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**D E C I S I O N**  
**of 9 March 2006**

**Case Number:** T 0727/05 - 3.3.10

**Application Number:** 99309901.9

**Publication Number:** 1106602

**IPC:** C07C 227/40

**Language of the proceedings:** EN

**Title of invention:**

Simulated moving bed chromatographic purification of amino acids

**Applicant:**

ARCHER-DANIELS-MIDLAND COMPANY

**Opponent:**

-

**Headword:**

Simulated moving bed chromatographic purification of amino acids/ARCHER-DANIELS-MIDLAND

**Relevant legal provisions:**

EPC Art. 123(2), 111(1)

**Keyword:**

"Amendment allowable (yes) - feature not closely related with the other features in the examples"

"Remittal (yes) - fresh case"

**Decisions cited:**

G 0010/93, T 0680/93

**Catchword:**

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Case Number: T 0727/05 - 3.3.10

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.10  
of 9 March 2006

**Appellant:** ARCHER-DANIELS-MIDLAND COMPANY  
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**Representative:** Lee, Nicholas John  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted 6 December 2004  
refusing European application No. 99309901.9  
pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** R. Freimuth  
**Members:** J. Schmid  
P. Schmitz

## Summary of Facts and Submissions

- I. The appeal lodged on 2 February 2005 lies from the decision of the Examining Division dated 6 December 2004 refusing European patent application No. 99 309 901.9 (European publication No. 1 106 602).
- II. The decision of the Examining Division was based on the sets of claims according to the then pending main and first auxiliary requests. The Examining Division found that the claims contained added matter, thus infringing the provision of Article 123(2) EPC.

The claims were filed in response to a novelty objection of the Examining Division with respect to document (1), to document (2), pages 4 to 6, 12 to 15, Figures XIV and XV and to document (3), pages 173 to 176, 197 to 207, Figures 10.22 and 10.30:

- (1) Journal of Biotechnology, vol. 59, (1997), pages 127 to 132,
- (2) Rossiter, G.J. and Tolbert, C.A., "Recovery of Amino Acids and Carboxylic Acids by Continuous Exchange" presented at the Annual Meeting of the American Institute of Chemical Engineers, November 1991, pages 1 to 20 and
- (3) Rossiter, G.J., "Continuous adsorbtion and chromatography in the purification of fermentation products" in Preparative and Process-Scale Liquid Chromatography, edited by G. Subramanian, (1991), Horwood, pages 162 to 223.

III. At the oral proceedings before the Board held on 9 March 2006 the Appellant (Applicant) no longer maintained the former requests. He submitted a fresh set of fifteen claims superseding any previous request.

The sole independent claim of that request read as follows:

"1. A simulated moving bed chromatography method for separating a basic amino acid from a feed solution comprising said basic amino acid and impurities, comprising:

(a) selecting a simulated moving bed chromatographic apparatus comprising one or more chromatographic columns connected in series, said column or columns containing a strong cation exchange chromatographic material comprising a functional group selected from the group consisting of sulfonates, alkylsulfonates, phenylsulfonates, alkylphenylsulfonates and mixtures thereof, and sequentially comprising a first desorbent port, an extract port, a feed port and a raffinate port; and

(b) simultaneously,

(i) contacting, through said feed port, said feed solution with the strong cation exchange chromatographic material equilibrated with an aqueous ammonia solution;

(ii) contacting, through said first desorbent port, a basic aqueous eluant with said strong cation exchange chromatographic material; and

(iii) withdrawing, through said extract port, an extract solution comprising said basic amino acid and a lower percentage by dry weight of said impurities than in said feed solution."

- IV. The Appellant submitted that the claimed subject-matter as amended was supported by the description as filed and was delimited from the state of the art due to the restrictions made to the method of claim 1, in particular those made in step (b)(i).
- V. The Appellant requested that the decision under appeal be set aside and that the case be remitted to the first instance for further prosecution on the basis of the claims of the main request submitted during the oral proceedings.
- VI. At the end of the oral proceedings the decision of the Board was announced.

### **Reasons for the Decision**

1. The appeal is admissible.
2. *Scope of examination on appeal*

While Article 111(1) EPC gives the Boards of Appeal the power to raise new grounds in *ex-parte* proceedings where the application has been refused on other grounds, proceedings before the Boards of Appeal in *ex-parte* cases are primarily concerned with examining the contested decision (see decision G 10/93, OJ EPO 1995, 172, points 4 and 5 of the reasons), other objections

normally being left to the Examining Division to consider after a referral back, so that the Appellant has the opportunity for these to be considered without loss of an instance.

In the present case the Board, thus, restricts itself to examine whether the amended claims meet the requirement of Article 123(2) EPC which is stated in the decision under appeal as being the sole ground for refusal of the application. Since the amendments made are designed to overcome a novelty objection raised in examination proceedings, which objection was based on particular sections of documents (1) to (3), the Board considered it appropriate to further consider whether or not the amended claims are delimited from the disclosure of those sections.

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

- 3.1 Claim 1 is the combination of original claims 1, 2, 4, 8 and 10. Additionally the feature "**equilibrated with an aqueous ammonia solution**" has been incorporated in step (b)(i).

The support for this amendment is found in examples 1 and 2 on pages 16 and 17 of the application as filed. Those examples disclose the invention in more detail, particularly that a strong cation exchange resin was equilibrated with an aqueous solution having an ammonia concentration of 4%.

3.2 In order to determine whether an amendment offends against Article 123(2) EPC it has to be examined whether or not a technical information has been introduced which a skilled person would not have objectively, i.e. directly and unambiguously, derived from the application as filed (see decision T 680/93 of 29 November 1994, point 2 of the reasons; not published in OJ EPO).

In the present case, the question arises with respect to this amendment whether or not the feature that the resin is equilibrated with an aqueous solution of ammonia, which is disclosed in examples of the application as filed, is closely related with other technical characteristics of these examples, in particular with the specific ammonia concentration and the particular resin type.

In the Board's judgment, the value of the particular ammonia concentration employed for equilibrating the resin in examples 1 and 2 would be considered inessential by the skilled reader insofar as the required equilibrium of the resin is achieved indeed, since the equilibrium is obtained anyhow by adapting the amount of the aqueous ammonia solution used, independent of the ammonia concentration therein.

The resin type used in examples 1 and 2 has sulphonic functional groups whilst the inert backbone of the resin is irrelevant for achieving equilibrium; the presence of those functional groups is reflected in claim 1 as amended.

Therefore the skilled person does not associate the equilibrium of the chromatographic material with any other particular feature in examples 1 and 2, neither with the matrix of the resin, nor with the ammonia concentration used therein. Claim 1 as amended hence does not include technical information which is not directly and unambiguously derivable from the original application.

3.3 The Board concludes therefore that claim 1 does not extend the subject-matter claimed beyond the content of the application as filed, thus satisfying the provision of Article 123(2) EPC.

3.4 Dependent claims 2 to 15 are backed up by original claims 3, 5 to 7, 9 and 11 to 19, respectively, thus satisfying also the requirement of Article 123(2) EPC.

#### 4. *Novelty*

Documents (1), (2) and (3) disclose a method wherein the cation exchange chromatographic resin is fully regenerated in the elution zone. It is washed and the bed drained before the freshly regenerated resin once again enters the adsorption zone. Furthermore, a pH adjustment is made by contacting the resin with a sulphuric acid solution just before feeding the feed broth (document (1), page 129, left-hand column, penultimate paragraph of point 2.1 and page 128, figure 1; document (2) page 13, lines 25 and 26 and Figures XIV and XV; document (3), Figures 10.22 and 10.30).



Those passages thus do not disclose a method wherein a feed solution is contacted with a cation exchange chromatographic material which is equilibrated with an aqueous ammonia solution.

Since the method of claim 1 as amended is directed to a simulated moving bed chromatography method wherein the feed solution is contacted with such an equilibrated chromatographic material (see step (b)(i)), the Board considers that the amended claim 1 avoids the novelty objection raised during the examination proceedings.

5. *Remittal*

Having so decided, the Board has not, however, taken a decision on the whole matter, since substantial amendments have been made to independent claim 1 which amended claim was presented at the oral proceedings before the Board. The decision under appeal dealt solely with the issue of added matter in claim 1 according to the then pending requests and did not consider claim 1 in the present form as such request was never submitted to the first instance. The amendments leading to fresh claim 1 have the effect that the reasons given in the contested decision for refusing the present application no longer apply.

Thus, the Board considers that the substantial amendments made by the Appellant remove all the objections on which the decision under appeal was based and that present claim 1 generates a fresh case not yet examined.

Under these circumstances, the examination not having been concluded and the Appellant having requested remittal, the Board considers it appropriate to exercise the power conferred on it by Article 111(1), second sentence, second alternative, EPC to remit the case to the Examining Division for further prosecution.

## **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 for further prosecution on the basis of claims 1 to 15 of the main request submitted during the oral proceedings.

The Registrar:

The Chairman:

C. Moser

R. Freimuth