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Datasheet for the decision of 28 June 2013

Case Number: T 1979/11 - 3.3.09

Application Number: 01967300.3

Publication Number: 1337158

IPC: A23K 1/00, A23K 1/16, B01J 2/00

Language of the proceedings: EN

Title of invention:
Process for the preparation of granules of methionine

Patent Proprietor:
Adisseo France S.A.S.

Opponent:
Evonik Degussa GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 56, 83, 84

Keyword:
"Exception from the prohibition of reformatio in peius - yes (main and auxiliary request)"
"Amendments - Clarity and sufficiency of disclosure - yes"
"Inventive step - no (main and auxiliary request)"

Decisions cited:
G 0001/99, T 1843/09

Catchword:
The fact that the broadening of a claim in appeal proceedings where the opponent is the sole appellant results from a reaction of the respondent to an objection raised by the appellant for the first time in the appeal proceedings may justify a deviation from the principle of the prohibition of *reformatio in peius* (point 2.1; T 1843/09 followed).

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Case Number: T 1979/11 - 3.3.09

D E C I S I O N
of the Technical Board of Appeal 3.3.09
of 28 June 2013

Appellant: (Opponent)
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Decision under appeal:
Interlocutory decision of the Opposition Division of the European Patent Office posted 11 July 2011 concerning maintenance of the European patent No. 1337158 in amended form.

Composition of the Board:

Chairman: W. Sieber
Members: M. O. Müller
K. Garnett

Summary of Facts and Submissions

I. This decision concerns the appeal by the opponent against the interlocutory decision of the opposition division that European patent No. 1 337 158 as amended meets the requirements of the EPC.

II. The opponent 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).

The documents submitted during the opposition proceedings included:

D1: EP 0 992 490 A1; and

D3: EP 0 967 885.

III. The opposition division's decision, announced orally on 25 May 2011 and issued in writing on 11 July 2011, acknowledged the allowability of the main request, claim 1 of which read as follows:

"1. A process for the preparation of granules of methionine characterised

– in that it comprises (a) forming a mixture of methionine powder, a binding agent and water; (b) applying the mixture to high shear rate mixing by carrying out it in a high shear and high speed mixer wherein the mixture is centrifuged against the walls of the mixer, thereby forming granules of said mixture; and (c) drying said granules, said binding agent being selected from cellulose,

starch, hydrocolloid gum, polyvinyl alcohol, polyvinyl pyrrolidone, sugar and syrup of sugar and

- in that the granules of methionine have:
  - a bulk density of at least 0,6 g/cm^3,
  - a particle size distribution of from 50 to 2000 microns with less than 10% of the granules of methionine being less than 200 microns and less than 10% greater than 1000 microns."

IV. The opposition division essentially reasoned as follows:

The claims of the main request met the requirements of Article 84 EPC. In this respect, the opponent's objection with regard to the missing upper limit of the bulk density required by claim 1 was not convincing. The problem underlying the field of the invention was rather how to reach a given density, not how to limit it.

The main request was also novel and inventive. As regards inventive step, D1 constituted the closest prior art. The claimed process differed from this document in that a high-shear and high-speed mixing step rather than an extrusion step was applied for the granulation. This difference resulted in a good miscibility of the granules with animal feed pellets because the obtained granules had a bulk density of at least 0.6 g/cm^3, which was similar to the density of the animal feed pellets. It was shown in the examples of the opposed patent that the claimed process indeed enabled methionine particles to be obtained with a density of at least 0.6 g/cm^3, which was not the case with the extrusion process of the comparative examples

of the opposed patent. The objective technical problem was thus the provision of an improved process for the granulation of methionine wherein the granules were produced directly with the desired physical properties. In this respect, the opponent's argument that the skilled person would know how to adjust the extrusion parameters in D1 to obtain the desired bulk density of at least 0.6 g/cm^3 was not convincing. More specifically none of the examples of D1 illustrated the general statement in this document that the granules had a bulk density of 0.6 to 0.8 g/cm^3 and the opponent had not provided any evidence which supported its allegation. An inventive step could therefore be recognised based on the surprising physical properties of the methionine granules obtained by the claimed process.

V. On 9 September 2011, the opponent (hereinafter: "the appellant") filed an appeal and on the same day paid the prescribed fee. The statement setting out the grounds of appeal was filed on 18 November 2011 together with a comparative example.

VI. A response was filed by the proprietor (hereinafter: "the respondent") with its letter of 4 May 2012.

VII. By its letter of 22 August 2012, further comments were filed by the appellant together with

D8: The Merck Index, 10th edition, 1983, keyword "methionine", page 858; and

D9: EP 0 780 370 A2.

VIII. By its communication dated 7 December 2012, the board informed the parties of its preliminary opinion. The board reiterated the respondent's objections as regards the requirements of Articles 83 and 84 EPC. In this context, the board also referred to examples 2 to 7 of the opposed patent, which showed that a process comprising the process steps of claim 1 did not necessarily lead to products with the required particle size distribution. As regards inventive step, the board referred *inter alia* to D1 as the closest prior art and stated that in the light of this document the problem had possibly to be redefined as the provision of an alternative process.

IX. By its letter of 12 April 2013, the respondent submitted a new main request and an auxiliary request ("subsidiary request"). Claim 1 of the main request reads as follows:

"1. A process for the preparation of granules of methionine characterised

- in that it comprises (a) forming a mixture of methionine powder, a binding agent and water; (b) applying the mixture to high shear rate mixing by carrying out it in a high shear and high speed mixer wherein the mixture is centrifuged against the walls of the mixer, thereby forming granules of said mixture; and (c) drying said granules, said binding agent being selected from cellulose, starch, hydrocolloid gum, polyvinyl alcohol, polyvinyl pyrrolidone, sugar and syrup of sugar and
- in that the granules of methionine have a bulk density of at least 0,6 g/cm^3."

Claim 1 of the auxiliary request is identical to claim 1 of the main request except that it contains the following additional wording at the end of the claim:

"in that the methionine powder is characterised by a bulk density of from 300 to 500 kg/m^3 and a tapped density of from 500 to 600 kg/m^3 and a particle size distribution wherein at least 40% of the particles of methionine have size [sic] greater than 150 microns."

X. On 28 June 2013 oral proceedings were held before the board. Both parties maintained their requests made in the written proceedings. The appellant in addition requested that the main and the auxiliary request filed with letter of 12 April 2013 should not be admitted into the proceedings.

XI. So far as relevant to the present decision, the appellant's arguments can be summarized as follows:

(a) The main and the auxiliary request filed with letter of 12 April 2013 were not admissible since claim 1 of each of these requests was broader than claim 1 of the main request allowed by the opposition division, implying that these requests violated the prohibition of *reformatio in peius*. The exceptions referred to in G1/99 did not apply in this respect as this decision was concerned with an error in judgement by the opposition division relating to Article 123(2) EPC. Furthermore, the respondent had not given any reasons as to why it had filed these requests and,

therefore, the appellant could not react appropriately.

(b) The main request did not meet the requirements of Articles 83 and 84 EPC since the bulk density range in claim 1 lacked an upper limit. More specifically, even though the skilled person knew how to obtain bulk densities of at least 0.6 g/cm^3, the claim covered bulk densities as high as 2 g/cm^3 (due to the missing upper limit), and it was not clear how these bulk densities could be obtained.

(c) Even though D3 was the more appropriate closest prior art, it was also possible to start from D1 as closest prior art. The method of claim 1 differed from this document in that the granules were made by a high-speed and high-shear mixing process rather than an extrusion process. The problem referred to by the respondent, namely the achievement of a higher bulk density and flowability, did not constitute the objective technical problem since this problem had already been solved in D1. Both the explicit disclosure in D1 as well as the comparative example submitted with the statement of grounds of appeal proved that bulk densities as claimed could be obtained with the extrusion process of D1. Furthermore, D1 also already achieved an improved flowability of the granules since this document disclosed the use of a spheroniser to obtain rounded particles. The objective technical problem therefore was the provision of an alternative process. The solution to this problem was already known from D3. In this respect, the skilled person would not be deterred

from applying the high shear mixing step of D3, where methionine salts were granulated, to the methionine powder of D1, since it was explicitly disclosed in D3 that methionine salts and methionine were biologically equivalent. The claimed subject-matter therefore lacked an inventive step in view of D1 in combination with D3.

(d) Claim 1 of the auxiliary request differed from claim 1 of the main request only in that the methionine powder used as the starting material had been further defined by way of its bulk density, tapped density and particle size distribution. However, these characteristics did not change anything with regard to the assessment of inventive step and in particular did not lead to any unexpected effect. The objective technical problem therefore remained the same as for the main request and for the same reasons as given with regard to the main request, its solution was obvious in view of D3, which even disclosed the required bulk and tapped density of the starting material.

XII. So far as relevant to the present decision, the respondent's arguments can be summarized as follows:

(a) The main and the auxiliary request should be admitted into the proceedings. The deletion of the particle size characteristic in claim 1 of these requests constituted a reaction to the appellant's new objection raised in this respect under Articles 83 and 84 EPC.

(b) The missing upper limit in claim 1 did not lead to any deficiency under Articles 83 and 84 EPC. More particularly, claim 1 constituted a process rather than a product claim and the upper limit of the bulk density was inherently determined by the process parameters of the claim.

(c) As regards inventive step, D1 constituted the closest prior art. The claimed subject-matter differed from D1 by the use of a high-shear and high-speed mixing process for granulation instead of an extrusion process. The objective technical problem in view of this document was the provision of methionine granules that, by reason of their increased bulk density and flowability, were optimised for addition to animal feed. It was shown by the examples and comparative examples of the opposed patent that the bulk densities obtained with the claimed process were higher than those obtained with an extrusion process, such that the problem had been credibly solved. When looking for a solution to this problem, the skilled person would not turn to D3 since this document used a different starting material, namely hygroscopic methionine salts rather than hydrophobic methionine.

(d) The respondent did not make any additional submissions, either in the written proceedings or at the oral proceedings, on the issue of inventive step of the auxiliary request.

XIII. During the oral proceedings, the board referred to the relevance of decisions G 1/99 and T 1843/09 for the question of *reformatio in peius* in the present case.

XIV. The appellant requested that the decision under appeal be set aside and the patent be revoked.

XV. The respondent requested that the decision under appeal be set aside and the patent be maintained on the basis of the main, alternatively the auxiliary request, both filed with letter dated 12 April 2013.

Reasons for the Decision

1. The appeal is admissible.

Main request

2. *Admissibility*

2.1 Claim 1 of the main request as found allowable by the opposition division referred to a process for the preparation of methionine granules wherein the granules are characterised by a certain bulk density and a certain particle size distribution (see point III above). Claim 1 of the present main request differs from this claim in that the particle size characteristic of the granules has been deleted (see point IX above). Claim 1 of the present main request is thus broader than claim 1 of the main request as allowed by the opposition division.

In the appellant's view, due to this broadening, the present main request violates the principle of the prohibition of *reformatio in peius*. The appellant therefore requested that this request should not be admitted into the proceedings.

The board acknowledges that the broadening of a claim effected by a proprietor/respondent in appeal proceedings is generally contrary to the principle of the prohibition of *reformatio in peius*. However, in the present case, the broadening of claim 1 by the deletion of the particle size characteristic is a reaction of the respondent to the appellant's objection under Article 83 EPC. This objection had not been made during the opposition proceedings but has been raised for the first time in the statement of grounds of appeal (see the fifth to seventh paragraph on page 3 of the appellant's letter dated 18 November 2011).

As outlined in G 1/99 (points 12 to 14), it would not be equitable to allow the appellant/opponent to present a new attack and at the same time to deprive the proprietor/respondent of a means of defence. Even though G 1/99 specifically addressed a reaction of the proprietor to an error of judgement by the opposition division concerning the allowability of an amendment, the equity approach as outlined by the Enlarged Board of Appeal is not limited to the situation specifically dealt with in G 1/99. On the contrary, it covers, in addition to an error of judgement by the opposition division, other situations involving a change of the factual and/or legal basis on which limitations have been made by the proprietor prior to the appeal by the

opponent as the sole appellant (T 1843/09 of 6 June 2012; points 2.4.3 and 2.4.4).

Hence, the present situation, in which the broadening of the claims results from a reaction of the respondent to an objection raised by the appellant for the first time in the appeal proceedings, justifies a deviation from the principle of the prohibition of *reformatio in peius*. This principle thus does not speak against the admittance of the main request into the proceedings.

2.2 The only further argument made by the appellant as regards the admissibility of the main request was that no reasons for the filing of this request were given and hence the appellant was not able to properly react to this request. However, the respondent has merely deleted the particle size characteristic which had been objected to by the appellant and by the board in its preliminary opinion. It was thus self evident that the reason why this amendment was made was to overcome the appellant's and the board's objections.

2.3 The board therefore decided to admit the main request into the proceedings.

3. *Amendments - Articles 123(2) and (3), 83 and 84 EPC*

3.1 The process of claim 1 is characterised in that it results in methionine granules with a bulk density of at least 0.6 g/cm^3. This bulk density has been introduced into claim 1 by way of amendment after grant.

3.2 The appellant did not raise any objections as regards Article 123(2) and (3) EPC and the board is satisfied that the requirements of this article are met.

3.3 The appellant also acknowledged during the oral proceedings that the skilled person would be able to obtain methionine granules with a bulk density of at least 0.6 g/cm^3, ie as required by claim 1. The appellant's initial objection made in the written proceedings under Article 83 EPC, namely that the skilled person did not know how to obtain methionine granules with the characteristics required by claim 1, therefore no longer applies.

3.4 The appellant maintained however its objection that due to the missing upper limit of the bulk density in claim 1, this claim did not meet the requirements of Articles 83 and 84 EPC. The appellant in particular argued that due to this missing upper limit, the claim covered granules with bulk densities as high as 1 or even 2 g/cm^3, something which could not be prepared.

The appellant's objection is however not convincing. Claim 1 is a process claim and the process steps defined in the claim inherently restrict the resulting product as regards its bulk density to values obtainable by this process. Therefore, claim 1 does not cover embodiments with non-achievably high bulk densities and the requirements of Article 83 EPC are met.

3.5 The skilled person will also be able to tell whether or not a particular process is covered by claim 1. More specifically, any process comprising the process steps

defined in claim 1 and leading to methionine granules with a bulk density of at least 0.6 g/cm^3 is covered by claim 1 while any process not containing these process steps and/or not leading to methionine granules with a bulk density of at least 0.6 g/cm^3 is not covered by the claim. Therefore, the scope of claim 1 is clear (Article 84 EPC).

4. *Inventive step*

4.1 The invention underlying the opposed patent relates to a process for the preparation of free flowing granules of methionine suitable for use as animal feed supplement (page 2, lines 3 to 4).

4.2 In the same way as the opposed patent, D1 refers to a process for the preparation of free flowing methionine-containing pellets to be used as animal feed (page 1, lines 3 to 4 and page 4, line 32). Therefore, in line with the opposition division's decision and the approach chosen by both parties, D1 can be considered to represent the closest prior art.

D1 discloses a process for preparing free-flowing methionine granules, having a bulk density between 300 and 850 kg/m^3, in particular 600 to 800 kg/m^3 (page 2, lines 24 to 25 and page 5, lines 1 to 2). The process comprises the steps of reducing the water content of a methionine suspension to between 8 and 40 weight percent, adding an organic or inorganic binder and extruding the methionine, and subsequently drying it (page 4, lines 22 to 24, 33 to 35 and 48 to 49, as well as claims 9, 11 and 14). The binding agent can be for

example cellulose, starch, sugar, polyvinyl alcohol or polyvinyl pyrrolidone (page 4, lines 5 to 8).

The step of adding a binding agent to the methionine after reduction of its water content corresponds to step (a) of claim 1. The drying step after the extrusion corresponds to step (c) of claim 1.

As acknowledged by both parties, the subject-matter of claim 1 differs from D1 in that instead of forming the granules by way of an extrusion step, this is done by mixing in a high-shear and high-speed mixer wherein the mixture is centrifuged against the walls of the mixer (step (b) of claim 1).

4.3 The respondent argued during the oral proceedings that the problem underlying the patent in the light of D1 was the provision of a process that led to methionine granules with a higher bulk density and better flowability than that obtained in D1. The respondent explained that as a result of this higher bulk density and better flowability the granules were optimised for addition to animal feed.

4.3.1 It is, however, immediately evident that the first part of this problem, namely the achievement of a higher bulk density, cannot be accepted as the objective technical problem since this problem has already been solved by D1. More particularly, the methionine granules obtained by the extrusion process of D1 are described in this document as having a bulk density as high as 0.8 g/cm^3 (800 kg/m^3, page 2, line 25 and page 5, lines 1 to 2), which is higher than the values obtained in the examples of the opposed patent and which is

above the lower limit of 0.6 g/cm^3 as required by claim 1. The fact that methionine granules with bulk densities above 0.6 g/cm^3 can be obtained by the extrusion process of D1 is further confirmed by the comparative experiment provided by the appellant with the statement of grounds of appeal (letter of 18 November 2011). More specifically, in this experiment, the same starting materials as used in examples 1 and 2 of D1, namely a mixture of methionine and tylose (a cellulose), are mixed, extruded and subsequently dried, and a bulk density of 0.675 g/cm^3, ie above 0.6 g/cm^3, is obtained.

The respondent argued in this respect that the examples and comparative examples of the opposed patent show that the claimed process leads to higher bulk densities than the extrusion process of D1. It is true that the bulk densities obtained in the examples of the opposed patent where the claimed process is applied (ie examples 1 to 7) are higher than those obtained in the examples where the granulation is effected by specific extrusion processes (ie comparative examples A to D). However, these specific extrusion processes are different from those applied in D1 (for instance different starting materials are applied). The board does therefore not see any reason why the comparative examples of the opposed patent should throw into doubt the explicit disclosure in D1 that a bulk density as high as 0.8 g/cm^3 can be obtained. Hence, contrary to the respondent's assertion, it cannot be assumed that the claimed process over its entire range leads to higher bulk densities than the process of D1.

4.3.2 As regards the alleged increased flowability, the respondent has not provided any evidence that the flowability of the granules obtained by the claimed process is better than that obtained in D1. In fact, D1 already aims at free-flowing granules (page 2, lines 20 to 23) and discloses the use of a spheroniser to obtain granules that are rounded and thus have a good flowability (page 4, lines 50 to 51). Therefore, the board cannot accept the respondent's assertion that the flowability of the granules obtained with the claimed process is better than that in D1.

4.3.3 The problem relied upon by the respondent, namely the provision of a process that leads to methionine granules with a higher bulk density and flowability than that obtained in D1, thus cannot constitute the objective technical problem. The objective technical problem thus must be defined in a less ambitious manner as the provision of an alternative process.

4.4 As a solution to this problem the opposed patent proposes the process of claim 1, which is characterised in that a mixture of methionine powder, binding agent and water is subjected to high shear rate mixing in a high-shear and high-speed mixer wherein the mixture is centrifuged against the walls of the mixer.

4.5 In view of the examples, it is credible that this problem is solved.

4.6 The solution is however already disclosed in D3. More specifically, D3 refers to a process for the preparation of free flowing granules on the basis of methionine salts suitable as a supplement for animal

feed (page 1, lines 5 to 7). The process comprises the steps of spray drying a solution of methionine salts and the subsequent granulation of the resulting powder by an Eirich mixer that contains a high-shear mixing device (page 5, lines 15 to 24). Instead of the mixing process in the Eirich mixer, the granules can also be produced by extrusion (page 7, lines 22 to 24).

The skilled person knowing from D1 that methionine granules can be prepared by an extrusion process, and looking for an alternative thereto, would therefore learn from D3 that instead of an extrusion process a high shear mixing process in an Eirich mixer can be applied. As not disputed by the respondent, such a mixing process corresponds to the high-speed and high-shear mixing step (b) of claim 1. By using the high-shear mixing of D3, the skilled person would obtain granules with bulk densities above 0.65 g/cm^3, eg 0.740 and 0.800 g/cm^3 (page 6, lines 7 to 8 and examples of D3), which is within the claimed range. By applying the teaching of D3 to D1, the skilled person would thus arrive at the claimed process.

The respondent argued that the methionine salts used in D3 were very hygroscopic and thus different from the hydrophobic methionine used in D1. The skilled person would therefore not have applied the teaching of D3 to D1. However, the board does not see any reason why the skilled person, by reason only of this difference in hygroscopicity, would not apply the high shear process of D3 to the methionine of D1. In fact both D3 and D1 use a product with a certain limited amount of water as the starting material for the granulation step (page 5, lines 25 to 28 of D3: spray dried methionine salt mixed

with a saturated solution of the methionine salt; examples of the D1: methionine with a certain residual humidity). Furthermore, D3 contains an explicit disclosure that methionine salts are an alternative for methionine (page 1, lines 25 to 29 (translation by the board): "The commercial sodium methionine solution has a concentration of 40 wt% methionine and, contrary to a substitute MHA, has the same biological value as solid methionine, on an equimolar basis."). The fact that methionine salts instead of methionine are used in D3 would thus not deter the skilled person from applying the teaching of D3 in D1.

Consequently, an inventive step has to be denied in view of D1 in combination with D3.

Auxiliary request

5. *Admissibility*

In the same way as in claim 1 of the main request, the particle size characteristic of the granules has been deleted in claim 1 of the auxiliary request (certain characteristics of the starting material have been inserted into the claim instead). In the same way as for the main request, the principle of the prohibition of *reformatio in peius* does not speak against the admissibility of the auxiliary request. As no other objections were raised by the appellant against the admissibility of this request, the board decided to admit the auxiliary request into the proceedings.

6. *Inventive step*

6.1 In the same way as for the main request, D1 constitutes the closest prior art.

Apart from the distinguishing feature already present in claim 1 of the main request (application of high-speed and high-shear rate mixing), the claimed process differs from that of D1 in terms of certain characteristics of the methionine powder used as the starting material (bulk density of from 300 to 500 kg/m^3, tapped density of from 500 to 600 kg/m^3 and a particle size distribution wherein at least 40% of the particles of methionine have a size greater than 150 microns; see point IX above). None of these characteristics is disclosed in D1.

6.2 The appellant argued that this additional distinguishing feature did not change anything with regard to inventive step. This was not disputed by the respondent, who did not make any written or oral submissions as regards inventive step of the auxiliary request.

6.3 The board agrees with the appellant's view. In the absence of any evidence that the claimed characteristics of the starting material lead to any unexpected effect, the objective technical problem remains the provision of an alternative process. For the same reasons as given above with regard to the main request, the skilled person looking for such an alternative process would turn to D3 and would use the high shear mixing process of this document in D1. Furthermore, as no effect was shown to be linked to the

characteristics of the methionine powder starting material, the selection of these characteristics represents an arbitrary selection of a methionine powder starting material, which is within the routine competence of the skilled person. Hence, in the same way as the main request, the subject-matter of the auxiliary request lacks an inventive step in view of D1 in combination with D3.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

L. Fernández Gómez W. Sieber