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Datasheet for the decision of 12 June 2012

Case Number: T 0138/10 - 3.3.09

Application Number: 99942574.7

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Language of the proceedings: EN

Title of invention:
Stable suspension of a particulate component

Patent Proprietor:
DuPont Nutrition BioSciences ApS

Opponent:
PURATOS N.V.

Headword:
-

Relevant legal provisions:
EPC Art. 100(c), 123(2), 83, 54, 56

Keyword:
"Amendments - added subject-matter (no)"
"Sufficiency of disclosure (yes)"
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0138/10 **-** 3.3.09

D E C I S I O N
of the Technical Board of Appeal 3.3.09
of 12 June 2012

Appellant I:
(Patent Proprietor)

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Decision under appeal:

Interlocutory decision of the Opposition Division of the European Patent Office posted 20 October 2009 concerning maintenance of European patent No. 1063895 in amended form.

Composition of the Board:

Chairman: W. Sieber
Members: M. O. Müller
F. Blumer

Summary of Facts and Submissions

I. Appeals were filed by both the proprietor of European patent No. 1 063 895 and opponent II (PURATOS Naamloze Vennootschap) against the interlocutory decision of the opposition division that the patent as amended met the requirements of the EPC.

II. Opponent I (DSM IP Assets B.V.) and opponent II had requested revocation of the patent in its entirety on the grounds that the claimed subject-matter was neither novel nor inventive (Article 100(a) EPC), 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) and that the patent contained subject-matter which extended beyond the application as filed (Article 100(c) EPC).

The documents submitted during the opposition proceedings included:

E1: EP 0 775 444 A1;

E3: EP 0 572 051 A1;

E4: US 5,185,173 A;

E5: EP 0 165 720 A1;

E10: WO 98/47386 A1; and

E11: GB 1 544 499 A.

III. By letter of 16 July 2009, opponent I withdrew its opposition.

IV. The opposition division's decision, which was announced orally on 18 September 2009 and issued in writing on 20 October 2009, was based on a main request (patent as granted), a first auxiliary request as filed by letter of 12 April 2005, and second and third auxiliary requests as filed during the oral proceedings before the opposition division.

Claims 1 and 2 of the second auxiliary request, which comes closest to the request on which the present decision is based, read as follows:

"1. A composition comprising

(a) a dispersant wherein the dispersant is an oil;
(b) a crystal forming component wherein the crystal forming component is a triglyceride fatty acid and/or high melting point emulsifier component;
(c) a particulate component which is an enzyme;

wherein component (b) is present in an amount of less than 2% based on the weight of the composition; and wherein the particulate component (c) is in a stable suspension within a crystal matrix formed by component (b); with the proviso that the particulate component (c) does not form a crystal matrix."

"2. A composition comprising

(a) an oil mimetic wherein the oil mimetic is a low melting point emulsifier in an amount greater than 40% by weight of the composition;
(b) a triglyceride fatty acid and/or high melting point emulsifier component;
(c) a particulate component which is an enzyme;

wherein the particulate component (c) is in stable suspension within a crystal matrix formed by component (b); with the proviso that the particulate component (c) does not form a crystal matrix."

In the third auxiliary request, claim 2 had been deleted, while claim 1 was identical to claim 1 of the second auxiliary request, except that the average particle size of the enzyme had been defined to be greater than 50 µm.

The opposition division's position can be summarised as follows:

– The main request and first auxiliary request were not in line with the requirements of Article 123(2) EPC, and, in the case of the first auxiliary request, of Article 123(3) EPC.

– The second auxiliary request met the requirements of Article 123(2) EPC. In particular, claim 1 was based on a combination of claims 1 and 9 and page 12, lines 4-5 as filed; claim 2 was based on a combination of claims 1, 3, 6 and 10 as filed.

The second auxiliary request also met the requirements of Article 123(3) EPC since the limiting functional features present in granted claim 1 were equally present in claim 1 of the second auxiliary request and as, furthermore, claim 2 of this request had been limited compared to claim 2 as granted.

The invention underlying the second auxiliary request was sufficiently disclosed. In particular, the patent clearly taught that component (a) should be in liquid form. Therefore, the fact that the liquid oil of component (a) could contain solid fat did not conflict with the upper limit of 2 wt% given for the solid component (b) in claim 1 since the fat in the oil would count as component (b) and, if as a result thereof, the amount of component (b) were higher than 2 wt%, the composition would not fall within the one claimed. The patent moreover contained several examples which showed how to prepare the claimed compositions.

The subject-matter of claim 1 was novel in view of E1, E3, E4, E5 and E11. In particular, E1 and E5 did not disclose compositions containing an enzyme, and E3, E4 and E11 did not disclose an amount of component (b) as required by claim 1. Furthermore, the subject-matter of claim 2 was novel in view of E11 as this document did not disclose compositions containing a low melting point emulsifier, ie component (a) of this claim.

As to inventive step of the subject-matter of claim 1, E3 constituted the closest prior art. There was no evidence that reducing the amount of component (b) from 2 wt% as disclosed in E3 to less than 2 wt% led to any advantageous effect. Therefore the range required for the amount of component (b) in claim 1 represented an obvious alternative to the one already disclosed in E3. The subject-matter of claim 1 thus lacked an inventive step. With regard to claim 2, the closest prior art was represented by E3 in combination with E11, which disclosed compositions containing an emulsifier in an amount greater than 40%. E11 did not specify that the emulsifier disclosed therein had a high or low melting point. The choice of a high melting point emulsifier was however an arbitrary choice of two alternatives comprised in E11 and the subject-matter of claim 2 therefore lacked an inventive step in view of E3 in combination with E11.

– The third auxiliary request met the requirements of Article 123(2) and (3) EPC and was novel. In view of the restriction of the enzyme's particle size, inventive step could equally be acknowledged for the third auxiliary request.

V. On 30 December 2009, the appellant/proprietor filed a notice of appeal against the above decision and paid the prescribed fee on the same day. A statement setting out the grounds of appeal was filed on 25 February 2010 together with a main and seven auxiliary requests.

VI. On 30 December 2009, the appellant/opponent II (in the following "appellant/opponent") filed a notice of appeal against the above decision and paid the prescribed fee on the same day. A statement setting out the grounds of appeal was filed on 24 February 2010.

VII. With letter of 13 October 2010, the appellant/proprietor submitted

P2: Experimental data with GRINDSTED™ LFS 560 as particulate material and an oil as component (a); and

P3: Experimental data with GRINDSTED™ LFS 560 as particulate material and an oil mimetic emulsifier as component (a);

and with letter of 29 July 2011

P4: Experimental data with GRINDAMYL™ H 121 as particulate material and an oil as component (a); and

P5: Experimental data with GRINDAMYL™ H 121 as particulate material and an oil mimetic emulsifier as component (a).

VIII. In the annex to the summons issued by letter of 31 October 2011, the board communicated its preliminary opinion to the parties. The board addressed therein several issues under Articles 100(c) and 123(2) EPC with regard to the main request and the first auxiliary request then on file. The board furthermore referred ***inter alia*** to document E3 and pointed out that it would

have to be discussed during the oral proceedings whether this document disclosed an amount of component (b) as covered by the claims of the requests then on file.

IX. By letter of 11 April 2012, the appellant/opponent filed further observations.

X. On 12 June 2012, oral proceedings were held before the board. During the oral proceedings, the appellant/opponent withdrew its novelty attacks made in writing, except for the attacks based on E1 and E10. The appellant/proprietor withdrew the main request and all auxiliary requests and submitted a new "revised third auxiliary request" as its sole request. The appellant/proprietor furthermore withdrew its previous written request that the appellant/opponent's objections under Article 123(2) EPC should be "dismissed as a violation of procedure".

XI. Claims 1 and 2 of the "revised third auxiliary request" read as follows:

"1. A composition comprising

(a) a dispersant wherein the dispersant is an oil;
(b) a crystal forming component wherein the crystal forming component is a triglyceride fatty acid and/or high melting point emulsifier component;
(c) a particulate component which is an enzyme

wherein component (b) is present in an amount of less than 2% based on the weight of the composition; and wherein the particulate component (c) is in a stable suspension within a crystal matrix formed by component (b); with the proviso that component (c) does not form a crystal matrix."

"2. A composition comprising

(a) a dispersant wherein the dispersant is an oil mimetic and wherein the oil mimetic is a low melting point emulsifier in an amount greater than 40% by weight of the composition;
(b) a crystal forming component wherein the crystal forming component is a triglyceride fatty acid and/or a high melting point emulsifier component;
(c) a particulate component which is an enzyme

wherein component (c) is in a stable suspension within a crystal matrix formed by the component (b); with the proviso that component (c) does not form a crystal matrix."

XII. The appellant/opponent's arguments can be summarized as follows:

– Amendments - Articles 100(c) and 123(2) EPC

Claim 1 was not based on the application as filed. In particular, claim 17 as filed seemed to come closest to this claim, but still a selection with regard to components (a), (b) and (c) and the

amount of component (b) was necessary in order to arrive at the subject-matter of claim 1, and such a multiple selection was nowhere disclosed in the application as filed.

In the same way, claim 2 was not based on the application as filed. More particularly, claim 1 as filed appeared to come closest to this claim, but still a selection of an oil mimetic as component (a), a low melting point emulsifier as such an oil mimetic and the amount thereof and additionally an enzyme as component (c) needed to be selected in order to arrive at the subject-matter of claim 1, and such a multiple selection was nowhere disclosed in the application as filed.

– Sufficiency of disclosure

The invention underlying the "revised third auxiliary request" was insufficiently disclosed. It was in particular unclear whether water had to be present in the claimed composition and under what conditions component (b) had to form a crystal matrix. Furthermore, some examples did not fall within the scope of claim 1 or contained wrong percentages, ie percentages above 100%. Additionally, it was nowhere disclosed in the opposed patent what was to be understood by the term "low melting point emulsifier" in claim 2.

Moreover, the boundaries between the definitions of components (a) and (b) in claim 1 were unclear. If, for example, component (a) was an oil that contained a solid fraction, it would not be clear

whether this had to be counted as component (a) or as component (b). As a result, the limitation of the amount of component (b) in claim 1 was unclear.

Furthermore, claim 1 covered liquid oils as component (b), and in this case the invention would not work. Apart from that, the wording "an amount of less than 2%" in claim 1 covered 0% and claim 1 therefore embraced compositions that did not contain any component (b), and for these compositions the invention would equally not work.

It was finally questionable whether an amount of eg 80% of enzyme or an enzyme with a particle size above 200 µm as covered by claim 1 could be stably suspended within a crystal matrix formed by component (b).

– Novelty

The subject-matter of claim 1 lacked novelty over E1. This document disclosed compositions which comprised a liquid oil, a hard fat component that had the ability to form a crystal network in the end product, and herbs, spices, nuts and/or seeds. The liquid oil and hard fat corresponded to components (a) and (b) of claim 1, respectively. The herbs, spices, nuts and/or seeds of E1 inherently contained enzymes and therefore corresponded to the particulate component (c) of claim 1. Finally, the amount of hard fat in example 1 of E1 was 1.8 wt%, which was within the claimed range.

The subject-matter of claim 1 equally lacked novelty in view of E10. In examples 7 and 12 of this document, compositions were disclosed which comprised sunflower oil, corresponding to component (a) of claim 1, hardened rape seed oil, corresponding to component (b) of claim 1, and stabilised egg yolk powder. Egg yolk always contained enzymes. Furthermore, it followed from page 4, lines 16-19 of E10 that the stabilised egg yolk powder of examples 7 and 12 contained enzymes. This stabilised egg yolk powder thus corresponded to component (c) of claim 1. Finally, the amount of the hardened rape seed oil in examples 7 and 12 could be calculated to be less than 2 wt% and hence was within the claimed range.

As the subject-matter of claim 1 consequently lacked novelty, the foodstuff of claim 15 was not novel either.

Upon enquiry by the board, the appellant/opponent stated that the further novelty attacks made in writing were withdrawn and the novelty of the subject-matter of claim 2 was not contested.

– Inventive step

The appellant/opponent started with E10 as the closest prior art. After it had been pointed out by the appellant/proprietor that this document was prior art under Article 54(3) EPC only and hence could not be used for inventive step attacks, the appellant/opponent stated that it would not pursue

its attack starting from E10 as the closest prior art document.

The appellant/opponent then used E3 as the closest prior art. Its arguments in this respect were as follows:

The subject-matter of claim 1 differed from E3 in terms of the amount of component (b). No plausible effect had been shown by the appellant/proprietor to be linked to this differing feature. As to the experimental data contained in P4, compositions 77-79, in which the amount of component (b) was according to claim 1, and compositions 81-83, in which the amount of component (b) was as in E3, were pourable and hence the difference in amount did not lead to any technical effect. Furthermore, in example 12-1 of the opposed patent, more than 2 wt% of component (b) was used and still, a satisfactory composition was obtained which also showed that the amount required by claim 1 was not critical. Finally, the compositions of E3 were stable over 2 to 4 months while in the opposed patent stability was only examined over a much shorter time period. Hence, the appellant/proprietor's experiments could not prove any improvement of stability over E3. Irrespective of the fact that no proof had been provided that the problem referred to by the appellant/proprietor had been solved, this problem, in particular the issue of flowability, could not be derived from the application as filed. Hence, the problem referred to by the

appellant/proprietor did not constitute the objective technical problem.

Irrespective of this, E1 already disclosed that one could suspend solid particles while using low amounts of fat (component(b)) and it did not matter that the solid particles in E1 were not enzymes. The subject-matter of claim 1 therefore lacked an inventive step.

The subject-matter of claim 2 differed from E3 by the presence of the oil mimetic emulsifier as the dispersing phase. It had not been shown that this led to any unexpected effect. The objective technical problem was thus the provision of an alternative. E3 did already contain an oil mimetic emulsifier in an amount of up to 20 wt% and, as followed from the title of E3 ("liquid bread improvers"), this emulsifier was liquid. Therefore the alternative of claim 2, namely to use this liquid oil mimetic emulsifier instead of the vegetable oil of E3 as the dispersing phase was obvious in view of this document.

XIII. The appellant/proprietor's arguments can be summarised as follows:

– Amendments - Article 100(c) and 123(2) EPC

Claim 1 had been derived from claim 1 as filed. The only additional features not present in claim 1 as filed were disclosed on page 2, lines 24-27 as filed, which stated that component (a) and hence the oil was the dispersant,

page 12, lines 3-5 as filed, where the amount of component (b) was disclosed and claim 9 as filed, which required component (c) to be an enzyme. As numerous examples of the application as filed were according to claim 1, there was also a pointer available in the application as filed to the combination of all features present in claim 1.

Equally, claim 2 was derived from claim 1 as filed. In the same way as for claim 1, the only additional features not present in claim 1 as filed were disclosed on page 2, lines 24-27 and claims 1, 6, 9 and 10 of the application as filed. As these claims were multidependent, it was clear that the features of these claims could be combined in the application as filed. A further pointer to the combination of the features contained in claim 2 was present in the form of examples 12-2 and 12-4 of the application as filed, which both were according to this claim.

– Sufficiency of disclosure

The question whether water was present or not, under what conditions component (b) had to form a crystal matrix and what was a "low melting point emulsifier" and the allegation that some examples did not fall within the scope of claim 1 or contained wrong percentages were clarity issues only and hence not relevant to sufficiency of disclosure.

The boundaries between components (a) and (b) and, linked thereto, the amount of component (b) were

not unclear. The skilled person simply had to determine the solid fat content and had to check whether it was below 2 wt%. It did not matter in this respect whether the solid fat came from component (a) or (b). In particular, component (a) had to be the dispersant according to claim 1, ie the liquid phase in which components (b) and (c) were suspended, and hence any solid fat contained in the oil used as component (a) had to be counted as component (b).

Furthermore, it was not true that claim 1 included compositions which did not contain any component (b) because this claim explicitly mentioned that this component was part of the composition.

Finally, the appellant/opponent's further objections that the invention would not work had to be disregarded as any experimental evidence for this allegation was missing.

– Novelty

As to novelty in view of E1, the appellant/opponent's allegation that herbs and spices contained enzymes was not enough to prove that indeed, enzymes were present. The subject-matter of claim 1 and any further claim therefore was novel in view of this document.

With regard to novelty over E10, no evidence had been provided that egg yolk always contained enzymes. Furthermore, it had to be assumed that

the enzyme used in E10 to stabilise the egg yolk was destroyed by the drying step. Consequently, in the same way as for E1, the subject-matter of all claims differed from E10 in that an enzyme had to be present.

– Inventive step

E3 represented the closest prior art. The subject-matter of claim 1 differed from this document in terms of the amount of component (b). It had been proven by the experimental data P4 that at amounts of component (b) below 2 wt%, fluid and stable suspensions were obtained while at an amount of 2 wt% or above, the suspensions had almost no flow properties. As the enzymes used in P4 had particle diameters which were much higher than those in E3, the data in P4 proved that at amounts of component (b) of less than 2 wt%, it was possible to stably suspend large enzyme particles while still having sufficient flow properties. The appellant/opponent's argument made in this respect that it followed from example 12-1 of the opposed patent that sufficient flowability could also be obtained at amounts of component (b) above 2 wt% was not correct. In particular, it was clear that in this example, the amount of the second oil mimetic emulsifier GRINDSTED™ ACETEM 95 was missing and that therefore, the amount of component (b) in this example in fact was less than 2 wt%. The objective technical problem was hence the provision of suspensions that contained large enzyme particles and still had sufficient flow properties. This problem could be clearly

derived from the application as filed, in particular from example 12, where the issues of enzyme particle size and flowability were addressed. There was no document available which gave any hint that if the amount of component (b) in E3 was reduced, larger enzyme particles could be stably suspended while still having sufficient flow properties. In fact, as confirmed by E5, the skilled person starting from E3 and confronted with this problem would have used more rather than less of component (b). The subject-matter of claim 1 therefore was inventive.

As to the subject-matter of claim 2, E3 nowhere said that the diacetyl tartaric esters from saturated or unsaturated mono- and/or diglycerides disclosed therein were liquid. It was thus not clear whether these esters formed part of the dispersing phase in E3. The subject-matter of claim 2 therefore differed from E3 in that the dispersing phase was formed by an oil mimetic emulsifier which was present in an amount of at least 40 wt%. The objective technical problem solved by this distinguishing feature was the provision of an alternative suspension. Neither E3 nor any of the further documents gave any indication that the oil that was used as dispersing phase in E3 could be replaced by a liquid oil mimetic emulsifier as required by claim 2. The subject-matter of claim 2 therefore was inventive.

XIV. The appellant/proprietor requested that the decision under appeal be set aside and the patent be maintained

on the basis of claims 1-16, filed as "revised third auxiliary request" during the oral proceedings before the board (sole request).

XV. The appellant/opponent requested that the decision under appeal be set aside and that the European patent No. 1 063 895 be revoked.

Reasons for the Decision

1. The appeal is admissible.

2. *Claim interpretation*

2.1 The compositions of claims 1 and 2 of the "revised third auxiliary request" (sole request, point XI above) comprise three components, namely

(a) "a dispersant wherein the dispersant is an oil" (claim 1) or "a dispersant wherein the dispersant is an oil mimetic and wherein the oil mimetic is a low melting point emulsifier" (in the following "oil mimetic emulsifier", claim 2),
(b) a crystal forming component which is a triglyceride fatty acid and/or a high melting point emulsifier component, and
(c) a particulate component which is an enzyme.

According to both claims, the particulate component (c) (the enzyme) is in stable suspension within a crystal matrix formed by component (b) (the triglyceride fatty acid and/or a high melting point emulsifier component).

2.2 A suspension, by definition, contains a solid discontinuous phase in a continuous liquid phase. In the case of the compositions of claims 1 and 2, the solid discontinuous phase is formed by the particulate component (c) and the crystal matrix of component (b) while the "dispersant" is formed by an oil (claim 1) or an oil mimetic emulsifier (claim 2). Although the term "dispersant" in this context appears to be unusual (the scientifically correct term seems to be "dispersing phase"), to the skilled reader it is immediately evident from the opposed patent that the "dispersant" is in fact the dispersing phase into which the particulate component is dispersed.

2.3 Apart from specifying the nature of components (a)-(c), claim 1 restricts the amount of component (b) to less than 2 wt% and claim 2 the amount of the low melting point emulsifier of component (a) to greater than 40 wt% of the composition.

3. *Amendments - Article 123(2) and 100(c) EPC*

3.1 Claim 1 of the "revised third auxiliary request" is derived from claim 1 as filed, which discloses a "composition comprising
(a) an oil and/or an oil mimetic component;
(b) a triglyceride fatty acid and/or a high melting point emulsifier component;
(c) a particulate component;
wherein the particulate (c) is in a stable suspension within a crystal matrix formed by component (b) [implying that component (b) is a crystal forming component]; with the proviso that the particulate

component (c) does not form a crystal matrix." (insertion in square brackets added by the board).

3.1.1 Thus, the alternative of claim 1 as filed referring to component (a) as an oil discloses all the features of claim 1 of the "revised third auxiliary request" except for the three additional features that the oil (a) is a dispersant, that component (b) is present in an amount of less than 2 wt% of the composition and that component (c) is an enzyme.

3.1.2 The feature that the oil is a dispersant is clearly and unambiguously derivable from page 2, lines 24-27 as filed, which defines component (a) as a dispersant. In particular, this passage represents the broadest definition of the invention in the application as filed (in contrast to all the remaining passages of the application as filed, it starts with the wording "In a broad aspect the present invention provides..."). Therefore, the definition of component (a) as a dispersant in this passage clearly applies to all examples given for component (a) in the application as filed, including the oil of claim 1 as filed.

The two further additional features, namely the amount of component (b) and the feature that component (c) is an enzyme, are disclosed on page 12, lines 3-5 and claim 9 as filed, respectively.

3.1.3 A pointer towards the combination of all the features of claim 1 of the "revised third auxiliary request" is available from each of examples 5-3, 9-1, 9-2, 9-3, 9-4, 11-1, 11-2, 12-1 and 12-3 as filed, all of which are according to claim 1 (component (a): soy oil, rape seed

oil or sunflower oil; component (b): fully hardened palm oil or rape seed oil; component (c): enzyme of the Grindamyl™ series).

3.2 In the same way as claim 1, claim 2 of the "revised third auxiliary request" is derived from the alternative of claim 1 as filed referring to component (a) as an oil mimetic, which discloses all the features of claim 2 except for the four additional features that the oil mimetic is a dispersant, that it is a low-melting-point emulsifier, that it is present in an amount greater than 40 wt% of the composition and finally that component (c) is an enzyme.

3.2.1 These additional features are disclosed in the application as filed on page 2, lines 24-27 (same argument as in point 3.1.2 above) and claims 6, 10 and 9 as filed, respectively.

3.2.2 A pointer to the combination of all the features of claim 2 of the "revised third auxiliary request" is present in the form of the reference of each of claims 6, 9 and 10 as filed back to any preceding claim including claim 1 as filed, which creates a link between the features of these claims. A further pointer is present in the form of examples 12-2 and 12-4, which are both according to claim 2 (component (a): PANODAN™ AB 100, GRINDSTED™ ACETEM 95 CO and PANODAN™ TR; component (b): PANODAN™ AM and fully hardened rape seed oil; component (c): GRINDAMYL™ H 121).

3.3 Claims 3-8 of the "revised third auxiliary request" correspond to claims 4, 5, 15, 16, 7 and 8 as filed. Claim 9 of the "revised third auxiliary request" is

based on page 9, line 7 as filed. Finally, claims 10-16 of the "revised third auxiliary request" correspond to claims 10-14, 19 and 20 as filed.

3.4 Hence, the claims of the "revised third auxiliary request" meet the requirements of Articles 123(2) and 100(c) EPC.

4. *Amendments - Articles 84 and 123(3) EPC*

4.1 Apart from those objections raised by the appellant/opponent with regard to sufficiency of disclosure (see point 5 below), the appellant/opponent did not pursue any further clarity objections during the oral proceedings and the board is satisfied that the amendments do not result in any lack of clarity that was not already present in the granted claims. In particular, the terms "low melting point emulsifier" and "high melting point emulsifier component" were already present in granted claims 5 and 8. The subject-matter of these dependent claims has merely been incorporated into claim 2 as granted and is thus not open to an objection under Article 84 EPC.

4.2 Furthermore, no objections were raised under Article 123(3) EPC against the "revised third auxiliary request" and the board is equally satisfied that the requirements of this Article are met.

5. *Sufficiency of disclosure*

5.1 With regard to sufficiency of disclosure, the appellant/opponent argued that

- it was unclear whether water had to be present in the claimed composition;
- it was unclear under which conditions component (b) formed a crystal matrix;
- some examples did not fall under the scope of claim 1 or contained wrong percentages, ie percentages above 100%; and
- it was nowhere disclosed in the opposed patent what was to be understood by the term "low melting point emulsifier" in claim 2.

The above objections, however, are exclusively objections under Article 84 EPC (lack of clarity and lack of support in the description), and no argument, let alone evidence, has been submitted by the appellant/opponent as to why and to what extent this could result in any insufficiency of disclosure (Article 83 EPC). The appellant/opponent's arguments therefore must fail.

5.2 The appellant/opponent additionally argued that the boundaries between the definitions of components (a) and (b) in claim 1 were unclear. If, for example, component (a) was an oil that contained a solid fraction, it would not be clear whether this had to be counted as component (a) or as component (b). As a result, the limitation of the amount of component (b) in claim 1 was unclear.

However, this argument refers again to a lack of clarity only and hence is not relevant to Article 83 EPC. More importantly, the alleged lack of clarity does not exist. As set out above under point 2, component (a) of claim 1 constitutes the continuous

liquid phase in which the solid phase (components (b) and (c)) is dispersed. Hence, if an oil is used as component (a), any traces of solid oil components (and hence triglycerides) contained therein must be counted as component (b) (triglyceride fatty acid). The definition of the two components (a) and (b) and of the amount of component (b) is thus clear.

5.3 The appellant/opponent also argued that claim 1 covered liquid oils as component (b) and that in this case, the invention would not work. However, as has been set out in point 2 above, what claim 1 requires is that component (b) together with component (c) forms the discontinuous solid phase in the continuous liquid phase, ie the dispersant (a). Hence, contrary to the appellant/opponent's allegation, claim 1 does not cover a composition that comprises a liquid oil as component (b).

5.4 The appellant/opponent was furthermore of the opinion that the wording "an amount of less than 2%" of component (b) in claim 1 covered 0%. Claim 1 therefore embraced compositions that did not contain any component (b) and for these compositions, the invention would not work.

The board, however, cannot share the appellant/opponent's argument as claim 1 explicitly refers to a "composition comprising... (b) a crystal forming component...", which does not leave any doubt that the wording "an amount of less than 2%" does not include 0%.

5.5 The appellant/opponent finally argued that it was questionable whether an amount of eg 80% of enzyme or an enzyme with a particle size above 200 µm as covered by claim 1 could be stably suspended within a crystal matrix formed by component (b). However, no evidence has been provided in support of this allegation which is why the appellant/opponent's argument must fail.

5.6 Thus, none of the appellant/opponent's arguments is convincing. Sufficiency of disclosure must therefore be acknowledged.

6. *Novelty*

6.1 During the oral proceedings before the board, the appellant/opponent attacked novelty exclusively on the basis of E1 and E10 and withdrew all further novelty attacks previously made in writing.

6.2 E1 (claim 1 and column 1, lines 48-59) discloses compositions which comprise a liquid oil, a hard fat component that has the ability to form a crystal network in the end product, and herbs, spices, nuts and/or seeds. In the examples, the herbs, spices, nuts and/or seeds are dill and a Provencal mix which consists of a mixture of marjoram herbs, thyme herbs, basil herbs, rosemary herbs and garlic paste.

The liquid oil and the hard fat of E1 correspond to components (a) and (b) of claim 1, respectively. However, E1 nowhere explicitly discloses the presence of a particulate enzyme (component (c) of claim 1). The appellant/opponent argued in this respect that the herbs, spices, nuts and/or seeds of E1 inherently

contained enzymes and therefore corresponded to the particulate component (c) of claim 1. The board cannot accept this argument. While it may be true that freshly harvested herbs, spices, nuts and/or seeds contain enzymes (ie components with enzymatic activity), these enzymes may be deactivated and hence no longer constitute enzymes, depending on how these herbs, spices, nuts and/or seeds have been further processed. As no information is present in E1 about the process history of the herbs, spices, nuts and/or seeds, it is far from certain that they contain enzymes, namely components which still exhibit enzymatic activity.

The presence of enzymes in the compositions of claims 1 and 2 thus constitutes a distinguishing feature with regard to E1. In fact, the same conclusion was reached by the opposition division. Novelty of the subject-matter of claims 1 and 2 and, linked thereto, of all the remaining claims therefore must be acknowledged in view of this document.

6.3 E10 (abstract) refers to pourable fatty compositions that are provided with thickeners and that have a good closed shelf life. Examples 7 and 12 disclose compositions which comprise sunflower oil (corresponding to component (a) of claim 1), hardened rape seed oil (corresponding to component (b) of claim 1) and stabilised egg yolk powder. According to the appellant/opponent, these two examples disclose all the features of claim 1, including the particulate enzyme component (c). The appellant/opponent argued in this respect that any egg yolk contains enzymes and furthermore referred to page 4, lines 16-19 of E10, according to which an egg yolk powder can be dried

natural egg yolk, but can also be enzymatically modified egg yolk powder, such as (spray)dried egg yolk powder stabilised using an enzyme having phospholipase A2 activity. According to the appellant/opponent, it was thus clear that the stabilised egg yolk powder of examples 7 and 12 contained enzymes and hence corresponded to component (c) of claim 1.

However, in the same way as for E1, it depends on how the egg yolk is dried in E10 (eg the drying temperature or drying times) whether the enzymes used to stabilize the egg yolk (or otherwise contained in the undried egg yolk) are still present. As no information is available in E10 on how the stabilised dried egg yolk of examples 7 and 12 has been prepared, it cannot be assumed with certainty that this egg yolk still contains enzymes. In addition, as regards the enzymatically modified egg yolk powder, the appellant/proprietor explained in the oral proceedings that the enzymes used to prepare enzymatically modified egg yolk powder were processing aids, which according to the usual practice in the food industry, were deactivated before the product was sold and/or further processed. Consequently, in the same way as with regard to E1, the subject-matter of all the claims differs from E10 in that an enzyme (component (c)) must be present.

6.4 The subject-matter of the "revised third auxiliary request" is thus novel in view of E1 and E10.

7. *Inventive step*

7.1 Inventive step of the subject-matter of claim 1

7.1.1 The invention underlying the opposed patent concerns stable suspensions of a particulate component (paragraph [0001]), in particular stable suspensions of a particulate enzyme to be used eg as bread improvers (paragraph [0055], table I, example 11 and claim 20).

7.1.2 In the same way, E3 is directed to enzyme-containing compositions (page 2, lines 1 and 16-31). As acknowledged by both parties and the opposition division, E3 can therefore be considered to represent the closest prior art.

E3 (page 2, lines 18-26 as well as claim 1) discloses compositions comprising

- 75-95 wt% of a vegetable oil,
- 1-5 wt% of a hydrogenated vegetable oil having a melting point between 60 and 70°C,
- 1-5 wt% of the partially hydrogenated vegetable oil having a melting point between 35 and 45°C,
- 2-20 wt% of emulsifiers, at least including diacetyl tartaric esters from saturated or unsaturated mono- and/or diglycerides,
- 0.1-0.5 wt% of bread-improving enzymes, and
- 0.1-1.0 wt% of oxidants.

The vegetable oil of E3 is liquid (see page 2, line 32) and thus corresponds to the oil (component (a)) of claim 1. The two types of hydrogenated and partly hydrogenated vegetable oil of E3 correspond to component (b) of claim 1 (crystal forming triglyceride

fatty acid). Finally, the bread-improving enzyme of E3 corresponds to the enzyme (c) of claim 1. As acknowledged by both parties, the subject-matter of claim 1 therefore differs from E3 only in terms of the amount of component (b), which is less than 2 wt% according to claim 1 compared to at least 2 wt% in E3 (lower limit resulting from the two ranges of 1-5 wt% of the hydrogenated and partially hydrogenated vegetable oil).

7.1.3 According to the appellant/proprietor, the problem solved by the subject-matter of claim 1 in the light of E3 is to stably suspend larger enzyme particles while the suspension still has sufficient flowability. This problem is solved in the appellant/proprietor's view by the composition of claim 1, which is characterised by an amount of component (b) of less than 2 wt%.

7.1.4 To substantiate its position, the appellant/proprietor filed experimental data P4. P4 contains an analysis of the properties of various suspensions containing the enzyme GRINDAMYL™ H 121, the particle size of which is significantly above the particle size of the enzymes in E3 (132.87µm compared to less than 50µm in E3). It follows from this analysis that suspensions with almost no flow properties are obtained if the amount of component (b) (GRINDSTED™ PS 101 triglyceride) is 2.000 wt%, which is within the range disclosed in E3 (2-10 wt%) and just above the upper limit of the claimed range (trials 77 to 79). If in the same experiments, this amount is decreased to an amount of 1.900 wt% or below (which is just below the lower limit of the range disclosed in E3 and within the claimed range, trials 71 to 76), stable and fluid suspensions are obtained. On

the basis of these experiments, it is therefore credible that the above problem is indeed solved in view of E3. Consequently, the problem formulated by the appellant/proprietor is the objective technical problem.

7.1.5 The appellant/opponent argued in this respect that this problem is not derivable from the application as filed. However, the board cannot share this view as examples 12-1 to 12-4 as filed clearly deal with the issues of the enzymes' particle sizes (see the particle sizes given in table XVI), storage stability ("the enzyme was homogenous distributed in the product after 2 weeks storage at 20°C", see page 38, lines 1-2) and flowability ("products were all liquid and pumpable", see equally page 38, lines 1-2).

The appellant/opponent additionally argued that the amount of component (b) given in table XVI of the opposed patent for example 12-1 was outside of the claimed range, namely above 2 wt% and that still a stable and flowable suspension was obtained. The appellant/opponent was therefore of the opinion that the upper limit of less than 2 wt% in claim 1 was not critical and therefore could not contribute to an inventive step. This argument is not convincing either as in fact the weight of component (b) relative to the weight of the entire composition (expressed as "wt%") is not derivable from table XVI. More particularly, the table does not give the amount of one of the two oil mimetic emulsifiers, namely of GRINDSTED™ ACETEM 95, and hence, the weight of the total composition and thus the relative weight of component (b) cannot be derived from the table.

The appellant/opponent's argument hence cannot invalidate the finding that the objective technical problem is to stably suspend larger enzyme particles while the suspension still has sufficient flowability.

7.1.6 There is no indication in E3 or any of the further documents that the objective technical problem can be solved by way of decreasing the amount of component (b) in E3 to a value within the claimed range.

The appellant/opponent's argument that such a hint was present in E1 is not convincing. This document (paragraph bridging columns 1 and 2) discloses suspensions of herbs, spices, nuts or seeds in a liquid oil and a hard fat component, wherein these suspensions may contain large cheese particles with a particle size of 0.05 to 2 mm (column 2, lines 28-32). There is in particular no indication in E1 that the cheese particles are suspended in the oil/fat blend of E1 (rather than eg being simply deposited on the bottom of the suspension), let alone that there is any hint in E1 that by way of choosing an amount of component (b) (hard fat component) within the claimed range, the cheese particles can be stably suspended while the suspension still has sufficient flowability. Therefore, the skilled person starting from E3 and being confronted with the objective technical problem would not have been motivated by E1 to choose an amount of component (b) as required by claim 1.

In fact, if anything, the opposite can be derived from the further documents. More particularly, E5, which refers to compositions comprising a solid bulking agent in a vegetable oil (claim 1) states on page 16,

lines 1-4 that the smaller the particle size of the bulking agent, the less likely that there is any oil separation and that a coarse particle size of the bulking agent may require more stabilizer, ie in the terminology of the opposed patent, more component (b). Hence, if anything, the skilled person would have used more rather than less than 2 wt% of component (b) in E3 in order to stably suspend larger enzyme particles.

7.1.7 Therefore the subject-matter of claim 1 is inventive in view of E3, either taken alone or in combination with any of the further documents that form part of the present appeal proceedings.

7.2 Inventive step of the subject-matter of claim 2

7.2.1 For the same reasons as given above with regard to claim 1, E3 constitutes the closest prior art.

As has been set out above in the discussion on claim 1, the liquid dispersing phase ("dispersant" in the terminology of the opposed patent) is formed in E3 by a liquid vegetable oil. Contrary thereto, claim 2 requires the dispersant to be an oil mimetic emulsifier ("a dispersant wherein the dispersant is an oil mimetic and wherein the oil mimetic is a low melting point emulsifier").

The only component of E3 that may be considered to be an oil mimetic emulsifier is the diacetyl tartaric ester from saturated or unsaturated mono- and/or diglycerides. As follows from paragraphs [0030] and [0038] of the opposed patent, diacetyl tartaric esters from saturated or unsaturated mono- and/or diglycerides

either correspond to the oil mimetic emulsifier (component (a)) of claim 2 or to the high melting point emulsifier (component (b)) of claim 2. In fact, it depends on the type of saturated or unsaturated fatty acids present in these mono- and/or diglycerides whether they function as a dispersant (ie a liquid dispersing phase, see point 2.2 above) and thus correspond to component (a) of claim 2 or whether they are solid crystals and hence correspond to component (b) of claim 2. Therefore, in the absence of any further information about the nature of the saturated or unsaturated fatty acids present in the mono- and/or diglycerides of E3, it is not clear whether these correspond to component (a) or (b) of claim 2. The appellant/opponent argued in this respect that it was clear from the title of E3 ("Liquid bread improvers") that the mono- and/or diglycerides of E3 were liquid. However this argument is not convincing as the title refers to the overall composition only, which clearly is liquid due to the presence of 75 to 95 wt% of liquid vegetable oil, but which can contain suspended therein solid matter, such as potentially the above-discussed mono- and/or diglycerides of E3.

In view of this, the subject-matter of claim 2 must be assumed to differ from the disclosure of E3 in that the dispersant (ie the liquid dispersing phase) is formed from an oil mimetic emulsifier rather than a vegetable oil.

7.2.2 According to the appellant/proprietor, the problem solved by the subject-matter of claim 2 is the provision of an alternative stable and fluid suspension of particulate enzymes. This problem is solved in the

appellant/proprietor's view by the compositions of claim 2, which contain an oil mimetic emulsifier as liquid dispersing phase ("dispersant").

7.2.3 Examples 12-2 and 12-4 of the opposed patent refer to compositions according to claim 2, namely containing

- 98 parts by weight of PANADON™ AB 100, GRINDSTED™ ACETEM 95 and PANODAN™ TR, which are liquid oil mimetic emulsifiers (see title of example 12 and paragraph [0030] of the opposed patent) and thus correspond to component (a) of claim 2,
- 2 parts by weight of PANODAN™ AM and 1 part by weight of fully hardened rapeseed oil, respectively (corresponding to component (b) of claim 2), and
- 3 and 2 parts by weight, respectively, of the enzyme powder GRINDAMYL™ H 121 (corresponding to component (c) of claim 2).

These compositions are storage-stable, liquid and pumpable. Consequently, it is credible on the basis of these examples that the problem referred to by the appellant/proprietor is solved by the compositions of claim 2, which contain an oil mimetic emulsifier as dispersing and thus liquid phase. This problem, ie the provision of an alternative stable and fluid suspension of particulate enzymes, therefore constitutes the objective technical problem.

7.2.4 E3 does not contain any hint to use a liquid emulsifier, let alone a liquid oil mimetic emulsifier instead of the liquid oil as the dispersing phase.

Nor is such a hint present in E11, a document used by the opposition division when dealing with inventive step of the subject-matter of claim 2 of the second auxiliary request then on file (the appellant/opponent no longer relied on this document when dealing with inventive step during the appeal proceedings). This document refers to compositions comprising an edible fat and/or oil, saturated fatty acid monoglycerides having from 15-23 carbon atoms in the molecule and C_2-C_4 alkylene glycols. In the same way as for E3, it is not clear whether the monoglycerides of E11 represent liquid oil mimetic emulsifiers as required by claim 2. In fact, if anything, the opposite must be assumed as it is explicitly stated on page 2, lines 119 to 123 of E11 that "... fatty acid monoglyceride in the present anti-staling compositions is considered to be solidified in a finely and uniformly distributed state...". Consequently, the skilled person reading E11 would not be motivated to replace the dispersing phase in E3 (liquid vegetable oil) by a liquid oil mimetic emulsifier.

Finally, none of the remaining documents provides any such motivation.

7.2.5 The subject-matter of claim 2 is hence inventive in view of E3, either taken alone or in combination with the further documents.

7.3 The fact that the compositions of claims 1 and 2 are inventive implies that the compositions of the dependent claims 3-14, and of the foodstuff and bread improvers of claims 15 and 16, which contain these compositions, are also inventive.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to maintain the patent on the basis of claims 1-16, filed as "revised third auxiliary request" during the oral proceedings before the board (sole request), and a description and drawings yet to be adapted.

The Registrar: The Chairman:

M. Canueto Carbajo W. Sieber