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Datasheet for the decision of 18 February 2015

Case Number: T 0815/13 - 3.3.09

Application Number: 08766865.3

Publication Number: 2178386

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Language of the proceedings: EN

Title of invention:
FRYING FAT COMPOSITION

Patent Proprietor:
Sime Darby Malaysia Berhad

Opponent:
Loders Croklaan BV

Headword:

Relevant legal provisions:
EPC Art. 56, 83, 84, 123(2)
RPBA Art. 13(1)

Keyword:
Late-filed requests: admissible (yes)
Main request: inventive step (no)
Auxiliary request 1. inventive step (no)
Auxiliary request 2: clarity (yes), sufficiency (yes), inventive step (yes)

Decisions cited:
G 0002/88

Catchword:

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Case Number: T 0815/13 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 18 February 2015

Appellant: (Patent Proprietor)	Sime Darby Malaysia Berhad 19th Floor, Wisma Sime Darby Jalan Raja Laut Kuala Lumpur, 50350 (MY)
Representative:	Nederlandsch Octrooibureau P.O. Box 29720 2502 LS The Hague (NL)
Appellant: (Opponent)	Loders Croklaan BV Hogeweg 1 1521 AZ Wormerveer (NL)
Representative:	Potter Clarkson LLP The Belgrave Centre Talbot Street Nottingham, NG1 5GG (GB)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 6 February 2013 concerning maintenance of the European Patent No. 2178386 in amended form.**

Composition of the Board:

Chairman	W. Sieber
Members:	N. Perakis
	D. Prietzel-Funk

Summary of Facts and Submissions

I. Mention of the grant of European patent No. 2 178 386 in the name of Sime Darby Malaysia Berhad was published on 3 November 2010 (Bulletin 2010/44). The patent was granted with 14 claims. Claim 1 reads as follows:

"1. A frying fat composition comprising at least 70 wt.% of refined fat; 3-30 wt.% of a red palm oil-component, said red palm oil component being selected from the group consisting of red palm oil, red palm oil fractions and combinations thereof; and from 5 to 100 mg/kg, preferably from 6-50 mg/kg of β-carotene."

II. A notice of opposition was filed by Loders Croklaan B.V. requesting revocation of the patent in its entirety on the grounds that the granted subject-matter was neither novel nor inventive (Article 100(a) EPC) and that the patent did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 100(b) EPC).

III. The documents filed by the opponent included the following:

D3: K.G. Berger, "The Use of Palm Oil in Frying", Frying Oil Series, Malaysian Palm Oil Promotion Council, 2005, 74 pages;

D4: B. Nagendran *et al*, "Characteristics of red palm oil, a carotene- and vitamin E-rich refined oil for food uses", *Food and Nutrition Bulletin*, vol. 21(2), 2000, pp 189-194;

D7: WO 2005/077203 A2;

D11: B. Lakshmi *et al*, "Acceptability of red palm oil blends for deep frying", *The Journal of the Oil Technologists' Association of India*, vol. 30(2), April-June 1998, pp 58-60;

D13: M.K. Gupta, "Frying oils" in Bailey's Industrial Oil and Fat Products, 6th edition, vol. 6, 2005, John Wiley & Sons Inc, pp 1-31;

D14: N.K. De, "The possible use of red-palm oil in supplementing the vitamin-A activity of common vegetable oils", *Ind. Jour. Med. Res.*, vol. 25, 1 July 1937, pp 11-15;

D15: C. Granda *et al*, "Reduction of Acrylamide Formation in Potato Chips by Low-temperature Vacuum Frying", *Journal of Food Science*, vol. 69(8), 2004, pp 405-411; and

D17: AOCS Recommended Practice Cd 1c-85, "Calculated Iodine Value", Sampling and Analysis of Commercial Fats and Oils, 1997, one page.

IV. By an interlocutory decision announced orally on 22 November 2012 and issued in writing on 6 February 2013 the opposition division maintained the patent on the basis of the claims of auxiliary request 5 filed during the oral proceedings. Claim 1 read as follows:

"1. Use of a frying fat composition to produce fried foods having a reduced acrylamide content, wherein the frying fat composition comprises at least 70 wt.% of refined fat; 3-30 wt.% of a red palm oil-component, said red palm oil component being selected from the

group consisting of red palm oil, red palm oil fractions and combinations thereof; and from 5 to 100 mg/kg, preferably from 6-50 mg/kg of β-carotene."

As regards inventive step of this request, the opposition division considered that D7 represented the closest prior art, disclosing several methods to reduce acrylamide in heat-treated food. The technical problem underlying the claimed use was to provide an alternative way of reducing acrylamide in heat-treated food. The claimed solution was not obvious in view of the prior art. In particular, D7 would not direct the skilled person towards using red palm oil to reduce acrylamide since it detailed the disadvantages of β-carotene, a constituent of red palm oils.

Regarding the subject-matter of claim 1 of the main request (granted claims) and auxiliary requests 1 and 2, all relating to frying fat compositions, the opposition division considered D14 as the closest prior art and held that the claimed compositions were obvious alternatives to D14 in combination with D4 and D13. Auxiliary request 3 had been withdrawn. Claim 1 of auxiliary request 4, relating to a process of preparing a fried foodstuff, was considered to be an obvious alternative to the process disclosed in D9 in combination with either D4 or D6.

V. On 2 April 2013 the patent proprietor filed an appeal against the decision of the opposition division; it paid the appeal fee on 8 April 2013. The statement setting out the grounds of appeal was filed on 16 April 2013, including a main request and two auxiliary requests. Auxiliary request 2 was identical to auxiliary request 5 found allowable by the opposition division.

VI. On 8 April 2013 the opponent filed an appeal against the decision of the opposition division and paid the appeal fee on the same day. The statement setting out the grounds of appeal was filed on 20 May 2013. The opponent requested that the decision of the opposition division be set aside and that the patent be revoked.

VII. The patent proprietor and the opponent are both appellant and respondent in these appeal proceedings. Therefore, for simplicity, the board will continue to refer to them as the patent proprietor and the opponent.

VIII. By letter of 5 July 2013 the opponent raised objections against the patentability of the patent proprietor's requests.

IX. By letter of 17 September 2013 the patent proprietor filed a further auxiliary request.

X. In a communication dated 5 December 2014 the board expressed its preliminary non-binding opinion.

XI. By letter of 18 December 2014 the patent proprietor submitted new requests including a main and auxiliary requests 1 to 4, replacing its previous requests provided they were admitted to the proceedings.

XII. By letter of 16 January 2015 the opponent raised objections against the patentability of the patent proprietor's latest requests.

XIII. By letter of 23 January 2015 the patent proprietor replied to the objections raised by the opponent, and submitted a new document, D18, which provided evidence

as to the skilled person's understanding of "mildly refined crude red palm oils".

D18: De Greyt *et al*, "Deodorisation" in Bailey's Industrial Oil and Fat Products, 6th edition, vol. 5, Wiley & Sons Inc, 2005, 70 pages.

XIV. On 18 February 2015 oral proceedings were held before the board. At the beginning of the oral proceedings the board decided to admit into the proceedings the main request and auxiliary requests 1 to 4 filed with letter of 18 December 2014. During the course of the oral proceedings the patent proprietor then withdrew auxiliary request 3.

Claim 1 of the main request and of auxiliary requests 1 and 2 (the only claims relevant for this decision) read as follows:

Main request

"1. A frying fat composition comprising at least 70 wt.% of refined fat; 3-25 wt.% of a mildly refined red palm oil component, said mildly refined red palm oil component being selected from the group consisting of red palm oil, red palm oil fractions and combinations thereof; and from 5 to 100 mg/kg, preferably from 6-50 mg/kg of β-carotene."

Auxiliary request 1

"1. A frying fat composition comprising at least 70 wt.% of refined fat; 3-25 wt.% of a red palm oil component, said red palm oil component being selected from the group consisting of red palm oil, red palm oil fractions and combinations thereof; and from 5 to 100 mg/kg, preferably from 6-50 mg/kg of β-carotene; wherein the red palm oil component contains 3-20% by

weight of the frying fat composition of an olein fraction of red palm oil, said olein fraction having an iodine value of at least 54."

Auxiliary request 2

"1. Use of a frying fat composition for reducing the acrylamide content of fried foods, said frying fat composition comprising at least 70 wt.% of refined fat; 3-30 wt.% of a red palm oil-component, said red palm oil component being selected from the group consisting of red palm oil, red palm oil fractions and combinations thereof; and from 5 to 100 mg/kg, preferably from 6-50 mg/kg of β-carotene."

XV. The relevant arguments put forward by the patent proprietor in its written submissions and during the oral proceedings may be summarised as follows:

Admissibility of the requests

- The requests filed with letter of 18 December 2014 should be admitted as they had been filed in reply to the communication of the board. Their differences compared with the previous requests were minor, so they were not at odds with the principle of procedural economy. Auxiliary request 1 was not identical to the request withdrawn before the opposition division (the then auxiliary request 3).

Main request

- The amendment to a "mildly refined" red palm oil was based on page 4 of the application as filed (Article 123(2) EPC).

- The term "mildly refined" was a term of art. A skilled person had no problem distinguishing between crude (unrefined), chemically/physically refined (typically containing very few carotenes, colourless), and mildly refined red palm oil (still containing most carotenes).

- Regarding inventive step, D7 should be considered to represent the closest prior art since, like the patent in suit, it related to the reduction of acrylamide in fried foodstuffs. The technical problem in view of D7 had to be seen in the provision of an alternative frying fat composition. However, to replace the frying fat of D7 by a frying fat composition which comprised mildly refined red palm oil in order to reduce acrylamide was not obvious in the absence of any hint/motivation in the prior art.

- Even if D11 was considered to represent the closest prior art, the subject-matter of claim 1 would still involve an inventive step. D11 disclosed using the red palm oil components in amounts of 30 wt.% and above, which would render the fried products unpalatable. Furthermore, the skilled person would not find any motivation in D11 to reduce the content of the red palm oil or to refine it.

Auxiliary request 1

- The subject-matter of claim 1 of auxiliary request 1 involved an inventive step. If D11 was considered to represent the closest prior art, the subject-matter of claim 1 differed from its disclosure in the amount of the red palm oil

component and the presence of a certain amount of a specific olein fraction of red palm oil in the frying fat composition. The problem solved over D11 was the provision of a frying fat composition with improved performance in reducing the acrylamide content of fried foodstuffs. However, the skilled person seeking to solve that problem would not find any motivation in D11 or any other cited prior-art document to reduce the amount of red palm oil component in the frying fat composition and to add thereto the specific olein fraction of red palm oil.

Auxiliary request 2

- The claimed invention fulfilled the requirements of Article 83 EPC. The technical evidence of the patent in suit (paragraph [0042]) showed that by using the frying fat composition of claim 1 the acrylamide content of the fried foodstuff was reduced from 290 µg/kg to 160 µg/kg (frying fat A at 3.5 minutes compared with frying fat B at 4.5 minutes). Although the patent exemplified only pre-fried French fries, the skilled person could reasonably expect that the invention applied to other foodstuffs. The opponent, who bore the burden of proof, had not provided any technical evidence showing the contrary. The allegation that the invention could not be applied to darker foodstuffs was incorrect, because it was the strength of the effect that depended on the colour of the foodstuffs, not the effect itself.

- Claim 1 was clear. The skilled person would have no difficulty in understanding the meaning of "reducing the acrylamide content of fried foods"

since it concerned the comparison between fried foods of the same type, fried until they had reached the requisite quality, namely satisfactory flavour, colour, taste and texture, but prepared with different frying oils. The time needed to obtain these properties was a matter of ordinary optimisation for the skilled person.

- The subject-matter of claim 1 also involved an inventive step. D7 and D15 could be considered to represent the closest prior art, since both documents dealt with the reduction of acrylamide in foodstuffs. However, they both proposed a different way of achieving this goal. Thus, the skilled person starting from D7 or D15 and looking for an alternative way to reduce the acrylamide content of a fried food would not find in these documents any motivation to replace the frying fat composition by a composition which comprised a red palm oil component. Nor would the skilled person find such a motivation in any other prior-art document. D3 and D4 disclosed frying using a red palm oil component, but did not mention acrylamide reduction. The opponent's assertion that the subject-matter of claim 1 lacked an inventive step in view of the obvious combination of D15 with either D3 or D4, was based on hindsight.

XVI. The relevant arguments put forward by the opponent in its written submissions and during the oral proceedings may be summarised as follows:

Admissibility of the requests

- The requests filed by the patent proprietor with the letter of 18 December 2014 should not be

admitted into the proceedings since they were late-filed and did not overcome previously raised objections. In particular, auxiliary request 1 derived from an auxiliary request which had been withdrawn during the oral proceedings before the opposition division.

Main request

- The subject-matter of claim 1 did not fulfill the requirements of Article 123(2) EPC because the application as filed did not disclose a frying fat composition comprising a mildly refined red palm oil.

- The subject-matter of claim 1 was not clear because the term "mildly refined", used for the characterisation of the red palm oil, was not defined in the patent in suit and did not have a clear meaning for the person skilled in the art. Document D18 did not provide an unambiguous definition of this term.

- The subject-matter of claim 1 lacked an inventive step. D7 should not be considered as the closest prior art because it related to the reduction of acrylamide in fried foods, whereas reduction of acrylamide was not a feature of the claimed composition and was not linked to it. D11 or D14, which like the patent in suit related to a frying fat composition for frying potatoes, should be considered to represent the closest prior art. The claimed composition differed from the disclosure of D11, the more recent document, in the amount of the red palm oil component (3-25 wt% according to the claim, instead of 30-50 wt% according to D11),

in that the red palm oil component was mildly refined (D11 disclosed crude red palm oil) and in that the frying fat composition comprised a specific amount of β-carotene (D11 did not contain such a disclosure). The patent in suit did not contain any evidence that these differences led to a technical effect. Thus the technical problem would, at best, have to be seen in the provision of a frying fat composition which improved the taste of the fried product and overcame the unpalatability of the crude red palm oil (unpleasant odour and flavour). It could also be seen in the provision of an alternative frying fat composition. The most obvious solution for overcoming the unpalatability of the crude red palm oil and for improving the taste of the fried foodstuffs would be to refine the oil. However, refining crude oils such as crude red palm oil was commonplace in frying oil technology and was part of the general knowledge of the skilled person (D13: page 2, last paragraph and page 7, paragraph 6.6.1). Anyway, the skilled person trying to solve the technical problem would find the disclosure of mildly refined red palm oils in D3 and D4. Thus the skilled person would be inclined to use such oils in the frying fat composition of D11 either in order to improve the taste or as a simple alternative and would arrive at the subject-matter of claim 1 without the exercise of inventive skill. As regards the amount of the refined red palm oil, it was the result of an arbitrary modification since the criticality of the claimed value of 25 wt.% over the disclosed value of 30 wt.% had not been demonstrated.

Auxiliary request 1

- The combination of the amount of the red palm oil component with the amount of the olein fraction of red palm oil required by claim 1 was not clearly and unambiguously derivable from the application as filed.

- As regards the amount of the olein fraction, it was not clear whether it corresponded to the entirety of the red palm oil or to a part of it.

- The subject-matter of claim 1 did not involve an inventive step in view of the obvious combination of D11 with D4, for the reasons already given for the main request. The feature relating to the red palm olein fraction with an iodine value of at least 54 was also disclosed in D4 (see table 2 on page 191).

Auxiliary request 2

- The claimed invention did not fulfill the requirements of Article 83 EPC because it was not enabling throughout its entire scope. The effect was shown only for pre-fried French fries, i.e. a very specific, thin, light-coloured foodstuff. Nothing had been shown for raw, thicker or darker foodstuffs.

- The subject-matter of claim 1 did not fulfill the requirements of Article 84 EPC because there was no reference point with regard to the feature "for reducing the acrylamide content of fried food".

- The subject-matter of claim 1 did not involve an inventive step. D15 should be considered as the closest prior art because it concerned the technical field of acrylamide reduction in fried food. The claimed subject-matter differed from the disclosure of D15 in that the frying fat composition comprised a red palm oil component and β-carotene in specific amounts. The problem underlying the claimed invention in view of D15 had to be seen in the provision of a prerequisite colour, since the colour defined the end of frying and the acrylamide content. The faster the prerequisite colour was attained, the less acrylamide was formed (D15: figures 2 and 4). The solution of the technical problem was provided by D3, D4 or D11, which disclosed that the red palm oil imparted an attractive colour to fried foodstuffs. The desired colour of the fried food of D15 was obtained earlier and consequently the acrylamide content was reduced.

XVII. The patent proprietor 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 on the basis of the claims of auxiliary requests 1, 2 or 4 submitted with letter of 18 December 2014.

The opponent requested that the decision under appeal be set aside and that the European patent be revoked.

Reasons for the Decision

1. The appeal is admissible.

2. Admissibility of the requests

2.1 The opponent contested the admissibility of the requests filed by the patent proprietor with its letter of 18 December 2014 to replace the previous requests on file.

Although these requests were late-filed, they were submitted in reply to the objections raised by the board in its communication of 5 December 2014. Furthermore, the differences compared with the previous requests were minor and did not raise issues which the board or the opponent could not reasonably be expected to deal with without adjourning the oral proceedings. Therefore the board in the exercise of its discretion under Article 13(1) of the Rules of Procedure of the Boards of Appeal admitted these requests into the proceedings.

2.2 As regards the opponent's argument against auxiliary request 1, i.e. that such a request (the then auxiliary request 3) had been withdrawn during the oral proceedings before the opposition division, the board notes that claim 1 of the new auxiliary request 1 and claim 1 of the withdrawn auxiliary request 3 are not identical. Therefore the withdrawal of auxiliary request 3 cannot be a reason for not admitting the new auxiliary request 1.

Main request

3. The opponent raised objections under Articles 123(2) and 84 EPC against the main request. At the oral proceedings the board had decided that the subject-matter of claim 1 of the main request was disclosed in the application as filed and was clear to a person skilled in the art (with respect to "mildly refined"). However, since the main request fails for lack of inventive step for the reasons set out below, there is no need to develop these issues any further.

4. Inventive step

4.1 The closest prior art

4.1.1 The subject-matter of claim 1 of the main request relates to a frying fat composition comprising a refined fat and a mildly refined red palm oil component in specific amounts, the frying fat composition having a specific content of β-carotene (see point XIV above). The composition can be used to produce fried foods, such as French fries, potato chips and doughnuts, having a reduced acrylamide content (paragraph [0001] of the patent specification).

4.1.2 There was disagreement between the parties as to which document constituted the closest prior art. While the patent proprietor argued for D7 because this document also dealt with low acrylamide content in heat-treated food, the opponent pleaded in favour of D11 or D14.

D7 generally relates to low acrylamide food (page 1, line 7). A method for preparing such low acrylamide heat-treated food comprises contacting a raw ingredient derived from a plant material with a reagent comprising

an amino acid having a relatively low asparagine concentration so that a coating layer is formed (claim 1). Another embodiment of the invention of D7 relates to an oil for frying a raw ingredient from a plant material, e.g. potato. The oil comprises 10 to 50 ppm of an amino acid, amino acid salt, and derivatives thereof and has substantially no asparagine (claim 30). The oil component is not further specified, and in particular red palm oil is not mentioned.

D14, published in 1937, relates to the possible use of red palm oil, a very potent source of vitamin A, in supplementing the vitamin A activity of common vegetable oils (title). It discloses various mixed oils, including 6 to 12 per cent red palm oil, which are used for frying potatoes (page 12, "Experimental", table). The frying fat composition has a carotene content of about 30 to 70 γ per gram (page 12, lines 12-14, table), which corresponds to 30 to 70 mg/kg and is within the range required by claim 1.

D11, published in 1998, relates to the acceptability of red palm oil blends for deep frying (title). Crude red palm oil was blended with refined groundnut oil in ratios of 70:30, 50:50 and 30:70. Blends of 50:50 and 30:70 were found suitable for deep frying, as the products prepared with them were highly acceptable (abstract, table page 58). The crude red palm oils are, however, disclosed as having strong odour and flavour (page 58, "Introduction").

4.1.3 Since claim 1 refers to a frying fat composition *per se* the board does not see any reason why a document disclosing a structurally related frying fat composition used for frying the same type of food should not be used as the closest prior art. The

proprietor's reference to the low acrylamide content appears to be based on a rather subjective view of the "invention". Therefore the board considers D11, which is a more recent document than D14, as a suitable starting point for the assessment of inventive step. The frying fat composition of claim 1 of the main request differs from the composition disclosed in D11 in that:

- the red palm oil component is mildly refined
- the content of the red palm oil component ranges between 3-25 wt.%, and
- the frying fat composition has a β-carotene content which ranges between 5 and 100 mg/kg.

4.2 The technical problem

The patent in suit does not contain any evidence to show that the distinguishing features provide an effect in relation to the acrylamide content. Nor did the patent proprietor argue that the frying fat composition of D11 did not produce a low acrylamide content. The objective technical problem is therefore seen in the provision of an alternative frying fat composition or, more favourably to the patent proprietor, in the provision of a frying fat composition which overcomes the unpalatability of the crude red palm oil component of D11 but otherwise maintains the good properties of such oil.

4.3 Obviousness

4.3.1 The skilled person starting from D11 and aiming at an alternative frying fat composition or even a composition which overcomes the unpalatability of the

oils of D11 would find in D3 and D4 the hint to use mildly refined red palm oil or red palm oil fractions:

4.3.2 D3 discloses mildly refined red palm oil fractions which retain most of their carotenoid content after refining (page 12, last paragraph) and which have a bland flavour (page 64, lines 9-11). Upon blending with other vegetable oils, they can be used to fry foodstuffs, such as potatoes, and impart an attractive golden colour to potato crisps (page 52, last paragraph to page 53, first paragraph; page 64, lines 11-17). Thus D3 gives the skilled person a hint to overcome the unpalatability of the crude red palm oil by mild refining and to obtain a high-quality foodstuff by using mildly refined red palm oil in the frying fat composition.

D4 discloses a mildly refined red palm oil rich in carotenes obtained by a process that includes the step of deodorisation (page 189, abstract, lines 1-4; page 190, left-hand column, lines 8-10). D4 teaches that the red palm oil has the benefit of retaining most of the carotene content of the crude palm oil (see page 189, abstract, lines 4-9) and that it can be used in cooking (page 189, abstract, lines 16-17). D4 also recommends using the red palm oil and its olein fractions as a cooking oil (page 193, table 7, line 4) and teaches that it gives an attractive colour to French fries (page 192, right-hand column, last paragraph).

At this point, the board would point out that refining frying oils such crude palm oil is part of the current frying oil technology and the general background knowledge of the skilled person (D13: page 2, last paragraph and page 7, paragraph 6.6.1), who would

therefore spontaneously consider refining the crude red palm oil of D11.

4.3.3 Thus, the skilled person would arrive by the obvious replacement of the crude red palm oil of D11 with the mildly refined palm oil of either D3 or D4 at a frying fat composition differing from that claimed only as regards the amounts of the mildly refined red palm oil and the β-carotene.

However, the upper limit of 25 wt.% for the red palm oil component in claim 1 is slightly lower than the 30% of the 70:30 blend of D11. Since the patent does not provide any evidence for any benefit in modifying a 70:30 blend to a 75:25 blend (in fact the upper limit in granted claim 1 was also 30 wt.%), this slight difference in the amount of the red palm oil component in the frying fat composition does not involve any inventive step.

4.3.4 The content of β-carotene in the subject-matter of claim 1 is the result of an obvious optimisation which the skilled person would carry out in order to obtain the desired colour of the fried foodstuff. Anyway, the amount of β-carotene in the frying compositions of D3 and D4 cannot be very different from that claimed, since it is sufficient to provide the fried food with enhanced appearance/colour and nutritional value (see D3: page 12, last three lines; page 64, second and third full paragraphs, and D4: abstract, last four lines; page 192, right-hand column, last paragraph). Thus this feature too does not involve an inventive step.

4.4 On the basis of the above, the subject-matter of claim 1 is obvious in view of D11 in combination with either D3 or D4.

4.5 As the subject-matter of claim 1 of the main request does not involve an inventive step, this request is not allowable.

Auxiliary request 1

5. Inventive step

5.1 Claim 1 of auxiliary request 1 also relates to a frying fat composition. Compared with the subject-matter of claim 1 of the main request, claim 1 of auxiliary request 1 does not require that the red palm oil component be mildly refined. It requires, however, that the red palm oil component contains 3-20 wt.% of the fat composition of an olein fraction of red palm oil, said olein fraction having an iodine value of at least 54 (see above point XIV).

5.2 D11 is still considered to represent the closest prior art, for the reason given with regard to the main request. As already indicated above, D11 discloses frying fat compositions comprising 70 wt.% of refined oil and 30 wt.% of (crude) red palm oil (page 58, right-hand column, table 1, blend of line 4). The subject-matter of claim 1 differs from the disclosure of D11 as regards:

- the amount of the red palm oil component,
- the red palm olein fraction of the red palm oil component, and
- the amount of β-carotene.

5.3 However, the distinguishing features have not been shown to be associated with any technical effect or to provide an improvement, contrary to the assertions of the patent proprietor. Therefore the objective technical problem underlying the invention of claim 1 of auxiliary request 1 in view of D11 is to be seen in the provision of an alternative frying fat composition or even a composition which overcomes the unpalatability of the oils of D11 and improves the quality characteristics of the fried food (as defined for the main request, see point 4.2 above).

5.4 The skilled person starting from D11 and looking for an alternative frying fat composition or a composition which overcomes the unpalatability of the oils of D11 and improves the quality characteristics of the fried food would consult D4, which relates to red palm oils and red palm olein fractions to be used in various food applications that enhance the appearance and nutritional value of foods (title; abstract, last four lines; page 190, right hand column, lines 29-33) and which discloses a red palm olein fraction with an iodine value of at least 54 (page 191, table 2, right column). The skilled person would therefore consider the specific palm oil olein fractions of D4 as an obvious alternative to the (crude) red palm oil of D11, or an oil fraction which overcomes the unpalatability of the oils of D11 and improves the quality characteristics of the fried food. He would therefore replace the crude red palm oil in the frying composition of D11 with the red palm olein fraction of D4 without the need to exercise any inventive skill.

The reduction of the amount of the red palm oil component from 30 wt.% to 25 wt.% and the adjustment of the amount of β-carotene to the claimed range are

obvious modifications/optimisations, for the reasons set out in the context of the main request (point 4.3 above).

It is noted that according to the calculation submitted by the opponent with the letter of 19 October 2012 (page 4), based on D17, the iodine value of the red palm olein fraction disclosed in D4, table 2, was 56.91, a value not contested by the patent proprietor.

5.5 In view of the above considerations, the subject-matter of claim 1 of auxiliary request 1 does not involve an inventive step. Consequently this request also is not allowable.

6. The opponent raised objections under Articles 123(2) and 84 EPC to the subject-matter of claim 1 of auxiliary request 1. The board considers that the subject-matter of claim 1 is disclosed in the application as filed and is clear for the person skilled in the art. However, since this subject-matter lacks an inventive step, there is no reason to develop these issues any further.

Auxiliary request 2

7. Clarity

7.1 Claim 1 of auxiliary request 2 relates to the use of a frying fat composition for reducing the acrylamide content of fried foods.

The opponent argued that claim 1 was not clear and that the use "for reducing the acrylamide content of frying foods" related to a comparison for which no comparative point had been provided.

The board does not agree with the opponent because the skilled person reading the claim with a mind willing to understand would realise that the comparison is made with the same food, fried under the same frying conditions (temperature, pressure) and fulfilling the same high quality standards, but not containing the red palm oil component. By high quality standards the skilled reader would understand satisfactory flavour, taste, texture and appearance (see paragraph [0040] of the patent in suit).

This is also confirmed by the technical evidence of the patent in suit (table 3), which compares two fried foods obtained from the same pre-fried frozen French fries, under the same frying conditions, namely a temperature of 175°C and obviously atmospheric pressure (paragraph [0038]), but using different frying fat compositions, frying fat A including a red palm oil component (the claimed invention) and frying fat B having no red palm oil component (comparative example). The food fried with fat A attained the required high quality standards faster, namely after 3.5 minutes, and had an acrylamide content of 160 µg/kg, whereas the food fried with comparative fat B attained the required standards later, namely after 4.5 minutes, and had an acrylamide content of 290 µg/kg.

On the basis of the above, the subject-matter of claim 1 fulfils the requirements of Article 84 EPC.

8. Sufficiency

8.1 The opponent argued that the patent in suit did not enable the skilled person to carry out the invention over the whole claimed range. The patent in suit disclosed only one specific way for reducing the

acrylamide content, i.e. for pre-fried frozen French fries fried at a temperature of 175°C for 3.5 minutes. However, claim 1 did not contain any limitation regarding the type of the foodstuff, its thickness and colour, or regarding the frying conditions (temperature, pressure).

According to the opponent, the technical effect of reducing the acrylamide content was associated with the colour of the fried foodstuff generated by the β-carotene. This was exemplified only for a light-coloured foodstuff, namely potato. There was no disclosure or teaching as to how such an effect could be achieved with darker foodstuffs such as carrot, beetroot or black pudding.

8.2 These arguments are not persuasive. The patent proprietor stated during the oral proceedings that the skilled person would have no difficulty transposing the example of the patent to other foodstuffs and optimising the frying time accordingly. With regard to the colour of the foodstuff, the patent proprietor stated that it was the strength of the effect which depended on the type of foodstuff, not the effect itself. Thus, the effect should be expected to be more pronounced for light-coloured foodstuffs than for darker foodstuffs. In this context, it is noted that the opponent did not submit any evidence to demonstrate that the invention would not work for other products and other frying conditions.

8.3 On the basis of the above, the patent is considered to disclose the patent in a manner sufficiently clear and complete to be carried out by a person skilled in the art.

9. Inventive step of claim 1

9.1 The closest prior art

Claim 1 of auxiliary request 2 is directed to the use of a particular frying fat composition for reducing the acrylamide content of fried foods.

Two documents were considered by the parties to represent the closest prior art, namely D7 and D15.

D7 discloses, as set out above, a method for preparing a heat-treated food with reduced acrylamide content comprising the step of forming a coating layer on the foodstuff with a reagent comprising an amino acid and having a relatively low asparagine concentration.

D15 is a scientific article and relates to a frying process designed to reduce the formation of acrylamide by low-temperature vacuum frying (abstract).

As both documents concern the reduction of acrylamide content in heat-treated foodstuffs, they are indistinguishably close to the claimed subject-matter and they can both be considered to represent the closest prior art.

The subject-matter of claim 1 differs from the disclosure of D7 and D15 in that it requires the use of a frying fat composition which comprises at least 70 wt.% of refined fat; 3-30 wt.% of a red palm component selected from the group consisting of red palm oil, red palm oil fractions and combinations thereof; and from 5 to 100 mg/kg of β-carotene.

9.2 The technical problem

The technical problem underlying the claimed invention in view of D7 or D15 is seen in the provision of an alternative way of reducing acrylamide in conventionally fried foods while maintaining the other high quality characteristics of the fried foods (see patent in suit, paragraphs [0010] and [0011]).

As the solution to this problem the patent in suit proposes the use of a specific frying fat composition which comprises at least 70 wt.% of refined fat; 3-30 wt.% of a red palm component selected from the group consisting of red palm oil, red palm oil fractions and combinations thereof; and from 5 to 100 mg/kg of β-carotene.

The problem is credibly solved, as shown in the experimental part of the patent in suit (paragraph [0042]). The fried food obtained by frying in fat composition A, according to the claimed invention, had an acrylamide content of 160 µg/kg, whereas the comparative fried food obtained by frying in fat composition B had an acrylamide content of 290 µg/kg.

9.3 Obviousness

The question which remains to be answered is whether or not the skilled person starting from either D7 or D15 and aiming at finding an alternative way for reducing the acrylamide content of a fried food would consider the use of the frying fat composition of claim 1 as obvious.

9.3.1 The board notes that neither D7 nor D15 contains any hint towards the claimed alternative.

The key element of D7 is the use of a reagent comprising an amino acid having a relatively low asparagine concentration. The key element of D15 is vacuum frying at lower temperatures which leads to high-quality products with lower acrylamide content (see page 411, right column, conclusions). Neither D7 nor D15 provides any motivation to modify the frying composition.

9.3.2 Nor does the remaining prior art provide any hint towards the claimed alternative.

It has already been acknowledged (see point 4.3.2 above) that D3 and D4 disclose frying fat compositions comprising palm oil fractions which impart an attractive colour to fried potato chips or French fries (D3: page 53, first paragraph; page 64, lines 11-12; D4: page 189, abstract, last 4 lines; paragraph bridging pages 192/193). Neither of these documents discloses or suggests that the colour formation leads to a reduction in the frying time, i.e. that a high-quality foodstuff (in terms of flavour, taste, texture and appearance) could be achieved in a shorter time and, as a consequence of the shorter cooking time, to a reduced acrylamide content.

The argument of the opponent that the colour formation mentioned in D3 or D4 provides a hint towards low acrylamide content appears to be based on hindsight. As stated above, there is no relation between colouring and cooking time in these documents, so the opponent's argument is flawed from the outset.

The same applies to D11, which discloses frying fat compositions containing red palm oil and which upon frying provide fried products with a bright yellow

colour (abstract; page 59, left column, lines 7-10) but without any hint towards reducing the frying time in order to obtain high-quality foodstuffs with reduced acrylamide content.

9.4 The board agrees with the patent proprietor that there is an analogy between the subject-matter of claim 1 and the "second non-medical indication" dealt with in G 2/88 (OJ EPO, 1990, 93, headnote III). Claim 1 refers to the use of an obvious composition (G 2/88: known compound) for a particular purpose, which is based on a technical effect. In the present case, the technical effect (i.e. the reduced acrylamide content) has not previously been made available to the public for the frying fat composition of the claim.

9.5 In view of the above, the subject-matter of claim 1 of auxiliary request 2 involves an inventive step.

10. The subject-matter of dependent claims 2-10 is considered *mutatis mutandis* to involve an inventive step.

11. Amended description

The patent proprietor submitted an amended description during the oral proceedings before the board. The opponent did not object to the amendments and the board is satisfied that they provide support to the subject-matter claimed in auxiliary request 2 without contravening any requirement set by the EPC.

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 on the basis of the following documents:

   - claims 1 to 10 of auxiliary request 2 submitted with the letter dated 18 December 2014 and
   - description pages 2 to 5 as filed during the oral proceedings before the Board.

The Registrar: The Chairman:

M. Cañueto Carbajo W. Sieber

Decision electronically authenticated