted cellulose. No guidance was, however, provided as regards the appropriate setting of these parameters.
- A CMC falling within the ambit of claim 1 at issue could only be obtained by the Respondent by a cumbersome and "accidental" fractionation of the commercial product Finnfix® BDA mentioned in the examples of the patent in suit (see paragraph [0104]).
- However, such a fractionation method was not disclosed in the patent in suit. The person skilled in the art could thus only proceed by trial and error in attempting to prepare a CMC meeting the

requirements of claim 1 at issue.

Objections under Article 100(a) EPC:

- The fractionation of the commercial CMC product Finnfix® BDA used in the examples of documents D1 to D3 (and in the patent in suit, see paragraph [0104]) led to the isolation and identification of a fraction F1 characterised by a pair of values (DS,DB) meeting only the first inequality mentioned in claim 1 at issue.
- Considering the "open" formulation of claim 1 using the term "*comprising*", the laundry compositions disclosed in several examples of D1 to D3 including Finnfix® BDA were novelty-destroying for the subject-matter of claim 1 at issue.
- The patent in suit contained no demonstration of a technical effect obtained when using a CMC fulfilling only one of the two inequalities of claim 1 at issue.
- Therefore, no technical problem could be formulated and no inventive step could be acknowledged.

Reasons for the Decision

Fresh ground for opposition under Article 100(c) EPC

1. The Respondent raised an objection under Articles 100(c)/123(2) EPC against claim 1 as granted.
 - 1.1 This objection was indisputably raised for the first time in the course of the appeal proceedings.
 - 1.2 The objection thus amounts to invoking a "fresh ground

for opposition" within the meaning of opinion G 10/91, (OJ 1993, 420). However, such fresh ground for opposition "may be considered in appeal proceedings only with the approval of the patentee" (G 10/91, Opinion, 3).

- 1.3 Since the Appellant expressly refused such approval the objection raised under Article 123(2) EPC against the patent as granted must be disregarded.

Main request - the meaning of "either ... or" in claim 1 as granted

2. The parties disagreed as regards the meaning to be given to the feature of claim 1 at issue expressed by the sentence "**either** $DS+DB$ is of at least 1.00 **or** $DB+2DS-DS^2$ is of at least 1.20" (emphasis added by the Board; complete wording of the claim under II, *supra*).

- 2.1 In particular, the Respondent submitted that the used "either ... or" wording was unambiguous and implied that either the first (additive) or the second (quadratic) inequality had to be fulfilled, but not both.

If the Appellant had intended (in drafting the patent application) to express that the first inequality, the second inequality, or both, had to be met, it would have adopted the "and/or" wording commonly used for that purpose in drafting patent applications. This view was corroborated by the fact that such wording is used for such purpose in claim 9 of the contested patent.

- 2.2 The Appellant argued on the basis of the dictionary excerpt D9 that the "either ... or" wording was *per se* ambiguous, since it could be used in the sense of an *exclusive* or as well as in the sense of an *inclusive*

or. Taking into account the description of the patent in suit, particularly the examples, it was immediately apparent that in claim 1 said wording expressed an *inclusive or*.

2.3 For the following reasons, the Board holds, however, that in the context of claim 1 at issue the "either ... or" wording expresses an *inclusive or*.

2.3.1 Document D9 clearly shows, by means of example sentences taken from everyday language that both "exclusive disjunctions" and "inclusive disjunctions" may be expressed by the "either ... or" wording.

Claim 1 is therefore ambiguous and needs to be construed in this respect, taking into account the entire patent in suit.

2.3.2 For the Board, the fact that in another claim of the contested patent (claim 9) another expression ("and/or") is used (in the sense of an *inclusive or*) to refer to possible alternatives not concerning the CMC component (but the amount and type of builder in the composition) is not, as such, a compelling reason for concluding that the "either ... or" wording used in claim 1 must have a different meaning, i.e. that it expresses an *exclusive or*. There is no absolute obligation to use a fully coherent terminology for expressing given features if the latter can be expressed in different ways.

2.3.3 Moreover, in the description of the patent in suit, particularly in the examples, highly blocky CMC ("HB CMC") is expressly qualified as a substituted cellulose "in accordance with the invention" (see paragraphs [0109] and [0114] to [0116]). The specific "HB CMC" referred to is characterized by a pair of (DS, DB)

values (DS: 0.76, DB: 0.50, see paragraph [0106]) which are such that both the additive and the quadratic inequality of claim 1 at issue are met.

For the Board, the person skilled in the art reading the patent would certainly not conclude that the "*either ... or*" wording of claim 1 expresses an *exclusive or*, since this would mean that the exemplified (hence particularly preferred) embodiments would be excluded from the ambit of claim 1.

- 2.3.4 Paragraphs [0031] to [0034] of the patent in suit, invoked by the Respondent, do not contradict this interpretation. These paragraphs merely define ranges of possible DS values permitting to satisfy the additive inequality of claim 1 (see e.g. paragraph [0032], first line).

It is acknowledged that, as pointed out by the Appellant, paragraph [0034] of the patent indicates that "*the substituted cellulose [...] may have a DS+DB of at least 0.85*", i.e. of less than 1.00 as prescribed by claim 1.

This possibility, presumably still mentioned due to a lack of adaption of the description before grant, is, however, clearly excluded from the scope of claim 1 at issue. Moreover, for the Board, the presence of the quoted statement in the description has no apparent bearing on the proper interpretation of the "*either ... or*" wording in claim 1 at issue.

- 2.3.5 Finally, the Board holds that the "*either ... or*" wording could only be considered as expressing an *exclusive or* in cases where the two situations referred to are, due to their very nature, mutually exclusive,

i.e. incompatible with each other.

An example would be "a tree bearing either apples or walnuts". It is evident (excluding biotechnological manipulations) that if the tree bears apples it does not bear walnuts, and *vice versa*. In the present case, however, the mathematical analysis of the two inequalities mentioned in claim 1 reveals that they are **not** mutually exclusive. This is not in dispute. As a matter of fact, the graphs in D10 show that in the DS range prescribed by claim 1 at issue (from 0.01 to 0.99), the vast majority of the possible (DS,DB) pairs of values fulfils either both (cf. D10, plot 5, white area) or none of the two inequalities (cf. D10, plot 5, grey area). Only a (very small) subset of (DS,DB) pairs exists, for which one inequality is met but not the other (cf. D10, plot 6, white areas).

- 2.3.6 The Board therefore concludes that the sentence "*either $DS+DB$ is of at least 1.00 or $DB+2DS-DS^2$ is of at least 1.20*" of claim 1 at issue has to be read in the sense that the (DS,DB) values have to be such as to satisfy **at least one** of the two mentioned inequalities (i.e. in the sense of an *inclusive or*).

Main request - Sufficiency of the disclosure

3. The insufficiency objection of the Respondent was essentially based on the argument that the patent in suit did not contain sufficient guidance to permit the preparation of a CMC satisfying only one of the inequalities mentioned in claim 1 as granted. This objection allegedly also applied to claim 1 as construed by the Board (2.3.6, *supra*) since the invention must be sufficiently disclosed across the whole breadth claimed.

4. The Appellant submitted that the person skilled in the art knew how to prepare CMCs having the desired DS and DB.
5. For the Board, the insufficiency objection raised is not convincing, considering the following:
 - 5.1 The Appellant submitted that the person skilled in the art was perfectly able to control the DS value by acting on the proportion of the reactants (stoichiometry) during the cellulose substitution reaction. This was not contested by the Respondent.
 - 5.2 In paragraph [0048] of the patent in suit it is, moreover, expressly indicated that the DB of the substituted cellulose may be tailored by acting on the reaction conditions in the synthesis of the substituted cellulose (e.g. the solvent used, the rate of addition of the reactants, the alkalinity of the reaction medium). With reference to D4 and two other documents it is stated that "*[t]he synthetic process can be optimised to control the DB...*".
 - 5.3 The Respondent argued that the number of parameters mentioned in paragraph [0048] was too high, thus rendering too complex the identification of process conditions suitable for preparing a CMC meeting only one of the two inequalities according to claim 1. Also the two documents cited in addition to D4 did not contain useful information.
 - 5.4 For the Board, these statements of the Respondent are, however, mere allegations that were not corroborated by any genuine attempt to reproduce such CMC by following the indications given in the contested patent, particularly in paragraph [0048]. And this despite the fact that the Opposition Division had already come to

the conclusion that the contested patent was sufficient (see Reasons, point 3, of the impugned decision) so that the Respondent had been aware of the need to provide further evidence. Neither did the Respondent point out in substantiated manner why the further prior art documents mentioned in paragraph [0048] of the patent were of no help.

5.5 The Board concludes that the Respondent did not discharge the burden of proof, resting with it, that compositions meeting only one of the two inequalities were insufficiently disclosed. In the absence of an objection based on verifiable facts, the Board thus does not see any reason for reversing the finding of the Opposition Division that the person skilled in the art, using the information provided in the contested patent, either expressly or by reference to the prior art, and taking into account common general knowledge, would be able to control the (DS,DB) values so as to obtain CMCs over the whole breadth of claim 1 at issue without an undue experimental burden.

5.6 The Board thus concludes that the ground of opposition under Article 100(b) EPC does not prejudice the maintenance of the patent as granted.

Claim 1 as granted - Novelty

6. The Respondent raised novelty objections against claim 1 as granted in view of each of D1 to D3, considering that each of these documents disclosed examples of laundry compositions including a "surfactant system" at concentrations falling within the range defined in claim 1 as granted and the commercially available CMC "Finnfix® BDA".

By fractionation of said Finnfix® BDA, the Respondent

obtained a fraction F1 which was characterised by a DS of 0.9 and a DB of 0.14, so that $DS + DB = 1.04$, i.e. meeting the additive first inequality of claim 1.

The Respondent went on to argue that since claim 1 was formulated in an open manner ("*comprising*"), all the compositions of D1 to D3 containing Finnfix® BDA also comprised said fraction F1 and were, thus, novelty-destroying for the subject-matter of claim 1.

7. The Board does not find these arguments convincing for the following reasons.
 - 7.1 Polymeric components (here: CMC) usually comprise individual molecules differing in terms of e.g. chain length and molar mass. A physical property measured and expressed as a single discrete value attributed to a polymeric component is thus often an average value determined over the totality of the individual polymeric molecules present.
 - 7.2 Therefore, the Board holds that when a polymer (CMC in Finnfix® BDA) is known to be a component of a prior art composition (cf. D1: page 40, line 2; D2: Table A, pages 25 to 26, penultimate entry; D3: page 17, line 15), intellectually splitting said polymeric component into fractions and attributing to one of these fractions (necessarily composed of individual molecules differing in terms of e.g. chain length and molar mass) a physical property (discrete numerical value) distinguishing this fraction from other such fractions, is an artificial approach based on hindsight.
 - 7.3 The DS and DB values (properties) of a CMC (polymer) may be obtained using the methods respectively described in paragraphs [0026] and [0041] of the contested patent. The same disclosure is also found in

D4 (cf. pages 707 to 708). These analyses produce single, discrete values of DS and DB, respectively.

- 7.3.1 It was common ground between the parties that discrete values that are obtained when analysing DS and DB of the overall CMC component of Finnfix® BDA do not fulfill any of the inequalities of claim 1 at issue (see the values for Finnfix ® BDA indicated in the patent in suit, paragraphs [0104] and [0106]).
- 7.3.2 What would be thus made available to the public by an analysis of the compositions described in the examples of D1 to D3 (cf. D1: examples on pages 35 to 40; D2: Table A on pages 25-26; D3: examples 1 to 12 on pages 13 to 17) are the DS and DB values of the overall CMC component of the Finnfix® BDA and not the DS and DB values of some fractions of this component obtained by arbitrarily splitting up the latter.
- 7.4 This conclusion is in accordance with G 1/92 (OJ 1993, 277, Conclusion) which stipulates that "*the chemical composition of a product is state of the art when the product as such is available to the public and can be analysed and reproduced by the skilled person*".
- 7.5 More particularly, according to G 1/92 (OJ 1990, 114, Reasons, 3), "*a commercially available product per se does not implicitly disclose anything beyond its composition or internal structure. **Extrinsic characteristics**, which are only revealed when the product is exposed to interaction **with specifically chosen outside conditions**, e.g., reactants or the like, in order to provide **a particular effect or result** or to discover **potential results or capabilities**, therefore point beyond the product per se as they are **dependent on deliberate choices being made**" (emphasis by the Board).*

7.6 In the present case, the Board regards the fractionation of Finnfix® BDA as carried out by the Respondent as a kind of reverse engineering based on hindsight and revealing a particular ("extrinsic" within the meaning of G 1/92) property of the Finnfix® BDA containing compositions: In the knowledge of the invention, "*deliberate choices*" were made "*with specifically chosen outside conditions*" in order to obtain "*a particular result*" in terms of DS and DB values.

Information revealed by following this procedure does, however, not correspond to what can be considered to having been made available to the public by an analysis of the chemical composition of Finnfix® BDA in the sense of G 1/92.

7.7 Hence, the Board concludes that none of D1 to D3 makes available to the public (Article 54(2) EPC) a composition according to claim 1 as granted.

7.8 Therefore, in the Board's judgement, the subject-matter of claim 1 and, consequently, the subject-matter of claims 2 to 9 dependent thereon, are not objectionable for lack of novelty (Articles 100(a), 52(1) and 54(1), (2) EPC).

Main request - Inventive step

8. The invention

8.1 The invention concerns a laundry treatment composition comprising substituted cellulose, i.e. a CMC, and a surfactant system (see paragraphs [0001], [0005] and claim 1).

8.2 In the description of the patent in suit the following is indicated:

"[0002] When articles such as clothes and other textiles are washed, cleaning performances may be affected by the redeposition of the soil onto the fabrics ... Already in the 1930's it was discovered that a substituted polysaccharide, carboxymethyl-cellulose (CMC), was particularly suitable as an antiredeposition agent ..."

"[0003] Although there are nowadays many types of commercial substituted celluloses, the substituted celluloses used in the laundry compositions have remained substantially the same for the past decades."

"[0004] The inventors have now surprisingly found that a specific class of substituted celluloses having a specific degree of substitution (DS) and degree of blockiness (DB) had unexpected better antiredeposition performance when compared with the substituted celluloses usually present in the commercial detergent composition."

9. Closest prior art

9.1 It was common ground between the parties that document D3 could be regarded as representing the closest prior art for the subject-matter of claim 1. Considering the similarities between the patent in suit and D3 in terms of issues addressed and detergent compositions disclosed, the Board has no reason to take another stance.

9.2 Indeed, D3 (paragraph [0001]) discloses cleaning compositions comprising cellulose derivatives. Such cellulose derivatives may preferably have DS from 0.3

to 0.9, CMC being particularly preferred (paragraph [0022]), and act as antiredeposition aids (paragraph [0024]). Examples 1 to 12 (paragraphs [0054] and [0055]; page 17, line 15) disclose laundry compositions comprising the surfactant "*alkylbenzenesulfonate*" in various concentrations falling within the range from 2% to 90% by weight as defined in claim 1 as granted and the commercially available CMC Finnfix® BDA in various concentrations.

9.3 Any of the compositions disclosed in examples 1 to 12 of D3 may thus be considered to represent a most appropriate starting point for the purpose of assessing inventive step.

10. Technical problem

According to the Appellant, the technical problem consisted in providing laundry compositions with an improved antiredeposition performance (see also the patent in suit, paragraph [0004]).

11. Solution

As a solution to this technical problem, the patent in suit proposes the "*laundry treatment composition or component thereof*" according to claim 1, comprising "*a substituted cellulose being carboxymethylcellulose and having a degree of substitution [...], DS, of from 0.01 to 0.99*",

which is characterised in particular in that said substituted cellulose has

"a degree of blockiness [...], DB, such that either $DS+DB$ is of at least 1.00 or $DB+2DS-DS^2$ is of at least 1.20".

12. Success of the solution

12.1 The Board notes that the examples of the patent in suit carried out with a composition including a CMC component ("*HB CMC*") fulfilling the requirements of claim 1 (satisfying both inequalities of claim 1, see Table in paragraph [0106]) show an improvement in the antiredeposition performance when compared to compositions comprising the CMC component (Finnfix® BDA) as used in the examples of D3 (see the results in the Table of paragraph [0112] and the comments thereon in paragraph [0113]). As mentioned under 7.3.3, *supra*, it was common ground that Finnfix® BDA has DS and DB values not meeting any of the inequalities of claim 1 at issue.

Also the technical report D8 submitted by the Appellant demonstrates improved results obtained with CMCs characterised by (DS,DB) values meeting both inequalities of claim 1 at issue.

The Board is thus satisfied that improved antiredeposition performances are obtained with compositions comprising CMC having (DS,DB) values meeting both inequalities of claim 1 at issue. This is not in dispute.

12.2 The Respondent, however, argued that since "*HB CMC*" as used in the contested patent as well as all CMCs tested according to D8 had (DS,DB) values satisfying both inequalities of claim 1, a technical effect was not shown over the whole breadth of claim 1, i.e. not for those CMCs that met only one of said two inequalities.

12.3 The Board, however, firstly observes that, as already mentioned under 2.3.5, *supra*, the subset of (DS,DB) pairs, for which one inequality is met but not the

other is very small (cf. D10, plot 6, white areas), whereas the vast majority of the possible (DS,DB) pairs of values fulfils either both (cf. D10, plot 5, white area) or none of the two inequalities (cf. D10, plot 5, grey area).

12.4 Moreover, the Board holds that in the present case the burden of proof lies with the Respondent, in particular considering that it is expressly indicated in paragraph [0004] of the patent in suit, that the substituted celluloses according to the invention "*have an unexpected better antiredeposition performance when compared with the substituted celluloses usually present in the commercial detergent composition*".

12.5 The Board further notes that although having been in possession of a CMC fraction F1 meeting only one of the inequalities mentioned in claim 1 at issue (see 5, *supra*), the Respondent did not even make an attempt to show that no improvement of the antiredeposition performance could be achieved when using such a fraction.

12.6 In the absence of any evidence based on verifiable facts, the Board has not, therefore, any reason to doubt that improved antiredeposition performances are obtained over the whole breadth of claim 1 at issue, i.e. for all the CMCs encompassed by the definition given in claim 1 as granted.

13. Non-obviousness of the solution

13.1 The subject-matter of claim 1 differs from the compositions as disclosed in the examples of D3 in that it comprises a CMC having DS and DB values such that at least one of the inequalities

- " $DS+DB$ is of at least 1.00" and
- " $DB+2DS-DS2$ is of at least 1.20"

is met.

- 13.2 What remains to be decided is thus whether or not, having regard to the state of the art and common general knowledge, it was obvious to the skilled person seeking to solve the posed technical problem (10, *supra*) to modify a composition according to one of the examples of D3 by replacing the CMC component contained therein such as to arrive at a composition comprising a CMC component meeting at least one of said two inequalities.
- 13.3 The Respondent based its inventive step attack solely on the argument that a technical effect in terms of improved antiredeposition performance was not shown over the whole breadth of claim 1, i.e. for those compositions comprising CMCs that only met one of the two inequalities.
- 13.4 However, for the reasons already mentioned under 12.3 to 12.6, *supra*, this argument fails to convince the Board.
- 13.5 The Board observes that none of the prior art documents referred to by the Respondent fairly suggests modifying the compositions according to D3 in a manner leading to a composition according to claim 1 at issue.
- 13.6 D1 and D2 disclose, like D3, laundry compositions comprising a surfactant in a concentration falling within the range as defined in claim 1 and the commercially available CMC Finnfix® BDA (cf. D1: examples on pages 35 to 40; D2: Table A on pages

25-26). D1 and D2, like D3, do not suggest the use of other CMCs having defined DS and/or DB values.

13.7 D4 discloses the influence of the solvent system used during the manufacturing of CMC. D4 does not address or mention the use of CMCs as component of laundry compositions.

13.8 The Board therefore concludes that the prior art and the relevant common general knowledge did not induce the person skilled in the art to solve the technical problem posed (10, *supra*) by modifying the compositions of D3 in a manner leading to a composition as claimed, which thus involves an inventive step.

14. Hence, in the Board's judgement, the subject-matter of claim 1 as granted and, consequently, the subject-matter of claims 2 to 9 dependent thereon, are not objectionable for lack of inventive step (Articles 100(a), 52(1) and 54(1), (2) EPC).

Order

For these reasons it is decided that:

The decision under appeal is set aside.

The patent is maintained as granted.

The Registrar:

The Chairman:



D. Magliano

B. Czech

Decision electronically authenticated