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Datasheet for the decision of 10 March 2010

Case Number: T 0752/07 - 3.3.06

Application Number: 99927738.7

Publication Number: 1092007

IPC: C11D 3/386

Language of the proceedings: EN

Title of invention:
A new improved enzyme containing granule

Patentee:
Novozymes A/S

Opponent:
Genencor International, Inc.

Headword:
Coated enzyme granules/NOVOZYMES A/S

Relevant legal provisions:
-

Relevant legal provisions (EPC 1973):
EPC Art. 54, 56
RPBA Art. 13(1),(3)

Keyword:
"Late-filed document admitted in proceedings"
"Late-filed requests not admitted in proceedings"
"Validity of priority (no)"
"Novelty - main request (no)"
"Inventive step - auxiliary request (no)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0752/07 - 3.3.06

D E C I S I O N
of the Technical Board of Appeal 3.3.06
of 10 March 2010

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Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted 19 March 2007 concerning maintenance of European patent No. 1092007 in amended form.**

Composition of the Board:

Chairman: P.-P. Bracke
Members: E. Bendl
J. Geschwind
L. Li Voti
U. Tronser

Summary of Facts and Submissions

I. The appeals are against the decision of the Opposition Division to maintain the European patent 1 092 007 in amended form.

II. In opposition procedure the Opponent objected that the requirements of Articles 54 and 56 EPC (1973) were not met. The Opposition Division inter alia refused the then pending main request because of lack of novelty, and maintained the patent on the basis of the then pending second auxiliary request.

III. The Appellant/Opponent, thereafter called Opponent, filed an appeal against this decision on 18 May 2007. The appeal fee was paid on the same day, the grounds of appeal were filed on 19 July 2007. The Opponent argued inter alia that the priority was not validly claimed and that the requirements of Articles 54 and 56 EPC (1973) were not met. To support the argumentation, among other documents

D2 = WO 97/23606
D10 = G. Vollmer/M. Franz, Chemische Produkte im Alltag, Thieme Verlag, 1985, pages 274-277
D13 = A.L. Gaertner et al, Development of low dust enzyme detergent granules with high storage stability, Proceed. Int'l Symp. Control. Rel. Bioact. Mater. 25 (1998), pages 289-290

were cited.

IV. The Appellant/Proprietor, thereafter called Proprietor, filed an appeal against the decision of the Opposition

Division on 04 May 2007. The appeal fee was paid on the same day, the grounds of appeal were filed on 19 July 2007. The Proprietor argued that the requirements of the EPC were met, that Opponent's late-filed documents, e.g. D13, should be disregarded and filed in the course of the appeal procedure several sets of claims, among them, with letter of 08 January 2010, a main request, which corresponds to the main request refused by the Opposition Division and a seventh auxiliary request, corresponding to the second auxiliary request maintained in opposition procedure. Among others the following document was cited:

D15 = Letter of Mr Lee, British Library, concerning the publication date of D13.

V. Oral proceedings before the Board took place on 10 March 2010. In the course of these oral proceedings the Proprietor submitted a new main request and a new auxiliary request. Subsequent to the Board's announcement that these two requests would not be accepted, the Proprietor requested to maintain the patent on the basis of the main request filed with letter of 08 January 2010 or on the basis of the request labelled "seventh auxiliary request" filed with the same letter, which then became, in the absence of further requests, the auxiliary request.

VI. The wording of the independent Claims 1 of these two requests is as follows:

Main request

"1. An enzyme containing granule comprising:

a. an enzyme containing core and

b. a protective substantially continuous layer or coating encapsulating the core comprising at least 75% w/w of a water soluble salt having (i) a solubility of at least 0.1 grams in 100 g of water at 20°C, (ii) a molecular weight between 100-300 grams per mole, a pH below 11 when measured as a 10% w/w aqueous solution of the compound and (iii) a constant humidity at 20°C of more than 81%, wherein the water soluble salt is selected from the group consisting of:

$ZnS0_4$, Na_2HPO_4, KH_2P0_4; and
alkali or earth alkali metal ion salts of sulfate, sulfite, phosphonate, nitrate, chloride, and simple organic acids."

Auxiliary request, labelled "seventh auxiliary request"

The first claim differs from Claim 1 of the main request in the replacement of the passage "An enzyme containing granule comprising" by the text "A granular laundry detergent composition which comprises from 0.1% to 60% by weight of a surfactant and an enzyme containing granule comprising" and by the replacement of the list of salts with the following list: "$ZnSO_4$, K_2SO_4, $KHSO_4$, Na_2HPO_4, KH_2PO_4; and earth alkali metal ion salts of sulfate".

VII. The two **requests** filed first of all during the oral proceedings, which were **not accepted** by the Board, differ from the main and the auxiliary request cited above as follows:

Main request

In Claim 1 the term "substantially" between "protective" and "continuous layer" was deleted and the anions "sulfite", "phosphonate", "nitrate", "chloride" and "simple organic acids" were also deleted, compared to Claim 1 of the main request filed with letter of 08 January 2010.

Auxiliary request

In Claim 1 the term "substantially" between "protective" and "continuous layer" was deleted, compared to Claim 1 of the auxiliary request, labelled "seventh auxiliary request", filed with the letter of 08 January 2010.

VIII. **Opponent's** main arguments were as follows:

Document D13

- Document D13 was only found recently and has been filed in reply to Proprietor's frequent amendments to the claims.

Priority

- The solubility and the pH requirement of the salt used for the coating of the granule, as defined in Claim 1, cannot be found in the priority document.

Novelty

- Example 7 of D2 discloses sodium sulfate coated enzyme granules, as described in the main request.
- The coating described in D2 must be substantially continuous, otherwise the aim of protecting the enzyme would not be met.

- The processing conditions are identical to the conditions used in the patent-in-suit.
- Therefore D2 destroys novelty of Claim 1 of the main request.

Inventive step

- D13 is the closest state of the art.
- Claim 1 of the auxiliary request differs from D13 merely in the amount of surfactant used.
- The amount of surfactant claimed covers the amounts normally applied, as can be derived from D10, page 275.
- Claim 1 of the auxiliary request therefore does not involve an inventive step.

IX. **Proprietor's** main arguments were as follows:

Document D13

- Document D13 was only filed with Opponent's letter of 25 January 2010. Due to this late filing D13 should not be admitted in the proceedings.

Priority

- The features concerning the solubility and the pH of the salts are inherently present in the priority document, given the specific salts listed.

Novelty

- No proof has been filed that the coating described in D2 is continuous.
- The sodium sulfate solution described in Example 7 of D2 must be a dispersion, since the amount of sodium sulfate is above the solubility threshold.

Inventive step

- A continuous salt layer is not mentioned in D13.
- The problem underlying the patent-in-suit is the insight in the criticality of the constant humidity of the protection layer for storage stability of the granules.
- Table 5 of the patent-in-suit shows the effect achieved for sodium sulfate, the same principle is also true for magnesium sulfate.

X. The Proprietor requested that the decision under appeal be set aside and that the patent be maintained on the basis of the main request or the seventh auxiliary request filed with letter of 08 January 2010.

The Opponent requested that the decision under appeal be set aside and that the European patent no. 1 092 007 be revoked.

Reasons for the Decision

1. *Priority*

1.1 The features "solubility of at least 0.1 grams in 100 g of water at 20°C" and "a pH below 11 when measured as a 10% w/w aqueous solution of the compound" are not expressly mentioned in the priority document, but are, according to the Proprietor, inherently present due to the specific salts listed.

1.2 The Board cannot share Proprietor's view: in the priority document of the patent-in-suit the solubility of the substances suitable for the coating is defined

as follows: "Further a preferred low molecular compound may be soluble or dispersible in water [...] A further preferred low molecular compound may thus be a water soluble salt." (priority document, page 6, lines 12-16). In the same paragraph examples of specific salts and groups of salts are listed. Details as to the exact definition of the term "soluble" are not given.

1.3 Furthermore the priority document is silent with regard to the pH of the compounds **and** with regard to the method of determining the pH, i.e. the reference to a 10% aqueous solution.

1.4 Even when assuming that all salts listed in claims 1 of the main and the auxiliary request meet the pH and solubility requirements, the priority document does not contain any teaching as to the criteria for selecting suitable salts out of the list of potential candidates, i.e. that a solubility of at least 0.1 grams of salt in 100 g of water at 20°C and a pH of below 11 when measured at a 10% aqueous solution have to be met.

1.5 This means that, even though the individual salts listed in both requests have been disclosed among other salts in the priority document, the features of the patent-in-suit concerning the pH and the solubility contain the **further teaching** as to the **requirements** salts have to fulfil to be suitable for the coating. Such a teaching is lacking in the priority document.

1.6 Due to this lacking teaching, the priority document and the patent-in-suit do in this respect not concern the same subject-matter. Thus, the priority of Claims 1 of

the main request and of the auxiliary request, labelled "seventh auxiliary request", is not validly claimed.

1.7 In this respect the Proprietor argued, that at least for the auxiliary request the priority was validly claimed, since the specifically listed salts and earth alkali metal ion salts of sulfate were disclosed in the priority document. However, in the absence of any proof that any form of the specifically cited salts and any of earth alkali ion salt of sulfate listed in Claim 1 of the auxiliary request has a solubility of at least 0.1 g in 100 g of water at 20°C, the disclosure of the priority document cannot be considered to be restricted to the salts described in the priority document.

2. *Document D13*

2.1 Given the fact that the priority of the patent-in-suit is not validly claimed for Claim 1 of the auxiliary request, document D13 represents for this claim state of the art according to Article 54(2) EPC (1973). This is confirmed by document D15, showing that D13 was publicly available at least from 23 March 1999 onwards, i.e. before the filing date of the patent-in-suit.

2.2 D13 contains less than two pages and does not exhibit a complex technical teaching. Furthermore, D13 discloses only facts which were already discussed by both parties with regard to the other written disclosures and, in the written procedure, with regard to the alleged prior uses, i.e. enzymes coated with a barrier layer of an alkali or earth alkali metal salt and their use in laundry detergents. Thus, no new arguments had to be considered by the Proprietor upon introduction of D13.

2.3 For these reasons the Board considers the introduction of D13 as justified, having already serious doubts to assess the filing of D13 with letter of the Opponent dated 25 January 2010, i.e. more than six weeks before the oral proceedings and in reaction to the filing of several auxiliary requests by the Proprietor with its letter of 08 January 2010, as late filing.

3. *Refusal of the two requests first of all filed during the oral proceedings*

3.1 Subsequent to the Board's admission of document D13 into the proceedings the Proprietor requested an opportunity to file a further set of claims **as a reaction to the admittance of document D13**.

Instead of one request, two requests were submitted by the Proprietor during oral proceedings: a new main request and a new auxiliary request.

3.2 New main request

Claim 1 of the new main request differs in the deletion of the term "substantially" and in a shortening of the list of salts suitable for the layer from Claim 1 of the main request filed with letter of 08 January 2010.

A discussion as to the question whether the layers described in the prior art were continuous had already taken place prior to the introduction of this document. D13 does not define the layers more precisely than the remaining prior art disclosures and therefore does not add any new aspects to this discussion. This means,

that the situation concerning the feature "continuous" did not change at all with the introduction of D13. The amendment can consequently **not** be a reaction to the introduction of this document.

Furthermore, the "substantial continuous" coating defined in the patent-in-suit is, according to paragraph [0033], meant to have **few or none uncoated areas**. The deletion of the term "substantially" at this late stage of the proceedings thus could raise new issues with consequent delay or even postponement of the oral proceedings.

With regard to the deletion of anions from the list of Claim 1, none of the deleted anions (sulfite, phosphonate, nitrate, chloride and simple organic salts) is mentioned in D13; on the contrary, D13 mentions sodium and magnesium sulfate, which were still covered by the terms "alkali and earth alkali metal ion salts of sulfate" in Claim 1 of the new main request. Again, also in this case the amendments cannot be caused by the introduction of D13 into the proceedings.

3.3 New auxiliary request

The considerations concerning the term "substantially" made in paragraph 3.2 above are also valid for the auxiliary request.

3.4 Thus, the amendments proposed cannot be regarded as a reaction to the introduction of document D13. The proposed amendments of both sets of claims do not serve to overcome any alleged disadvantages of the Proprietor.

3.5 Since the Proprietor already had ample opportunities to introduce amended sets of claims in writing and the introduction of the two requests cannot be seen as caused by the admittance of document D13, the introduction of the two new sets of claims during the oral proceedings has not been accepted by the Board in accordance with Article 13 (1),(3) RPBA (Suppl. OJ EPO 1/2009, page 41).

4. *Novelty - main request (filed with letter of 08 January 2010)*

4.1 Document D2 describes enzyme-containing granules containing one or more coating layers with the intention to "provide a barrier against ambient moisture" (D2, page 8, lines 6-10, see also Figure 2).

4.2 Example 7 specifically reports on sodium sulfate coated alkaline protease non-pareils. Coating of the sodium sulfate was done by means of a fluidized bed machine using a 30% solution of sodium sulfate in such a way as to obtain a final product with 20% final product weight of sodium sulfate. Parameters of the fluidized bed machine were: inlet temperature between 70-85°C, exhaust temperature of 40-50°C.

4.3 In Example 8 of the patent-in-suit (which refers to the conditions of Example 1 of the patent-in-suit), the following parameters can be found: use of a conventional fluid bed apparatus, use of a 28.6% sodium sulfate solution, inlet temperature of 70°C, outlet temperature 42°C.

4.4 This means that a conventional fluid bed apparatus was used in both circumstances with almost identical process conditions. The only conclusion that can be drawn is, that identical results must have been achieved in both cases.

4.5 Proprietor's argument, that the solubility of Na_2SO_4 in water only amounts to 28.1 g/100 ml and that therefore a suspension must have been used in D2, which leads to inferior results, cannot be followed by the Board. It is common practice that solubility values refer to room temperature. At least in the specific case referred to by the Proprietor, no other temperature has been specified.

4.6 In contrast thereto, the text of document D2 refers specifically to a sprayed solution and the temperature of the sprayed solution in the fluid bed is certainly **higher** than room temperature. Furthermore, also the patent-in-suit uses a concentration higher than the saturation concentration cited by the Proprietor, although reference is made to a "solution" (e.g. see Example 8, line 29).

4.7 Thus, given the fact that

- D2 discloses sodium sulfate-coated enzyme-containing granules with "increased stability", which provide a **barrier** against ambient moisture,

- such a barrier can only be useful if it does not, or only occasionally does, contain holes, as shown in Figure 2 of D2,

- the granules of D2 are produced by a method almost identical to the one described in the patent-in-suit (see Example 7 of D2 and Examples 1 and 8 of the patent-in-suit),

- the sodium sulfate must be a substantially continuous coating as defined in the patent-in-suit,

the Board thus considers Example 7 of D2 to fall within the scope of Claim 1 of the main request. Novelty of this claim is consequently destroyed.

5. *Inventive step - auxiliary request, labelled "auxiliary request VII" (filed with letter of 08 January 2010)*

According to the problem and solution approach, which is used by the Boards of Appeal of the European Patent Office in order to decide on the question of inventive step, it has to be determined which technical problem the object of a patent objectively solves vis-à-vis the closest prior art document. It also has to be determined whether or not the solution proposed to overcome this problem is obvious in the light of the available prior art disclosures.

5.1 In the oral proceedings both parties started their argumentation using document D13 as the closest state of the art. The Board does not see any reason to deviate from this approach.

D13 describes enzyme detergent granules with high storage stability for use in laundry applications. The granules possess an enzyme layer, a protecting salt

barrier layer of either sodium sulfate or magnesium sulfate and a final coat. As the **salt barrier layer** was applied to **protect** the enzyme and has been formed by fluid bed layering, i.e. a method according to the patent-in-suit, this can only mean that the coating covering the enzyme was substantially continuous, as intended in the patent-in-suit.

5.2 D13 differs from Claim 1 of the auxiliary request, labelled "seventh auxiliary request", in the amount of surfactant in the granular laundry detergent composition, i.e. 0.1-60% by weight.

Table 5 of the patent-in-suit, referred to by the Proprietor, relates only to **sodium sulfate preparations** in accordance to the invention, which are not covered by the claims any more. In addition to the partly inferior results achieved by the sodium sulfate compositions, compared with the commercially available preparations, **identical amounts of surfactant** were used for the preparation according to the invention and the prior art. No effect caused by **differing** amounts of surfactant has been shown.

Thus, the Proprietor did not show any effect based on the difference with regard to the closest prior art document. The objective problem solved vis-à-vis D13 thus is the provision of an **alternative** laundry detergent composition and cleaning method.

5.3 As the solution to this problem the Proprietor has proposed the composition and method according to Claims 1 and 13 of the auxiliary request.

5.4 No objection has been raised by the Opponent that the patent-in-suit does not solve the problem of providing an alternative laundry detergent composition. The Board shares this point of view.

5.5 Using the problem and solution approach it has finally to be decided whether the proposed solution was obvious. Since the amount of surfactant added to the enzyme containing granules is in line with the usual amounts of surfactants in detergent formulation, as can be derived from D10, page 275, last paragraph, and no effect with regard to the claimed range has been shown, the combination of D13 with the common general knowledge of a person skilled in the art, represented by D10, is considered to render the claimed subject-matter obvious.

5.6 Even if the coating of D13 were not to be considered to be substantially continuous, as required in the patent-in-suit, it would have been obvious for the skilled person to try to prepare a barrier layer as continuous as possible by applying known techniques of fluid bed coating, as for instance discussed in document D2, Example 7. Even in this case the combination of D13 with D2 would, by applying the common general knowledge of a person skilled in the art, lead to the subject-matter of Claim 1 in an obvious manner.

5.7 The requirement of Article 56 EPC (1973) thus is not met.

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

G. Rauh P.-P. Bracke