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**Datasheet for the decision
of 9 April 2021**

Case Number: T 2164/17 - 3.3.09

Application Number: 10803169.1

Publication Number: 2512259

IPC: A23C19/05, A23C19/055

Language of the proceedings: EN

Title of invention:

CHEESE LOW IN SATURATED FATTY ACIDS AND METHOD OF MAKING SAME

Patent Proprietor:

FrieslandCampina Nederland B.V.

Opponent:

Arla Foods amba

Headword:

Cheese low in saturated fatty acids/FRIESLAND

Relevant legal provisions:

EPC Art. 83

Keyword:

Sufficiency of disclosure - enabling disclosure (no)



Beschwerdekammern

Boards of Appeal

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Case Number: T 2164/17 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 9 April 2021

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 13 July 2017
revoking European patent No. 2512259 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman A. Haderlein
Members: F. Rinaldi
E. Kossonakou

Summary of Facts and Submissions

- I. The present appeal was filed by the patent proprietor (appellant) against the decision of the opposition division to revoke European patent No. 2512259.
- II. In the notice of opposition, the opponent (respondent) had requested revocation of the patent in its entirety based on, *inter alia*, Article 100(b) EPC.
- III. In the decision under appeal, the opposition division found that neither the main request nor the first and second auxiliary requests (all filed by letter dated 7 March 2016) fulfilled the requirement set out in Article 83 EPC.
- IV. Wording of the relevant claims

Claim 2 of the main request reads:

"A method of making a hard or semi-hard cheese or cheese product by coagulating a liquid that comprises a first and a second oil-in-water emulsion, the first being milk or cream, the second being an emulsion of a fat having a content of unsaturated fatty acids higher than that of the milk or cream, and preferably a vegetable fat, wherein the second emulsion comprises a denatured, non-coagulated whey protein."

Claim 1 of the first auxiliary request is identical to claim 2 of the main request.

Claim 1 of the second auxiliary request is based on claim 2 of the main request but the feature "a fat

having a content of unsaturated fatty acids higher than that of the milk or cream, and preferably" has been deleted.

V. The board summoned the parties to oral proceedings and issued a preliminary opinion in which it set out that none of the appellant's requests appeared to be allowable.

VI. By letter dated 17 March 2021, the appellant declared:

"... we will not attend the oral proceedings scheduled for June 22, 2021, and we request the Board to take a decision on the basis of the submissions presently on file."

VII. The board cancelled the oral proceedings.

VIII. The following documents are relevant for the decision:

D19: C. Sanchez et al., "Thermal aggregation of whey protein isolate containing microparticulated or hydrolyzed whey proteins", Journal of Agricultural and Food Chemistry 45, 1997, 2384-2392

D20: US 5,217,741

D21: N.N. "Training papers spray drying", Büchi Labortechnik AG, 1997-2002

D22: EP 0 520 581 A1

D23: Technical report - Particle size determination of denatured, non-coagulated whey proteins

The respondent filed D21 to D23 on appeal.

IX. The parties' final requests:

The appellant requested that the decision under appeal be set aside and that the case be remitted to the opposition division for the further assessment of novelty and inventive step of the claims on file, i.e. the main request and the first and second auxiliary requests, all filed by letter dated 7 March 2016.

The respondent requested that the appeal be dismissed.

Reasons for the Decision

1. *The patent*

The patent relates to a method of making a cheese product using an emulsion which comprises non-milk fat (e.g. vegetable oil). The emulsion is stabilised with a denatured, non-coagulated whey protein.

2. *Main request - lack of sufficiency of disclosure*

- 2.1 The opposition division decided that the patent did not disclose how to produce denatured, non-coagulated whey protein. It explained, among other things, that according to paragraph [0025] of the patent, the particle size of the denatured whey protein was critical and in order to be non-coagulated, it should not exceed an overall particle size of 100 nm. However, the patent did not disclose how to keep the particle size below this level. The common general knowledge (D19) confirmed that heat denaturation of proteins came along with aggregation, i.e. coagulation.

2.2 The appellant contested only one issue in the decision under appeal: the opposition division's interpretation of D19. According to the opposition division, D19 showed substantial protein aggregation leading to particle sizes largely exceeding 100 nm, even at a low protein concentration (1%) and under relatively short and mild heating conditions (20 seconds at 85°C), and even after micronisation.

In its statement setting out the grounds of appeal, the appellant argued that the whey protein in D19 was subjected to a spray-drying step (inlet temperature of about 200°C, outlet temperature of about 88°C) after the heating step. These severe conditions were not comparable to those in the patent in suit (e.g. 1 hour at 80°C, 20 seconds at 95°C, 120 seconds at 85°C, paragraph [0027]).

2.3 However, the appellant's argument is not convincing.

2.3.1 In D19, the heat-treated whey protein is spray-dried at an inlet temperature of about 200°C and an outlet temperature of about 88°C. The skilled person would know that the temperature of the suspension which is being dried can only rise up to the outlet temperature of the drying air. This is evident from document D21. Therefore, the conditions in D19 cannot be regarded as more severe than those disclosed in the patent.

2.3.2 D22 also shows that spray drying of heat-denatured whey protein particles does not affect the size of the denatured particles.

2.3.3 Moreover, the respondent's experiments filed on appeal (D23) corroborate that, even following the instructions in the opposed patent, denatured, non-coagulated whey

protein is not reliably obtainable. The experiments were carried out using whey protein concentrate and whey protein isolate using the concentration, pH and temperature conditions within the ranges specified in the opposed patent (paragraphs [0025] to [0028]; example 1). Nevertheless, whey protein particles having a particle size of 100 nm or less were not obtained.

2.3.4 The appellant did not contest any of these points.

2.4 As regards the decision under appeal, the following is observed.

2.4.1 D19 discloses that "[h]eat aggregation in quiescent conditions of globular proteins such as whey proteins proceeds according to, roughly, three distinct stages: a denaturation stage where native proteins are partially unfolded and expose their reactive nonpolar side chains initially buried inside the macromolecules (and possibly sulfhydryl groups), an initiation stage where two partially unfolded macromolecules interact through noncovalent (e.g., van der Waals and hydrophobic interactions, hydrogen bonds) and covalent (e.g., intermolecular disulfide exchange reactions) interactions to form an aggregate, and finally a propagation stage where newly denatured protein-aggregate and aggregate-aggregate interactions produce polymeric structures ... Heat denaturation and aggregation of whey proteins produce a heterogeneous population of native soluble proteins and colloidal species that can be defined as soluble aggregated and insoluble aggregated proteins, which relative proportions mainly depend on the composition of WPC or WPI, pH, temperature, and time of heating ..."
(page 2384, paragraph bridging left and right columns).

2.4.2 Therefore, to prepare denatured, (yet) non-coagulated whey protein, the skilled person would have to know how to provide partially unfolded macromolecules in which non-covalent and covalent interactions (which cause an aggregation) have not yet occurred. For achieving this, precise instructions on how to control the preparation process would be necessary, but the patent does not include them. The appellant has not shown that such information is part of the patent's disclosure.

2.4.3 In the decision under appeal, D20 is discussed. The patent proprietor had cited this document during the opposition proceedings to show that the skilled person would know how to select conditions for providing denatured whey protein.

However, the issue is not providing denatured whey protein but rather, at the same time, avoiding its coagulation. There is no disclosure in D20 of how to proceed in order to keep the overall particle size of whey protein below 100 nm in the heat-denaturation process.

2.4.4 In summary, the opposition division correctly concluded that "a skilled person reading the opposed patent not only has to select the appropriate conditions to achieve denaturation of the whey protein, but simultaneously has to select the appropriate conditions to keep the overall particle size below 100 nm. At least for this latter aspect, which constitutes a key element and essential feature of the invention claimed ... the opposed patent does not appear to provide sufficient disclosure" (Reasons for the decision, 3.2.4, second paragraph).

2.5 Thus, neither the patent in suit nor the common general knowledge contains any teaching as to what may be done to turn failure into success. The patent in suit does not enable the skilled person to prepare, without undue burden, denatured, non-coagulated whey protein.

2.6 The invention as disclosed in claim 2 of the main request does not comply with the requirement set out in Article 83 EPC.

3. *Auxiliary requests 1 and 2 - lack of sufficiency of disclosure*

3.1 Claim 1 of these two requests is identical or at least based on claim 2 of the main request and includes the feature "denatured, non-coagulated whey protein" (see point IV above). Therefore, the same issue of lack of sufficiency of disclosure as for the main request arises.

3.2 Thus, the invention as disclosed in claim 1 of each of the first and second auxiliary requests does not comply with the requirement set out in Article 83 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



A. Nielsen-Hannerup

A. Haderlein

Decision electronically authenticated