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**Datasheet for the decision  
of 1 July 2024**

**Case Number:** T 0152/22 - 3.3.09

**Application Number:** 12163602.1

**Publication Number:** 2476315

**IPC:** A21D13/068, A21D10/04,  
A23L15/00, A21D2/02, A21D2/18,  
A21D2/26, A21D8/04

**Language of the proceedings:** EN

**Title of invention:**

Use of a phospholipase A in the production of cake

**Patent Proprietor:**

DSM IP Assets B.V.

**Opponent:**

International N&H Denmark ApS

**Headword:**

Low fat cake/DSM

**Relevant legal provisions:**

EPC Art. 54(2), 54(3), 56, 83  
RPBA 2020 Art. 13(2)

**Keyword:**

Admittance of auxiliary request 2 and of proprietor's latest submissions - (yes)

Auxiliary request 2: sufficiency, novelty, inventive step - (yes)

**Decisions cited:**

G 0002/88, T 0892/94, T 0706/95, T 0321/21, T 0602/21,  
T 1773/22

**Catchword:**



**Beschwerdekammern**  
**Boards of Appeal**  
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Case Number: T 0152/22 - 3.3.09

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.09**  
**of 1 July 2024**

**Appellant:** DSM IP Assets B.V.  
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**Representative:** D Young & Co LLP  
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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
15 November 2021 concerning maintenance of the  
European Patent No. 2476315 in amended form.**

**Composition of the Board:**

**Chairman** A. Haderlein  
**Members:** A. Veronese  
N. Obrovski

## Summary of Facts and Submissions

- I. The opponent and the patent proprietor filed appeals against the opposition division's decision holding the patent as amended according to the auxiliary request 1, filed as auxiliary request 5 with the proprietor's submissions dated 27 August 2021, allowable.
- II. With its notice of opposition the opponent had requested revocation of the patent in its entirety on the grounds under Article 100(a) (lack of novelty and lack of inventive step), 100(b) and 100(c) EPC.
- III. The documents submitted during the opposition proceedings included:
- D3: EP 1 900 282 A1
  - D5: WO 98/26057 A1
  - D9: WO 94/04035 A1
  - D15: S.P. Cauvain et al., "Baked Products: Science, Technology and Practice", Blackwell Publishing, 2006, Chapters 1-3
  - D23: R. CE Guy et al., J. Sci. Food Agric., 2006, vol. 86, p. 1679-1687
  - D28: GRAS Notification - Exemption claim for Novozymes, 2011
  - D29: S. Neron, Journal of Chromatography A, 2004, vol. 1047, p.77-83
  - D30: L. Christiansen et al., Recent advances in Enzymes in Grain Processing, Chapter 41: "Generation of lipases with different specificities and functionalities in baking", 2002, Delcour editor

IV. In its decision the opposition division found *inter alia* the following.

- The claimed invention was sufficiently disclosed; the skilled person would have been able to rework the claimed invention by relying on the patent and on common general knowledge.
- The subject-matter of claim 1 as granted was novel over D3.
- The subject-matter claimed in auxiliary request 1 was novel and involved an inventive step starting from either D9 or D23 as the closest prior art.

V. During the oral proceedings before the board the proprietor filed a new auxiliary request 2, which differs from auxiliary request 1 considered allowable by the opposition division in that claims 11 to 13, relating to a method for preparing a cake, have been deleted. The previous main request and auxiliary request 1 were withdrawn.

VI. Claim 1 of this request reads:

*"1. The use of a phospholipase A in the production of a cake to enable reduction of the amount of eggs and fat used in the recipe, wherein the cake is a shortened cake or a foam cake wherein the amount of eggs is reduced with at least 5% w/w, and wherein the amount of fat is reduced with at least 10% w/w."*

VII. The opponent's arguments which are relevant for the decision may be summarised as follows.

- Auxiliary request 2 and the proprietor's submissions dated 30 April 2024 should not be admitted into the appeal proceedings.
- The claimed invention was not sufficiently disclosed across the entire breadth of the claims.
- The subject-matter of claim 1 was anticipated by D3, D5 and D23.
- The subject-matter of claim 1 did not involve an inventive step starting from D23, the closest prior art, in combination with D9, D15, D29 and D30. The use of phospholipase A for reducing the amount of fat and egg in a cake was obvious from these documents. The same conclusion would be arrived at starting from D9, in combination with D23.

VIII. The proprietor's arguments which are relevant for the decision may be summarised as follows.

- Auxiliary request 2 and the proprietor's submissions dated 30 April 2024 should be admitted.
- The claimed invention was sufficiently disclosed.
- The subject-matter of claim 1 was novel over D3, D5 and D23. These documents did not disclose the use of phospholipase A to reduce the amount of fat and egg in a cake.
- The claimed subject-matter involved an inventive step over D9, the closest prior art, either alone or in combination with the other cited documents. None of these documents disclosed the use of phospholipase A for reducing the amount of fat and

egg in a cake. The claimed subject-matter also involved an inventive step if D23 was considered the closest prior art.

IX. The requests

- The patent proprietor requested that the decision under appeal be set aside and that the patent be maintained on the basis of auxiliary request 2 filed during the oral proceedings before the board.
- The opponent requested that the decision under appeal be set aside and that the patent be revoked.

**Reasons for the Decision**

**Auxiliary request 2**

1. *Admittance of auxiliary request 2*

1.1 Auxiliary request 2 was filed during the oral proceedings before the board, in response to the announcement of the board's opinion that claim 11 of auxiliary request 1 did not comply with the requirements of Article 123(2) EPC.

1.2 Auxiliary request 2 differs from auxiliary request 1, which corresponds to the request considered allowable by the opposition division, in that claim 11 and the subsequent dependent claims have been deleted.

1.3 Deleting these claims constitutes an amendment to the party's case within the meaning of Article 13(2) RPBA. However, this amendment does not change the factual and legal framework of the appeal proceedings. It overcomes the added-matter objection raised against claim 11 of

the previous request, without raising any new issues. Thus, the amendment eliminates one of the matters in dispute, resulting in a significant simplification of the proceedings, which is advantageous in terms of procedural economy.

1.4 Accordingly, there are exceptional circumstances within the meaning of Article 13(2) RPBA justifying the admittance of auxiliary request 2 into the appeal proceedings (as to the assessment of exceptional circumstances not being separate from the exercise of discretion, see T 1773/22, Reasons 3.6.2; as to the criteria for the exercise of discretion, see T 321/21, Reasons 2.2 and 2.3, and T 602/21, Reasons 9.2.4, both concerning the deletion of claims; in that regard, see also Case Law of the Boards of Appeal of the EPO, 10th edition, 2020, Chapter V.A.4.5.5(g)).

2. *Admittance of the proprietor's latest submissions*

2.1 With its letter dated 30 April 2024, the proprietor presented additional arguments concerning the admittance of certain auxiliary requests as well as the sufficiency of disclosure, novelty and inventive step of the claimed subject-matter.

2.2 The opponent requested that these submissions not be admitted into the appeal proceedings since they were late-filed under Article 13(2) RPBA.

2.3 The board does not agree. A closer look at the proprietor's submissions reveals that they do not rely on any new facts or evidence and merely elaborate on arguments which had been presented previously during the written proceedings. Therefore, the submissions are considered a mere refinement and further development of



the proprietor's previously presented case. For these reasons, they are taken into account in the appeal proceedings.

3. *Sufficiency of disclosure*

3.1 The opponent argued that the claimed invention was not sufficiently disclosed because the skilled person would not have been able to obtain a reduction in the amount of fat and egg in a cake across the entire scope claimed. The opponent argued, essentially, that there was no evidence that this effect could be attained using enzymes having only a minor phospholipase A side activity, or minimal amounts of this enzyme.

3.2 These arguments are not convincing. The patent teaches how to prepare a cake according to the invention. Furthermore, it describes tests demonstrating that including phospholipase A in the batter used to prepare the cake can significantly reduce the amount of fat and egg used, without any detrimental effects on the volume, structure and mouthfeel of the resulting cake. The results provide convincing evidence that the claimed invention can be carried out. The opponent's arguments focus deliberately on embodiments which the skilled person would carefully avoid when carrying out the invention on the basis of the teaching of the patent and common general knowledge.

3.3 Therefore, the claimed invention is sufficiently disclosed.

4. *Novelty*

4.1 The opponent argued that the subject-matter of claim 1 lacked novelty over the disclosure of D3, D5 and D21. The board does not agree, for the following reasons.

*Novelty over D3*

4.2 The opponent contested the opposition division's finding that the subject-matter of claim 1 was novel over D3. D3 was published after the date of filing of the application for the opposed patent but had been filed at an earlier date. Therefore, it is relevant under Article 54(3) EPC.

4.3 It is uncontested that D3 discloses a method for preparing a cake involving adding a phospholipase A to the batter, with the phospholipase being allowed to act in situ; see the examples, the claims and paragraph [0010]. It is also uncontested that D3 teaches explicitly that the method allows the egg material used in the recipe to be reduced.

4.4 What was disputed was whether the feature "... enable reduction of the amount of eggs and fat used in the recipe..." in claim 1 distinguished the claimed subject-matter from the disclosure in D3. This document teaches that the amount of egg material included in the batter used to prepare a cake can be reduced by adding phospholipase A to that batter; see paragraphs [0017], [0025] and [0037], example 1 and Table 1. D3 does not, however, mention the use of phospholipase A for reducing the amount of fat in the recipe.

4.5 The opponent argued that the opposition division had misinterpreted the case law relating to second non-

medical use claims and had incorrectly assessed the scope of claim 1. It acknowledged that according to G 2/88 a claim directed to the use of a known compound for a particular purpose, which is based on a technical effect described in the patent, should be interpreted as including that effect as a distinguishing technical feature, provided that such feature had not been previously made available to the public.

- 4.6 The opponent argued, however, that D3 disclosed the same use of phospholipase A defined in claim 1, namely to produce a cake obtained from a batter, the use involving incorporating the phospholipase into the batter. The finding that the phospholipase enabled a reduction in the amount of fat and egg in the recipe related merely to the discovery of an additional effect and could not confer novelty on the known use. In this context, the opponent referred to decisions T 706/95 and T 892/94 of the boards of appeal.
- 4.7 These arguments are not convincing. From the wording of claim 1, and in particular the wording "enable reduction", the person skilled in the field of cake production would understand that the use of phospholipase A "enables" a reduction in the amount of fat and egg which would otherwise be needed to prepare the same cake, or in other words "renders such reduction possible".
- 4.8 Within the context of the invention this means that the use of phospholipase A renders it possible to obtain a cake having the desired properties while incorporating a lower amount of fat and egg than would otherwise be necessary to prepare the cake and maintain those properties.

- 4.9 This technical effect is a characterising feature of claim 1 and must be taken into account when assessing whether the subject-matter of this claim is novel over the prior art. This effect cannot just be considered an "additional piece of knowledge" relating to the known use, as in case T 892/94, mentioned by the opponent. T 706/95, the other decision mentioned by the opponent, is not relevant either because it relates to the assessment of novelty of a process claim, not of a use claim like claim 1.
- 4.10 The opponent's argument that the expression "enabling" simply means the ability to do something, without the need to do it, is not convincing. The skilled person understands that claim 1 specifies what is actually done, and that the phospholipase is used in situations where its activity is required to enable the production of a cake having acceptable qualities, the production of which would otherwise not have been possible using a low amount of fat.
- 4.11 The argument that the relevant effect took place inherently when preparing the cake disclosed in D3 is not convincing either as the inherent aspects are not directly and unambiguously disclosed. Furthermore, as noted in the decision under appeal, the decrease in the amount of egg in a cake described in D3 could result in an increase in the amount of fat rather than a decrease. This is because eggs contain a lower amount of fat than is contained in a typical batter used to prepare a cake. Hence, it cannot be assumed that following the teaching of D3 and reducing the amount of eggs in a batter results inevitably in a decrease in the amount of fat in the cake.

4.12 For these reasons, the use defined in claim 1 is not disclosed in D3, and the subject-matter of this claim is novel over the teaching of this document.

*Novelty over D5*

4.13 The opponent argued that, contrary to the opposition division's finding, the subject-matter of claim 1 lacked novelty over D5. The board does not agree.

4.14 D5 discloses the use of phospholipase enzymes, including phospholipase A, for different purposes. The uses encompass reducing the phosphorous content in edible oils and preparing dough, bread and cakes. However, D5 does not disclose using phospholipase A to reduce the amount of fat and egg in a batter used to prepare a cake, with the phospholipase being added to that batter. Thus, for the same reasons as already presented when assessing novelty over D3, the subject-matter of claim 1 is not disclosed in D5.

4.15 Accordingly, the subject-matter of claim 1 is novel over the teaching of D5.

*Novelty over D23*

4.16 The opponent contested the opposition division's finding that the subject-matter of claim 1 was novel over D23. Its arguments are, however, not persuasive.

4.17 D23 describes the use of Lipopan F to produce a cake prepared from a batter. As shown in D28, Lipopan F catalyses the hydrolysis of the sn-1 ester bond of diacylphospholipids; see sections 1, 4 and 5.2. Since this is the cleavage site of phospholipase A enzymes, Lipopan F qualifies as phospholipase A.

- 4.18 Furthermore, D23 teaches that adding Lipopan F to the batter used to prepare a cake accelerates the aeration and increases the viscosity of the batter. This increases bubble stability during baking and improves the appearance of the baked cake.
- 4.19 However, D23 does not disclose the use of a phospholipase A for reducing the amount of fat and egg used to prepare a cake. During the oral proceedings, while discussing inventive step, the opponent noted that the batter described in Table 1 of D23 contained less fat than the batters in Table 1 of the opposed patent. Thus, in its opinion, the fat-lowering effect underpinning the claimed use was inherently disclosed in D23.
- 4.20 This argument is not persuasive. First, D23 is silent as to any correlation between phospholipase A and the amount of fat and egg used to prepare the batter for the cake. Second, as observed by the proprietor, the batter of D23 and the batters described in the opposed patent have significantly different compositions. It is thus not possible to infer any possible beneficial effect of phospholipase A in the production of batters comprising low amounts of fat and egg. As already mentioned above when dealing with D3, what may inherently have occurred when preparing the cake of D23 is irrelevant for assessing the novelty of the claimed subject-matter. What counts is that the relevant effect is not directly and unambiguously disclosed in that document.
- 4.21 Hence, for reasons similar to those already presented when discussing novelty over D3, the subject-matter of claim 1 is novel over D23.

5. *Inventive step*

5.1 The opposed patent relates to the production of a shortened cake or foam cake which involves the preparation of a batter; see paragraphs [0008], [0009], [0040] to [0044] and [0047]. A batter is a mixture which comprises *inter alia* flour, egg, sugar and water, and is thin enough to pour or drop from a spoon. The invention foresees that phospholipase A is added to a batter which is put into a baking mould and cooked to obtain a cake. The patent explains that fat is typically used to improve lubrication and aeration of batters used to prepare cakes. This improves the tenderness and structure of the cakes. However, since fat is a calorie booster, it would be desirable to minimise the amount in the cake. The patent further explains that eggs are used as providers of natural emulsifiers. However, since eggs can be detrimental to health because they increase cholesterol, it would be desirable to minimise the quantity used; see paragraphs [0006] to [0009]. The invention relies on the finding that including phospholipase A in the batter used to prepare a cake renders it possible to lower the amount of fat and egg while preserving the properties of a cake comprising a higher amount of fat and egg.

*The closest prior art*

5.2 The opponent disputed the opposition division's finding that D9 was the closest prior art and that the claimed subject-matter involved an inventive step. It submitted that D23 was the closest prior art and that the subject-matter of claim 1 did not involve an inventive step regardless of whether D9 or D23 was considered the closest prior art.

5.3 The board agrees with the opponent that D23 can be considered the closest prior art. Although D23 does not disclose a reduction in the amount of fat in a cake, it relates, like the claimed invention, to the production of a cake obtained from a batter including phospholipase A.

5.4 D9 does not relate to the production of a cake involving the preparation of a batter, let alone using phospholipase A. It focuses on the preparation of a dough and a baked product made from a dough. A dough is a thick, malleable mixture of flour and liquid which is baked to obtain a bread or a pastry. It differs substantially from the batter used to prepare the cake of the invention in terms of structure and rheological properties. This means that D9 aims at preparing a substantially different type of product. Furthermore, although it teaches using a lipase to confer certain advantageous properties on a dough containing low amounts of added fat, D9 does not even mention phospholipase A. This means that D9 does not mention either phospholipase A or the preparation of a cake obtained by a batter.

*Distinguishing feature*

5.5 As already mentioned above, D23 discloses a batter including phospholipase A and a cake prepared using that batter; see abstract, Table 1 and page 1680, left-hand column. Moreover, D23 teaches that phospholipase A improves the batter's performance by releasing surfactants from the phospholipids present in the batter; see the abstract and the introduction on page 1, right-hand column.



5.6 However, for the reasons already presented when discussing novelty, D23 does not disclose the use of phospholipase A to reduce the amount of fat and egg in the batter used to prepare a cake.

5.7 For this reason, the claimed use distinguishes the claimed subject-matter from the disclosure of D21.

*Underlying technical problem*

5.8 Starting from D23, the problem addressed by claim 1 is to provide a further use of phospholipase A.

5.9 The claimed solution is the use of phospholipase A to reduce the amount of fat and egg employed to prepare the cake.

5.10 Examples 1, 5, 6 and 7 of the patent show that the use of phospholipase A reduces the negative impact observed when the amount of fat and egg is reduced in the batter used to prepare a cake. The tests make it credible that, despite a reduction in the amount of fat, the use of phospholipase A preserves quality requirements, such as an adequate batter viscosity and density, as well as crumb softness, pore homogeneity and volume of the resulting cake upon storage. These results make it credible that the underlying problem has been solved by the proposed solution.

5.11 The opponent argued that there was no evidence that this effect could be obtained across the entire scope claimed. In particular, it disputed that the effect could be obtained using enzymes having only a minor phospholipase A side activity, or using minimal amounts of phospholipase A.

5.12 As already concluded above when dealing with sufficiency of disclosure, these arguments are not convincing because they focus deliberately on embodiments which the skilled person would carefully avoid when carrying out the invention.

*Non-obviousness of the claimed solution*

5.13 The opponent argued that it was common knowledge that both fats and emulsifiers, such as those present in eggs, contributed to entrapping and stabilising the air incorporated in cake batters. This was shown in the section "Aeration" on page 35 of D15, a review article on bakery products. It was confirmed in Table 3.3 on page 39 of D15, where fat/butter/margarine and emulsifiers were identified as direct contributors to product aeration.

5.14 The opponent also noted that D23 taught that adding phospholipase A to a batter led to:

- an increase in the bulk viscosity of the batter; page 1862, right-hand column
- a decrease in the crumb firmness and an increase in crumb softness and storage stability; page 1685
- no adverse effects on shelf life; pages 1685 to 1686

5.15 These effects, which were mentioned in dependent claim 4 of the opposed patent, were induced by surfactants released by the hydrolysis of phospholipids induced by phospholipase A. In the opponent's opinion, it was readily apparent from D23 that the released surfactants increased the surface tension and the

viscosity at the air/water interface of the batter. The surfactants stabilised the bubbles in the batter and in the resulting cake, increasing the volume of the cake while maintaining a fine crumb texture. The ability of phospholipase A to hydrolyse phospholipids and to release lysophospholipids having emulsifying properties was known from D29 and D30.

- 5.16 According to the opponent, taking into account this background information and the teaching of D9, which disclosed the use of phospholipase A in preparing the dough of baked products comprising low amounts of fat, the skilled person would have considered using phospholipase A to reduce the amount of fat in the batter used to prepare a cake. In this way, the skilled person would have arrived at the claimed solution without the need for an inventive step. Thus, the claimed subject-matter did not involve an inventive step over a combination of D23 with D9.
- 5.17 The board does not agree. The opponent's conclusions are not convincing because, as submitted by the proprietor, they are based on cherry-picking and an oversimplified interpretation of the information presented in the cited documents.
- 5.18 First, D23 does not even mention the problem of reducing the amount of fat in a cake, let alone any potential use of phospholipase A for this purpose.
- 5.19 Second, looking further into D15, it becomes evident that fats and emulsifiers are only two of seven ingredients which play a major role in the aeration of cakes. These ingredients include sucrose, whole liquid egg, baking powder, baking acids, sodium bicarbonate, fat/butter/margarine and emulsifiers; see Table 3.3.

These ingredients cannot be expected to have the same properties and be interchangeable. Emulsifiers in particular, as amphiphilic molecules, cannot be expected to have the same properties and to induce the same effects as fats, which are essentially non-polar, or baking powder or sodium bicarbonate, which are raising agents. The emulsifiers from eggs cannot be expected to have the same properties as those released by phospholipase A either. This is the case in particular if these agents are dispersed in a complex system containing several other ingredients, such as a batter or a dough.

5.20 For this reason, the skilled person would not have had a reasonable expectation that the quality features of a batter and a cake could be preserved if the amount of fat and egg were reduced and replaced with emulsifiers released by a phospholipase A which is included in the batter and allowed to act in situ. Moreover, the effects mentioned in D9 that are observed when a lipase is added to a dough cannot be expected to occur if a different enzyme - a phospholipase A - is included in a batter. The complexity of the resulting system does not allow any reasonable prediction to be made on the properties of the obtained product. Therefore, when confronted with the underlying problem, the skilled person would not have considered using phospholipase A for the use mentioned in claim 1. The opponent's arguments are tainted by hindsight.

5.21 Accordingly, the claimed use involves an inventive step over a combination of D23 with D9, regardless of whether or not the background information presented in D15 is taken into account.

- 5.22 The same conclusions would be arrived at when starting from D9 as the closest prior art, as proposed by the opponent.
- 5.23 D9 relates to a method for improving the properties of a dough and of a baked product made from a dough, involving the use of a lipase of microbial origin; see claim 1. D9 teaches *inter alia* that the lipase induces advantageous effects in doughs containing low amounts of fat. This makes it possible to prepare low-fat baked products, e.g. bread, while maintaining characteristics like volume, softness and elasticity; page 3, lines 14 to 19 and page 4, lines 20 to 31.
- 5.24 The subject-matter of claim 1 differs from the teaching of D9 *inter alia* firstly in that a different enzyme is used, namely a phospholipase A instead of a lipase, and secondly in that a different product is produced, obtained by a different process, namely a shortened or a short cake obtained from a batter rather than a baked product obtained from a dough. The passage on page 12, lines 11 to 19 contains a passing reference to a cake, among a long list of other baked products. However, this cake is mentioned as being a baked product obtained from a dough, not from a batter. Thus, *de facto*, it is a different product.
- 5.25 Starting from D9, the underlying problem would be to produce an alternative product comprising a low amount of fat, involving the use of a lipolytic enzyme.
- 5.26 The opponent submitted that the claimed subject-matter was obvious in view of a combination of the teaching of D9 with that of D23.

- 5.27 The board does not agree. For similar reasons to those mentioned above when starting from D23, a skilled person preparing a shortened or foam cake from a batter including phospholipase A would not have expected to obtain the same beneficial effects as observed when a lipase is used to produce a baked product obtained from a dough.
- 5.28 Accordingly, the skilled person would not have considered preparing a cake using a phospholipase A, as specified in claim 1. Hence, the subject-matter of this claim would involve an inventive step even if D9 were considered the closest prior art.
- 5.29 Therefore, it is concluded that claim 1, as well as all the dependent claims, which are more limited in scope, involve an inventive step.

## 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 with the following claims and a description to be adapted accordingly:
  - claims 1 to 10 according to auxiliary request 2 filed at the oral proceedings before the board

The Registrar:

The Chairman:



L. Stridde

A. Haderlein

Decision electronically authenticated