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**Datasheet for the decision  
of 18 January 2024**

**Case Number:** T 0114/22 - 3.3.09

**Application Number:** 06815588.6

**Publication Number:** 1951058

**IPC:** A23B7/16

**Language of the proceedings:** EN

**Title of invention:**

ENCAPSULATION OF READILY OXIDIZABLE COMPONENTS

**Patent Proprietor:**

GENERAL MILLS, INC.

**Opponent:**

DSM Nutritional Products AG

**Headword:**

Encapsulation of oxidisable components/GENERAL MILLS

**Relevant legal provisions:**

EPC Art. 56

**Keyword:**



**Beschwerdekammern**  
**Boards of Appeal**  
**Chambres de recours**

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Case Number: T 0114/22 - 3.3.09

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.09**  
**of 18 January 2024**

**Appellant:** GENERAL MILLS, INC.  
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**Respondent:** DSM Nutritional Products AG  
(Opponent) Wurmisweg 576  
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**Representative:** dsm-firmenich IP  
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**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 11 October 2021  
revoking European patent No. 1951058 pursuant to  
Article 101(3) (b) EPC.**

**Composition of the Board:**

**Chair** A. Haderlein  
**Members:** F. Rinaldi  
N. Obrovski

## **Summary of Facts and Submissions**

- I. This decision concerns the appeal filed by the patent proprietor (appellant) against the opposition division's decision to revoke the European patent.
- II. In the notice of opposition, the opponent had requested that the patent be revoked under Article 100(a) EPC for lack of inventive step, among other grounds.
- III. The opposition division decided that none of the claim requests then on file involved an inventive step.
- IV. The following documents are cited in this decision.  
  
D3: WO 2004/009054 A2  
D7a: Technical report
- V. During the appeal, the appellant maintained the main request on which the impugned decision was based, and filed 69 auxiliary requests with the statement setting out the grounds of appeal. Among other things, it argued that the claims of all the requests involved an inventive step over D3 as the closest prior art.
- VI. During the appeal, the opponent (respondent) made no submissions or requests.
- VII. At the oral proceedings, the appellant requested that the decision under appeal be set aside, and that the patent be maintained on the basis of the claims of the new main request (previously auxiliary request 2) and the description of the patent specification with

paragraph [0029] deleted (adapted description). It withdrew its former main request (patent as granted) and auxiliary request 1.

VIII. Claims 1 and 12 of the new main request (previously auxiliary request 2) read as follows.

"1. A method for encapsulating a readily oxidizable component, comprising:  
a) forming an oil-in-water emulsion comprising a readily oxidizable component which is present in the oil phase, a film-forming component which is water soluble and comprises a hydrophobic or oleophilic portion so that it may concentrate at the oil and water interface, and which comprises a protein, a carbohydrate, a hydrocolloid, a starch, or mixtures thereof, and optionally, an acidic antioxidant, a non-acidic antioxidant, or a plasticizer,  
b) admixing said oil-in-water emulsion with at least one matrix material, a liquid plasticizer for plasticizing said matrix material, and an acidic antioxidant for preventing oxidation of said readily oxidizable component, wherein said liquid plasticizer comprises water and a polyol, solubilizes the acidic antioxidant and disperses and mobilizes the acidic antioxidant throughout the matrix material, and wherein said admixing being such so as to obtain a formable mixture wherein said at least one matrix material contains said acidic antioxidant and encapsulates oil droplets of said oil-in water emulsion which are coated by a film formed from the film-forming component,  
c) forming said formable mixture into pieces, and  
d) drying said pieces to obtain dried pieces, wherein said plasticizer is retained in the pieces after drying in a sufficient amount to prevent substantial crystallization of the acidic antioxidant and provides

*mobility for said acidic antioxidant in the dried pieces, and wherein the final moisture contents range from 2 % to 10 % moisture by weight, based upon the weight of the dried pieces; wherein the amount of said acidic antioxidant is from about 1% by weight to about 40% by weight, based upon the weight of the dried pieces; and wherein the amount of the polyol is from about 10% by weight to about 20% by weight, based upon the weight of the dried pieces."*

*"12. An encapsulated product comprising:*

- a) oil droplets comprising a readily oxidizable component,*
- b) a film-forming component which is water soluble and comprises a hydrophobic or oleophilic portion, and which comprises a protein, a carbohydrate, a hydrocolloid, a starch or mixtures thereof, said film-forming component coating said oil droplets by a film wherein film-coated oil droplets are formed,*
- c) at least one matrix material encapsulating the film-coated oil droplets,*
- d) an acidic antioxidant dispersed throughout said matrix material encapsulating the film-coated oil droplets, and*
- e) a liquid plasticizer comprising water and a polyol, which is present in a sufficient amount to prevent substantial crystallization of the acidic antioxidant, which plasticizes said at least one matrix material and which provides mobility to said acidic antioxidant in the plasticized matrix material, wherein the amount of said acidic antioxidant is from about 1% by weight to about 40% by weight, based upon the weight of the encapsulated product, wherein the product is in the form of pellets or particulates, and wherein the final moisture contents range from 2 % to 10 % moisture by*

*weight, based upon the weight of the dried pellets or particulates;  
wherein the amount of the polyol is from about 10% by weight to about 20% by weight, based upon the weight of the dried pellets or particulates."*

## **Reasons for the Decision**

### 1. *Patent*

The patent relates to a method for encapsulating a readily oxidisable component such as fish oil, and stabilising it against oxidation.

### 2. *New main request - amendments*

2.1 During the appeal, no objection was raised that the claims of the main request submitted with the statement setting out the grounds of appeal contained added subject-matter. The board is satisfied that these claims fulfil the requirement of Article 123(2) EPC.

2.2 Claims 1 and 12 of the new main request differ from the corresponding claims of the main request submitted with the statement setting out the grounds of appeal in respect of the amount of acidic antioxidant in claim 1, which was amended to correspond to that in claim 12 (from about 1% by weight to about 40% by weight). Furthermore, the amount of polyol, based on the dried pieces or pellets, was restricted (from about 10% by weight to about 20% by weight). The latter amendment was not covered by the requests which the opposition division found to lack inventive step.

- 2.3 The amendments are based on page 13 (amount of polyol) and page 12 (amount of acidic antioxidant) of the application as filed. The combination of features recited in claims 1 and 12 is directly and unambiguously derivable from the application as filed.
- 2.4 Therefore, the amendments fulfil the requirement of Article 123(2) EPC.
3. *New main request - inventive step*
- 3.1 D3 is the closest prior art and concerns a method for encapsulating an oxidisable component such as fish oil.
- 3.2 Claims 1 and 12 of the new main request differ from example 3 of D3 at least in respect of the amounts of acidic antioxidant (1 to 40% by weight) and polyols (10% to 20% by weight). In example 3 of D3, the amounts are 0.2% by weight and 1.4% by weight respectively.
- 3.3 The problem solved by the distinguishing feature is to improve the oxidation stability of the oxidisable component.
- 3.4 The examples in the patent all include an amount of polyol of 15% based on the dried product (i.e. pellet). The experimental results in D7a confirm that the high amounts of polyol contribute to increased stability as measured with the Oxypres<sup>®</sup> test. Lower amounts of polyol give less favourable results.
- 3.5 The prior art does not suggest the combination of the amounts of acidic antioxidant and polyols specified in claims 1 and 12 as a solution to the problem. Nor is

there any hint that polyol has an impact on preventing oxidation.

3.6 Therefore, the claims of the new main request involve an inventive step (Article 56 EPC).

4. *Adaptation of the description*

The board is satisfied that the description has been appropriately adapted to the claims of the new main request.

## Order

### For these reasons it is decided that:

- 1.) The decision under appeal is set aside.
- 2.) The case is remitted to the opposition division with the order to maintain the patent as amended in the following version:
  - claims 1 to 19 according to the main request filed as auxiliary request 2 with the statement setting out the grounds of appeal
  - description paragraphs [0001] to [0028] and [0030] to [0124] of the patent specification

The Registrar:

The Chair:



K. Götz-Wein

A. Haderlein

Decision electronically authenticated