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**Datasheet for the decision
of 19 March 2024**

Case Number: T 0629/22 - 3.3.09

Application Number: 17715802.9

Publication Number: 3422865

IPC: A23C20/02

Language of the proceedings: EN

Title of invention:
VEGAN CHEESE ANALOGUE

Patent Proprietor:
Coöperatie Koninklijke Avebe U.A.

Opponents:
KMC, Kartoffelmelcentralen, A.m.b.a. (opponent 1)
Ingredion Corporation (opponent 2)

Headword:
Cheese analogue/AVEBE

Relevant legal provisions:
EPC Art. 56, 83
RPBA 2020 Art. 13(1)

Keyword:

Auxiliary main request: Inventive step - (no)
Food product defined without specifying relevant steps used
for its manufacture: properties achievable over the entire
scope claimed: - (no)
Auxiliary request 1a-p-s: Sufficiency of disclosure - (yes);
Inventive step - (yes)
Claimed effect obtained and problem solved substantially
across the entire scope claimed - (yes)

Decisions cited:

G 0001/03

Catchword:

Where a single composition at the edge of the scope of the claim and whose ingredients are contained in amounts at the end-values of the claimed ranges, does not achieve a technical effect relevant for the assessment of inventive step, the inclusion of that non-working composition within the scope of the claim is of no harm if there is a large number of conceivable alternatives which achieve that effect, and the specification contains sufficient information on the relevant criteria for finding those alternatives with reasonable effort. See reasons, points 6.13 to 6.19.



Beschwerdekammern

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Case Number: T 0629/22 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 19 March 2024

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
20 December 2021 concerning maintenance of the
European Patent No. 3422865 in amended form.**

Composition of the Board:

Chairman	A. Haderlein
Members:	A. Veronese
	G. Decker

Summary of Facts and Submissions

I. The two opponents (appellants) filed the appeals against the opposition division's decision finding that the European patent as amended according to the main request filed during the oral proceedings before the opposition division met the requirements of the EPC.

II. Claims 1 and 10 of this main request read as follows:

"1. A cheese analogue, comprising water, 10-24 wt.% of a root or tuber starch, 0.5-8 wt.% native potato protein and a fat component."

"10. A method of making a cheese analogue according to any of claims 1-9, comprising

- creating a mixture comprising a root or tuber starch, native potato protein and a fat component in water,*
- heating the mixture to a temperature of 70-90 °C*
- cooling the mixture until solid, and*
- ripening the cheese for at least 1 day."*

III. With their notices of opposition the opponents had requested revocation of the patent in its entirety on the grounds under Article 100(a) EPC (lack of novelty and lack of inventive step) and Article 100(b) EPC (lack of sufficiency).

IV. The documents submitted during the opposition proceedings included the following:

- D1: Recipe downloaded from web.archive.org:
<https://web.archive.org/web/20161024222502/https://avocadosandales.com/2015/11/13/potato-cheese/> dated 16 November 2015
- D2: PhD thesis "Physico-chemical and functional properties of potato proteins", Wageningen University, Wageningen, the Netherlands, 2001 (ISBN: 90-5808-444-2)
- D5: 9th Food Proteins Course; "Theory & practice for 10 plant & animal proteins"; 18-20 March 2015, Amsterdam. Presentation: Potato Proteins: "Free From" Texture & Nutrition. Jaap Harkema
- D7a: Extracts from the Mintel database: cheese analogues having entry numbers: GNPD 1002625 (Nov 2008); GNPD 959828 (Sept 2008); GNPD 972434 (Sept 2008); GNPD 1102647 (May 2009)
- D9: US 2010/0196575 A1
- D10: US 5,807,601
- D12: Brochure from Solanic® "Vegan Cream Cheese with Solanic® Potato Protein", November 2015
- D19: Experimental tests by KMC filed by opponent 1 with the notice of opposition against the patent, pages 18-19
- D24: Experimental report filed by the patent proprietor on 23 October 2020
- D27: Experimental report from Mr Jack Bergsma, filed by the patent proprietor by letter of 23 October 2020
- D38: Supplementary experimental tests from KMC filed by opponent 1 by letter of 22 September 2021

D55: Experimental tests filed by the patent proprietor by letter of 23 September 2022

V. In its decision, the opposition division concluded *inter alia* the following.

- The claimed invention was sufficiently disclosed. The patent disclosed various recipes for preparing the claimed cheese analogue. D24 showed that despite the heat treatment used to prepare the analogue, it still contained native potato protein. Relying on the teaching of the patent, the skilled person would have been able to prepare the claimed cheese analogue.
- The claimed subject-matter involved an inventive step starting from either D12 or D7a as the closest prior art.

VI. In its reply to the statements setting out the grounds of appeal the patent proprietor (respondent) filed a new main request and auxiliary requests.

VII. With its letter dated 18 January 2024 the respondent filed further requests, including an auxiliary main request and auxiliary request 1a-p-s.

VIII. Claim 1 of the auxiliary main request reads:

"1. A cheese analogue, comprising water, 10-24 wt.% of a non-modified root or tuber starch or of a waxy root or tuber starch comprising at least 90 wt.% amylopectin, 0.5-8 wt.% native potato protein and a fat component."

IX. Claim 1 of auxiliary request 1a-p-s reads:

"1. A cheese analogue, comprising water, 10-24 wt.% of a non-modified root or tuber starch or of a waxy root or tuber starch comprising at least 90 wt.% amylopectin, 0.5-8 wt.% native potato protein and a fat component, obtainable by a process comprising

- creating a mixture comprising a root or tuber starch, native potato protein and a fat component in water,*
- heating the mixture to a temperature of 70-90 °C*
- cooling the mixture until solid, and*
- ripening the cheese for at least 1 day."*

X. During the oral proceedings held before the board, the respondent withdrew all the requests with the exception of the auxiliary main request and auxiliary request 1a-p-s.

XI. The appellants' arguments were the following.

- Claim 1 of the auxiliary main request contained originally undisclosed subject-matter and was not clear.
- The claimed invention was not sufficiently disclosed as the claimed amount of native potato protein was that contained in the cheese analogue rather than that used for its preparation. The patent did not teach how to prepare an analogue containing the claimed amount of native protein or how to determine the amount of that protein because

the protein was denatured during the heating step required to prepare the analogue.

- The subject-matter of the auxiliary main request did not involve an inventive step starting from D12 as the closest prior art. The claimed subject-matter differed on account of the starch content and, for claim 10, also on account of the ripening step. The "good melt characteristics" depended on the process conditions, the presence of native protein and the type of starch. The claims were not limited by any process condition, and the protein was denatured. D19, D27 and D38 showed that certain cheese analogues did not induce the effect or could not be prepared. Thus, good melt characteristics were not obtained over the whole scope claimed. The problem was to prepare an alternative cheese analogue. The solution, involving the use of a higher amount of the claimed starch, was rendered obvious by D10 and D9. D10 taught the use of a high amount of starch to produce solid cheese. The claimed matter was also obvious from a combination of D7a with D5.
- The same objections applied to auxiliary request 1a-p-s.

XII. The respondent's arguments were the following.

- The objections of added subject-matter and lack of clarity were filed late and should not be admitted.
- The invention was sufficiently disclosed as the substances in claim 1 of both requests on file were the ingredients used to prepare the cheese analogue, not those present in the final product.

This was confirmed by common general knowledge, by the EU regulations relating to food products and by the description of the patent. "Cheese analogue" implied a gelatinisation step. Heating was foreseen in the patent but was not essential.

- The claimed subject-matter involved an inventive step starting from either D12 or D7a. The claimed subject-matter differed from the cheese of D12 on account of the higher amount and the type of starch used. This difference resulted in cheese having good melt characteristics. Good melt also implied good stretch characteristics. The tests in the patent and in D27, D29 and D55 provided evidence that cheese analogues comprising "non-modified" and "waxy" root or tuber starch had these characteristics. The alleged non-working examples of cheese analogues comprising modified starch were no longer claimed. A single non-working example comprising waxy starch and a high amount of oil, disclosed in example 28 of D28, was not detrimental. The problem was to provide a cheese analogue having good melt. The prior art did not teach replacing the modified starch of D12 with a higher amount of the claimed starches in order to induce the relevant effect. D10 taught that in order to improve melt properties, the amount of starch had to be increased, not decreased. The same conclusions applied when considering D7a as the closest prior art.

Final requests of the parties

- XIII. The appellants requested that the decision under appeal be set aside and that the European patent be revoked.

XIV. The respondent requested that the patent be maintained on the basis of the auxiliary main request or alternatively on the basis of: claims 1 to 13 according to auxiliary request 1a-p-s, filed with the letter of 18 January 2024; the description, paragraphs [0001] to [0006], [0008] to [0011], [0013], [0014], [0017] to [0022], [0024] to [0044], [0048] to [0067] of the patent specification and paragraphs [0007], [0012], [0015], [0016], [0023], [0045], [0046] and [0047] received during the oral proceedings on 19 March 2024; the drawings, sheets 1/3 to 3/3 of the patent specification.

Reasons for the Decision

Auxiliary main request

1. *Admittance of new objections of added subject-matter and clarity*
 - 1.1 Before the oral proceedings were held before the board, the appellants had not raised any objection against the requests filed by the respondent during the appeal proceedings - neither against the requests filed in reply to the appellants' statements setting out the grounds of appeal, nor against those filed in reply to the communication issued by the board in preparation for the oral proceedings.
 - 1.2 During the oral proceedings, appellant 1 argued, for the first time, that the "or" wording used in the expression "... non-modified root or tuber starch or of a waxy root or tuber starch ..." (emphasis by the board) in claim 1 of the auxiliary main request created subject-matter which was not disclosed in the application as filed and was unclear.

- 1.3 Appellant 1 conceded that the dependent claims as filed, and in particular claims 3 to 6, progressively narrowed the definition of the starch defined in the previous claims. However, in its opinion, the claims as filed did not disclose the alternative embodiments foreseen by the aforementioned "or" wording in amended claim 1.
- 1.4 In its opinion, the aforementioned expression was also unclear because although the features in amended claim 1 were already present in the claims as granted, this claim was open to different interpretations and could be objected to for lack of clarity.
- 1.5 The respondent requested that these new objections not be admitted into the appeal proceedings.
- 1.6 The board agrees with the respondent.
- 1.7 It is uncontested that the new objections were raised very late, namely during the oral proceedings, and that their admittance is at the board's discretion under Article 13 RPBA. The board considers that the objections are not only very late but also *prima facie* not convincing and therefore not admissible.
- 1.8 The dependent claims of the application as filed refer back to each of the preceding claims. This means that these claims more specifically define the cheese analogue defined in those preceding claims. This wording creates different alternatives, but these alternatives are the same as those which are now specified in amended claim 1. Thus, amended claim 1 does not contain added subject-matter extending beyond

the subject-matter disclosed in the application as filed.

- 1.9 Furthermore, the claimed alternatives are defined in the same way as they were in claims 1 to 6 as granted. Thus, the amendments do not introduce any non-compliance with Article 84 EPC and cannot be examined for compliance with this article (G 3/14).
- 1.10 Considering that the objections of added subject-matter and lack of clarity were filed very late and are *prima facie* not relevant, they are not admitted into the appeal proceedings (Article 13(2) and (1) RPBA).
2. *Inventive step*
 - 2.1 Claim 1 defines "A cheese analogue, comprising water, 10-24 wt.% of a non-modified root or tuber starch or of a waxy root or tuber starch comprising at least 90 wt.% amylopectin, 0.5-8 wt.% native potato protein and a fat component".
 - 2.2 A contentious issue between the parties was whether claim 1 defines the compounds that are actually present in the cheese analogue or the ingredients that are used as starting materials for preparing the cheese analogue. The appellants advocated for the first interpretation, the respondent for the second.
 - 2.3 Since the board considers that the subject-matter of claim 1 would lack an inventive step even if the board were to adopt the respondent's interpretation, there is no need to rule on this issue.

Closest prior art

- 2.4 Like the opposition division, the appellants referred to D12 or, in the alternative, to D7a as the closest prior art. The choice of D12 was not contested by the respondent.
- 2.5 D12 describes a vegan cream cheese analogue having "improved shininess and good spreadability" and a "creamy and smooth mouth feel". Like the claimed cheese analogue, the one in D12 contains potato starch, potato protein and a fat. The process for manufacturing the cheese analogue is similar to that described in the patent and includes preparing a mixture comprising a modified potato (tuber) starch, potato protein and a fat component, heating the mixture at 70°C, followed by cooling, to obtain a semi-solid product.
- 2.6 Since D12 describes a cheese analogue prepared using the relevant ingredients, as well as the method for manufacturing the cheese analogue and its properties, there is no reason to deviate from the opposition division's choice of D12 as the closest prior art.
- 2.7 D7a is an extract from the Mintel® database describing a "Mature white Cheddar style lactose-free cheese". The extract mentions only a generic list of the ingredients used to prepare the cheese; there is no mention of the type of potato starch, the amounts of the ingredients or the manufacturing method. The characteristics and the properties of the analogue are not described either. Furthermore, the protein is from soybean and not from potato. Thus, D7a is less relevant than D12 and does not qualify as the closest prior art.

Distinguishing technical features

The respondent considered that the claimed subject-matter differed from the teaching of D12 on account of the type and content of the starch used to prepare the cheese analogue: 10 to 24 wt.% of a non-modified root or tuber starch or of a waxy root or tuber starch instead of 7 wt.% modified starch.

Technical effect

- 2.8 According to the respondent, the distinguishing technical features imparted good melt characteristics on the claimed cheese analogue. As explained in the patent, this meant not only that the cheese analogue melted when heated but also that it could be stretched when in the molten state like molten dairy-based cheese; see paragraph [0007]. These characteristics will be defined hereinafter as "melt-stretch characteristics".
- 2.9 The patent teaches that the stretch properties of a molten cheese can be measured under standardised conditions. It also describes tests in which the stretch performance of cheese analogues prepared using the claimed ingredients was determined and compared with that of commercial cheese analogues; see paragraphs [0007], [0008] and [0055] to [0063] of the patent.
- 2.10 However, all the cheese analogues tested were produced by carrying out a process which involves:
- forming and homogenising a mixture of starch, potato protein and sunflower oil

- heating the mixture at 85°C and mixing until the starch gelatinises and the viscosity increases
- increasing the stirring after the viscosity drops
- ripening for at least one day

2.11 Claim 1 defines a cheese analogue which, according to the respondent's claim interpretation, is prepared from (or, for the appellants, comprises) certain ingredients. However, claim 1 does not specify how the analogue is prepared. The question thus arises whether cheese analogues which are not obtained by carrying out the aforementioned steps have the melt-stretch characteristics of the analogues tested in the patent, i.e. whether it is credible that any product as defined in claim 1 has those characteristics, irrespective of its manufacturing method. The board considers that this is not the case, for the following reasons.

2.12 The patent teaches that a heating step is necessary to induce gelatinisation of the starch, and that gelatinisation is essential to obtain a cheese analogue having the purported melt-stretch characteristics; see paragraphs [0012] and [0039] to [0042] and example 1.

2.13 The properties of the relevant ingredients also change upon heating. In particular, during the preparation of the analogues described in the patent, which involves heating at 85°C, the potato protein is denatured (see D2, page 6). This is relevant because the patent teaches that native potato protein is critical for "stretch"; see paragraph [0023].

2.14 Therefore, it is not credible that cheese analogues prepared using a method which differs substantially from that used to prepare the analogues tested in the patent will have the same melt-stretch characteristics.

Due to the complexity of factors affecting the rheological properties of emulsified systems, those characteristics cannot be predicted if the manufacturing process is substantially changed. It is noted that complex transformations occur during the manufacturing method described in the patent: heating induces gelification, which is accompanied by an initial increase and a subsequent drop of viscosity. Furthermore, the obtained product does not reach its final consistency until after cooling and a ripening step.

- 2.15 As demonstrated by the tests in D31, merely omitting the ripening step substantially changes the properties of the cheese analogue; if the analogue is not ripened for at least one day, it cannot be grated.
- 2.16 The respondent argued that the wording "cheese analogue" in claim 1 implies that the analogue is an emulsion prepared by the process described in the patent. The board does not agree. In the absence of any substantiating evidence for this assertion, this argument is not convincing. In the decision under appeal, reference was made to D1, D9 and D10 in this context. However, these documents relate to specific compositions and manufacturing methods and do not represent common general knowledge. Therefore, their teaching cannot be generalised.
- 2.17 Referring to paragraph [0012] of the patent, the respondent also argued that the claimed cheese analogue could be prepared without heating, using a pre-gelified starch. This would have resulted in an analogue having the relevant melt-stretch characteristics.

2.18 This argument is not convincing either, at least because claim 1 is not limited to a starch in pre-gelified form.

2.19 For these reasons, it is concluded that it is not credible that cheese analogues which are prepared using the relevant ingredients but are not subjected to the manufacturing steps described in the examples of the patent, and in particular to the heating step, will have the purported melt-stretch characteristics.

Technical problem

2.20 In view of the above, starting from D12, the problem addressed is to provide an alternative cheese analogue.

Obviousness of the proposed solution

2.21 Starting from D12 and confronted with the problem, the skilled person would have considered using other types and amounts of starch. As argued by the appellants, D10 provides the incentive to use non-modified starches because they are mentioned in column 3, lines 26 to 28. D10 also provides the incentive to use the starches in the claimed amount since this amount falls within that mentioned in claims 1 and 24 of D10 (3 to 20 wt.%). Furthermore, when considering using other types of starch, the skilled person would have considered a waxy starch. This is because waxy starches containing less than 10% amylose and thus more than 90% amylopectin were known and had been used to produce cheese analogues before the priority date; see D9, paragraph [0085] and claim 1.

2.22 The respondent argued that a skilled person trying to produce a cheese analogue having good melting

properties was discouraged from using the claimed amount of starch by D10 (column 7, example 2). This argument is not convincing either because, as mentioned above, it is not credible that these properties can be achieved across the entire scope claimed. The problem to be solved is merely to provide an alternative cheese analogue.

- 2.23 For these reasons, it is concluded that the subject-matter of claim 1 does not involve an inventive step. Thus, the auxiliary main request is not allowable.

Auxiliary request 1a-p-s

3. *Claim interpretation*

3.1 Claim 1 is a product-by-process claim defining the steps for manufacturing the claimed cheese analogue.

3.2 As submitted by the respondent, the skilled person reading claim 1 would understand that the ingredients specified in the first part of the claim and their amounts are those used to carry out the steps of the process defined in the second part of that claim.

4. *Issues concerning the "or" wording in claim 1*

4.1 As already mentioned above, during the oral proceedings before the board when the new auxiliary main request was being dealt with, appellant 1 submitted that the "or" wording in the definition of the starches in claim 1 created originally undisclosed subject-matter and was not clear.

4.2 This same wording is present in claim 1 of auxiliary request 1a-p-s. However, these objections are not

admitted into the appeal proceedings in the discussion on auxiliary request 1a-p-s for the same reasons as already presented when dealing with the new auxiliary main request.

5. *Sufficiency of disclosure*

5.1 In the written proceedings the appellants submitted that the claimed invention was not sufficiently disclosed. However, their objections concerned claim 1 of the request deemed allowable by the opposition division. They were based on the assumption that the amount of native potato protein specified in claim 1 of that request was the amount contained in the cheese analogue, not the amount used for its preparation. In the appellants' opinion, since the protein was denatured during manufacture and its amount could not be determined in the final product, the claimed invention could not be carried out without undue burden.

5.2 These objections no longer apply because the wording of claim 1 of auxiliary request 1a-p-s makes it clear that the specified ingredients are those used to prepare the claimed cheese analogue.

5.3 The ingredients specified in claim 1 were well known at the filing date. The patent teaches how to carry out the claimed process using those ingredients and provides numerous examples of cheese analogues obtained by implementing the process. Thus, following the teaching of the patent and the common general knowledge at the filing date, the skilled person would have been able to prepare the claimed cheese analogues. The claimed invention is therefore sufficiently disclosed.

6. *Inventive step*

6.1 As already explained above when dealing with the auxiliary main request, D12 is the closest prior art rather than D7a. The fact that claim 1 of auxiliary request 1a-p-s defines the method for preparing the cheese analogue does not change this finding.

Distinguishing technical features

6.2 The claimed subject-matter differs from the teaching of D12 at least on account of the type and amount of starch: 10 to 24 wt.% of non-modified root or tuber starch or of a waxy root or tuber starch instead of 7 wt.% modified starch.

Technical effect

6.3 Claim 1 is a product-by-process claim defining the steps of a process for manufacturing the claimed cheese analogue. The process includes a heating step. Thus, the appellants' argument presented when discussing the auxiliary main request - namely that the claims encompass cheese analogues which were not subjected to heating and therefore cannot be expected to have the purported melt-stretch characteristics - no longer applies.

6.4 The patent describes several tests showing that cheese analogues prepared by the process defined in claim 1 can be melted and provide good stretch performance in the molten state; see Tables 2, 3, 5 and 6. The experimental reports D27, D29 and D55 confirm that cheese analogues can be prepared by carrying out the claimed method using waxy potato starches and non-

modified potato and tapioca starches. They also confirm that these analogues have melt-stretch characteristics.

- 6.5 The appellants submitted that some cheese analogues prepared as specified in claim 1 did not have stretch characteristics. This was true even if they were subjected to heating. In the appellants' opinion, this was evidenced by the experimental reports D19, D27 and D38.
- 6.6 The board does not agree.
- 6.7 First of all, some of appellant 1's objections related to cheese analogues prepared using modified starches. These were encompassed by claim 1 found allowable by the opposition division. However, these analogues are no longer encompassed by claim 1 of auxiliary request 1a-p-s. Therefore, these objections are moot.
- 6.8 Concerning the cheese analogues prepared using non-modified root or tuber starch, appellant 1 drew attention to examples 2 and 4 of the experimental report D19 (filed by appellant 1) and to examples 12 and 16 of the experimental report D27 (filed by the respondent).
- 6.9 Examples 2 and 4 of the experimental report D19 relate to cheese analogues comprising native, i.e. non-modified, potato and tapioca starch. According to D19, "no stretch" was observed when testing these analogues. However, when the same cheese analogues were tested by the respondent in the experiments described in D27, they were found to have melt-stretch characteristics; see examples 12 and 16. Although the results are not as good as those observed with cheese analogues comprising waxy potato starch (examples 1 to 8) and other cheese

analogues comprising native potato or tapioca starch (examples 10, 11, 13 to 15 and 17), some stretch was observed.

- 6.10 The respondent noted that the tests in D19 were performed using a different experimental set-up; a fork rather than a spatula had been used for measuring the stretch. The tests involving the use of a fork resulted in a lower stretch. A spatula was more suitable for determining stretch characteristics. This explained the difference in the results.
- 6.11 This explanation was not contested and there is no reason to doubt its credibility.
- 6.12 For these reasons, it is concluded that the tests in the patent and in D27 and D29 make it credible that cheese analogues prepared using non-modified tuber and root starch have melt-stretch characteristics.
- 6.13 Concerning waxy root or tuber starch, appellant 1 conceded that the cheese analogues prepared using these starch types, which were described in the patent and in D27, had reasonable melt-stretch characteristics. It noted, however, that example 28 of D38 showed that no stretchable cheese analogue could be obtained using 10 wt.% waxy potato starch, 0.5 wt.% potato protein and 35 wt.% sunflower oil. This demonstrated that the claims were overly broad and that melt-stretch characteristics could not be achieved across the entire scope claimed.
- 6.14 The board does not agree with these conclusions. As noted by the respondent, the amounts of potato protein (0.5 wt.%) and starch (10 wt.%) used in example 28 of D38 were the lowest foreseen in the patent (see

claim 1) whereas the amount of fat (35 wt.%) was the highest (see for instance claim 5). This means that the allegedly non-working embodiment in example 28 relates to a rather peculiar case.

6.15 The patent and the experimental reports D27 and D55 describe cheese analogues comprising different amounts of waxy starch, potato protein and fat. The amount of these ingredients was varied substantially across the entire scope claimed: that of the potato proteins from 0.5 to 5 wt.%, that of the starch from 10 to 24 wt.% and that of oil from 10 to 35 wt.%. All these cheese analogues exhibited melt-stretch characteristics. This makes it credible that the claimed effect can be obtained substantially across the entire scope claimed.

6.16 The following should also be considered. In decision G 1/03 (OJ EPO 2004, 413), Reasons 2.5.2, when dealing with the issue of non-working embodiments, the Enlarged Board of Appeal stated the following:

"... If a claim comprises non-working embodiments, this may have different consequences [...].

Either there is a large number of conceivable alternatives and the specification contains sufficient information on the relevant criteria for finding appropriate alternatives over the claimed range with reasonable effort. If this is the case, the inclusion of non-working embodiments is of no harm. [...]

If this is not the case and there is lack of reproducibility of the claimed invention, this may become relevant under the requirements of inventive step or sufficiency of disclosure. If an effect is expressed in a claim, there is lack of sufficient

disclosure. Otherwise, ie if the effect is not expressed in a claim but is part of the problem to be solved, there is a problem of inventive step."

6.17 In the circumstances of the case in hand, the board considers that the patent describes a large number of conceivable alternatives and sufficient information for finding appropriate alternatives over the claimed range, with reasonable effort. If a skilled person failed to prepare a stretchable cheese analogue using the amounts of ingredients in example 28 of D38, they would:

- realise that the conditions used are extreme because the amounts of the ingredients are at the edge of each of the ranges foreseen in the patent
- find in the patent, and in particular in the examples, the teaching that compositions having the desired properties can be obtained by increasing the amount of potato protein and/or decreasing the amount of the oil

6.18 The tests in the patent and in D27 and D55 make it credible that if a skilled person followed the teaching in the patent, they would obtain a cheese analogue having the relevant stretch properties. It is noted that D27 and D55 describe the preparation of cheese analogues which comprise the lowest amount of potato protein (0.5 wt.%) and waxy potato starch (10 wt.%) and the highest amount of fat (35 wt.% oil) foreseen in the patent and that still have melt-stretch characteristics.

6.19 This confirms that the claimed effect can be obtained substantially across the entire scope claimed.

Therefore, the presence of a single non-working embodiment is of no harm.

Technical problem addressed

7. As argued by the respondent, the cheese analogue of D12, the closest prior art, does not have - nor is it supposed to have - any melt-stretch characteristics. It is in fact a spreadable cream cheese having a creamy and smooth mouth feel. This was not disputed by the appellants.

7.1 Thus, starting from D12, the objective technical problem is to provide a cheese analogue having melt-stretch characteristics.

Non-obviousness of the claimed solution

7.2 The appellants considered that D9 and D10 provided a pointer towards the claimed solution.

7.3 The board does not agree.

7.4 Neither D12 itself nor D9 or D10 address the issue of providing a cheese analogue having melt-stretch characteristics. In particular, none of them mentions a cheese which can be stretched after being melted.

7.5 Therefore, a skilled person relying on the teaching of these documents could not have foreseen that a cheese analogue having melt-stretch characteristics could have been obtained by replacing a modified potato starch with a non-modified or a waxy starch and increasing the amount of the starch in a cream cheese not having any melt or stretch characteristics.

7.6 Moreover, as submitted by the respondent, the skilled person seeking to provide a cheese which can "melt" is discouraged from using 10 to 24 wt.% starch by D10, which describes the preparation of different cheese analogues, some comprising up to 30 wt.% starch. As far as melt is concerned, D10 teaches that:

"For imitation cheese products that do not need to melt, such as shreds used at a salad bar, the level of starch can be quite high, up to 30% of the composition. Where the product needs to have good melt properties, lower levels will probably be used, in the range of 3-5%"; see D10, column 4, lines 14 to 19 (emphasis by the board).

7.7 This teaching is confirmed by example 2 of D4. The cheese analogue of this example, which is said to have "good melt properties", contains 3 to 5 wt.% starch. Therefore, starting from D12 and confronted with the technical problem, the skilled person would not have found a pointer towards the claimed solution in D10.

7.8 Appellant 1 disagreed, arguing that D10 gave a different "definition of melt characteristics". D10 mentioned a "Schreiber test", whose scores related to the viscosity of a cheese, to define its melt characteristics. Scores of 3 or better were proposed for a good melt. These were associated with low viscosity and were obtained using low amounts of starch. Therefore, in the appellant's opinion, the skilled person would have considered increasing the viscosity of the cheese analogue in order to increase its stretch characteristics. To do this, they would have increased the amount of starch. In this way the skilled person would have arrived at the claimed solution.

7.9 This argument is not persuasive. As mentioned above, D10 does not even mention stretch. Furthermore, it is evident that a cheese must first be melted in order to be stretched, and that there cannot be stretch without previous melting. Irrespective of the test mentioned for determining melt characteristics, D10 teaches that a low amount of starch should be used to provide a cheese which melts. This fact alone would have discouraged a skilled person aiming at producing a cheese analogue which melts from increasing the amount of starch in the cheese analogue of D12.

7.10 For these reasons, it is concluded that the claimed subject-matter involves an inventive step.

8. Adaptation of the description

8.1 At the oral proceedings before the board, the respondent provided an amended description adapted to the claims of auxiliary request 1a-p-s.

8.2 Appellant 1, the sole appellant represented at the oral proceedings, did not raise any objection against the amended description. The board sees no reason to object to the amendments either.

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 with the order to maintain the patent as amended in the following version:

Claims: 1 to 13 according to auxiliary request 1a-p-s filed with the letter of 18 January 2024

Description: Paragraphs [0001] to [0006], [0008] to [0011], [0013], [0014], [0017] to [0022], [0024] to [0044] and [0048] to [0067] of the patent specification and paragraphs [0007], [0012], [0015], [0016], [0023], [0045], [0046] and [0047] received during the oral proceedings on 19 March 2024

Drawings: Sheets 1/3 to 3/3 of the patent specification

The Registrar:

The Chairman:



K. Götz-Wein

A. Haderlein

Decision electronically authenticated