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**Datasheet for the decision
of 11 May 2021**

Case Number: T 2061/20 - 3.3.03

Application Number: 15732731.3

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Language of the proceedings: EN

Title of invention:
DETERGENT

Applicant:
Reckitt Benckiser Finish B.V.

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - main request (yes)



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 2061/20 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 11 May 2021

Appellant: Reckitt Benckiser Finish B.V.
(Applicant) Siriusdreef 14
2132 WT Hoofddorp (NL)

Representative: Hewett, Erica Louise
Reckitt Benckiser
Corporate Services Limited
Legal Department - Patents Group
Dansom Lane
Hull, East Yorkshire HU8 7DS (GB)

Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 29 June 2020
refusing European patent application No.
15732731.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman D. Semino
Members: M. Barrère
C. Brandt

Summary of Facts and Submissions

- I. The present appeal lies from the decision of the examining division posted on 29 June 2020 refusing European patent application No. 15 732 731.3.
- II. The decision of the examining division was based on amended sets of claims forming a main request and first auxiliary request filed with letter dated 21 April 2020 and second and third auxiliary requests submitted during oral proceedings on 28 May 2020.
- III. The main request had 15 claims whereby independent claims 1 and 12 to 15 read as follows:

"1. A method of manufacturing an automatic dishwashing detergent product, said product being provided as a discrete dosage unit and comprising a continuous, non-aqueous gel phase, comprising manufacturing said gel phase by a method comprising free radical polymerisation of monomer(s) in a non-aqueous reaction mixture to form a polymeric builder without an intermediate step of drying the reaction mixture to form a solid comprising the polymeric builder; wherein the polymeric builder is in a dissolved state in the non-aqueous gel phase, wherein said reaction mixture comprises:

- 10 wt.% to 50 wt.% of at least one non-ionic surfactant,
- 10 wt.% to 60 wt.% of at least one non-water solvent; and
- one or more monomers comprising acrylic acid wherein no more than 0.1 wt. % of the total amount of the monomer(s) are crosslinking monomer(s).

12. An automatic dishwashing detergent product provided as a discrete dosage unit, obtainable by the method according to any of the preceding claims."

13. An automatic dishwashing detergent product provided as a discrete dosage unit, comprising a continuous, non-aqueous gel phase, said gel phase comprising 10 wt% to 50 wt.% non-ionic surfactant and at least 20 wt% polymeric builder; wherein:

the polymeric builder is in a dissolved state in the non-aqueous gel phase,
said non-ionic surfactant is one or more optionally end-capped alcohol alkoxyates; and
said polymeric builder is made by free radical polymerisation, in a non-aqueous liquid comprising said non-ionic surfactant and at least one non-water solvent, of acrylic acid and optionally one or more further α, β -ethylenically unsaturated acids without an intermediate step of drying the non-aqueous liquid to form a solid comprising the polymeric builder, wherein the reaction mixture for the free radical polymerisation comprises 10 wt.% to 60 wt.% of the at least one non-water solvent and
said polymeric builder is at least substantially non-crosslinked and has a weight average molecular weight of no more than 70,000.

14. An automatic dishwashing process using the product according to claim 12 or claim 13.

15. Use of the product according to claim 12 or claim 13 for automatic dishwashing."

Claims 2 to 11 were method claims dependent on claim 1.

The amendments in the claims of the auxiliary requests are not relevant to the present decision.

IV. The following documents were cited in the decision:

D1: EP 0324569 A2

D2: EP 0510580 A1

V. According to the decision, claim 1 of the main request did not meet the requirements of Article 56 EPC for the following reasons:

(a) The closest prior art was D1, in particular example D with reference to example 1.

(b) It could be understood from the reasoning that claim 1 differed therefrom in that:

(i) the dishwashing detergent product was in the form of a discrete dosage unit comprising a continuous, non-aqueous gel phase,

(ii) the reaction mixture comprised the non-ionic surfactant and solvent in the specified amounts.

(c) The problem to be solved was the provision of an automatic dishwashing detergent product provided as a discrete dosage unit and comprising a concentrated source of builder in the form of a continuous, transparent, non aqueous gel phase.

(d) The person skilled in the art facing the problem of introducing a non-aqueous viscous phase having building capacity into an automatic dishwasher product in the form of a discrete dosage unit would have considered the (implicitly) transparent

continuous reaction medium upon completion of the radical polymerization reaction of acrylic acid prior to the removal of its non-aqueous solvent, as taught in D1, as the solution to said problem without exercising any inventive activity. As to the amounts of surfactant and solvent in claim 1 they did not contribute to any unexpected effect and were of the same magnitude as in D1.

The same conclusions applied to the first to third auxiliary requests.

VI. With the statement setting out the grounds of appeal the applicant (appellant) filed six sets of claims as main request and first to fifth auxiliary requests, whereby the main request and the first to third auxiliary requests corresponded to the requests on which the decision was based. Grant of a patent on the basis of the set of claims according to the main request was requested. In any other case, oral proceedings were requested.

VII. The arguments of the appellant may be summarised as follows:

In agreement with the decision D1 was the closest prior art and example D the most promising springboard towards the invention.

The following distinguishing features between claim 1 and example D of D1 (with back reference to example 1) were identified:

- (i) the dishwashing detergent product was in the form of a discrete dosage unit comprising a continuous, non-aqueous gel phase,

- (ii) the method did not comprise an intermediate step of drying the reaction mixture to form a solid comprising the polymeric builder and
- (iii) the reaction mixture comprised 10-50 wt.% of at least one non-ionic surfactant.

It was further concurred with the examining division that the problem to be solved was the provision of an automatic dishwashing detergent product provided as a discrete dosage unit and comprising a concentrated source of builder in the form of a continuous, transparent, non aqueous gel phase.

However, contrary to the position in the contested decision, the person skilled in the art facing the above problem would have no incentive in the prior art to stop the polymerization of D1 (before the drying step) in order to obtain a gel. Furthermore, the solvent used in example 1 of D1 was toluene, which would not be suitable as a solvent in automatic dishwashing detergents. Finally, D1 did not disclose the use of a detergent as discrete dosage unit.

For the auxiliary requests essentially the same arguments applied, notwithstanding that these requests were directed to emphasising the difference over D1.

VIII. The Board issued a summons to oral proceedings on 28 January 2021.

IX. In a telephone conversion taking place on 13 April 2021 the applicant was informed about the preliminary opinion of the Board, according to which the claims of the main request fulfilled the requirements of Article 56 EPC. However, it was considered that independent

claim 13 did not meet the requirements of Article 123(2) and Rule 43(2) EPC. For that reason, oral proceedings were maintained.

- X. With letter of 29 April 2021 the appellant filed a new main request corresponding to the main request on which the decision was based wherein claim 13 was deleted and claims 14 and 15 were renumbered as claims 13 and 14 and referred exclusively to claim 12. The requests filed with the statement of the grounds of appeal were renumbered as first to sixth auxiliary requests. Grant of a patent on the basis of the main request was requested. In any other case, oral proceedings were requested.

- XI. Thereafter oral proceedings were cancelled and the decision was issued in writing.

Reasons for the Decision

- 1. Main request - inventive step

 - 1.1 Closest prior art

The present application pertains to detergents for an automatic dishwasher (page 1, first paragraph; claim 1). Said detergents are known from D1 (see example D), which was considered as the closest prior art by the examining division and the appellant. There is no reason to deviate from that view. In particular, example D, which is the only disclosure of a machine dishwashing detergent in D1, represents a promising starting point.

1.2 Distinguishing features

Example D of D1 discloses a machine dishwashing detergent comprising:

a commercial liquid detergent (Cascade - trademark of Procter and Gamble) and
2% of a polymer according to example 1 of D1 with a composition of about 30% acrylic acid and 70% of a cetyl/stearyl alcohol with 40 moles of ethylene oxide (page 22, lines 34-42).

The said polymer is prepared by a method comprising the free radical polymerisation of acrylic acid in the presence of toluene as a non-aqueous solvent and (C₁₆₋₁₈)alkoxy(ethyleneoxy)₁₉ ethanol as non-ionic surfactant (see D1, example 1). However example D does not provide any further information on the detergent and the general disclosure of D1 only mentions liquid detergent compositions (sentence bridging pages 10 and 11) among a wide variety of possible applications of the polymeric compositions disclosed therein.

In agreement with the examining division and the appellant, the Board considers that claim 1 of the main request differs from example D of D1 at least in that:

the dishwashing detergent product is in the form of
(i) a discrete dosage unit comprising a continuous, non-aqueous gel phase.

It is noted that other alleged differences have been mentioned by the examining division and the appellant. As the Board comes to the conclusion that an inventive step can be acknowledged already on the basis of the distinguishing feature (i) (see points 1.3 and 1.4, below), there is no need for the Board to investigate

whether further distinguishing features can be identified.

1.3 Problem to be solved

1.3.1 According to the examining division and the appellant the objective technical problem to be solved is the provision of an automatic dishwashing detergent product provided as a discrete dosage unit and comprising a concentrated source of builder in the form of a continuous, transparent, non aqueous gel phase.

1.3.2 However, the Board cannot agree with this definition of the objective technical problem.

According to the established case law, the technical problem addressed by an invention has to be formulated in such a way that it does not contain pointers to the solution or partially anticipate the solution (see Case Law of the Boards of Appeal, 9th edition 2019, I.D. 4.3.1).

In the present case the proposed definition of the technical problem comprises completely the identified distinguishing feature including in particular reference to the "discrete dosage unit" and to the "continuous non-aqueous gel" which feature is to be the solution to the posed problem. Consequently the Board considers that the objective technical problem must be reformulated so as to exclude this feature.

As no direct comparison is present and no specific effect has been claimed by the appellant, the objective technical problem is therefore to be reformulated as the provision of a further automatic dishwashing detergent product.

1.4 Obviousness

1.4.1 It remains to be decided whether or not it was obvious to solve the above-identified problem by modifying the teaching of D1 in such a way as to arrive at the subject-matter of claim 1.

1.4.2 According to the examining division, the person skilled in the art facing the problem of introducing a non-aqueous viscous phase having building capacity into an automatic dishwasher product in the form of a discrete dosage unit would have considered the (implicitly) transparent continuous reaction medium upon completion of the radical polymerization reaction of acrylic acid prior to the removal of its non-aqueous solvent.

1.4.3 The Board does not share this view for the following reasons.

Firstly, the above arguments are based on hindsight because the alleged problem to be solved contained the whole of the solution. Secondly, the Board is not convinced that D1 clearly and unambiguously discloses a gel as set out in claim 1. Indeed, even if an intermediate product of example 1 of D1 were to be seen as a gel under reaction conditions (i.e. at 140°C) there is no evidence in D1 that the said intermediate product would still be a gel at room temperature (which is the normal temperature of use of a detergent in a household), let alone a gel suitable for an automatic dishwasher. Finally, a central issue addressed in D1 is the reduction of the amount of volatile organic solvents (see D1, page 2, lines 50-51 or page 3, lines 32-33). This is why the organic solvent (toluene) used in example 1 of D1 is evaporated in order to provide a

solvent free composition. In view of the teaching of D1, the person skilled in the art would therefore refrain from using an intermediate product comprising a volatile organic solvent and therefore from using the intermediate product of example 1.

- 1.4.4 Therefore, while it is acknowledged that discrete dosage units comprising gel phases may be known in the art, no information can be derived from D1 that the polymer builder described therein, which is indicated to be recovered at 100% solids in example 1 and then used at 2% in the liquid detergent of example D, would be suitable for a formulation according to claim 1, nor any suggestion in this sense can be found therein. Likewise, D2 does not provides any suggestion, or any motivation, to replace the liquid detergent of D1 by a discrete dosage unit comprising a continuous, non-aqueous gel phase (a machine dishwasher detergent is not even mentioned in D2).
- 1.4.5 In view of these considerations, the subject-matter of claim 1 and hence also that of dependent claims 2 to 11, which include all the features of claim 1, involves an inventive step within the meaning of Article 56 EPC.
- 1.4.6 The same applies to independent product claim 12 which refers back to claim 1 and to independent process and use claims 13 and 14, referring back to claim 12, since the distinguishing feature and the problem to be solved remain identical to those identified for claim 1.
2. As the deficiency on which the refusal was based (lack of inventive step) does not hold and the Board does not see the need to address any other issue, the decision is to be set aside and a patent can be granted on the basis of the claims of the main request.

3. The main request of the appellant being allowable there is no need for the Board to consider any of the first to sixth auxiliary requests.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance with the order to grant a patent on the basis of the main request (claims 1-14) as filed with letter of 29 April 2021 and after any necessary consequential amendment of the description.

The Registrar:

The Chairman:



B. ter Heijden

D. Semino

Decision electronically authenticated