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D E C I S I O N
of 23 May 1996

Case Number: T 0384/94 - 3.3.4

Application Number: 88202547.1

Publication Number: 0319064

IPC: A23L 1/24

Language of the proceedings: EN

Title of invention:

Process for the preparation of a water and oil emulsion

Patentee:

UNILEVER N.V., et al

Opponent:

Remia B.V.

Headword:

Process for the preparation of a water and oil emulsion/UNILEVER N.V.

Relevant legal provisions:

EPC Art. 114(2), 54, 56

Keyword:

"Late submitted material - document admitted (yes)"

"Novelty (yes)"

"Inventive step (no)"

Decisions cited:

-

Catchword:

-



Case Number: T 0384/94 - 3.3.4

D E C I S I O N
of the Technical Board of Appeal 3.3.4
of 23 May 1996

Appellant: Remia B.V.
(Opponent) Willem Arntzlaan 71-77
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Respondent: UNILEVER N.V.
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Representative: Eke, Philippa Dianne
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 15 February 1994
rejecting the opposition filed against European
patent No. 0 319 064 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: F. Antony
Members: D. D. Harkness
S. C. Perryman

Summary of Facts and Submissions

I. On 13 May 1992, European patent No. 0 319 064 relating to a process for the preparation of water and oil emulsions was granted on the basis of 19 claims contained in European patent application No. 88 202 547.1, filed on 15 November 1988.

II. On 15 February 1993 (a Monday), the Appellant (Opponent) filed an opposition against the granted patent raising objections under Article 100(a) EPC on the grounds that its subject matter was not novel and inventive as required by Articles 54 and 56 EPC, relying on the following documents:

D1: NL-A-7704350, corresponding to GB-A-1585105,

D2: NL-B-173703, corresponding to British patent application 50958/74, GB-A-1 525 929,

D3: W. Flückiger, "Zur Technologie der Mayonnaise und mayonnaiseähnlichen Emulsionen", Fette Seifen Anstrichmittel 68 (1966) 2, 139-145,

D4: R. Zeh, "Aufbau und Herstellung von Mayonnaise und emulgierten Saucen", Lebensmitteltechnik (1986) 3, 102-109,

D5: FRYMA, IS 125, "Aufbau und Herstellung von Mayonnaise und emulgierten Saucen", CH, 1980,

D6: C. E. Dutilh and W. Groger, "Improvement of product attributes of mayonnaise by enzymic hydrolysis of egg yolk with phospholipase A2", J. Sci. Food Agric. (1981) 32, 451-458.

III. In a decision posted on 15 February 1994, the patent was maintained unamended by the Opposition Division after oral proceedings which took place on 25 January 1994. Claim 1 reads as follows;

"A process for the preparation of a water and oil emulsion comprising a phospholipoprotein containing material, which has been modified by phospholipase A, and at least one native starch based thickening agent, which comprises:

- (a) at least partly gelatinizing the native starch based thickening agent,
- (b) incorporating the phospholipoprotein containing material, which has been modified by phospholipase A, into the gelatinized native starch based thickening agent,
- (c) incorporating from 5% to 85% by weight of oil or fat containing oil into the mixture obtained in step (b) and,
- (d) homogenizing the final mixture obtained."

Claims 2 to 19 are appendant to Claim 1 and relate to preferred features.

IV. The main reasons for maintaining the patent in unamended form were as follows:

Novelty

(D1) was not anticipatory because the specific process steps (a) to (d) were not disclosed. Additionally the use of native starch in combination with the modified phospholipoprotein (modified egg yolk) was not disclosed in (D1), starch was only referred to as one of a number of non-preferred thickeners, thus a selection had been made in respect of the thickener.

(D2) did not specifically disclose native starch as the term "starch based" may include different starches, i.e., modified starches. Also the process steps of the main claim were not disclosed in (D2) alone, nor in this citation in combination with NL-B-164735 to which (D2) referred as it was not stated that the features of the said reference were to be used in combination with those of (D2).

Inventive step

The Opposition Division were of the view that the problem of avoiding gel formation in emulsions of the type in question containing native starch was not referred to in (D1) or (D2). The first was concerned with "pappy" compositions and this was an effect which resulted immediately from the preparation of the emulsion, i.e., it did not develop only after storage. (D2) also did not concern itself with gel formation on storage, and problems with native starch were not indicated. (D3) to (D5) described more than one process of emulsion preparation, and as example 3.3.3 of (D5) gave stable emulsions and involved a process different from that of the patent in suit, this document did not lead towards the invention.

- V. On 12 April 1994, the Appellant filed an appeal against the decision of the Opposition Division and paid the appeal fee. On 23 June 1994, he filed a statement of grounds, relying on previous citations (D1), (D2) and (D5) and on the following additional citation:

D8: "Pasteurization of mayonnaise now possible",
English translation of an article published in
FOODmanagement, June 1986, page 5.

VI. The Appellant's arguments in writing and at oral proceedings held on 23 May 1996 may be summarised as follows:

Novelty

(D8) disclosed all the process steps as required by the patent in suit, but it was admitted that the only doubt which could be expressed was that concerning the addition of the emulsifier, i.e., the modified egg yolk. This constituent could only be in the aqueous phase as the skilled person would know in particular from (D5) that as egg yolk is only slightly hydrophilic it must be incorporated into the aqueous phase. Further to that (D5) indicated that methods in which this was not the case resulted in unstable products which might suffer from phase inversion and instability; accordingly the skilled person would know in which phase the emulsifier would be incorporated in the process of (D8).

Inventive step

(D5) was regarded as the prior art nearest to the subject matter of the patent in suit. This citation was considered to be common general knowledge for the skilled person, and various passages which were referred to show that all of the process steps of the patent in suit were known, in particular paragraphs 1.3.1, 1.3.2, 3, and 3.1, which also specified that egg yolk was weakly hydrophilic, that native starch was employed and that it was intended to avoid separation of water. It was obvious in order to reduce syneresis of the product emulsion of (D5) to replace the egg yolk by the modified egg yolk of (D8), in which there was a direct reference to the reduction in syneresis of native starches when modified egg yolk is employed as emulsifier.

The Appellant also regarded (D1) and (D2) as relevant because they also employed modified egg yolk as emulsifying agent in mayonnaise and inherently gave the same advantages as were specified for this constituent in (D8).

VII. The Respondent, in the written submissions of 23 November 1994 to which an auxiliary request limiting the claimed emulsion to "an oil-in-water emulsion" was added, accepted and acknowledged (D8) as nearest prior art. The Respondent agreed that this citation disclosed the use of native starch in combination with modified egg yolk in order to reduce syneresis, but disputed that the required sequence of process steps of the patent in suit was disclosed in (D8). This citation disclosed that the oil phase was emulsified with the aqueous phase not containing thickener using an emulsifier to prepare a pre-emulsion to which the gelatinised thickener was subsequently added. This process was in contrast to the process of the patent which requires first that the modified phospholipoprotein be mixed with the gelatinised native starch after which the oil is incorporated as last ingredient. (D8) did acknowledge the syneresis problem but did not provide the solution of the invention. The translation into English of the Dutch language original of (D8) was criticised, as the latter did not say that the emulsifier was "contained" in the aqueous phase, rather the modified egg yolk was used as emulsifier without indicating into which phase it was first incorporated.

With regard to (D5), the Respondent considered that this did not teach any relationship between, (a) the prevention of retrogradation effects in native starch containing emulsions and (b) the choice of a specific sequence of adding ingredients in emulsion manufacture. Although it did disclose the sequence of process steps

presently claimed it also referred to other processes not in accordance with that sequence. There was no suggestion in it that addition of oil as last ingredient in the preparation of native starch containing emulsions had any effect on retrogradation of the emulsions.

In respect of (D1) and (D2) the Respondent submitted that neither of these addressed the problem of retrogradation instability and they were therefore not relevant.

VIII. The Appellant requested that the decision of the Opposition decision be set aside and that the patent be revoked.

The Respondent requested as main request that the appeal be dismissed and that the patent be maintained as granted, and as auxiliary request that the decision under appeal be set aside and the patent be maintained on the basis of the auxiliary request submitted on 23 November 1994.

Reasons for the Decision

1. The appeal is admissible.
2. *Admissibility of citation filed during the appeal proceedings, (Article 114(2) EPC)*

(D8) is admissible for the following reasons: A complete explanation of the reasons why this document was filed late, inter alia that (D8) is a weekly magazine without a proper indexing system and which is not usually kept for long, which makes information difficult to find at a later date, was provided by the Appellant in the

statement of grounds. The Respondent has not objected that the magazine was unknown to him and has accepted that it represents the nearest prior art. In view of the explanation provided by the Appellant the Board is satisfied that there was no negligence on the Appellant's side and allows this citation into the proceedings.

3. *Admissibility of the auxiliary request under Article 123(2) and (3) EPC*

This request is based upon Claim 2 as originally filed and represents a limitation to oil-in-water emulsions. This request does not therefore contravene Article 123(2) or (3) EPC.

Main and auxiliary requests

The only difference between the main request and the auxiliary request is that Claim 1 of the former refers to "water and oil emulsions" whilst the latter is limited to "oil-in-water emulsions". In view of this small difference it is appropriate for the Board to consider both requests together especially as (D5) and (D8) refer to oil-in-water emulsions.

4. *Novelty, (Article 54(2) EPC)*

The only citation against novelty of the claimed processes is (D8) which in the Board's opinion is not sufficiently clear to determine without doubt into which phase the modified egg yolk was first incorporated. The Appellant admitted that there was a question to be answered in this respect, however the Board does not consider that a skilled person on reading (D5) with its

different methods necessarily would know what was done in the process of (D8). Accordingly the novelty objection fails.

5. *Inventive step, (Article 56 EPC)*

5.1 The closest prior art

In the opinion of the Board the closest prior art is represented by (D5) which discloses the process steps now claimed in paragraph 3.1 "Grundvorschrift", which is expressly stated to apply to batch as well as to continuous processes (page 7, left-hand column, last paragraph). The ingredients specified include egg yolk in paragraph 1.3.1 and native starch in paragraph 1.3.2. The problem of water separation is referred to in paragraph 3, also it is indicated in paragraph 1.3.1 that in order to prepare oil-in-water emulsions the egg yolk must be dispersed in the aqueous phase; if used in the oil phase then phase change may take place and results in instability of the emulsion.

5.2 The technical problem

Having regard to the said closest prior art the problem to be solved can be seen in the provision of a water and oil emulsion, more specifically an oil-in-water emulsion containing native starches and egg yolk, and which has improved resistance to water separation i.e., syneresis.

5.3 The solution to the problem

The sole difference between the claimed process and that of (D5) is that the invention employs modified egg yolk whilst the citation uses unmodified egg yolk. The Board is willing to give the Respondent the benefit of doubt

and to accept that this feature, in combination with the claimed process features known from (D5), does solve the above-identified problem.

5.4 Assessment of inventive step

The decisive question for the assessment of inventive step of both the main and the auxiliary requests is whether the skilled person would have replaced the unmodified egg yolk used in the preparation of the oil-in-water emulsions of (D5) by the modified egg yolk employed for the manufacture of such emulsions in (D8), in the expectation of thereby solving the existing problem.

(D8) provides a direct reference to the effect of using modified egg yolk in combination with native starch, which is that "the syneresis of native starches is reduced by modified egg yolk"; see last paragraph on page 3 (translation). In the opinion of the Board, a skilled person confronted with the above problem, and having become aware of (D8) through his regular perusal of periodicals in his area of technical expertise, would have obviously replaced the unmodified egg yolk of (D5) by modified egg yolk as recommended by (D8), in his attempt to improve resistance to syneresis, i.e. to solve the said problem. The Board cannot therefore recognise an inventive step for the process of Claim 1 of either the main or the auxiliary request. As any request must be decided as a whole, the dependent claims share the fate of Claim 1.

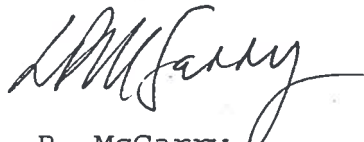
5.5 The other citations need not be considered in these circumstances.

Order

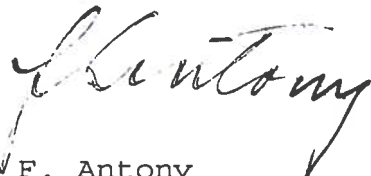
For these reasons it is decided that:

1. The decision of the Opposition Division is set aside.
2. The patent is revoked.

The Registrar:


L. P. McGarry

The Chairman:


F. Antony

