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**Datasheet for the decision
of 13 November 2015**

Case Number: T 1883/13 - 3.3.09

Application Number: 02078597.8

Publication Number: 1287744

IPC: A23C19/032, A23C19/14

Language of the proceedings: EN

Title of invention:

Method for preparing a half-hard or hard cheese, and cheese thus obtained

Patent Proprietor:

Friesland Brands B.V.

Opponent:

Fromagerie Bel

Former Opponent:

Campina Nederland Holding B.V.

Headword:

Relevant legal provisions:

EPC Art. 56

Keyword:

Inventive step - (no, all requests)

Decisions cited:

T 0839/09

Catchword:



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Case Number: T 1883/13 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 13 November 2015

Appellant: Friesland Brands B.V.
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 24 June 2013
revoking European patent No. 1287744 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman W. Sieber
Members: J. Jardón Álvarez
F. Blumer

Summary of Facts and Submissions

- I. This decision concerns the second appeal originating from European patent No. 1 287 744.
- II. By a first decision the opposition division had revoked the patent for lack of novelty of the proprietor's main request (claims 1 and 9 as granted) and auxiliary request I (claims 1 to 8 as granted).
- III. In the subsequent appeal proceedings, T 839/09 of 8 July 2011, the board held that:
- the invention as defined in the claims as granted was sufficiently disclosed,
 - the subject-matter of claim 9 as granted (relating to a foil-ripened cheese of the Gouda or Edam type in the form of a product-by-process claim) was not novel;
 - the subject-matter of claims 1 to 8 as granted (process claims) was novel.

Since the issue of inventive step had not been dealt with by the opposition division, the board remitted the case to the opposition division for further prosecution on the basis of claims 1 to 8 as granted.

- IV. In the subsequent opposition proceedings the proprietor pursued the case on the basis of claims 1 to 8 as granted (now main request) and auxiliary requests I to III.

Claim 1 of the main request (claim 1 as granted) read as follows:

"1. A method for preparing a foil-ripened cheese of the hard or half-hard type said cheese being of the Gouda or Edam type, wherein to cheese milk, in addition to a conventional amount of starter, an adjunct starter is added, which adjunct starter, compared with conventional starters, has a higher proteolytic and/or peptidolytic capacity, subsequently, in a conventional manner, a young cheese of the hard or half-hard type is formed, which young cheese, after brining, is packaged in foil and evacuated, and wherein the foil-packed cheese is subjected to a ripening at a temperature in the range of 10 to 16°C."

Claims 1 of auxiliary requests I to III were all based on claim 1 of the main request with the following features added, respectively, after the word "capacity":

"wherein the pH of the adjunct starter is, before its addition, set to neutral," (auxiliary request I);

"wherein the adjunct starter is added simultaneously with or after the conventional starter," (auxiliary request II); and

"wherein the pH of the adjunct starter is, before its addition, set to neutral, and wherein the adjunct starter is added simultaneously with or after the conventional starter," (auxiliary request III).

V. The documents cited during the opposition proceedings included:

D3: WO 97/38587 A1;

- D5: H.J. Bartels *et al.*, "Accelerated ripening of Gouda cheese. I. Effect of heat-shocked thermophilic lactobacilli and streptococci on proteolysis and flavor development", *Milchwissenschaft* 42(2), 1987, pages 83 to 88;
- D6: H.J. Bartels *et al.*, "Accelerated ripening of Gouda cheese. 2. Effect of freeze-shocked *Lactobacillus helveticus* on proteolysis and flavor development", *Milchwissenschaft* 42(3), 1987, pages 139 to 144;
- D11: P.F. Fox *et al.*, "Fundamentals of Cheese Science" Chapter 15 "Acceleration of Cheese Ripening", 2000 Aspen Publishers, Inc., pages 349 to 362; and
- D42: Experimental report dated 15 April 2013 from E. Wemmenhove, "Comparison of cheese Gouda patent EP1287744 to cheese Bartels *et al.* (1987)." (11 pages).

VI. By a second decision issued in writing on 24 June 2013 the opposition division revoked the patent again.

It held that the subject-matter of claim 1 of the main request and of auxiliary request 2 lacked inventive step, and that the subject-matter of claim 1 of auxiliary requests 1 and 3 lacked clarity.

Concerning the main request, the opposition division considered D5 as the closest prior-art document, and saw the technical problem to be solved by the patent in suit as "the need to modify the method of D5 such that the incorporation of the adjunct culture in the cheese milk can be carried out quicker and more easily, in particular without expending more energy and/or labour than necessary". The solution according to claim 1,

namely a different order of addition of adjunct starter and cheese milk, was considered to be self-evident for the skilled person and therefore to lack inventive step.

In defining the above problem the opposition division took the view that claim 1 of the main request was not distinguished from the disclosure of D5 by the use of an adjunct starter having higher proteolytic and/or peptidolytic capacity than a conventional starter.

VII. On 2 September 2013 the patent proprietor (in the following: the appellant) lodged an appeal. The statement setting out the grounds of appeal was filed on 4 November 2013, including the requests before the opposition division, namely the main request and auxiliary requests I to III (see point IV above). The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of the claims of the main request or any of auxiliary requests I to III.

VIII. With its reply dated 25 February 2014 the opponent (in the following: the respondent) disputed the arguments of the appellant and requested that the appeal be dismissed.

IX. The appellant with letters dated 9 July 2014 and 28 October 2014 filed further submissions including, respectively, experimental reports D42a and D42b:

D42a: E. Wemmenhove *et al.*, "Comparison of cheese Gouda patent EP1287744 to cheese Bartels *et al.* (1987) in relation to proteolytic and peptidolytic activity", experimental report dated 8 July 2014 (17 pages);

- D42b: E. Wemmenhove *et al.*, "Comparison of cheese Gouda patent EP1287744 to cheese Bartels *et al.* (1987) in relation to proteolytic and peptidolytic activity", experimental report dated 28 October 2014 (5 pages).
- X. With its letter dated 12 June 2015 the respondent referred to D43, but included a wrong copy of the document:
- D43: G. F. El-Nagar *et al.*, "Ripening acceleration and quality improvement of Gouda cheese using freeze or heat-shocked *Lactobacillus delbrueckii subsp. helveticus* DSMZ 20082", Proc. 11th Egyptian Conf. Dairy Sci. and Tech., 2010.
- XI. In a communication dated 15 June 2015 the board indicated the points to be discussed during the oral proceedings.
- XII. The appellant replied to the communication of the board with letter dated 22 September 2015 and included the following further documents:
- D44: "Cheese: Chemistry, Physics and Microbiology, Volume 2: Major Cheese Groups", Second Edition, Edited by P.F. Fox, 1993 Chapman & Hall, pages 39, 55 and 56; and
- D45: "Cheese: Chemistry, Physics and Microbiology, Volume 2: Major Cheese Groups", Third Edition, Edited by P.F. Fox *et al.*, 2004 Elsevier, page 126.
- XIII. The respondent replied with letters dated 24 July 2015 (including a correct copy of D43) and 23 October 2015.

- XIV. On 13 November 2015 oral proceedings were held before the board, where the appellant maintained its requests, namely the requests before the opposition division (see point IV above).
- XV. The arguments of the appellant, insofar as they are relevant for the present decision, may be summarised as follows:
- The subject-matter of the claims of all requests involved an inventive step starting from D3 and/or D5 as closest prior art. The subject-matter of claim 1 of all requests was distinguished from the disclosure of D5 by the use of an adjunct starter having a higher proteolytic and/or peptidolytic capacity than conventional starters. Nowhere did D5 disclose that the heat-shocked cells therein used fulfilled this requirement. Moreover, D11 stated that attenuated starters were obtained by heat shocking and the experimental evidence D42a and D42b showed that the method of heat shocking as used in D5 resulted in inactivation of the cultures; the proteolytic and/or peptidolytic capacities were considerably lowered by the heat shock of D5.
 - In view of the disclosure of D5 the problem to be solved by the patent was to prepare a foil-ripened cheese that in taste and consistency came closer to a conventional standard Gouda or Edam type cheese. The claimed solution involved an inventive step, D5 actually pointing away from the invention, because it heat-shocked potentially interesting strains for use as adjunct starter, rather than using these in unaffected form.

XVI. The arguments of the respondent may be summarised as follows:

- The claimed subject-matter was distinguished from the disclosure of D5 only by the order of addition of adjunct starter and cheese milk, and this feature had no technical effect, as admitted by the appellant during the oral proceedings before the opposition division;
- The evidence submitted by the appellant did not convincingly show that the heat-shocked *Lactobacillus helveticus* of D5 was not an adjunct starter having higher proteolytic and/or peptidolytic capacity than conventional starters, because the correct comparison had not been made. On the contrary, D43 showed that heat-shocked lactobacilli according to D5 had the proteolytic and peptidolytic capacity required by the claimed method;
- The subject-matter of claim 1 of all requests lacked inventive step because no technical effect was associated with the features recited in the claims. Additionally, claims 1 of auxiliary requests 1 and 3 contravened Article 84 EPC, because the exact meaning of the wording "neutral pH" was unclear.

XVII. The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of the claims of the main request or any of auxiliary requests I to III, all filed on 4 November 2013 with the statement setting out the grounds of appeal.

The respondent requested that the appeal be dismissed.

Reasons for the Decision

MAIN REQUEST (claims 1 to 8 as granted)

1. The only issue in the present second appeal with regard to the main request is inventive step.

2. *Inventive step*

2.1 The invention as defined in granted claim 1 relates to a method for preparing a half-hard or hard cheese of the Gouda or Edam type including a foil-ripening step. According to paragraph [0004] of the specification, a disadvantage associated with foil-ripening is the development of flavour lags (bitterness) and undesirable consistency. These drawbacks of prior-art methods are said to be obviated by using, in addition to a conventional starter, an adjunct starter having a higher proteolytic/peptidolytic capacity than the conventional starter. By using such adjunct starter the peptides causing said drawbacks are broken down and a cheese having the flavour properties and consistency of conventionally produced cheese is said to be obtained (see paragraphs [0006], [0013] and [0014] and working examples).

Claim 1 is directed to a method for preparing a foil-ripened cheese of the Gouda or Edam type having the following features:

- a) addition to cheese milk of
 - a1) a conventional amount of starter,

- a2) an adjunct starter having a higher proteolytic and/or peptidolytic capacity,
- b) forming, in a conventional manner, a young cheese of the hard or half-hard type, which young cheese
- c) after brining,
- d) is packaged in foil and evacuated, and wherein
- e) the foil-packed cheese is ripened at a temperature in the range of 10 to 16°C.

2.2 Closest prior art

2.2.1 The appellant relied on D3 as closest prior-art document, while the opponent and the opposition division relied on D5.

2.2.2 According to EPO practice, the closest prior art is a document disclosing subject-matter conceived for the same purpose as the claimed invention and having the most relevant technical features in common. In the present case both D3 and D5 disclose closely related cheese-making processes including foil-ripening and thus both could equally qualify as closest prior-art document.

The appellant argued that D3 should be seen as the closest prior art, because the document is mentioned in paragraph [0003] of the patent specification and described a process that came closer to the process described in the patent. However, as set out below, the process disclosed in D5 is also very close to the claimed process. Since, furthermore, the closest prior-art document is determined in an objective way, the mention of D3 in the patent cannot favour D3 over D5.

Thus, like the opposition division, the board considers D5 to represent the closest prior art.

- 2.2.3 D5 is a study on the effect of heat-shocked thermophilic *Lactobacillus* and *Streptococcus* species on proteolysis and flavour development of Gouda cheese (see title). In particular, D5 discloses a method for preparing a Gouda cheese, wherein mainly different thermophilic lactic acid bacteria were heat-shocked by adding them to whole milk at 70°C, followed by addition of milk at 9°C which rapidly cooled the heated milk to about 37°C (see page 83, right column, first paragraph). After heat shock, a lactic starter culture was added to the milk, and Gouda cheese was manufactured in a conventional manner: the milk was ripened, rennet extract added, the curd cut, the curd-whey slurry stirred, the whey drained, and the curd pressed overnight and brined for two days. Lastly, the cheese was vacuum-packed in polyethylene bags and stored at 13°C for 6 months (see page 83, section "2.2 Cheese manufacturing"). The study reached the conclusion that appropriately selected lactobacilli can improve flavour intensity and reduce bitterness of Gouda cheese (see pages 86 and 87 under section "4. Discussion"; in particular page 87, right column, first sentence).
- 2.2.4 It was agreed between the parties that D5 discloses a method of preparing a foil-ripened Gouda cheese presenting features a1), b), c), d) and e) of claim 1.
- 2.2.5 By contrast, it was a matter of dispute between the parties whether the heat-shocked thermophilic species used in the method of D5 corresponded to feature a2) of claim 1, that is to say to the use of "an adjunct starter having higher proteolytic and/or peptidolytic capacity".

It should be noted at this juncture that in D5 milk is added to the heat-shocked species/adjunct starter, whereas according to claim 1 as granted the adjunct starter has to be added to milk. But even the appellant did not rely on any technical effect due to this different order of adding the adjunct starter.

Thus, the key issue of this decision is whether the heat-shocked thermophilic species qualify as adjunct starters within the meaning of claim 1.

2.3 Problem to be solved and its solution

2.3.1 According to the appellant the cheeses of D5 have taste defects and undesirable consistency. In this context, the appellant provided experimental report D42, which allegedly compared cheeses produced according to the method of the patent with cheeses produced according to D5 (see section "2. Materials and Methods"). According to D42, cheeses produced according to the patent were significantly different from cheeses of D5 in salt content and pH and in several sensorial attributes (see page 1 and pages 8 to 10).

2.3.2 Taking account of this experimental evidence, the appellant saw the technical problem to be solved over D5 in the provision of a method for the preparation of a foil-ripened cheese that in taste and consistency came closer to a conventional standard Gouda or Edam type cheese.

2.3.3 This problem was solved by the method of claim 1, and in particular by the use of "an adjunct starter which has, compared with a conventional starter, a higher proteolytic and/or peptidolytic capacity" (claim 1, feature a2)).

2.3.4 According to the appellant, the heat-shocked thermophilic species used in the method of D5 were not adjunct starters within the meaning of claim 1 as granted. Basically, the appellant argued that the proteolytic and/or peptidolytic capacities of thermophilic species were considerably impaired by the heat-shock treatment of D5, so that the heat-shocked species in D5 were not adjunct starters. This was, however, vehemently contested by the respondent which maintained that the heat-shocked lactobacilli used in D5 were in fact adjunct starters having higher proteolytic and/or peptidolytic capacity than the conventional starter and therefore fulfilling the requirements of feature a2) of claim 1. Thus, the decisive question is whether the heat-shocked thermophilic species used in D5 are indeed adjunct starters within the meaning of claim 1 as granted.

2.3.5 Although there is no direct comparison between the heat-shocked thermophilic species and the conventional starter used in D5, with the corroborating evidence on file the board has no doubt and concurs with the respondent that the heat-shocked thermophilic species used in D5 do indeed correspond to adjunct starters as required by claim 1 for the following reasons:

(a) Paragraph [0016] of the patent in suit refers in the context of adjunct starters to known ripening acceleration starters. Furthermore, it is stated in paragraph [0017] that "Preferably, the adjunct starter comprises thermophilic and/or mesophilic lactic acid bacteria, while, preferably, thermophilic rod-shaped bacteria are used". *Lactobacillus helveticus*, which is used as the starting material in D5, is explicitly mentioned.

(b) The post-published article D43 filed by the respondent is a study on ripening acceleration and quality improvement of Gouda cheese using a specific *Lactobacillus helveticus*. Table 2 on page 9 compares the soluble nitrogen/total nitrogen ratio (hence overall proteolytic activity) and the soluble tyrosine and tryptophan (i.e. free amino acid, hence peptidolytic activity) for cheeses produced under different conditions, namely:

- A: Control cheese with commercial starter;
- B: Cheese treated with commercial starter plus *Lb. helveticus*;
- C: Cheese treated with commercial starter plus freeze-shocked *Lb. helveticus*; and
- D: Cheese treated with commercial starter plus heat-shocked *Lb. helveticus* [heat-shocked according to D5, see page 3 of D43 under "preparation of heat-shocked culture"].

The results in table 2 demonstrate that the addition of untreated *Lb. helveticus* (cheese B) increases the proteolytic and peptidolytic capacities compared with cheese A, prepared with commercial starter only. In other words, the *Lb. helveticus* is an adjunct starter as suggested by paragraph [0017] of the patent.

Furthermore, D43 demonstrates that the heat-shock treatment does not impair the proteolytic and peptidolytic activities of the *Lb. helveticus*. Quite the contrary, the addition of heat-shocked *Lb. helveticus* (cheese D) increased the proteolytic and peptidolytic capacities even more.

In summary, it is apparent from D43 that the untreated *Lb. helveticus* has higher proteolytic and/or peptidolytic capacity than the commercial starter, and that heat-shocked *Lb. helveticus* has a higher proteolytic and peptidolytic capacity than when it is untreated. This may be attributed to the freeze- or heat-shocked cells of *Lb. helveticus* which were lysed and released their intracellular proteolytic and lipolytic enzymes in the cheese to a greater extent, and also increased the rate of autolysis compared to untreated viable cells of *Lb. helveticus* (page 8, lines 20 to 23).

- (c) Moreover other documents on file support the conclusions reached from D43. Although in the context of "attenuated starters", it is stated in D11 that "The lactic acid-producing ability of lactic acid bacteria can be markedly reduced by a sublethal heat treatment (e.g. 60-70°C for 15s) without reducing proteinase and peptidase activity to any significant extent" (page 356, right column, emphasis by the board). Also D6 discloses that freeze-shocked cells maintained sufficient proteolytic and peptidolytic activity to increase proteolysis and flavour development (page 142, right column, Section "4. Discussion", emphasis by the board).
- (c) The experimental evidence provided by the appellant, and in particular D42a mainly relied upon, is not at odds with the above finding. As admitted by the appellant during the oral proceedings, the proteolytic and/or peptidolytic capacities of the heat-shocked lactobacilli used to repeat the experiments of D5 had not been analysed.

Therefore, the results in D42a (like those in D42 and D42b) cannot support the appellant's argument that the heat-shocked thermophilic species used in D5 do not have the required higher proteolytic and/or peptidolytic capacity than conventional starters.

2.3.6 Thus, it follows from the above that the heat-shocked thermophilic species used in D5 are indeed adjunct starters within the meaning of claim 1 as granted, with the consequence that feature a2) of claim 1 is not a distinguishing feature of the claimed method.

2.4 Reformulation of the problem and its solution

2.4.1 Under these circumstances the finding in D42 that foil-ripened Gouda cheese prepared according to the method of the patent has improved sensorial properties compared to a Gouda cheese prepared according to the method of D5 cannot be attributed to the features of the claim.

Although the board has no reason to doubt the accuracy of the results in D42, namely that Gouda cheese produced according to the protocol of the patent comes closer to a conventional Gouda cheese than Gouda cheese prepared according to D5, such improvements could be due to other specific conditions used in the processes, such as brining time, stirring time, renneting time, pressing times and/or washing water volume which are different in both protocols (see D42, Table 1). In any case, the improvements cannot be attributed to a different adjunct starter or any other feature of claim 1.

2.4.2 In view of the above, the problem has to be reformulated in a less ambitious manner not involving any improvement over the teaching of D5.

2.4.3 The objective problem can thus be reformulated as the provision of an alternative method for the provision of a foil-ripened cheese.

2.4.4 This less ambitious problem is undisputedly solved by the claimed method.

2.5 Obviousness

2.5.1 In the absence of any improvement, the claimed method has to be considered as an obvious alternative to the method known of D5, as concluded by the opposition division.

2.5.2 The appellant in fact did not dispute the conclusion of the opposition division that the sequence of the addition of ingredients (the only remaining difference of the claimed method over D5) could not support inventive step. It argued during the appeal proceedings only that the use of an adjunct starter as defined by feature a2) was a distinguishing feature that justified inventive step.

2.5.3 This is however not the case, for the reasons given above, and consequently the subject-matter of claim 1 of the main request lacks inventive step starting from D5.

2.5.4 Under these circumstances, there is no need to investigate whether the claimed subject-matter would involve an inventive step starting from D3 as closest prior art.

AUXILIARY REQUESTS I TO III

3. *Inventive step*

3.1 Compared to claim 1 of the main request, the subject-matter of claim 1 of the auxiliary requests further specifies that:

- "the pH of the adjunct starter is, before its addition, set to neutral" (auxiliary request I);
- "the adjunct starter is added simultaneously with or after the conventional starter" (auxiliary request II); and
- "the pH of the adjunct starter is, before its addition, set to neutral, and wherein the adjunct starter is added simultaneously with or after the conventional starter" (auxiliary request III).

3.2 There is no information on file showing that any of these features results in an unexpected effect of the claimed method.

3.3 This was also not disputed by the appellant, which stated during the oral proceedings that it relied for the inventive step of the claims of these requests on exactly the same arguments as those used for the main request, namely that D5 did not disclose an adjunct starter within the meaning of claim 1.

3.4 Consequently, the reasoning above in relation to the main request applies *mutatis mutandis* to the subject-matter of claim 1 of auxiliary requests I to III, which therefore does not involve an inventive step.

4. In summary, none of the appellant's requests is allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



M. Schalow

W. Sieber

Decision electronically authenticated