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Datasheet for the decision of 27 September 2023

Case Number: T 0634/21 - 3.3.09

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Language of the proceedings: EN

Title of invention:
METHOD FOR PREPARATION OF AN OIL-IN-WATER EMULSION

Patent Proprietor:
Unilever IP Holdings B.V.

Opponent:
Rupp, Christian

Headword:
Preparation of an oil in water emulsion/UNILEVER

Relevant legal provisions:
EPC Art. 100(b), 83

Keyword:
Grounds for opposition - insufficiency of disclosure (no)

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Case Number: T 0634/21 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 27 September 2023

Appellant: (Patent Proprietor)	Unilever IP Holdings B.V. Weena 455 3013 AL Rotterdam (NL)
Representative:	Fijnvandraat, Arnoldus Unilever Patent Group Bronland 14 6708 WH Wageningen (NL)
Respondent: (Opponent)	Rupp, Christian Karlstraße 7 80333 München (DE)
Representative:	Rupp, Christian Mitscherlich PartmbB Patent- und Rechtsanwälte Karlstraße 7 80333 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 22 March 2021 revoking European patent No. 3131421 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	F. Rinaldi
Members:	M. Ansorge
	F. Blumer

Summary of Facts and Submissions

I. The patent proprietor (appellant) lodged an appeal against the opposition division's decision revoking the patent.

II. With its notice of opposition, the opponent had requested that the patent be revoked on the grounds for opposition under Article 100(a) EPC (lack of novelty and lack of inventive step) and Article 100(b) EPC.

III. The opposition division decided that *inter alia* the subject-matter of claim 1 of the patent as granted did not meet the requirement of Article 83 EPC.

IV. Claim 1 of the patent as granted (main request) reads as follows:

"A method for preparation of an oil-in-water emulsion comprising the steps:

a) providing an aqueous dispersion of cellulosic fibres at a concentration ranging from 1 to 5% by weight, wherein the cellulosic fibres are water-insoluble citrus fibres,
wherein the concentration of oil is maximally 1% by weight, and
wherein the dispersion has been subjected to a heating process at a temperature of at least 30°C; and

b) optionally homogenising the dispersion from step a) in a high pressure homogeniser at a pressure of at least 250 bar;

c) mixing the dispersion from step a) or, in case step b) has been performed the dispersion from step b), with
20% to 80% by weight of water,
5% to 70% by weight of oil,
0.1% to 5% by weight of one or more food acids, and
0% to 10% by weight of dry matter from other edible ingredients,
to prepare a pre-emulsion having a pH ranging from 2 to 5; and

d) homogenising the mixture from step c) to produce the emulsion having oil droplets with a volume weighted geometric mean droplet size D3,3 of less than 10 micrometer, and in case the mixture from step a) has been combined with the other ingredients of the emulsion in step c), without performing step b), then homogenisation is performed in a high pressure homogeniser at a pressure of at least 350 bar, preferably at least 450 bar."

Claims 2 to 13 are dependent method claims and claim 14 is directed to a packaged composition obtained by the method according to any of claims 1 to 13.

V. Auxiliary requests 1 to 14 are not relevant to the present decision.

VI. The following documents were cited in the present case:

D2: G.J.W. Goudappel et al., "Measurement of Oil Droplet Size Distributions in Food Oil/Water Emulsions by Time Domain Pulsed Field Gradient NMR", Journal of Colloid and Interface Science 239, 2001, pages 535-542

D15: Experimental report submitted by the opponent

on 6 March 2020

D21: J. Scott Smith and Y.H. Hui, "Food Processing", Principles and Applications, Ames, USA: Blackwell Publishing, 2004, pages 329-341

VII. The parties' relevant arguments, submitted in writing and during the oral proceedings, are reflected in the reasons for the decision below.

VIII. Requests

The appellant (patent proprietor) requested that the decision under appeal be set aside and that the case be remitted to the opposition division for further prosecution on the basis of the claims of the patent as granted (main request) or the claims of one of auxiliary requests 1 to 14, filed with the statement setting out the grounds of appeal.

The respondent (opponent) requested that the appeal be dismissed.

Reasons for the Decision

MAIN REQUEST (patent as granted)

1. Sufficiency

1.1 Claim 1 of the patent as granted encompasses the following two alternative routes for preparing an oil-in-water emulsion:

- The first route (comprising steps a), c) and d)), wherein an aqueous dispersion of water-insoluble citrus fibres is provided and heated to at

least 30°C (step a)), followed by step c) wherein the dispersion is mixed with water, oil and food acid, optionally together with dry matter from other edible ingredients, to prepare a pre-emulsion having a pH of 2 to 5, followed by homogenisation of this mixture to produce the emulsion having oil droplets with a volume weighted geometric mean droplet size D3,3 of less than 10 µm, with a high pressure homogeniser at a pressure of at least 350 bar (step d)).

- The second route (comprising steps a), b), c) and d)), which starts with the provision of an aqueous dispersion of water-insoluble citrus fibres that is heated to at least 30°C (step a)). This dispersion is then homogenised in a high pressure homogeniser at a pressure of at least 250 bar (step b)), followed by mixing it with water, oil and food acids, optionally together with dry matter from other edible ingredients, to prepare a pre-emulsion (step c)). The mixture from step c) is then homogenised to produce the emulsion having oil droplets with a volume weighted geometric mean droplet size D3,3 of less than 10 µm (step d)).

1.2 The opposition division concluded that the second route of claim 1 could not be carried out by a skilled person over the entire scope claimed.

Firstly, it held that the opponent had provided evidence with the experimental report D15 (experiment 2) that the preparation of an emulsion based on example 2 of the patent, when following the second route of claim 1, did not lead to oil droplets with a volume weighted geometric mean droplet size D3,3 of less than 10 µm as required in claim 1, but that a

larger oil droplet size was obtained. In its view, these experiments raised serious doubts that the invention could be carried out over the whole range claimed in so far as the second route of claim 1 was concerned.

Secondly, the opposition division held that not knowing how to reliably determine the oil droplet size D3,3 mentioned in claim 1 led to a lack of sufficiency as well. In this context, the opposition division saw the absence of information concerning the home-written simulation program mentioned in D2 as leading to a sufficiency problem.

1.3 The respondent agreed with the opposition division's conclusion of insufficiency. It mainly argued that the required oil droplet size D3,3 of less than 10 µm could not be achieved for the second route of claim 1 when a Hobart mixer was used in the homogenising step d). In this context, the respondent referred to experiment 2 of D15 as experimental evidence. A Hobart mixer was a mixer falling within the general term "conventional mixer for preparing oil-in-water emulsions" mentioned in paragraph [0035] of the patent in connection with step d) of the second route of claim 1. D21 also supported that a Hobart mixer might be used in the production of mayonnaise in gourmet restaurants. In its view, the above evidence raised serious doubts that the invention could be carried out over the whole range claimed. In addition, when following the method of determining the oil droplet size D3,3 mentioned in paragraph [0037] of the patent, i.e. Goudappel et al. (D2), an issue with respect to sufficiency existed due to the ambiguity resulting from the home-written simulation program mentioned in D2 which was not further specified.

1.4 The board is not convinced by the respondent's line of argument. For the reasons set out below, the invention can be carried out by a skilled person.

1.4.1 The respondent mentioned that it had based its experiment 2 of D15 on example 2 of the patent, which also uses a Hobart mixer as a mixing device.

However, example 2 of the patent is an example in line with the uncontested first route and not the contested second route of claim 1. A Hobart mixer is only mentioned in the preparation of the pre-emulsion in examples 1 and 2 of the patent, which clearly exemplify the uncontested first route of claim 1. The use of a Hobart mixer in a step other than the preparation of the pre-emulsion is not suggested in the patent.

1.4.2 When looking for guidance as to what mixing device to use in step d) of the second route of claim 1, paragraph [0035] of the patent is to be considered. The relevant part thereof, which explicitly relates to the second route of claim 1, reads as follows:

"*In step d) the oil-in-water emulsion is prepared by homogenising the mixture from step c) to produce the emulsion having oil droplets with a volume weighted geometric mean droplet size D3,3 of less than 10 micrometer. With homogenising in this case is meant that a homogeneous emulsion is prepared, using mixing equipment. In case step b) has been performed, the homogenisation may be done using a conventional mixer for preparing oil-in-water emulsions, such as* ***a regular colloid mill****, or another mill as described in WO 02/069737 A2. In case the mixture from step a) has been combined with the other ingredients of the*

emulsion in step c), without performing step b), then homogenisation is performed in a high pressure homogeniser at a pressure of at least 350 bar, preferably at least 450 bar." (emphasis added)

1.4.3 Paragraph [0035] of the patent mentions that the homogenisation in the second route of claim 1 may be done by using "a conventional mixer for preparing oil-in-water emulsions", which formally includes a Hobart mixer. However, paragraph [0035] of the patent explicitly suggests a regular colloid mill as an example of such a conventional mixer. This is one of two mixers literally proposed in the patent for step d) of the second route of claim 1. In the board's view, this is clear, straightforward guidance to use a colloid mill in this homogenisation step.

1.4.4 The respondent did not contest that the required oil droplet size D3,3 can be obtained when using a regular colloid mill in step d) of the second route of claim 1. It argued, however, that not all conventional mixers for preparing oil-in-water emulsions are suited to lead to the required oil droplet size D3,3. For this reason, it was of the opinion that the claimed method could not be carried out over the whole range claimed.

1.4.5 However, claim 1 does not require that any conceivable mixer suitable for preparing oil-in-water emulsions in step d) of the second route of claim 1 necessarily leads to the required oil droplet size D3,3. What is crucial is whether a skilled person having knowledge of the information provided in the patent, in combination with their common general knowledge, is sufficiently guided to be able to produce an oil-in-water emulsion having the required oil droplet size D3,3 when following the second route. The board is convinced that

this is the case, for instance when a regular colloid mill is used in step d) of the second route of claim 1, and possibly also when a mill described in WO 02/069737 A2, also proposed in paragraph [0035] of the patent, is used.

1.4.6 Even though D21 mentions that a Hobart mixer may be used to produce mayonnaise in gourmet restaurants, at the same time it teaches that e.g. a colloid mill may be used for the commercial manufacture of mayonnaise (see page 335, right-hand column of D21). A Hobart mixer is not defined in claim 1 as the mixer in the homogenising step d) of the second route of claim 1. Even if a Hobart mixer were not to provide the required oil droplet size D3,3 (see D15), this does not lead to a sufficiency problem in the present case. An occasional failure does not automatically lead to a sufficiency problem as long as there is no undue burden to find an appropriate mixer or as long as it is not necessary to carry out a research programme to find an appropriate mixer suited to achieving the required oil droplet size D3,3. In the present case, there is neither a need for a research programme nor an undue burden in finding a suitable mixer for step d) of the second route of claim 1, since paragraph [0035] of the patent clearly teaches that e.g. a regular colloid mill is an appropriate mixer for this second route.

1.4.7 In view of the above, the evidence on file is not suited to raising serious doubts that the emulsion obtainable according to claim 1, having the required oil droplet size D3,3, can be prepared when following the second route of claim 1.

1.4.8 The board shares the appellant's view that the question of how to determine the oil droplet size D3,3 in the

present specific case (based on the information given in paragraph [0037] of the patent; see D2) cannot lead to a lack of sufficiency in the present case either.

As illustrated by the experimental report D15, the respondent had no problems in measuring the oil droplet size D3,3. Nevertheless, the respondent argued that when choosing the method for determining the oil droplet size D3,3 as proposed in paragraph [0037] of the patent (see D2) there is a lack of sufficiency, since a home-written simulation program which is not further specified is used in said method (see page 536, section "Experimental" of D2). However, this simulation has nothing to do with the possibility of measuring the droplet size. At most, when applying this method proposed in D2 for determining the oil droplet size D3,3 a lack of clarity might arise, but not a lack of sufficiency. In this context, it is further noted that claim 1 does not require that the method described in D2 is to be used for determining the oil droplet size D3,3. The opposition division's assessment that it "cannot see how a reliable measurement is possible if information on the program used in D2 ... is missing" is an assertion that the board cannot accept in view of what is stated above.

In view of the above, the invention can be carried out by a skilled person, so the ground for opposition under Article 100(b) EPC does not prejudice maintenance of the patent as granted.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the opposition division for further prosecution.

The Registrar: The Chairman:

H. Jenney F. Rinaldi

Decision electronically authenticated