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Datasheet for the decision of 23 September 2016

Case Number: T 2227/13 - 3.3.09

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Language of the proceedings: EN

Title of invention:
VEGETABLE FAT BLEND AND EDIBLE PRODUCTS CONTAINING SUCH A FAT BLEND

Patent Proprietor:
Sime Darby Malaysia Berhad

Opponents:
Loders Croklaan BV
UNILEVER N.V. / UNILEVER PLC

Headword:

Relevant legal provisions:
EPC Art. 123(2), 56
RPBA Art. 12(2), 13(1)

Keyword:
Inventive step (no): main request and auxiliary requests I and II
Added subject-matter (yes): auxiliary request III

Decisions cited:

Catchword:

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Case Number: T 2227/13 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 23 September 2016

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Respondent: (Opponent 1)	Loders Croklaan BV Hogeweg 1 1521 AZ Wormerveer (NL)
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Respondent: (Opponent 2)	UNILEVER N.V. / UNILEVER PLC Weena 455/100 Victoria Embankment 3013 AL Rotterdam/London, Greater London EC4Y 0DY (NL)
Representative:	Wurfbain, Gilles L. Unilever N.V. Unilever Patent Group Olivier van Noortlaan 120 3133 AT Vlaardingen (NL)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 7 August 2013 revoking European patent No. 2162011 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	W. Sieber
Members:	N. Perakis
	E. Kossonakou

Summary of Facts and Submissions

I. This decision concerns the appeal filed by the patent proprietor against the decision of the opposition division to revoke European patent No EP 2 162 011. The patent was granted with 15 claims. Claims 1, 3, 4, 7 and 12 to 15 read as follows:

"1. A vegetable fat blend containing:

- 0.5-15 wt.% of red palm oil;

- 15-75 wt.% of a highly unsaturated oil selected from the group consisting of sunflower oil, soybean oil, rapeseed oil, cottonseed oil, safflower oil, marine oil, corn oil, olive oil, linseed oil and combinations thereof; and

- 25-60 wt.% of a structuring fat selected from the group consisting of palm oil, palm oil fractions, lauric fat, lauric fat fractions, fully hydrogenated vegetable oil, and combinations thereof;

wherein the red palm oil contains at least 200 ppm of carotenoids and 200 ppm of tocotrienols."

"3. Vegetable fat blend according to claim 1 or 2, wherein the vegetable fat blend is characterised by the following solid fat profile:

- $20\% \leq N_{10} \leq 45\%$;
- $2\% \leq N_{20} \leq 20\%$; and
- $0\% \leq N_{30} \leq 5\%$."

"4. Vegetable fat blend according to any one of the preceding claims, containing from 15-55 wt.% of triglycerides selected from the group consisting of HHU triglycerides, HUH triglycerides, HHH triglycerides and combinations thereof, wherein H represents palmitic acid or stearic acid and wherein U represents oleic acid, linoleic acid or linolenic acid."

"7. Vegetable fat blend according to any one of the preceding claims, containing 2-20 wt.% of a lauric fat component selected from the group consisting of coconut oil, palm kernel oil, coconut oil fractions, palm kernel oil fractions and combinations thereof."

"12. An edible product having a fat content of at least 15% by weight of dry matter, said fat consisting of 0-40 wt.% of dairy fat and 60-100 wt.% of the vegetable fat blend defined in any one of the preceding claims."

"13. Edible product according to claim 12, wherein the edible product is selected from the group consisting of cheese, milk, cream, bakery fat, bakery margarine, ice cream, desserts, milkshakes and coffee creamer."

"14. Edible product according to claim 13, wherein the edible product is an imitation dairy product having a fat content of 15-95%, preferably of 25-65% and even more preferably of 35-55% by weight of dry matter."

"15. Edible product according to claim 14, wherein the imitation dairy product is an imitation cheese product."

II. Notices of opposition were filed by

- opponent 1 (Loders Croklaan BV) and
- opponents 2 (Unilever NV and Unilever PLC)

requesting revocation of the patent in its entirety on the grounds of Article 100(a) EPC (lack of novelty and of inventive step), Article 100(b) EPC and Article 100(c) EPC.

The documents filed during the opposition proceedings included:

D1 : S.J. Passi *et al.*, *International Journal of Oil Palm Research*, 2000, vol. 1(1/2), 45-50;

D2 : B. Nagendran *et al.*, *Food and Nutrition Bulletin*, 2000, vol. 21(2), 189-193;

D4 : A.J.C. Andersen *et al.*, "Margarine", second revised edition, Pergamon Press, 1965, 124-127 and 362-363;

D10 : US 4 388 339;

D16 : F.D. Gunstone *et al.*, "The Lipid Handbook, second edition, Chapman and Hall, 1994, 219-221; and

D20: A.J.C. Andersen *et al.*, "Margarine", second revised edition, Pergamon Press, 1965, 1, 32.

With regard to the claims as granted (main request), the opposition division held that claim 1 did not contain added matter, the invention was sufficiently disclosed and the subject-matter of claim 1 was novel over D1. However, the subject-matter of claim 1 lacked inventive step over the obvious combination of D10 with any of D2, D4 or D16. With regard to the only other

request then on file, namely auxiliary request II, the opposition division considered that it did not meet the requirements of Article 123(3) EPC. Consequently, it revoked the patent.

III. On 10 October 2013, the patent proprietor (in the following the appellant) filed an appeal against the decision of the opposition division. The statement setting out the grounds of appeal was filed on 17 December 2013 including an experimental report (**D21**) and auxiliary request I.

The appellant requested that the decision of the opposition division be set aside and that the patent be maintained on the basis of the claims as granted (main request), or on the basis of the claims of auxiliary request I.

Claim 1 of **auxiliary request I** reads as follows (amendments to claim 1 as granted in bold):

"1. A vegetable fat blend containing:

- 0.5-15 wt.% of red palm oil;

- 15-75 wt.% of a highly unsaturated oil selected from the group consisting of sunflower oil, soybean oil, rapeseed oil, cottonseed oil, safflower oil, marine oil, corn oil, olive oil, linseed oil and combinations thereof; and

- 25-60 wt.% of a structuring fat selected from the group consisting of palm oil, palm oil fractions, lauric fat, lauric fat fractions, fully hydrogenated vegetable oil, and combinations thereof, **including 2-20 wt.% of the vegetable fat blend of a lauric fat**

component selected from the group consisting of coconut oil, palm kernel oil, coconut oil fractions, palm kernel oil fractions and combinations thereof;

wherein the red palm oil contains at least 200 ppm of carotenoids and 200 ppm of tocotrienols."

IV. By letter of 29 April 2014 and 1 May 2014 respectively, opponents 2 and opponent 1 (in the following respondents 2 and respondent 1) filed observations on the appeal and requested that the appeal be dismissed. Respondents 2 also requested that auxiliary request I not be admitted into the proceedings. Respondent 1 further requested that D21 not be admitted into the proceedings and filed the following documents:

D22 : Geoff Talbot, "Slick Answers, Bakery Release Agents", Bake & Take Magazine, 2004; available as an R&D paper on the IOI Loders Croklaan Edible oils website, http://northamerica.croklaan.com/delivering-on-ideas/rd-papers (D22A); and

D23 : Fats & Oils - Food Research - Oregon State University, http://food.oregonstate.edu/learn/fat.html.

V. By letter of 26 November 2014, the appellant replied to the observations of the respondents and submitted auxiliary request II and document D24:

D24: Commission of the European Communities: food-science and techniques, Reports of the Scientific Committee for Food; Report EUR 1235 EN (1990), 1-9.

Claim 1 of **auxiliary request II** reads as follows (amendments to claim 1 as granted in bold):

"1. A vegetable fat blend containing:

- 0.5-15 wt.% of red palm oil;

- 15-75 wt.% of a highly unsaturated oil selected from the group consisting of sunflower oil, soybean oil, rapeseed oil, cottonseed oil, safflower oil, marine oil, corn oil, olive oil, linseed oil and combinations thereof; and

- 25-60 wt.% of a structuring fat selected from the group consisting of palm oil, palm oil fractions, lauric fat, lauric fat fractions, fully hydrogenated vegetable oil, and combinations thereof, **including 2-20 wt.% of the vegetable fat blend of a lauric fat component selected from the group consisting of coconut oil, palm kernel oil, coconut oil fractions, palm kernel oil fractions and combinations thereof;**

wherein the vegetable fat blend contains from 15-55 wt.% of triglycerides selected from the group consisting of HHU triglycerides, HUH triglycerides, HHH triglycerides and combinations thereof, wherein H represents palmitic acid or stearic acid and wherein U represents oleic acid, linoleic acid or linolenic acid; and

is characterised by the following solid fat profile:
- 20% ≤ N_{10}≤ 45%;
- 2% ≤ N_{20}≤ 20%; and
- 0% ≤ N_{30}≤ 5% and

wherein the red palm oil contains at least 200 ppm of carotenoids and 200 ppm of tocotrienols."

VI. By letter of 19 March 2015, respondents 2 filed further observations and requested that auxiliary request II and document D24 not be admitted into the proceedings.

VII. By letter of 2 September 2015, the appellant submitted further arguments and **auxiliary request III**.

Claim 1 of this request reads as follows (amendments to claim 1 as granted in bold):

"1. **An imitation cheese product having a fat content of at least 15% by weight of dry matter, said fat consisting of 0-40 wt.% of dairy fat and 60-100 wt.% of** a vegetable fat blend containing:

- 0.5-15 wt.% of red palm oil;

- 15-75 wt.% of a highly unsaturated oil selected from the group consisting of sunflower oil, soybean oil, rapeseed oil, cottonseed oil, safflower oil, marine oil, corn oil, olive oil, linseed oil and combinations thereof; and

- 25-60 wt.% of a structuring fat selected from the group consisting of palm oil, palm oil fractions, lauric fat, lauric fat fractions, fully hydrogenated vegetable oil, and combinations thereof;

wherein the red palm oil contains at least 200 ppm of carotenoids and 200 ppm of tocotrienols."

VIII. In a communication dated 22 July 2016, the board expressed its preliminary non-binding opinion regarding the outstanding issues of this case.

IX. By letter of 17 August 2016, respondent 1 filed further observations on the patentability of the requests of the appellant.

X. On 23 September 2016 oral proceedings took place before the board in the absence of the appellant, which had announced this in its letter of 3 May 2016.

XI. The relevant arguments put forward by the appellant in its written submissions may be summarised as follows:

Main request

- The subject-matter of claim 1 of the main request involved an inventive step.

- D10 was the closest prior-art document. The vegetable fat blend of claim 1 differed from the margarine fat phase described in D10 in that it comprised 0.5-15 wt.% of red palm oil, which contained at least 200 ppm of carotenoids and 200 ppm of tocotrienols.

- The red palm oil component at 0.5-15 wt.% provided superior oxidative stability to the vegetable fat blend. This was shown in D21, which was an experimental report filed with the grounds of appeal. D21 should be admitted into the proceedings, since it replied to the opposition division's criticisms that the patent in suit had not adequately demonstrated the alleged benefit of the claimed invention.

- The technical problem addressed by the claimed invention in view of D10 was seen in the provision of a milk fat replacer having improved oxidative stability (patent: paragraph [0008]).

- The solution offered by the subject-matter of claim 1 of the main request was not obvious. From the documents cited by the respondents, only D2 contained statements concerning red palm oil oxidative stability. However, the skilled person would not have consulted D2 since it neither referred to red palm oil as an antioxidant nor suggested that red palm oil could be added to oils and fats to protect these against oxidation. D2 merely confirmed that red palm oil contained powerful antioxidants in the form of tocopherols and tocotrienols and recognised that these antioxidants were responsible for the oxidative stability of red palm oil *per se*. Thus, only with hindsight could it be argued that D2 would have motivated the skilled person to use red palm oil to improve the oxidative stability of the margarine fat phase described in D10 by removing beta-carotene and part of the fat components and replacing it with 0.5-15 wt.% of red palm oil.

- Furthermore, as shown by D24 (page 2), at the priority date of the patent in suit a variety of natural and synthetic antioxidants were known to delay and/or prevent oxidation of oils and fats which did not include red palm oil. Contrary to the assertions of the respondents, D24 did not disclose that it was solely concerned with antioxidants that carried an E-number.

- Thus the skilled person would not have combined D2 with D10.

Auxiliary request I

- The subject-matter of claim 1 of auxiliary request I involved an inventive step. The claimed vegetable fat blend differed from the margarine fat phase of D10 in that it contained (i) 0.5-15 wt.% of red palm oil which contained at least 200 ppm of carotenoids and 200 ppm of tocotrienols and (ii) 2-20 wt.% of a lauric fat component selected from the group consisting of coconut oil, palm kernel oil, coconut oil fractions, palm kernel oil fractions and combinations thereof. The distinguishing features were responsible for superior oxidative stability (patent, [0008] and [0025]) as demonstrated in D21. The technical problem was the same as for the main request and its solution was not derivable from any of the prior-art documents.

- A skilled person would not have regarded the lauric fat component as a suitable replacement for the soybean oil and the palm mid fraction contained in the margarine fat blend of D10. The skilled person was aware that changing the composition of a margarine by replacing one fat component with another fat component usually had significant ramifications for important product characteristics (e.g. mouth-feel, melting behaviour and temperature cycling stability). Clearly, the lauric fat component was a fat with properties that were quite different from both soybean oil and palm mid fraction contained in the margarine fat blend of D10.

- Furthermore, D10 actually taught away from using lauric fat in the fat phase of a stick-type margarine as described in the examples. Thus D10 advocated not using fats or oils high in lauric acids (i.e. lauric fats) in stick-type products.

- Consequently, the skilled person facing the challenge to improve the oxidative stability of the margarine fat blend of D10 would not have been motivated to replace part of the margarine fat blend of D10 with a lauric fat component. Thus the subject-matter of auxiliary request I involved an inventive step.

Auxiliary request II

- This auxiliary request should be admitted into the proceedings. It had been filed in response to the written submissions made by the opponents in their observations on the grounds of appeal.

- The subject-matter of claim 1 of auxiliary request II involved an inventive step.

- It was not obvious to add at least 2 wt.% of a lauric fat component in the margarine fat blend of D10 since this would have affected the solid fat profile and would have increased the solid fat content at 10°C , 20°C and 30°C. The addition of red palm oil in the same fat blend of D10 would further have increased the solid fat content at 10°C, 20°C and 30°C. Thus the resulting vegetable fat blend would not have been that of claim 1 of auxiliary request II.

XII. The relevant arguments put forward by the respondents in their written submissions and during the oral proceedings may be summarised as follows:

Main request

- The subject-matter of claim 1 of the main request did not involve an inventive step. The margarine composition of D10 which contained beta-carotene as colourant was considered to be the closest prior art. Claim 1 of the main request differed from the disclosure of D10 in that it required 0.5 to 15 wt.% of red palm oil.

- Even assuming that the technical problem was the provision of a vegetable fat blend with improved antioxidant stability, its solution was obvious in view of D2.

- D2 disclosed that red palm oil not only contained carotene but also tocotrienols. Both components acted in synergy to improve the antioxidant stability of the oil. Since red palm oil was commonly known as a colourant for margarine fats (see D4 and D16), there was no obstacle or disincentive to use red palm oil in margarine fats to replace the beta-carotene of D10.

- D21 should not be admitted into the proceedings because it was late-filed and irrelevant. But even if it were admitted, it did not demonstrate any surprising effect; it simply confirmed what the skilled person already knew from D2, namely the synergy of carotenoids and tocotrienols regarding oil oxidative stability.

- D24 was also late-filed and irrelevant because it related only to antioxidants having E-numbers. Thus the appellant's argument that D24 did not teach the skilled person to use red palm oil was not plausible. Furthermore, D24 was published in 1990 and was not representative of the knowledge of the skilled person about using palm oil as an antioxidant at the priority date of the patent in suit.

Auxiliary request I

- Auxiliary request I should not be admitted into the proceedings because it had not been filed before the opposition division.

- The subject-matter of claim 1 of auxiliary request I did not involve an inventive step.

- D10, which was still the closest prior art, disclosed that the fat could contain minor amounts of other fats and oils such as the lauric fats coconut oil and palm kernel oil (column 15, line 66 to column 16, line 19). The amounts of 6 and 15 wt.% were disclosed in column 16, lines 18-19. The contribution of lauric fats such as coconut oil to oxidative stability was part of the common general knowledge (see D20, page 32, lines 5-8).

- Claim 1 of auxiliary request I differed from embodiment 1 of D10 in that a specific amount of a specific lauric fat component was present. Even if it were admitted that it contributed to the antioxidant stability of the vegetable fat blend, this was obvious in view of D2. Indeed, the skilled person starting from D10 and seeking to improve the

oxidative stability of the margarine composition would have found in D2 the motivation to add red palm oil, whose carotenoids content provided the colour sought and improved the resistance of the fat to oxidation and whose tocotrienols content provided a synergistic contribution to the antioxidant resistance of the fat.

- The assertions of the appellant that D10 taught away from the use of lauric fat in the fat phase were contradicted by the disclosure of D10 itself. According to D10, lauric fats could be included in margarine fat by appropriate blending in various amounts depending on the desired properties of the spread (column 16, lines 13-17). D10 taught caution when using oils/fats high in lauric fat in stick margarines, but did not teach away from such use.

Auxiliary request II

- Late-filed request II should not be admitted into the proceedings. The appellant had not given any reasons for filing it late.

- The subject-matter of claim 1 of this request lacked inventive step. D10 was still considered to be the closest prior art. D10 additionally disclosed the feature of claim 1 relating to the solid fat profile (column 7, lines 24-25 and table at the bottom of column 21). Furthermore, D10 disclosed a triglyceride content which was roughly the same as that of claim 1 (column 15, line 66 to column 16, line 19). Thus the only difference of claim 1 from D10 was that the vegetable fat blend contained 0.5 to 15 wt.% of red palm oil.

- The technical problem was the provision of a vegetable fat blend with improved antioxidant stability.

- The skilled person starting from D10 and seeking to improve the antioxidant stability of the margarine fat blend would have found in D2 the motivation to add a red palm oil which contained carotenoids and tocotrienols and which synergistically contributed to improving the antioxidant stability of the fat and provided the required colour.

Auxiliary request III

- Auxiliary request III should not be admitted into the proceedings since it was late-filed and did not reply to any of the points raised by the respondents.

- The subject-matter of claim 1 of auxiliary request III did not fulfil the requirements of Article 123(2) EPC. The imitation cheese product of this claim required a fat content of at least 15% by weight of dry matter, i.e. no upper limit. However the application as filed required a fat content of 15-95% by weight of dry matter (claim 19 as filed; page 6, lines 21-22 as filed).

XIII. The appellant requested in writing that the decision of the opposition division be set aside and that the patent be maintained as granted (main request), or on the basis of the claims of any of auxiliary requests I to III as filed during the appeal proceedings. It also requested that D21 and D24 be admitted into the appeal proceedings.

XIV. The respondents requested that the appeal be dismissed, and that the auxiliary requests and D21 and D24 not be admitted into the proceedings.

Reasons for the Decision

1. Admissibility of D21

The appellant filed experimental report D21 with the statement setting out the grounds of appeal, in order to show the superior oxidative stability achieved by the claimed vegetable fat blends. The opposition division had not acknowledged this alleged benefit since there was no technical evidence for it. Thus it had defined the objective technical problem to be solved as the mere provision of an alternative antioxidant material or an alternative colouring agent for a dairy fat replacer (see point 2.4.4 of the decision).

Hence, D21 was filed in order to overcome the deficiency noted in the opposition division's decision and at the earliest point in time in the appeal proceedings, namely with the statement setting out the grounds of appeal. Therefore the board admitted D21 into the proceedings, despite respondent 1's request that it not do so (Article 12(2) RPBA).

Main request (claims as granted)

2. The board does not agree with the respondents' objections that the invention is insufficiently disclosed or that the subject-matter of claim 1 as granted contains added-matter and lacks novelty in view

of D1. However, as this request has been found to lack inventive step, the board does not consider it necessary to elaborate on these issues.

3. Inventive step

3.1 Closest prior art

The parties agree that D10 represents the closest prior art. The board sees no reason to differ. D10 concerns margarines in which milk fats are replaced with vegetable fats for reasons of cost and health. The patent in suit also aims to provide a vegetable fat blend that can be used to replace milk fat in processed food or to prepare imitation dairy products (see paragraphs [0001] to [0004]). Thus D10 is in the same field as the patent in suit.

D10 is directed in general terms to an edible water-in-oil emulsion spread, wherein the oil phase comprises a soft oil and a structural fat (the patent in suit uses the term "structuring" fat) having a certain fat profile. D10 discloses in embodiment 1 a margarine comprising a fat blend of 46 wt.% of palm oil mid fraction (as a structuring fat) and 54 wt.% of soybean oil together with other minor components including beta-carotene as colouring agent. The amount of beta-carotene is not specified, but since beta-carotene is described in the context of colouring agents, it is presumably added in an amount sufficient for that purpose (column 16, lines 32-36).

There was general agreement that the subject-matter of claim 1 of the main request differs from the disclosure of D10, and in particular from embodiment 1, in that the vegetable fat blend contains 0.5 to 15 wt.% of red

palm oil which contains at least 200 ppm of carotenoids and 200 ppm of tocotrienols.

3.2 The technical problem and its solution

The appellant filed experimental data D21 to show improved oxidative stability of fat blends containing red palm oil according to claim 1 compared with fat blends as disclosed in D10.

As shown in D21, four different coloured fat blends on the basis of sunflower oil (a highly unsaturated oil) and a palm mid fraction (a structuring fat) were prepared:

- Blend 1 was prepared by adding red palm super olein to a 60:40 blend of sunflower oil and palm mid fraction. The red palm super olein contributed 30 ppm carotene and 41 ppm tocotrienols to the final blend.

- Blend 2 was prepared by adding a mixture of commercially available beta-carotene and palm mid fraction to a 60:40 blend of sunflower oil and palm mid fraction to provide 30 ppm carotene in the final blend.

- Blend 3 was prepared in the same way as blend 1, except that the 60:40 blend of sunflower oil and palm mid fraction was replaced with a 54:36:10 blend of sunflower oil, palm mid fraction and palm kernel oil.

- Blend 4 was prepared in the same way as blend 2, except that the 60:40 blend of sunflower oil and palm mid fraction was replaced with a 54:36:10

blend of sunflower oil, palm mid fraction and palm kernel oil.

These blends were tested for oxidative stability. In so far as the results contained in D21 are in any way significant (which was challenged by respondent 1), they show that fat blends 1 and 3 containing red palm super olein have slightly increased oxidative stability compared to fat blends 2 and 4 according to the prior art.

Hence, the objective technical problem addressed by the patent in suit in view of D10 is the provision of a vegetable fat blend as a milk fat replacer with an attractive colour and improved oxidative stability (see also paragraph [0008]).

3.3 Obviousness

3.3.1 The skilled person starting from the margarine fat blend disclosed in D10 and aiming at a vegetable fat blend providing an attractive colour and improved oxidative stability would look for an ingredient that can boost the anti-oxidative properties of the known vegetable fat blend. D2 provides the person skilled in the art with the incentive to use red palm oil as a solution to the posed problem.

3.3.2 D2 is a scientific article on the characteristics of red palm oil. It discloses the presence of carotenoids and vitamin E in red palm oil (pages 190 to 192), and the use of the refined oil in food.

3.3.3 The contribution of the carotenoids to the colour of the red palm oil of D2 is disclosed in the following passages:

- In the sentence bridging pages 192 and 193, where it is stated: *"It [red palm oil] can also be used in margarine formulations to give the required colour to the final product and the desired level of provitamin A"*.

- On page 189, right-hand column, lines 4-5, it is stated: *"Carotenoids impart the characteristic orange-red colour to crude palm oil".*

- In Table 1 of page 191, which discloses that red palm olein contains 513 ppm of carotenes.

3.3.4 D2 also discloses that the carotenoids provide a certain oxidative stability to the red palm oil. Page 189 (right-hand column, lines 6-7) states: *"They (the carotenoids) also offer some oxidative protection by themselves being oxidized first, prior to the triglycerides [1]"*.

3.3.5 More importantly, D2 discloses at page 192 (left-hand column, under the heading "Vitamin E in red palm oil") that the four major types of vitamin E present in red palm oil are three tococtrienols and a tocopherol, and that:

"... the presence of both carotene and vitamin E provides synergistic protection against auto- and photo-oxidation of unsaturated triglycerides".

This is a clear teaching as to the synergistic antioxidant effect of carotenoids and tocotrienols, which promises improvement of the anti-oxidative properties as well as provision of colour. In view of that, the results contained in the experimental report

of D21 are not surprising. All that D21 does is to confirm what was already known from D2.

3.3.6 Thus, replacing beta-carotene in embodiment 1 of D10 with a certain amount of red palm oil is obvious for the skilled person starting from D10 and combining it with the teaching of D2.

Contrary to the assertions of the appellant, there was no obstacle or disincentive to use red palm oil in margarine fats to replace the beta-carotene of D10, since red palm oil was commonly known as a colourant for margarine fats (see D4 and D16).

3.3.7 As to the amount of the red palm oil specified in claim 1, or the amounts of beta-carotene and tocotrienols in claim 1, it is to be noted that red palm oil contains both beta-carotene and tocotrienols in a natural (given) ratio. How much red palm oil is to be included in a fat blend containing a large amount of unsaturated fatty acids is a matter of routine experimentation. The skilled person will have to use enough red palm oil to provide sufficient anti-oxidation of the fatty acids, but not so much that he imparts too strong a colour to the fat blend. The appropriate amounts can be determined by routine experimentation without any inventive skill and without undue burden. Therefore, finding out the claimed amount of the red palm oil (including the claimed amounts of beta-beta-carotene and tocotrienols) cannot involve an inventive step.

3.3.8 The appellant filed D24 in order to show that the skilled person did not know that red palm oil could be used as an antioxidant at the priority date of the patent in suit. However, as pointed out by the

respondents, D24 relates only to antioxidants having E-numbers. Since red palm oil did not not have an E-number, it is quite logical that D24 does not refer to it. Thus, D24 is irrelevant.

3.4 In view of the above, the subject-matter of claim 1 of the main request lacks inventive step, and the main request is not allowable.

Auxiliary request I

4. Admissibility

Auxiliary request I was filed with the statement setting out the grounds of appeal. The board saw no reason not to admit this auxiliary request into the proceedings (Article 12(2) RPBA). In particular, the board was not convinced by the respondents' sole argument that the request could (rather than should) have been filed before the opposition division.

5. Inventive step

5.1 Compared to granted claim 1, claim 1 of auxiliary request I contains the additional feature that the structuring fat includes 2-20% by weight of the vegetable fat blend of a lauric acid fat component selected from the group consisting of coconut oil, palm kernel oil, coconut oil fractions, palm kernel oil fractions and combinations thereof (see point III above). D10 is still the closest prior art.

5.2 The examples provided by the proprietor in D21 demonstrate that replacing part of the (highly unsaturated) sunflower oil with palm kernel oil reduces the tendency of the fat blend to oxidise. Thus, the

objective technical problem may be seen in the provision of a vegetable fat blend having an attractive colour and (further) improved oxidative stability.

5.3 It has already been found with regard to the main request that the use of red palm oil (in the required amount, including beta-carotene and tocotrienols) is not inventive in view of the obvious combination of D10 with D2.

As regards the additional feature, namely the presence of a specific lauric fat, D10 discloses at column 15, line 66 to column 16, line 19 that, in addition to the structuring fat and the soft oil, the margarine can include minor amounts of other fats and oils, such as the lauric fats coconut oil and palm kernel oil. These fats and oils are normally included in amounts of 6 and 15 wt.%. Thus, the option of using lauric fat is already suggested by D10 itself.

As to the effect caused by the use of lauric fat, the skilled person would naturally expect this as a matter of common general knowledge illustrated by D20, a handbook in the field of margarine making. Page 32 of D20 discloses that coconut oil and palm kernel oil are two of the most important fats for margarine in Europe and many other parts of the world (paragraph 1). Both coconut oil and palm kernel oil are described as fats which have a low unsaturated fatty acid content and are resistant to oxidation (paragraphs 2 and 3). Furthermore, according to the last sentence on page 32, the level for inclusion of such fats can be as little as 10 percent.

Thus, the skilled person would have been aware of the fact that the oxidative stability of a fat blend can be

(further) improved by using coconut oil and/or palm kernel oil. Consequently, the feature added to claim 1 of auxiliary request I is obvious from D10 in combination with common general knowledge as evidenced by D20.

5.4 Thus, the subject-matter of claim 1 of auxiliary request I does not involve an inventive step and auxiliary request I is not allowable.

5.5 In view of the above, there is no need to elaborate on the respondents' objection that claim 1 of auxiliary request I does not comply with the requirements of Article 123 EPC.

Auxiliary request II

6. Admissibility

This request was filed with letter of 26 November 2014 in reaction to the respondents' observations on the appeal. The board therefore admitted it into the proceedings (Article 13(1) RPBA).

7. Inventive step

7.1 Compared with claim 1 of auxiliary request I, claim 1 of auxiliary request II further specifies that:

- the vegetable fat blend contains from 15-55 wt.% of triglycerides selected from the group consisting of HHU triglycerides, HUH triglycerides, HHH triglycerides and combinations thereof, wherein H represents palmitic acid or stearic acid and U represents oleic acid, linoleic acid or linolenic acid; and

- the vegetable fat blend is characterised by the following solid fat profile:
  - $20\% \leq N_{10} \leq 45\%$;
  - $2\% \leq N_{20} \leq 20\%$; and
  - $0\% \leq N_{30} \leq 5\%$.

7.2 D10 is still the closest prior art. The board agrees with the respondents that the more precise definition of the fat blend is not a further distinguishing feature over D10, for the following reasons:

7.2.1 D10 discloses in column 28, lines 36-50, the solid fat profile for the exemplified vegetable blend PMF-1 with 46% palm mid fraction and 54% soybean oil, which, as the respondents explained during the oral proceedings, is the fat profile of the desired final margarine product, independently of the additional ingredients such as red palm oil or lauric fat. The disclosed solid fat profile is as follows:

Temperature	% solids by weight
50°F (10°C)	29.9
70°F (21°C)	15.0
92°F (33°C)	3.2

This solid fat profile falls within the profile required by claim 1 of auxiliary request II. Thus the claimed solid fat profile does not distinguish the subject-matter of this claim from the disclosure of D10. The amounts of red palm oil and lauric fat in claim 1 of auxiliary request II can be as small as 0.5 wt.% and 2 wt.%, respectively, with no significant impact on the solid fat profile, contrary to the assertions of the appellant. Anyway, neither the patent in suit nor the file contains any technical evidence to

support any impact of the amount on the properties of the vegetable fat blend.

7.2.2 Moreover, D10 discloses a triglyceride content in relation to the vegetable fat blend PMF-1 (table at the bottom of column 21) which largely overlaps with that of claim 1. According to this table the triglyceride wt.% content of PMF-1 is:

- 7.3 for SSS [SSS corresponds to HHH of the claim since S is the same as H];
- 43.4 for SOS [SOS corresponds to HUH of the claim since U is roughly the same as O]; and,
- 8.2 for SSO [SSO corresponds to HHU of the claim] (see column 7, lines 24-25 for the meaning of S and O).

On the basis of the disclosure in column 28, lines 40-42, that PMF-1 represents 46 wt.% of the margarine fat blend, the triglycerides from PMF-1 are present in an amount of 28.9 wt.% [0.46 x (7.3 SSS + 43.4 SOS + 8.2 SSO) = 28.9], which falls within the range 15-55 wt.% of claim 1. Thus this feature is also disclosed in D10.

7.2.3 In summary, the subject-matter of claim 1 of auxiliary request II differs from the disclosure of D10 only in that it contains (a) 0.5 to 0.15 wt.% of red palm oil containing a least 200 ppm of carotenoids and 200 ppm of tocotrienols, and (b) 2-20% by weight of a specific lauric fat.

7.3 In view of the above, the situation with regard to inventive step is still the same as for auxiliary request I, which means that the subject-matter of claim 1 of auxiliary request II likewise does not

involve an inventive step in view of the combination of D10 with D2 and D20. Consequently, this request too is not allowable.

7.4 Under these circumstances, there is no need to elaborate on the respondents' objection that claim 1 of auxiliary request II does not comply with the requirements of Article 123 EPC.

Auxiliary request III

8. Admissibility

This request was filed with letter of 2 September 2015 as a reaction to respondents 2's observations which had been filed with letter of 19 March 2015. The board therefore admitted it into the proceedings (Article 13(1) RPBA).

9. Added subject-matter

9.1 Claim 1 of auxiliary request III is limited to an imitation cheese product having a fat content of at least 15% by weight of dry matter (for the exact wording see point VII).

9.2 The only basis for such a claim would be claims 19 and 21 as filed, which read as follows:

"19. Edible product according to claim 18, wherein the edible product is an imitation dairy product having a fat content of 15-95%, preferably of 25-65% and even more preferably of 35-55% by weight of dry matter."

"21. Edible product according to claims 19 or 20, wherein *[the]* imitation dairy product is an imitation cheese product."

9.3 As apparent from the above, an imitation cheese product is disclosed in the application as filed only in the context of a fat content of 15-95% by weight of dry matter, namely via the reference in claim 21 back to claim 19.

Since claim 1 of auxiliary request III does not contain the upper limit of 95% by weight of dry matter, it does not comply with the requirements of Article 123(2) EPC. Thus, auxiliary request III is also not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

M. Cañueto Carbajo W. Sieber

Decision electronically authenticated