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D E C I S I O N
of 9 May 2000

Case Number: T 0173/99 - 3.3.4

Application Number: 87307390.2

Publication Number: 0257996

IPC: A23K 1/165

Language of the proceedings: EN

Title of invention:

Feed premix and production method therefor

Patentee:

Finnfeeds International Limited

Opponent:

DSM Gist B.V.

Headword:

Feed premix/FINNFEEDES

Relevant legal provisions:

EPC Art. 123(2)

Keyword:

"Added subject-matter - yes"

Decisions cited:

-

Catchword:

-



Case Number: T 0173/99 - 3.3.4

D E C I S I O N
of the Technical Board of Appeal 3.3.4
of 9 May 2000

Appellant: Finnfeeds International Limited
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Representative: Kindler, Matthias, Dr. Dipl.-Chem.
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Respondent: DSM Gist B.V.
(Opponent) Wateringseweg 1, PO Box 1
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Representative: Klein, Bart
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 17 November 1998
revoking European patent No. 0 257 996 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: U. M. Kinkeldey
Members: D. D. Harkness
W. Moser

Summary of Facts and Submissions

I. The appeal is against the decision of the opposition division revoking the patent in suit for failure to meet the requirements of Article 123(2) EPC.

II. Product and method claims 1 and 7 of the European patent application as filed read as follows:

"1. A relatively dry, thermally stable, feed premix consisting essentially of a **pelletized** physiologically acceptable carrier and one or more enzymes.

7. A method for producing a relatively dry, thermally stable, premix comprising the steps of: mixing a physiologically acceptable carrier with one or more enzymes; reacting the carrier/enzyme mixture in a suitable vessel so that the enzyme or enzymes present are substantially absorbed into the carrier; and **pelletizing** the reacted carrier/enzyme mixture." (emphasis added by the board).

III. Product and method claims 1 and 8 of the patent in suit as granted read as follows:

"1. A heat stable enzyme premix for animal feed in which the enzyme retains an effective level of activity during commercial feed processing, **including pelleting**, the premix having a water content of between 7% and 15%, preferably less than 10% by weight and consisting of a grain based carrier which is physiologically acceptable capable of absorbing an aqueous enzyme solution, and at least one enzyme absorbed onto the carrier.

8. A method of producing a heat stable enzyme premix containing one or more enzymes which retain an effective level of activity during commercial feed **pelleting** processes, the method comprising the steps of:

mixing a grain based carrier which is physiologically acceptable and capable of absorbing an aqueous enzyme solution, with an aqueous enzyme solution for a period of time sufficient to absorb the enzyme or enzymes onto the carrier to form a carrier/enzyme complex;
pelleting the carrier/enzyme complex; and
drying the **pelleted** carrier/enzyme complex to a moisture content of between 7% and 15%, preferably less than about 10% by weight."
(emphasis added by the board).

IV. The appellant (patentee) filed a notice of appeal and statement of grounds and paid the appeal fee. With the statement of ground a main and an auxiliary request were filed on 17 February 1999, both of which have independent use and method claims which differ from each other only in that in the auxiliary request in claim 1 and claim 6 (corresponding to claim 7 of the main request) the term "grain flour" was replaced by "wheat flour or barley flour".

Claims 1 and 7 of the main request read as follows:

"1. The use of an enzyme premix in **pelletized, crushed or milled** form for the manufacture of an animal feed, the premix consisting of a grain flour carrier which is physiologically acceptable and which is capable of absorbing an aqueous enzyme solution, and at least one

enzyme absorbed onto the carrier, the premix having a water content of 7-15% by weight, for stabilizing the enzyme activity so that this is not significantly affected by high temperatures used in commercial feed processing.

7. A method for producing a heat stable enzyme premix containing one or more enzymes whose activity is not significantly affected by high temperatures used in commercial feed processing, the method comprising the steps of:

mixing a grain flour carrier which is physiologically acceptable and capable of absorbing an aqueous enzyme solution, with an aqueous enzyme solution for a period of time sufficient to absorb the enzyme or enzymes onto the carrier to form a carrier/enzyme complex;

pelleting the carrier/enzyme complex; and

drying the pelleted carrier/enzyme complex to a moisture content of 7-15% by weight."

(emphasis added by the board).

V. Oral proceedings were held on 9 May 2000.

VI. As regards the issue of whether or not the terms pelletized, crushed or milled may be allowed to stand independently in claims 1 of both requests without contravening Article 123(2) EPC, the appellant essentially submitted the following:

Various references to the European patent application established that in its broadest disclosure the application defined the product without specifying its physical form. Further, a milled or crushed product was disclosed in the examples. The pelletization step was

not obligatory but a preferred process step, and the apparatus used was only an example from a number of possibilities. After optional pelletization, crushing or milling was carried out, and the product was a powder which in both cases, ie, pelletized and not previously pelletized, was the same and the two were not distinguishable.

VII. The respondent's submissions may be summarised as follows;

There was no basis in the application as filed for a process which prepared an enzyme premix without a pelletization step. If an aqueous solution of enzyme were added to a flour base carrier, this resulted in a doughy product which did not have any flow characteristics and which was not suitable in that form for its intended purpose without drying. Omitting the pelletization step offended against Article 123(2) EPC as there was no reference to crushing or milling in the application as filed which was not preceded by such a step. It was the pelletization which enabled the drying of the dough mix (flour, water and enzyme) to give a water content of 7.5 to 15% by weight and which also led to higher enzyme heat stability, both of these features being identified in claim 1. Accordingly claim 1 of the main request was not justified in its references to the three alternative pelletized, crushed or milled forms of the enzyme premix.

It was possible to distinguish an enzyme premix product which had been pelletized and milled or crushed from one which had not been pelletized before crushing or milling because it was comprised of compact particles of higher enzyme heat stability whereas those particles

derived from a non-pelletized product by crushing or milling were of a more loose structure and had lower enzyme heat stability.

VIII. The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of the following documents submitted on 17 February 1999:

- (a) claims 1 to 10 as main request, or
- (b) claims 1 to 9 as auxiliary request.

The respondent requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.
2. The only issue to be decided is whether or not the claims of either the main or auxiliary requests comply with the requirements of Article 123(2) EPC.

Main request

3. The question arises whether or not the use of a premix in the "crushed or milled" form, without an obligatory previous pelleting step, is allowable under Article 123(2) EPC.
4. The process for preparing the enzyme premix, described on pages 7 and 8 of the application as filed, involves mixing all the ingredients including flour and dry or aqueous enzymes and then pelletizing, which step

improves the enzyme heat stability, and drying the product to the required water content (cf. page 5, paragraph 1 of the application as filed). It is stated that the "dried pellets can be crushed or milled" (cf. page 5, at the end of paragraph 1, and page 8, line 10, of the application as filed). Thus, the disclosure in the application as filed is that products in crushed or milled form are obtained by treating pellets.

5. The appellant argued that the disclosure in the application as filed at page 2, line 29, to page 3, line 10 justifies the general references to crushed or milled enzyme premixes, not pelletized at any stage, as well as the pelletized product. In doing this he read this passage in isolation from the whole teaching of the description. The said enzyme premixes are required to have a certain water content and to be thermally stable, and the attainment of these characteristics is a specific feature of this invention, see claim 1. The thermal stability is obtained by pelletizing the enzyme/carrier mixture, see page 5, lines 1 and 2 of the application as filed, thus even though the passage to which the appellant refers does not explicitly mention pelleting as such, it does however specify the requirement of "thermally stable", a characteristic which is only attained by forming pellets.
6. Further, the Board does not agree to the appellant's interpretation of lines 11 to 15 on page 3 of the application as filed that this particular passage discloses a method without a pelletizing step because this passage is restricted to a method and does not indicate the final form of the enzyme premix other than that, after mixing, the mixture is pelletized, dried and milled. The description does not refer to a method

to pelletize **or** crush **or** mill the product. Again the appellant read page 3, lines 11 to 15 of the application as filed in isolation to support his view, instead of putting this passage into the proper context of the disclosure as a whole.

7. All the examples in the patent in suit prepare a pelletized **and** crushed or milled product. It was argued by the appellant that the pellets make it difficult to evenly distribute the enzymes in the animal feed, thus implying that crushed or milled products would be better from this point of view. This argument is not convincing because, given that an aim is to stop enzyme heat degradation, this problem is overcome by pelleting, as a result of which, after processing, more enzymes will be intact than would otherwise be the case. It is a technical fact that, if enzymes were used in not previously pelletized, crushed or milled products then more heat degradation would take place during processing. Thermal stability is improved by pelletizing because the outside layer of the pellet protects the enzyme inside from heat degradation, whereas the enzymes in crushed or milled products would be degraded to a higher degree because of a smaller particle size than the pellets. It is the heat degradation which causes a loss of enzymes.
8. Thus, the application as filed does not describe a process in which enzymes were absorbed by a flour carrier and then treated by crushing or milling without an intermediate step of pelletizing.
9. During oral proceedings, the technical experts for the parties were asked by the board how such a process would proceed. It was agreed that the mixing of the

components would result in a sticky dough which required further treatment to remove water and attain the water content levels required by claim 1 followed by crushing or milling. The appellant's expert regarded the statement at page 5, paragraph 1 of the application as filed that pelletizing makes it possible to dry the dough to a water content below 30% by weight as the obligatory method for drying the dough to the required level when it contained more than 30% by weight of water. Therefore, this expert considered that a pelleting process step was necessary and this conclusion in the Board's opinion does not support the appeal. In fact it militates against it.

The expert for the respondent was of the opinion that the two powder products could be distinguished in that the pelletized and crushed product was of smaller particle size and had a higher enzyme thermal stability than the non-pelletized, but crushed product, which had a more open structure.

On the basis of the evidence concerning the drying function of the pelletizing process step and the lack of a description of a process which did not involve a pelletizing step, the Board comes to the conclusion that claim 1 of the main request contravenes Article 123(2) EPC.

10. Those technical decisions of the Boards of Appeal cited by the appellant are different from the present case in their facts and are not directly pertinent to this case.

Auxiliary request

11. This request differs from the main request only in that the claims are limited to the use of carriers of wheat and barley flours. In respect of the other features of this request the same arguments apply as apply to the main request and therefore the auxiliary request also must fail.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairwoman:

U. Bultmann

U. Kinkeldey