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Datasheet for the decision of 2 July 2009

Case Number: T 0112/08 - 3.3.09

Application Number: 97912615.8

Publication Number: 0944334

IPC: A23K 1/18

Language of the proceedings: EN

Title of invention:
Method for continuous production of dry feed for fish and shell fish

Applicant:
Alfa Laval Corporate AB, et al

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 56, 123(2)

Relevant legal provisions (EPC 1973):
-

Keyword:
"Inventive step (yes - after amendment)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0112/08 **-** 3.3.09

D E C I S I O N
of the Technical Board of Appeal 3.3.09
of 2 July 2009

Appellant: Alfa Laval Corporate AB
Hans Stahles Väg
S-147 80 Tumba (SE)

Representative: Gill, Ian Stephen
A.A. Thornton & Co.
235 High Holborn
London WC1V 7LE (GB)

Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 18 May 2007 refusing European application No. 97912615.8 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: P. Kitzmantel
Members: J. Jardón Álvarez
M.-B. Tardo-Dino

Summary of Facts and Submissions

I. This appeal lies from the decision of the Examining Division dated 18 May 2007, refusing European patent application No. 97 912 615.8 published as WO - 98/19561 (EP - 0 944 334).

II. The decision under appeal was based on two sets of claims for a main and a first auxiliary request filed respectively on 8 June 2005 and 22 September 2006.

Claim 1 of the main request read as follows:

"1. Method for continuous production of dry feed pellets for fish and shellfish (crustacea) based on fresh fish raw material, characterised in that

– a fish material obtained from the fish raw material is heated to such a temperature that pasteurisation/sterilization takes place, and the fish material is separated into at least two fractions including a solid phase fraction and a liquid fraction containing fish oil,

– cooked vegetable carbohydrate products together with other additives, such as minerals, vitamins and binding agents, are added to the fresh fish raw material during the feed production,

– the liquid fraction containing fish oil is processed into an emulsified mixture,

– the emulsified mixture of the fish oil together with the solid phase and said vegetable

carbohydrate products and other additives is formed into pellets,

– the water content of the fractions which contain fish proteins, during all process step up to the formation of the feed pellets, is higher than 10%

– the dry feed pellets produced contain 25-60% protein, 10-40% fat and 5-25% carbohydrates, there being 25-60% fish protein and up to 40% fat in the form of fish oil."

Claim 1 of the auxiliary request read as follows:

"1. Method for continuous production of dry feed pellets for fish and shellfish (crustacea) based on fresh fish raw material, characterised in that

– a fish material obtained from the fish raw material is heated to such a temperature that pasteurisation/sterilization takes place, and the fish material is separated into at least two fractions including a solid phase fraction and a liquid fraction containing fish oil,

– cooked vegetable carbohydrate products together with other additives, such as minerals, vitamins and binding agents, are added to the fresh fish raw material during the feed production,

– the separated solid fraction is dehydrated under a low thermal effect to a water content higher than 10%,

– a separated liquid fraction is concentrated to a water content of 20-80% water,

– the liquid fraction containing fish oil is processed into an emulsified mixture,

– the emulsified mixture of the fish oil together with the solid phase and said vegetable carbohydrate products and said other additives is formed into pellets,

– the emulsified mixture formed into pellets has a water content above 10% and at most 40%, and

– the formed pellets are dried in a final drying step to a water content of 6-10% during low thermal effect,

– the water content of the fractions which contain fish proteins, during all process step up to the formation of the feed pellets, is higher than 10%

– the dry feed pellets produced contain 25-60% protein, 10-40% fat and 5-25% carbohydrates, there being 25-60% fish protein and up to 40% fat in the form of fish oil."

III. The Examining Division refused the application, as to both the main request and the auxiliary request, for lack of compliance with the requirements of Article 123(2) EPC. The Examining Division further pointed out that the subject-matter of Claim 1 of the auxiliary request would meet the requirements of

Article 123(2) EPC if the wording "is at least 5%" were to be reintroduced into Claim 1. Under these circumstances the subject-matter of Claim 1 of the request would be novel but would nevertheless lack inventive step having regard to the disclosure of the following document:

D1: WO - A - 96/01058.

The Examining Division acknowledged that the subject-matter of Claim 1 of the auxiliary request differed from the disclosure of D1, the closest prior art document, in that carbohydrates were cooked prior to mixing, that the additives were added after the addition of the fish oil and that D1 was silent concerning the specific levels of protein, fish protein, fat, fish oil and carbohydrates in the produced pellets.

The Examining Division saw the problem to be solved by the application as being to provide an alternative method of producing dried fish pellets. The solution provided by the application lacked an inventive step essentially because the cooking of the carbohydrate prior to its addition, and the sequence of addition of the oil and the additives prior to pelletising, did not appear to result in an unexpected effect. Furthermore, the adjustment of the ratios of the different components in order to obtain a specific final product composition was considered within the capabilities of the skilled person in the art since the end product in D1 inevitably contained similar amounts of each component. Thus the claimed method consisted merely in the association of known process steps functioning in

their normal way and not producing any non-obvious inter-relationship which would justify an inventive step.

IV. Notice of Appeal was filed on 16 July 2007 and the appeal fee was paid on 13 July 2007. The Statement setting out the Grounds of Appeal was filed on 28 September 2007.

With the Statement setting out the Grounds of Appeal the Appellant filed sets of claims for two requests: a main and an auxiliary request.

Claim 1 of the main request corresponded to Claim 1 of the auxiliary request before the Examining Division but amended by addition of the phrase "until the carbohydrate content of the produced feed is at least 5%" at the end of the second characterising clause of the claim in accordance with the suggestion made by the Examining Division in its decision.

V. In a communication dated 18 February 2009 pursuant to Rule 100(2) EPC the Board informed the Appellant that the amendment made to Claim 1 of the main request was seen as overcoming the objections made by the Examining Division under Article 123(2) EPC. Additionally, however, the Board indicated that the subject-matter of Claim 1 did not fulfil the requirements of Article 84 EPC.

VI. In reply thereto, on 20 April 2009, the Appellant submitted amended sets of claims for a main and an auxiliary request to address the points raised by the Board.

Claim 1 of the amended main request read as follows:

"1. Method for continuous production of dry feed pellets for fish and shellfish (crustacea) based on fresh fish raw material, characterised in that

- a fish material obtained from the fish raw material is heated to such a temperature that pasteurisation/sterilization takes place, and the fish material is separated into at least two fractions including a solid phase fraction and a liquid fraction containing fish oil,

- the separated solid phase is dehydrated under a low thermal effect to a water content of higher than 10%,

- a separated liquid fraction is concentrated to a water content of 20-80% water,

- the liquid fraction containing fish oil is processed into an emulsified mixture, and gelatinized by cooked vegetable carbohydrate products being added, together with other additives, such as minerals, vitamins and binding agents until the carbohydrate content of the produced feed is at least 5%,

- the gelatinized mixture of the fish oil together with the solid phase and said vegetable carbohydrate products and said other additives is formed into pellets,

– the gelatinized mixture formed into pellets has a water content above 10% and at most 40%,

– the formed pellets are dried in a final drying step to a water content of 6-10% during low thermal effect,

– the water content of the fractions which contain fish proteins, during all process step up to the formation of the feed pellets, is higher than 10%, and

– the dry feed pellets produced contain 25-60% protein, 10-40% fat and 5-25% carbohydrates, there being 25-60% fish protein and up to 40% fat in the form of fish oil."

Claim 1 of the auxiliary request is identical to Claim 1 of the main request but for the replacement of the wording "such a temperature" by the wording "95°C during 120 seconds such" in the first step of the process.

VII. The arguments put forward by the Appellant may be summarized as follows:

– The amendments made to the claims overcame the objection made by the Examining Division regarding the contravention of Article 123(2) EPC and the objections made by the Board of Appeal regarding Article 84 EPC.

– Concerning inventive step, the Appellant pointed out that there were several differences between

the process of D1 and the application. Of particular importance to the invention was that an emulsified mixture of fish oil with the separated and dehydrated solid phase and the cooked vegetable carbohydrate products and other additives was formed and this emulsified mixture was formed into pellets. These differences resulted in several advantages of the process, such as avoiding unnecessary drying steps and the resulting in a feed product with a high nutritional value. The pellets formed had sufficient mechanical strength to keep their shape during transportation and handling and the oil was not liberated during feeding, since it was for the most part emulsified in the product.

– The Appellant saw the technical problem to be solved not as merely providing an alternative method of producing dried fish pellets but as to produce dry fish feed pellets with improved properties and by a continuous method which allowed the properties to be adapted to the fish species and which allowed cost savings to be achieved. The claimed solution to this problem was not obvious in view of D1. In its opinion the Examining Division had made many assumptions about the disclosure of D1. The assessment of the content of the disclosure of D1 by the Examining Division clearly relied on hindsight and was therefore wrong.

VIII. The Appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of Claims 1 to 12 of the main request or, alternatively,

of Claims 1 to 11 of the auxiliary request, both filed with letter dated 20 April 2009.

Reasons for the Decision

1. The appeal is admissible.

MAIN REQUEST

2. *Amendments (Article 123(2) EPC)*

2.1 Claim 1 of the main request corresponds essentially to Claim 1 of the auxiliary request before the Examining Division, but amended by:

- rearrangement of the process steps to clarify that the gelatinization takes place after concentration of the liquid fraction containing fish oil;

- addition of the phrase "until the carbohydrate content of the produced feed is at least 5%" at the end of the fourth process step; and

- the correct positioning of the word "and" before the last step of the process (typing mistake).

2.2 As already acknowledged by the Examining Division, support for the amended Claim 1 can be found in the original Claims 1 and 2 and in the description (see in particular page 7, line 4; page 5, line 2, page 9, lines 20 - 22; for the feature gelatinization see also the Figure). Further the amendments made during the appeal proceedings overcome the objection raised by the

Examining Division concerning the absence of the wording "is at least 5%" in the version before the Examining Division (see point 2.1 of the Examining Division's decision).

The basis for the dependent Claims 2 to 11 is found in the original Claims 3 to 12, respectively. Claim 12 is supported by the original Claim 13 in combination with the disclosure on page 8, lines 18 to 20.

2.3 The Board is thus satisfied that the subject-matter of the claims fulfils the requirements of Article 123(2) EPC.

3. *Inventive step (Article 56 EPC)*

3.1 Closest prior art

3.1.1 The present application is directed to a method for the production of dry feed pellets for fish and shellfish from a fresh fish raw material. In this method cooked vegetable carbohydrates are added to the fresh fish raw material together with other additives to give a carbohydrate content in the produced feed of at least 5% (see steps 4 and 9). The pellets are obtained from an emulsified mixture of fish oil, carbohydrate products and the dehydrated solid phase (see steps 4 and 5). The process is said to require only gentle heat treatment throughout resulting in a low temperature effect on the nutritive substances in the fish (page 6, lines 18 - 26).

3.1.2 In agreement with the Examining Division and the Appellant, the Board considers D1 as the closest prior

art document. It discloses in Claim 1 a process for producing a fish-based food product comprising the steps of:

- mixing fish material having a water content of at least 20% by weight with a concentrate of stick water having a water content of at least 50% by weight,
- converting the mixture at a temperature of 20-120°C into a product, and
- drying the product to a water content of less than 12% by weight.

The process of D1 also aims to produce a dry feed in an energy-favourable manner and having good nutritional and physical properties (see page 3, lines 1 - 4).

3.2 Problem to be solved

3.2.1 The disclosure of D1 does not specify the conditions under which some of the process steps are carried out, making a comparison with the process now claimed difficult.

3.2.2 The Appellant has referred to the following distinctions of the method of Claim 1 over the process described in D1:

(a) the use of fresh fish as starting material, the starting material in D1 not being precisely described,

(b) the requirement of only gentle heat treatment, the fish material in the method of D1 having been subjected to significant heat treatment,

(c) the use of an emulsified mixture of fish oil with the separated and dehydrated solid phase and the cooked carbohydrate products for the preparation of the pellets, as opposed to the pellets of D1 wherein the oil is sprayed afterwards, and

(d) the inclusion of carbohydrates in the extrusion processes.

3.2.3 The Appellant maintains that these distinguishing features result in considerable benefits for the claimed method.

Thus, the use of raw fish material which is subjected to relatively gentle heat treatment (cf. (a) and (b)) increases the nutritional value of the pellets and is less energy consuming; and

the formed pellets are advantageous in that the fish oil is incorporated into the pellet (cf. (c)) avoiding the problem of oil being liberated and forming a film on the water surface and in that their porosity and density is better controlled due to the presence of carbohydrates (cf. (d)).

3.2.4 The Board notes, however, that there is no direct comparison of the claimed process and the process of D1 and that the advantages mentioned by the Appellant are not the consequence of the technical features that

actually distinguish the method as claimed from the method of D1.

As to the advantages of the use of a relatively gentle heat treatment from the fish raw material, it is noted that Claim 1 is not limited to such 'gentle' treatment. Claim 1 merely states that "the fish raw material is heated to such a temperature that pasteurisation/ sterilization takes place". Since at least a sterilization treatment may involve a heat treatment more severe than 'gentle', the claimed process cannot ensure the claimed energy savings and the desired improved nutritional value of the feed product. As was set out in the Board's communication, the application of a more than 'gentle' heat treatment is also at variance with the whole disclosure of the claimed invention and in that regard in contravention of the requirements of Article 84 EPC.

Concerning the advantages of the incorporation of fish oil into the pellet and the presence of carbohydrates, it is noted that these features are also covered by the disclosure of D1 wherein oil and carbohydrates are also added to the extruder (see page 4, line 18; page 5, line 6 and Figure 1/1, step 3).

3.2.5 Consequently, as the alleged advantages of the process cannot be attributed to its distinguishing features, the problem to be solved by the present application is merely seen as to provide an alternative method of producing dried fish pellets.

3.3 Solution to the problem

3.3.1 The Board is satisfied that this technical problem has been solved by the claimed method. The example in the application shows that dry feed pellets are prepared from fish raw material following the claimed process steps.

3.4 Obviousness

3.4.1 The Board regards the claimed method as an obvious alternative to the known process of D1. The process of Claim 1 merely includes process steps which are either embraced by the disclosure of D1 or very close to them. To the skilled person the differences between the subject-matter of D1 and that of the present invention amount to routine variations not involving any inventive effort.

3.4.2 As explained above under 3.2.4, the advantages recited by the Appellant cannot be considered for the subject-matter of Claim 1 as they are not the result of technical features included in Claim 1.

The subject-matter of Claim 1 of the main request therefore lacks inventive step.

AUXILIARY REQUEST

4. *Amendments (Article 123(2) EPC*

4.1 Claim 1 of the auxiliary request is a combination of Claims 1 and 7 of the main request. The remaining

claims remain unchanged, except the renumbering of Claims 8 to 12 as Claims 7 to 11.

4.2 Consequently, the comments made under point 2 for the main request also apply for the claims of the auxiliary request, which therefore satisfy the requirements of Article 123(2) EPC.

5. *Inventive step (Article 56 EPC)*

5.1.1 Compared to the main request, Claim 1 of the auxiliary request specifies that the fish raw material is heated "to 95°C during 120 seconds" (step 1). By this measure the subject-matter of the claims ensures that the process involves only a gentle heat treatment of the raw materials.

5.1.2 As a consequence of this amendment, the process as now claimed excludes the use of heating at elevated temperatures and/or for an extended time. By this measure the process is clearly distinguished from the process of D1, which preferably uses as starting material an intermediate product in the production of fish meal (see D1, page 3, lines 27 - 31), that is to say a material which has been treated at elevated temperatures (Claim 5).

5.1.3 By this measure the temperature effect on the fish proteins and fatty acids in the fish oil is reduced to a minimum. Additionally it also brings energy savings.

5.2 Problem to be solved and its solution

5.2.1 The problem to be solved can thus be seen as to provide a process for producing feed pellets with improved properties, namely with a high nutritional value.

5.2.2 This problem is credibly solved by the claimed process using only a gentle treatment during all the process steps.

5.2.3 There is no hint to this solution in D1 which actually teaches in the opposite direction, that is to say towards the use of fish material obtained as intermediate product in the production of fish meal at elevated temperatures.

5.2.4 For these reasons the subject-matter of Claim 1 of the auxiliary request, as well as the subject-matter of dependent Claims 2 to 11, involves 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 department of first instance with the order to grant a patent on the basis of the following documents:

   Claims: Claims 1 to 11 of the auxiliary request of 20 April 2009;

   Description: Pages 1 to 4 and 6 to 10 as published (WO - 98/19561); page 5 filed with letter dated 20 April 2009 and pages 11 and 12 filed with letter dated 10 March 2003;

   Drawing: Figure 1/1 as published.

The Registrar: The Chairman:

G. Röhn P. Kitzmantel