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**Datasheet for the decision
of 11 March 2008**

Case Number: T 1136/05 - 3.3.09

Application Number: 97114537.0

Publication Number: 0832566

IPC: A23C 19/09

Language of the proceedings: EN

Title of invention:

Cheese sauce

Patentee:

SOCIETE DES PRODUITS NESTLE S.A.

Opponent:

Unilever N.V.

Headword:

-

Relevant legal provisions:

EPC Art. 56

Keyword:

"Inventive step (no)"

Decisions cited:

-

Catchword:

-



Case Number: T 1136/05 - 3.3.09

D E C I S I O N
of the Technical Board of Appeal 3.3.09
of 11 March 2008

Appellant: Unilever N.V.
(Opponent) Weena 455
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Respondent: SOCIETE DES PRODUITS NESTLE S.A.
(Patent Proprietor) Case postale 353
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Representative: Thomas, Alain
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office orally
announced 11 May 2005 and posted 10 June 2005
concerning maintenance of European patent
No. 0832566 in amended form.

Composition of the Board:

Chairman: P. Kitzmantel
Members: W. Ehrenreich
W. Sekretaruk

Summary of Facts and Submissions

- I. Mention of the grant of European patent No. 0 832 566 in respect of European patent application No. 97 114 537.0, filed on 22 August 1997 in the name of *Société des Produits Nestlé S.A.*, was announced on 26 March 2003 (Bulletin 2003/13).
- II. The patent, entitled "*Cheese sauce*" was granted with eleven claims. Claims 1 and 6 to 8 were independent claims directed, respectively, to a cheese sauce (Claim 1) and a process for the preparation of a cheese sauce (Claims 6, 7 and 8). Claims 2 to 5 were dependent on Claim 1 and Claims 9 to 11 were dependent on Claims 6 to 8.
- Claims 1 and 7 read as follows:

"1. A cheese sauce comprising a water-in-oil emulsion containing, based on the weight of the sauce, from 1 to 25% by weight of cheese and from 3 to 10% by weight of a homogenised modified starch or a mixture of homogenised modified and unmodified starch containing up to 40% by weight of unmodified starch based on the weight of the mixture of the starches **characterised in that** the homogenisation is carried out at a temperature below the gelatinisation temperature of the starch."

"7. A process for the preparation of a cheese sauce which comprises blending a modified starch or a mixture of modified and unmodified starch containing from 5 to 40% by weight of unmodified starch based on the weight of the mixture of the starches, with cheese and other ingredients of a cheese sauce and homogenising the blend to produce an oil-in-water emulsion containing,

based on the weight of the sauce, from 1 to 25% by weight of cheese and from 3 to 10% by weight of the homogenised starches **characterised in that** the homogenisation is carried out at a temperature below the gelatinisation temperature of the starch."

The processes according to Claims 6 and 8 differed from the process of Claim 7 only in the order of mixing and homogenising the ingredients of the cheese sauce.

III. Notice of opposition requesting revocation of the patent in its entirety was filed by

Unilever N.V. on 19 December 2003.

Based on the opposition ground according to Article 100(a) EPC the Opponent submitted that the claimed subject-matter was not novel and lacked an inventive step, and supported its respective objections *inter alia* by the following documents:

D1 WO-A 96/25857

D9 "*Modified Starches: Properties and Uses*",
O.B. Wurzburg (editor), CRC Press, Inc., page 210

D11 US-A 5 320 860.

In respect of the opposition ground according to Article 100(b) EPC the Opponent alleged that the claimed invention, as far as it related to subject-matter of Claims 6 and 11, was insufficiently disclosed.

IV. With its interlocutory decision orally announced on 11 May 2005 and issued in writing on 10 June 2005 the Opposition Division maintained the patent in amended

form on the basis of Claims 1 to 9 according to the main request submitted during the oral proceedings. In Claim 1 of this request the term "*an oil-in-water emulsion*" replaced the term "*a water-in-oil emulsion*" according to Claim 1 as granted. Claims 10 and 11 as granted had been deleted.

In the Opposition Division's view the claimed invention was sufficiently disclosed (ie also with respect to the subject-matter of granted Claim 6) since the patent specification contained examples which could be applied to obtain the claimed subject-matter.

The Opposition Division also saw no violation of Article 123(2)/(3) EPC by the replacement of the term "water-in-oil emulsion" with "oil-in-water emulsion" because this amendment was considered as a correction allowable under the terms of Rule 88 EPC 1973.

The claimed subject-matter was considered to be novel over D1 in that there was no express disclosure there of a cheese sauce comprising at least 3% modified starch which has been homogenised below its gelatinization temperature.

As regards inventive step, the Opposition Division argued that the closest prior art, D1, dealt with a different problem, namely the provision of ready-to-use, high-temperature cooking au-gratin sauces and would not, whether alone or in combination with D9, motivate a skilled person to provide a shelf-stable low-cheese/high-starch sauce having a texture resembling that of high-cheese sauces.

- V. On 9 August 2005 the Opponent (hereinafter: the Appellant) lodged an appeal against the decision of the Opposition Division. The Statement of the Grounds of Appeal, in which the Appellant reiterated its objections as to insufficiency of disclosure, lack of novelty and inventive step, was filed on 10 October 2005. Further objections under Articles 84 and 123(2) were raised in a letter dated 11 February 2008. Test reports were filed with the Grounds of Appeal and with a letter dated 15 February 2008.
- VI. With the letter dated 25 April 2006 the Patent Proprietor (hereinafter: the Respondent) filed four new sets of claims as bases for a main request and auxiliary requests 1 to 3. In the oral proceedings held on 11 March 2008 all requests were replaced by one single set of Claims 1 to 4 according to a new main request. These claims correspond to process Claims 6 to 9 as granted.
- VII. With a communication sent by fax on 26 February 2008 the Board informed the parties that in its view document D11 was of particular relevance for the assessment of novelty and inventive step.
- VIII. After deletion of all the product claims from the main request in the oral proceedings, novelty of the remaining subject-matter, namely the four process claims left, was accepted by the Appellant and the discussion focussed on the issue of their obviousness with regard to D11 as the closest prior art. In this regard the Appellant argued as follows:

A process for the preparation of a low-cheese sauce by blending and homogenising the ingredients of the cheese sauce in the claimed amounts, including a mixture of modified and unmodified starch, was already described in D11. The claimed process differed therefrom only in that the homogenisation temperature was below the gel point of the starch, whereas, according to D11, the total mix of the ingredients was heated up to 170°F (77°C), ie allegedly above the gel point, and then homogenised. The suggestion that the temperature of 77°C used according to D11 during mixing and homogenisation sufficed to (fully) gelatinise the starch present was however doubtful because D11 itself was silent on whether or not gelatinisation occurred and in fact stressed the preferential use of slow-gelling starch mixtures and of heat resistant modified starch known to gelatinise at higher temperatures.

As the Respondent stated itself in its letter submitted in the examination proceedings on 5 June 2002, the homogenisation of the blend had to be carried out below the gelatinisation temperature of the starch in order to avoid undue loss of viscosity resulting in poor texture of the cheese sauce.

Therefore, the problem to be solved by the claimed process was the preparation of a cheese sauce not suffering from a loss of viscosity during homogenisation.

It was, however, known from D9 that homogenisation was the most destructive form of shear forces encountered in the production of food. In particular, it was stated there that fully hydrated starch, ie starch in its gelatinised form, would not survive homogenisation but

that food products with uncooked starch could be homogenised. The subsequent recommendation to homogenise the food prior to cooking the starch, ie at a stage where starch has not yet been gelatinised, was exactly the solution to the problem posed.

The claimed process was therefore obvious from a combination of D11 with D9.

IX. The Respondent's arguments were as follows:

The problem to be solved by the invention was the preparation of a low-cheese sauce containing increased amounts of starch but having a long and extensible texture like that of a high-cheese sauce. The solution to this problem was the homogenisation of the starch before gelatinisation occurred.

According to D11, column 5, the temperature of the total mix of ingredients, including starch, in a vessel was kept at 170°F (77°C). This temperature, which was above the gelatinisation temperature of the starch, was maintained during the subsequent homogenisation of the product.

In contrast thereto, D9 proposed the homogenisation of the starch below its gelatinisation temperature. No guidance was to be found in D11 how to apply this alternative proposal to cheese sauces since the information that heat treatment before homogenisation was harmful was missing from D11.

Therefore, no link existed between D11 and D9 and the skilled person would not combine these documents in order to solve the problem posed.

- X. The Appellant requested that the decision under appeal be set aside and that the patent be revoked.

- XI. The Respondent requested that the patent be maintained on the basis of the Claims 1 to 4 filed during the oral proceedings.
It further requested that the test report dated 15 February 2008 be not admitted into the proceedings as being late filed.

Reasons for the Decision

- 1. The appeal is admissible.

- 2. The new main request submitted by the Respondent in the oral proceedings is admitted into the proceedings since the amendments made therein with respect to the previous main request do not give rise to new circumstances but merely constitute the deletion of all product claims. Furthermore, the Appellant accepted its introduction.

- 3. The issues under the provisions of Articles 83, 84 and 123(2) EPC (points III and V) are irrelevant for the outcome of the appeal proceedings and will not be further discussed in this decision. Likewise, the test reports submitted by the Appellant have no influence on the final decision. Therefore, the late-filed test

report submitted with the letter of 15 February 2008 is not admitted into the proceedings.

4. *Inventive step*

4.1 The patent in suit

The patent deals with the preparation of a cheese sauce having reduced amounts of cheese and fat provided by the cheese and enhanced amounts of (modified) starch as thickener compensating for the cheese solids. The cheese sauce should have a smooth, long and extensible texture resembling that of high cheese content sauces (cf. paragraphs [0001] to [0006] of the patent specification).

According to the process of independent Claim 2 of the main request the desired cheese sauce is prepared by the following steps:

- (a) modified starch or a mixture of modified and unmodified starch in a weight ratio (in percent) of 95:5 to 60:40 are mixed with cheese and other ingredients of the cheese sauce;
- (b) the blend (a) is homogenised to produce an oil-in-water emulsion containing from 1 to 25% by weight of cheese and from 3 to 10% by weight of the above starches, based on the weight of the sauce.

The essential element of the process is that the homogenisation step (b) is carried out below the gelatinisation temperature of the starch. According to paragraph [0016] the homogenisation temperature is preferably in the range of from 45 to 50°C.

Examples 1 and 2 illustrate the process according to Claim 2.

4.2 The closest prior art

D11 is representative of the closest state of the art. The document describes the preparation of a low cheese sauce containing reduced amounts of cheese and enhanced amounts of starch comprising the following steps:

- (a) mixing starch, which is preferably a blend of modified and unmodified starch in a weight ratio of 6:1 to 3:1 (ie in percent: 85.7:14.3 to 75:25), with a heated aqueous composition comprising cheese;
- (b) during mixing a temperature of approximately 170°F (77°C) is maintained, and the resulting mix is then homogenised and thereafter pumped into a mix tank kept at approximately 170°F to 185°F (77° to 85°C) to obtain a cheese sauce containing from 5 to 25% by weight of cheese and from 3 to 20% by weight of starches; (D11, Claims 1, 6, 7, 11 in conjunction with column 4, line 14 to column 5, line 21).
- (c) Finally the cheese sauce is heat retorted at 250° to 280°F (96° to 140°C) to get a shelf stable product which retains its good flavour and texture for at least one year (column 5, line 54 to column 6, line 12).

4.3 The problem to be solved

The claimed process differs from that disclosed in D11 in that the homogenisation step (b) is carried out at a temperature which is sufficiently low to prevent gelatinisation of the starch. The temperature range of 45 to 50°C which is preferably applied during homogenisation (paragraph [0016] and examples 1 and 2) is below the range of 58 to 75°C at which (ordinary) starch gelatinises (letter of the Respondent dated 25 April 2006, page 22, lines 4 to 5).

However, the recommendation to take care with regard to the gelatinisation conditions of the starch is already disclosed in column 5 of D11:

In lines 1/2 it is indicated that "*the preferred starches make up a slow-gelling starch mixture*" and furthermore that "*suitable starches include ... modified (heat resistant) ... starches*" (lines 4 to 8). The preferred starch mixture contains a major portion of the modified (heat resistant) starch relative to the unmodified starch (ratio 6:1 to 3:1, lines 8 to 11).

The above information implies that it is intended in D11 to use starch mixtures having reduced gelatinisation tendency at elevated temperatures, which is achieved by using a starch mixture containing a major portion of heat resistant modified starch relative to the unmodified starch. This precisely corresponds to the measure applied in the claimed process wherein the minimum ratio of modified to unmodified starch is 60:40. The use of such slow-gelling starch mixtures in D11 means that in all probability at least full gelatinisation will not occur

prior to or during homogenisation. This conclusion is also supported by the resulting cheese based compositions whose utility for the preparation of cheese sauces, eg for dips, is illustrated by examples 1, 3 and 5 of D11.

In the light of the above the problem to be solved by the claimed process is therefore seen in further reducing the gelatinisation tendency of the starch before and during homogenisation.

4.4 Obviousness

The claimed solution to the above stated problem is, however, suggested by D9. This document deals with the use of starch as thickener in food production. In the third paragraph at page 210 it is explained that during homogenisation of fat-containing food products uncooked starch should be used in order to pass through the homogenisation step unharmed whereas fully hydrated starch, ie starch in its gelatinised form, will not survive homogenisation.

The skilled person learns from this that during homogenisation the temperature should be kept as low as feasible in order to prevent gelatinisation and the consequential destruction of the network of the gelatinised starch, ie of starch whose granules are swollen owing to hydration at higher temperatures.

The Board cannot follow the Respondent's argument (point IX) that there would have been no link between D11 and D9 due to the fact that information is missing from D11 that heat treatment before homogenisation was harmful.

In the Board's judgment a link between these documents exists insofar as both D11 and D9 refer to the relevance of the gelatinisation tendency/rapidity of starch for the preparation of starch and fat (cheese) containing food materials which are subjected to homogenisation. It is relevant in this context that the warning in D9 relates to fully hydrated/gelatinised starch and that D11 recommends the use of slow-gelling starch mixtures whose full gelatinisation is consequently retarded.

The skilled person would therefore realise that the explicit teaching of D9 to avoid cooking of the starch before/during homogenisation is directly relevant to the importance D11 attaches to the use of slow gelling starch mixtures, a teaching the skilled person would immediately recognise as relating to the well-known problem of cooked starch disclosed in D9. In the light of the above, a combination of the respective disclosures of D11 with D9 readily suggests itself and leads to the conclusion that the process of Claim 2 lacks an inventive step.

By analogy, the same conclusion applies to the processes according to independent Claims 1 and 3, which do not in substance differ from Claim 2 as regards the modified/unmodified starch ratio and the homogenisation temperature.

The only request is therefore not allowable.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar

The Chairman

G. Röhn

P. Kitzmantel