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Datasheet for the decision of 3 July 2023

Case Number: T 0482/21 - 3.3.06

Application Number: 09709696.0

Publication Number: 2242832

IPC: C11D17/00, C11D3/22

Language of the proceedings: EN

Title of invention:
Liquid detergent composition comprising an external structuring system comprising a bacterial cellulose network

Patent Proprietor:
The Procter & Gamble Company

Opponent:
Henkel AG & Co. KGaA

Headword:
Liquid detergent with bacterial cellulose network / PROCTER & GAMBLE

Relevant legal provisions:
EPC Art. 100(a), 56

Keyword:
Inventive step - (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
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Office européen des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 0482/21 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 3 July 2023

Appellant: (Opponent)	Henkel AG & Co. KGaA Henkelstrasse 67 40589 Düsseldorf (DE)
Representative:	Henkel AG & Co. KGaA Patente (CLI) 40191 Düsseldorf (DE)
Respondent: (Patent Proprietor)	The Procter & Gamble Company One Procter & Gamble Plaza Cincinnati, OH 45202 (US)
Representative:	P&G Patent Belgium UK N.V. Procter & Gamble Services Company S.A. Temselaan 100 1853 Strombeek-Bever (BE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 2 March 2021 rejecting the opposition filed against European patent No. 2242832 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	S. Arrojo
Members:	L. Li Voti
	C. Heath

Summary of Facts and Submissions

I. The opponent's appeal lies against the decision of the opposition division rejecting the opposition against European patent no. 2 242 832, which was granted with the following claim 1:

"*1. A liquid detergent composition comprising:*

a. a liquid matrix comprising:

i. from 0.005% to 1.0% by weight, preferably less than 0.125%, preferably less than 0.05%, even more preferably 0.006% to 0.2% of said liquid detergent composition of an external structuring system comprising a bacterial cellulose network;
ii. from 1% to 75% by weight, preferably either from 1% to 30% or preferably from 30% to 75%, of said liquid detergent composition of water;
iii. from 0.01% to 70% by weight, preferably from 1% to 50%, preferably from 3% to 20%, of said liquid detergent composition of a surfactant system comprising:

a. from 5% to 60% of an anionic surfactant by weight of said liquid detergent composition;
b. from 0.1% to 25% of an amine oxide by weight of said liquid detergent composition; and
c. further comprising a nonionic surfactant; a cationic surfactant; an ampholytic surfactant; a zwitterionic surfactant; or mixtures thereof; and

iv. from 0.01 % to 5% by weight of said liquid detergent composition of a plurality of suspension particles having a particle size from 100 nanometers to

8 mm, and an average particle density of from 700 kg/m^3 to 4,260 kg/m^3 at 25 °C, wherein the plurality of suspension particles to liquid matrix have density difference of from 10 kg/m^3 to 200 kg/m^3 at 25 °C;

wherein said liquid matrix has a yield stress of from 0.003 Pa to 5.0 Pa, preferably from 0.01 Pa to 1.0 Pa, preferably from 0.05 Pa to 0.2 Pa, at 25 °C, even more preferably from 0.005 Pa to 1 Pa; and wherein said surfactant system has a weight ratio of 2.5 : 1 to 18 : 1 of anionic surfactant to said amine oxide."

The granted set of claims includes dependent claims 2 to 11 relating to particular embodiments of the claimed liquid detergent composition and claims 12 and 13 relating to a process of making such liquid detergent compositions.

II. The appellant argued in its statement of grounds of appeal that the claimed subject-matter lacked an inventive step in view of the combination of documents D1 (WO 2008/033585 A1) and D3 (WO 00/36060 A2).

III. In its reply the respondent and patent proprietor maintained that the claimed subject-matter involved an inventive step and filed an amended set of claims as auxiliary request.

IV. Following the board's preliminary opinion of 24 January 2023, the respondent replied with a submission dated 31 January 2023.

V. At the oral proceedings held before the board on 3 July 2023, the parties maintained their original requests, which 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 (main request) or, in the alternative, that the patent be maintained in amended form on the basis of auxiliary request 1 submitted with the statement of grounds of appeal.

Reasons for the Decision

Inventive step (Articles 100(a) and 56 EPC) - Claim 1 as granted

1. The patent in suit (paragraphs [0008] and [0009]) proposes a liquid detergent composition comprising an external structuring agent providing both shear thinning and particle suspension capabilities, while avoiding problems encountered with conventional formulations because of the high level of external structurants used, such as cost and formulation concerns, high viscosity, non-pourability, opacity and cloudiness.

1.1 Both parties agree that D1 (paragraphs [0002] and [0003]) has a similar goal, since it concerns the provision of a structured liquid detergent composition capable of suspending beads while avoiding a significant increase in viscosity and a decrease in pourability. Therefore, the board agrees that D1 constitutes a suitable starting point for the evaluation of inventive step.

In particular, the closest prior art is represented by the liquid detergent composition disclosed in Table 1 or 2 of D1 (paragraphs [0036] and [0037]).

These compositions comprise 22.2-23.3% or 19.2-20.3%, respectively, of anionic surfactants; 1.9-2.8% or 2.2-3.2%, respectively, of amine oxide surfactants; about 72-76% of water; 0.12-0.13% of gellan gum (KELGOGEL™ AFT) as external structuring agent; and 0.5-0.6% of LIPOSPHERE™ LTI-0507 beads having a particle size of 750 µm.

Therefore, the subject-matter of claim 1 at issue differs from the closest prior art in that

(a) the external structuring agent comprises a bacterial cellulose network,
(b) the composition comprises a further nonionic, cationic, ampholytic or zwitterionic surfactant or mixtures thereof,

and in that the composition has the following properties:

(c) the average density of the plurality of suspended beads is from 700 to 4260 kg/m^3 at 25°C,
(d) the difference of the density (c) with respect to the density of the liquid matrix is from 10 to 200 kg/m^3 at 25°C and
(e) the yield stress of the liquid matrix is from 0.003 to 5.0 Pa at 25°C.

2. The board notes that D1 discloses a liquid composition having viscosity and suspension stability (D1: paragraphs [0022] and [0024]) similar to those of the patent in suit (paragraphs [0055] and [0091]). This

document can therefore be considered to provide a liquid detergent composition capable of suspending particles with a low level of external structuring agent and being pourable and shear-thinning. The compositions in D1 and the invention also appear to behave similarly as regards opacity or cloudiness. Moreover, the patent in suit does not necessarily provide an advantage in terms of costs related to the external structuring agent used, because the claimed composition may include further structuring agents in addition to bacterial cellulose (see patent: paragraph [0041]) whilst the closest prior art includes a single structuring agent.

Therefore, in the absence of any evidence of a technical advantage over the closest prior art, the technical problem underlying the claimed invention and convincingly solved has to be formulated in less ambitious terms as the provision of a further liquid detergent composition comprising an external structuring agent capable of providing both shear thinning and particle suspension capabilities, while avoiding higher costs as well as high viscosity, non-pourability, opacity and cloudiness.

3. As stated in the description of D1 (paragraph [0015]), the liquid detergent compositions according to this document may comprise additional surfactants as required in claim 1 at issue (feature b). The board thus considers that it would be obvious for the skilled person to add at least one of these additional surfactants to the compositions of the closest prior art.

4. The external structuring agents used in D1 (paragraph [0016]) include gums and synthetic polymers, gellan gum

as used in the examples of Tables 1 and 2 being a preferred one. A bacterial cellulose is not explicitly cited. Hence, the board concludes that D1 does not contain any pointer that could (let alone would) have prompted the skilled person to choose as an alternative structuring agent a bacterial cellulose (feature a).

4.1 However, the appellant argued that the skilled person would have replaced the external structuring agent used in the compositions of D1 with a bacterially derived cellulose in view of the teaching of D3.

4.1.1 D3 (page 1, lines 1-22) discloses the use of gums for forming a non-continuous network capable of suspending particles in liquid detergent compositions. In particular, D3 (page 9, lines 5-6) teaches that suitable gums include microbial polysaccharides and polysaccharide derivatives. As examples of microbial polysaccharides, it cites inter alia (page 9, lines 12-17 and page 12, line 20) gellan gum, which is the gum used in the closest prior art D1, but not bacterial cellulose, and as examples of polysaccharide derivatives it cites cellulose derivatives but not cellulose.

4.1.2 Therefore, the board concludes that D3 does also not contain an explicit pointer that could (let alone would) have prompted the skilled person to try a bacterial cellulose as structuring agent in the compositions of the closest prior art.

5. As further stated in the description of D1 (paragraph [0019]), the LIPOSPHERE beads used in the examples of Tables 1 and 2 are porous and allow the bulk liquid (liquid matrix) that they are placed in to diffuse into the beads or may contain materials encapsulated therein

that change their density, so that the density of the particles matches that of the bulk liquid.

5.1 The appellant argued that the density of such particles, being similar to that of the aqueous liquid in which they are suspended, could be within the limits of feature (c) at issue.

5.2 While the board agrees with the appellant in that the density of the beads in D1 might fall within the broad range defined in claim 1 at issue, the patent in suit does not require the particles to be porous or to contain materials encapsulated therein that change their density. Instead, the invention relies on a bacterial cellulose network as external structuring agent and on the maintenance of a defined density difference between the plurality of suspended particles and the liquid matrix (feature d). Even though the difference can be small, this feature goes directly against the teaching of D1, which explicitly teaches to maintain similar density between the suspended particles and the liquid matrix.

5.3 For the sake of completeness, the board also notes that D1 does not clearly teach to work within the yield stress range defined in claim 1 at issue. As explained by the parties during oral proceedings, this feature contributes to the particle suspension capability of the structured composition both in the patent in suit (paragraphs [0022] and [0044]) and in D1. However, while claim 1 defines a yield stress of 0.003 Pa to 5.0 Pa, D1 (paragraph [0024]) discloses that the pourable compositions in question have a yield value of **at least 5 Pa**, thus pointing to higher yield values than the compositions of claim 1 at issue, for which 5 Pa is the upper limit of the claimed range (feature e).

Therefore, the board concludes that D1 also leads away from contemplating a composition having the combination of features (d) and (e) of claim 1 at issue.

5.4 The board also notes that while D3 discloses compositions having suspended particles having a particle size and a density (feature c) similar to that of claim 1 at issue (see D3: paragraph bridging pages 36 and 37), it does not contain any teaching as regards a possible difference in density between suspended particles and liquid matrix or specific yield values.

6. The board therefore concludes that the skilled person, when confronted to the technical problem of providing a further liquid detergent composition, would not have found in D1 or in the combination of D1 with D3 any pointer that would have prompted him/her to contemplate using a bacterial cellulose as structuring agent and to modify the liquid detergent composition of the closest prior art so as to obtain a composition having all the features of claim 1 at issue. Consequently, granted claim 1, and for the same reasons, dependent claims 2 to 11 and the process claims 12 and 13, involve an inventive step.

The opposition ground under Article 100(a) EPC in combination with Article 56 EPC (the sole objection raised by the appellant) does therefore not prejudice the maintenance of the patent as granted.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

A. Pinna S. Arrojo

Decision electronically authenticated