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**Datasheet for the decision
of 19 April 2016**

Case Number: T 1543/12 - 3.3.10

Application Number: 03001551.5

Publication Number: 1331220

IPC: C07C229/26, A23K1/16,
A23K1/175, A23K1/00, C12P13/08

Language of the proceedings: EN

Title of invention:
Dry granulated product containing-L-lysine as main component

Patent Proprietor:
Ajinomoto Co., Inc.

Opponent:
Evonik Degussa GmbH

Headword:

Relevant legal provisions:
EPC Art. 56, 83, 113(1), 114(2)

Keyword:

Late submitted document - correct exercise of discretion (yes)
Right to be heard - opportunity to comment (yes) - substantial
procedural violation (no)
Main request - Sufficiency of disclosure - (yes)
Inventive step - (yes)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

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Case Number: T 1543/12 - 3.3.10

D E C I S I O N
of Technical Board of Appeal 3.3.10
of 19 April 2016

Appellant: Evonik Degussa GmbH
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted on
16 May 2012 concerning maintenance of the
European Patent No. 1331220 in amended form.

Composition of the Board:

Chairman P. Gryczka
Members: C. Komenda
C. Schmidt

Summary of Facts and Submissions

- I. The appeal of the Appellant (Opponent) lies from the decision of the Opposition Division which maintained the European patent No. 1 331 220 in amended form.
- II. The decision of the Opposition Division was based on the claims according to the then pending main request. Independent claim 1 thereof read as follows:

"1. A method for preparing a dry granulated product containing L-lysine and having the following composition:

L-lysine content in solid matter: 40 to 85% by weight equivalent ratio of anion/L-lysine 0.68 to 0.95 moisture content: 5% by weight or less

wherein the equivalent ratio of anion/L-lysine is a value calculated in accordance with the following equation by using L-lysine (L-Lys) content, sulfate ion content, chloride ion content, ammonium ion content, sodium ion content, potassium ion content, magnesium ion content and calcium ion content in the solid matter of the dry granulated product:

equivalent ratio of anion/L-lysine = $(2 \times [SO_4^{2-}] + [Cl^-] - [NH_4^+] - [Na^+] - [K^+] - 2 \times [Mg^{2+}] - 2 \times [Ca^{2+}]) / [L-Lys]$

where [] means a molar concentration,

which method comprises the steps of adding hydrochloric acid or sulfuric acid to a raw material L-lysine solution having an equivalent

ratio of anion/L-lysine lower than 0.68 to adjust the equivalent ratio of anion/L-lysine of the raw material solution to be in the range of 0.68 to 0.95, and obtaining the dry granulated product from the obtained L-lysine solution or a concentrate thereof."

III. In its reasoning the Opposition Division referred inter alia to the following documents:

- (1) WO 95/23129,
- (6) EP 0 80 940 A2 and
- (8) EP 1 118 673 A1.

The Opposition Division held that the subject-matter according to the claims of the main request was novel. Starting from document (1) as the closest state of the art the problem was to provide a process for the preparation of an improved granular product containing L-lysine, which showed lower caking tendency when exposed to humid conditions. The documents (6) and (8) did not give any incentive to specifically add hydrochloric or sulfuric acid in order to adjust the equivalent ratio of anion/L-lysine to be within the range of 0.68 to 0.95 and to arrive at a granular product with a high L-lysine content and with improved free-flowing properties after storage.

The document (33), which had been submitted by the Appellant after the summons for oral proceedings before the Opposition Division, was regarded as being late filed and *prima facie* of no relevance to the opposition proceedings. Consequently, the Opposition Division disregarded document (33) under Article 114(2) EPC.

IV. In the statement of grounds for appeal the Appellant resubmitted document (33) and brought forward that this document had been filed in reply to the argumentation brought forward in the summons to the oral proceedings before the Opposition Division. This document was not late filed, since it had been submitted within the time limit set in these summons. At the oral proceedings the Opposition Division did not exercise its discretion correctly, but disregarded document (33) under Article 114(2) EPC. Since the Appellant was not given the opportunity to discuss the content of document (33) the Opposition Division violated his right to be heard under Article 113(1) EPC. As this constituted a substantial procedural violation the Appellant requested that the case be remitted to the Opposition Division. In any case the document should be admitted into the appeal proceedings.

Further, the Appellant objected to the claimed subject-matter as not being disclosed in a manner sufficiently clear for it to be carried out by a skilled person. In view of inventive step he referred to documents (1) and (6) as the closest state of the art. The patent specification did not contain sufficient evidence to support any improvement *vis-à-vis* document (1). Even when starting from document (6), which in the decision under appeal was referred to as an alternative starting point for the assessment of inventive step, the claimed method would not involve an inventive step.

V. The Respondent brought forward that the Opposition Division had correctly exercised its discretion under Article 114(2) EPC in not admitting document (33) into the opposition proceedings. Said document should also not be admitted into the appeal proceedings. Further, it argued that the claimed subject-matter was sufficiently

disclosed. Starting from document (1) as the closest state of the art the granular product obtained according to the claimed methods had improved caking properties, particularly when exposed to humid conditions. This improvement was due to the specifically selected process conditions and the specific equivalent ratio of anion/L-lysine being within the range of 0.68 to 0.95. Since none of the cited prior art documents suggested the claimed process an inventive step had to be acknowledged.

- VI. The Appellant (opponent) requested that the case be remitted to the Opposition Division or - subsidiarily - that the decision under appeal be set aside and that the European patent No. 1331220 be revoked.

The Respondent (patent proprietor) requested that the appeal be dismissed, or as an auxiliary measure, that a patent be granted on the basis of any of the auxiliary requests 1 to 6, auxiliary requests 1 to 3 as filed under cover of a letter dated 27 February 2012 and auxiliary requests 4 to 6 as filed under cover of a letter dated 17 March 2016.

- VII. At the end of the oral proceedings held on 19 April 2016 before the Board the decision was announced.

Reasons for the Decision

1. The appeal is admissible.
2. *Alleged procedural violation : late filed document (33)*
 - 2.1 With the statement of the grounds for appeal the Appellant resubmitted document (33) and argued that the

Opposition Division had, by not admitting document (33) into the proceedings not correctly exercised its discretion under Article 114(2) EPC. In particular, he argued that document (33) was filed in reply to the summons for oral proceedings in the opposition proceedings and within the time limit set by the Opposition Division under Rule 116 EPC. The Appellant's right to be heard pursuant Article 113(1) EPC was violated, since the document was not discussed in detail during the oral proceedings before the Opposition Division. In case the Board did not follow the Appellant's argumentation on Articles 114(2) and 113(1) EPC he requested that document (33) be admitted into the appeal proceedings.

- 2.2 Article 114(2) EPC stipulates that facts or evidence which are not submitted in due time by the parties concerned may be disregarded. Thus, the notice of opposition, which determines the legal and factual framework of the opposition proceedings, has to be submitted within nine months of the publication of the mention of grant of the European patent in the European Patent Bulletin (Article 99(1) EPC).
- 2.3 In the present case the grant of the patent in suit was published and mentioned in the European Patent Bulletin on 19 December 2007. The Appellant submitted document (33) with a letter dated 9 January 2012, which is later than the time limit foreseen in the EPC for filing an opposition. Therefore, the document (33) has been filed late.
- 2.4 The Appellant argued that document (33) should have been admitted, because it has been filed in direct response to the argumentation given in the summons.

However, the fact that the Opposition Division expressed a preliminary opinion in its communication annexed to the summons of oral proceedings does not necessarily justify the filing of new evidence, unless this is in reaction to new aspects raised in the communication. With regard to the Appellant's theoretical calculations the Opposition Division merely informed the Appellant of further deficiencies. The Appellant's theoretical calculations have been challenged by the Respondent already from the beginning of the opposition proceedings, so that the preliminary opinion of the Opposition Division cannot be regarded as representing new aspects. In fact, the filing of document (33) would have been necessary from the beginning of the opposition proceedings. Therefore, the Board confirms the view taken by the Opposition Division that the late filing of Document (33) cannot be seen as a reaction to the Opposition Division's communication.

- 2.5 As can be taken from the decision under appeal (see decision under appeal, pages 2 and 3) the the Opposition Division applied the criterion of *prima facie* relevance, which is considered to be the usual criterion in case of late-filed submissions.
- 2.6 The Appellant further stated that he was not given an opportunity to discuss the content of document (33) in detail. Therefore, his right to be heard was violated, which amounts to a substantial procedural violation (Article 113(1) EPC).
- 2.7 However, there is no reason to assume that the Appellant's right to be heard was violated. As can be taken from the minutes of the oral proceedings before the Opposition Division (paragraph 2 of the minutes dated 15 May 2012) the admissibility of the late-filed

document (33) was discussed. After two rounds of discussion with the parties the Opposition Division found that document (33) was not *prima facie* relevant for the decision to be taken and disregarded the document (33) under Article 114(2) EPC. Thus, the Appellant has been given the opportunity to bring forward his argumentation in view of the admissibility of document (33). Not having been given the opportunity to discuss the technical content of document (33) in detail does however, not amount to a violation of the Appellant's right to be heard on the admissibility of document (33).

- 2.8 Therefore, the Board concludes that the Opposition Division has exercised its discretion correctly in disregarding the document (33) under Article 114(2) EPC and has not violated the Appellant's right to be heard under Article 113(1) EPC.

As the Board cannot see any substantial procedural violation, the Board sees no reason to remit the case to the department of first instance.

3. *Articles 123 and 54 EPC*

The Appellant did not raise any objections to the amendments made to the claims of the main request and to the novelty of the claimed subject-matter. Since the Opposition Division did not raise any objections in this respect (see decision under appeal, paragraphs 1 and 4) the Board accepts that the amendments made fulfil the requirements of Article 123 (2) and (3) EPC and the subject-matter claimed is novel with regard to the cited prior art. Therefore, the Board sees no reason to investigate further into these issues.

4. *Insufficiency of disclosure (Article 100(b) EPC)*

4.1 The Appellant objected that the subject-matter of claim 1 could not be carried out over the whole range claimed. The claimed process is directed to the preparation of products covering the whole range of claimed lysine contents. However, it was not possible to produce lysine products having a lysine content of 85% and an equivalent ratio of more than 0.71, although an equivalent ratio of 0.68 to 0.95 was claimed.

4.2 According to Article 100(b) EPC, the European patent must disclose the invention in a manner sufficiently clear and complete for it to be carried out by the skilled person.

4.3 In the present case the process according to claim 1 is characterized to produce a L-lysine product. This product is inter alia characterized by a moisture content up to 5% by weight, of a L-lysine content in the final product of 40 to 85% by weight and an equivalent ratio of anion/L-lysine of 0.68 to 0.95. Therefore, any L-lysine fulfilling these three parameters is a product according to the invention. In order to be carried out over the whole range claimed, it is only necessary that each value within the claimed ranges can be achieved individually. It is, however, not a requirement of Article 83 EPC, that each and every possible combination of all individual limiting values within the claimed ranges can be achieved. The example given by the Appellant is technically impossible, since a product comprising 85% by weight of L-lysine can only comprise 15% by weight of an anion forming compound, which in the present case is hydrochloric or sulfuric acid. It follows that depending on the molecular weight of the acid used in the process the ratio of anion/L-lysine can

reach only certain theoretical values within the claimed range. The skilled person knows, that both the L-lysine content in the final product and the achievable ratio of anion/L-lysine are dependent on each other and cannot vary independently over the whole range of values claimed for each of these two parameters.

4.4 Therefore, the Board concludes that the European patent discloses the invention in a manner sufficiently clear and complete for it to be carried out by a skilled person in the sense of Article 83 EPC.

5. *Inventive step (Article 56 EPC)*

5.1 The patent in suit is directed to a process for the preparation of a dry granulated product containing L-lysine. A similar process is already disclosed in document (1). The Appellant further referred to document (6) as an alternative starting point for the assessment of inventive step.

5.1.1 Document (1) relates to non-stoichiometric salts of lysine in granular form. The process for the preparation of the lysine product includes the steps of (i) fermenting lysine in a broth, (ii) separating the lysine from the broth in one or more ion exchange steps to produce a lysine containing solution, (iii) adding a salt forming agent to the lysine to produce a non-stoichiometric salt of lysine in a solution or a slurry, (iv) introducing the solution or the slurry to a granulator and (v) recovering the product from the granulator (cf. document (1), page 6, lines 3 to 11). As salt-forming compounds document (1) uses *inter alia* hydrochloric and sulfuric acid. According to the Examples the non-stoichiometric lysine product is prepared in a granulator by using a stoichiometric

lysine salt as seed particles, which are coated with a non-stoichiometric lysine salt in solution or in a slurry. The product thus obtained is a free-flowing granular product (page 7, middle). Although document (1) is silent on the ratio of anion/lysine to be used it can be calculated from the individual amounts used in the examples that the non-stoichiometric lysine salt products disclosed in document (1) have calculated ratios of anion/lysine being within the range of from -1.16 to 0.93.

- 5.1.2 Document (6) was proposed by the Appellant as representing an alternative starting point for the assessment of inventive step. This document discloses a process for the preparation of a product, which comprises 78 % of L-lysine (cf. document (6), page 2, line 6). The aim in document (6) was to provide a continuous process for the preparation of a dry non-tacky granular product from a fermentation broth (page 3, lines 21 to 23; page 6, lines 6 and 20; page 8, line 15). Document (6) does, however, only relate to the preparation of L-lysine in granulate form, but does neither disclose a stoichiometric or non-stoichiometric lysine salt, nor a specific ratio of anion/L-lysine.
- 5.1.3 Therefore, the Board concludes that document (6) is not closer to the subject-matter of the patent in suit than document (1) with the consequence that document (1) represents the closest state of the art for the discussion of inventive step.
- 5.2 According to the Respondent the problem to be solved starting from document (1) as the closest state of the art was to provide a process for the preparation of a dry granulated L-Lysine product that has a good balance of properties, in particular in view of a high L-

lysine content and improved caking properties (see patent specification, paragraph [0008]).

- 5.3 As a solution to this problem the patent in suit proposes the process according to claim 1 of the main request, which is characterized in that hydrochloric or sulfuric acid is added to a raw material L-Lysine solution to adjust the equivalent ratio of anion/L-lysine of the raw material solution to be in the range of 0.68 to 0.95.
- 5.4 In order to demonstrate that the proposed solution is successful the Respondent referred to the Examples in the patent specification.
 - 5.4.1 The anion/L-lysine ratios used in the Examples illustrating the invention ranged from 0.6903 to 0.8574. For comparison products were prepared having ratios of anion/L-lysin below and above the claimed range. The caking property determined whether the dry granulated product retains its free-flowing properties after the storage for seven days under humid conditions.
 - 5.4.2 The results showed that the Examples 1 and 2 according to the invention exhibited high L-lysine contents and the granules retained their free-flowing properties even after a storage for seven days at high humidity levels. For the comparative Examples 1 and 2 having anion/L-lysine ratios outside the claimed range either the overall content of L-lysine was significantly lower, or the caking properties or the equilibrium moisture content were significantly impaired.
 - 5.4.3 The Appellant argued that it has not been demonstrated that the alleged improvement is achieved for the whole range claimed. In particular, the comparative Example 1

with a ratio of anion/L-lysine below the lower limit of the claimed range had the highest overall content of L-lysine. The product of comparative Example 2 had a ratio of anion/L-lysine only slightly above claimed upper limiting value, but had an overall content of L-lysine significantly lower than that of the Examples 1 and 2, which were according to the invention. Therefore, the improvement seemed to be only at random, but not credible for the whole range claimed.

- 5.4.4 However, it has to be stated that the problem was to achieve a good balance of a high L-lysine content and good caking properties. the Appellant did not provide any evidence that the good balance of properties cannot be observed within the whole range of the claimed ratio anion/L-lysine of 0.68 to 0.95. The mere expression of doubts is not sufficient to prove the objection that the technical problem as defined in paragraph 5.2 *supra* has not been successfully solved. Consequently, the argumentation of the Appellant cannot succeed.
- 5.4.5 Therefore, the Board concludes that the problem as defined in paragraph 5.2 *supra* has been successfully solved.
- 5.5 It remains to determine whether the solution proposed by the patent in suit (see paragraph 5.3 *supra*) was obvious in the light of the cited prior art.
- 5.6 The Appellant referred in this respect to documents (1) and (8), which both disclosed non-stoichiometric lysine salts.
- 5.6.1 Document (1) (see paragraph 5.1.1 *supra*) covers a wide range of ratios of anion/lysine of from negative values up to values above 1.0. There is, however, no indication

in document (1), that the particular ratio of anion/lysine of 0.68 to 0.95 is in any way preferred. Further, document (1) is completely silent on whether the products retain their free-flowing properties after storage for longer periods of time under humid conditions. Therefore, a skilled person did not have any incentive from document (1) to select the particular range of anion/L-lysine of 0.68 to 0.95 in order to solve the technical problem as defined in paragraph 5.2 *supra*.

5.6.2 Document (8) relates to a process for the preparation of L-lysine products in the form of dry granules. The document aims at reducing the product loss during handling as the product tends to be dusty. Therefore, the solution of L-lysine salt was enriched with free L-lysine base before granulation to avoid the building of very fine L-lysine particles (cf. document (8), page 9, lines 13 and 21 to 24). However, the document (8) did not contain any indication of the specific ratio of anion/L-lysine of 0.68 to 0.95, or of its influence on the free-flowing properties on the granular product after storage under humid conditions. Therefore, the skilled person had no incentive from document (8) to select the claimed ratio of anion/L-lysine in order to solve the problem as defined in paragraph 5.2 *supra*.

5.6.3 The Appellant argued that the choice of a particular ratio of anion/L-lysine within the broad range disclosed in documents (1) and (8) was only an arbitrary selection within the disclosure of these documents.

5.6.4 However, the problem to be solved starting from document (1) was not to provide an alternative, but an improvement (see paragraph 5.2 *supra*). Both documents are silent on the storage stability of the lysine

product over a longer period of time at high humidity. Therefore, the skilled person when looking for a solution to the specific technical problem as defined in paragraph 5.2 *supra* would not have any incentive from documents (1) or (8) to the solution as proposed in the patent in suit (see paragraph 5.3 *supra*).

5.6.5 For these reasons the Board concludes that the solution as proposed by the patent in suit was not obvious from the prior art, with the consequence that the subject-matter of claim 1 according to the Main request is based on an inventive step in the sense of Article 56 EPC.

5.7 The subject-matter of the dependent claim 2 and of independent claim 3 includes all the technical features of independent claim 1. Therefore, for the same reasons the subject-matter of these claims is also regarded as involving an inventive step.

6. During the oral proceedings before the Board the Appellant did not refer to other documents suggesting the claimed solution to the technical problem underlying the invention when starting from document (1) as closest prior art. Consequently, a decision on the admission of document (33) into the proceedings does not appear necessary, since document (33) was not relevant.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



C. Rodríguez Rodríguez

P. Gryczka

Decision electronically authenticated