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**Datasheet for the decision
of 29 January 2018**

Case Number: T 0601/15 - 3.3.06

Application Number: 04765472.8

Publication Number: 1684885

IPC: B01D15/08, G01N30/60

Language of the proceedings: EN

Title of invention:

CHROMATOGRAPHY COLUMN DISTRIBUTION SYSTEM

Applicant:

GE Healthcare Bio-Sciences AB

Headword:

Distribution system/GE Healthcare Bio-Sciences AB

Relevant legal provisions:

EPC Art. 54, 84, 111(1), 123(2)

Keyword:

Amendments - allowable (yes) - Main Request

Novelty - (yes) - Main Request

Remittal to Examining Division for further prosecution (yes)

Decisions cited:

Catchword:



Beschwerdekammern
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Case Number: T 0601/15 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 29 January 2018

Appellant: GE Healthcare Bio-Sciences AB
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Representative: Cavill, Ross David
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted on 12 November 2014 refusing European patent application No. 04765472.8 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman B. Czech
Members: G. Santavicca
S. Fernández de Córdoba

Summary of Facts and Submissions

- I. The appeal lies from the decision of the Examining Division to reject the European patent application n° 04765472.8.
- II. In the decision under appeal, the Examining Division came to the following conclusions:
- The claims according to the then pending Main Request were objectionable under Article 123(2) EPC and lacked clarity (Article 84 EPC).
 - The subject-matter of Claim 1 according to this request, when unclear features of the claim were disregarded, lacked novelty over document
D1: US 6,224,760 B.
 - Auxiliary Requests 1 to 3 were not admitted into the proceedings pursuant to Rule 137(3) EPC, as they were still objectionable under Articles 123(2) and 84 EPC for the same reasons as the Main Request.
- III. In its statement setting out the grounds of appeal, the Appellant submitted that the case should be remitted to the Examining Division for further prosecution, alleging that its right to be heard had not been respected (Article 113(1) EPC). It also rebutted the objections having led to the refusal of the application.
- IV. The Appellant was summoned to oral proceedings. In a communication issued in preparation therefor, the Board expressed its provisional opinion that none of the claim requests on file appeared to be both admissible

into the proceedings and allowable. More particularly, objections were maintained and/or raised under Article 123(2) and 84 EPC and as regarding novelty over D1. The Board also indicated that no procedural violation was apparent, and that it was inclined to remit the case back to the Examining Division, if a claim request clearly overcoming all pending objections were filed.

- V. With further letters, the Appellant submitted further sets of amended claims, which were objected to by the Board under Articles 84 and 123(2) EPC in several communications issued.
- VI. In a telephone conversation held on 29 January 2018, the Appellant was informed that the Board considered the latest claim request filed by fax on 26 January 2018 as "New Auxiliary Request XI" to be admissible into the proceedings, and that the amended claims according to this request appeared to be no longer objectionable under Articles 84 and 123(2) EPC or for lack of novelty. The Appellant was thus invited to reconsider its requests.
- VII. With letter dated 29 January 2018, the Appellant filed, as sole and "Main Request", a clean copy of the set of claims according to said "New Auxiliary Request XI". It withdrew all other previously filed claim requests, as well as the allegation of a procedural violation.
- VIII. Claim 1 according to the Appellant's pending Main Request reads as follows (features added to Claim 1 of the application as filed emphasised by the Board):

"1. Chromatography column distribution system (101) comprising a fluid distribution plate (101) in the form of a disk having a central orifice and comprising a set

of first bed support ribs (107) and at least one set of intermediate bed support ribs (117,119), the set of first bed support ribs (107) extending radially from an inner, first radial position (R1) near the centre of the plate to an outer radial position near to the periphery (109) of the plate and the at least one set of intermediate bed support ribs (117,119) starting at an intermediate radial position (R2,R3) and extending to the outer radial position near to the periphery (109) of the plate (101), whereby channels are formed between adjacent bed support ribs (107, 117, 119),

wherein said first bed support ribs have a height which has a maximum (h1) at or near the first radial position and which has a minimum (h2) at or near the outer radial position,

wherein said channels have a local effective channel height defined as the height of a rib free channel providing the same cross sectional area for fluid flow as the total cross-sectional area of all the channels at the same radial distance from the centre, and

wherein a desired local effective channel height is defined to decrease linearly from said first radial position R1 to said outer radial position,

*wherein the transverse cross sectional areas of said ribs (107,117,119) or said channels are adapted such that the **maximum difference between the actual local effective channel height of said channels, and the desired linearly decreasing** local effective channel height, is within 15% of the desired linearly decreasing local effective channel height over portions of the distribution system situated between said first radial position (R1) and said outer radial position,*

wherein the total length of said portions correspond to at least 80% of the distance between said first radial position (R1) and said outer radial position,

and wherein said intermediate support ribs (117) include tapered portions, wherein the width of each rib (107) of the set of first ribs at a position along its length where it is adjacent a tapered portion (116) of a respective intermediate support rib (117) is adapted so that the maximum difference between the actual and desired local effective channel height is within said 15% of the desired local effective channel height."

IX. The Board thereupon cancelled the scheduled oral proceedings

X. Ultimate request

The Appellant (Applicant) requested in writing that the decision under appeal be set aside and that a European patent be granted on the basis of the claims according to the Main Request filed with letter dated 29 January 2018.

Reasons for the Decision

1. The appeal is admissible.
2. Admissibility of the pending claim request
 - 2.1 The claims at issue were filed in response to and clearly overcome all the Board's objections.
 - 2.2 Hence, the Board decided to admit them into the

proceedings despite their late filing (Articles 12(4) and 13 RPBA).

3. Amendments

3.1 Claim 1

3.1.1 Claim 1 at issue is based on Claim 1 of the application as filed and includes the following further limitations, which also find basis in the application as filed as follows.

3.1.2 "*[D]istribution plate in form of a disk having a central orifice*": page 5, lines 16 to 17, Figures 1a) to 2c).

3.1.3 Indications concerning the maximum and minimum height of the first support ribs: page 5, lines 19 to 21, Figure 1b).

3.1.4 Definition of the local effective channel height: page 2, lines 22 to 27.

3.1.5 Desired linear decrease of the local effective channel height: page 2, lines 29 to 31.

3.1.6 Quantification of the maximum difference between actual and desired local effective channel heights: page 6, lines 15 to 16.

3.1.7 Intermediate support ribs with tapered portions and adaptation of the width of each first rib at a position adjacent to the tapered portions of the intermediate support ribs: page 6, lines 20 to 22 and 25 to 27, Figures 2b) and 2c).

3.1.8 The above mentioned passages all refer to the construction of the plate/ribs of the distribution system as generally defined in Claim 1 of the application as filed. The amendments to Claim 1 thus result in a structural concretisation applicable to all embodiments thereof.

3.2 Dependent claims

3.2.1 Claims 2 and 3 correspond to Claims 2 and 3 of the application as filed, but have been modified to more concisely express preferred values for the maximum difference defined in Claim 1.

3.2.2 Claim 4 is identical to Claim 5 of the application as filed.

3.3 In the Board's judgement, the amended claims thus comply with the requirements of Article 123(2) EPC.

4. Clarity and support by the description

4.1 The objections raised by the Examining Division in view of the features comprising the expressions "*desired*" and "*predetermined formula*" comprised in the earlier version of Claim 1 are overcome by way of the amendments made to Claim 1:

4.1.1 Claim 1 at issue no longer includes the features comprising the expression "*predetermined formula*". The decrease of the actual local effective channel height is now reflected in Claim 1 in terms of the decrease of the height of the ribs and, hence, of the channel height in the radial direction.

4.1.2 In present Claim 1, the term "*desired*" has no further

limiting meaning but merely expresses that a linearly decreasing local effective channel height is the reference to which the (calculated) decrease of the actual local effective channel height is to be compared: In Figures 3 and 4, the "*desired*" decrease is represented by the dotted lines, whilst the (calculated) actual (real) decrease of the local effective channel height is shown as solid, curved line.

4.2 The Board holds that Claim 1 at issue also clearly expresses that the "*distribution system*" according to the invention comprises a "*plate in the form of a disc with a central orifice*". Consequently, terms such as "*center of the plate*", "*radial position*" and "*periphery*" no longer lack a clear meaning in the context of Claim 1 at issue.

4.3 Hence, in the Board's judgment Claim 1 is clear and supported by the description (Article 84 EPC).

5. Novelty

5.1 Over document D1

5.1.1 Document D1 (Column 2, lines 12-24; Column 3, lines 31-65, in particular, lines 56-65; Figures) discloses a chromatography column distribution system (disk-shaped end plate with central opening and liner), the liner (9) forming channels between major ribs 10a and intermediate ribs 10c, 10d (see Figure 2), respectively extending from a first central radial position near the central opening 2 of the end plate 1, and from intermediate radial positions, to a position near the periphery of the end plate. Figures 2 and 3 appear to show that the each rib has a tapering end oriented

towards the central outlet and a continuously decreasing width towards the periphery.

5.1.2 As regards the purpose of this construction, the following is stated in D1 (column 3, lines 56 to 65) as follows (emphasis added by the Board): "Major ribs 10a extend substantially from the inner to the outer edge of the liner 9 while shorter sets of ribs 10b,10c,10d are distributed between these, progressively away from the centre, to maintain the level of occupation of the flow zone by rib projections and therefore maintain a generally uniform support behind the filter layer 14,15. In use, fluid medium is guided along the channels between the ribs to distribute flow evenly around the end plate. The pattern of ribs as such is not critical, and may correspond to patterns already known for machining into an end plate."

5.1.3 Moreover, The height of the raised projections 17 (ribs 10) appears to decrease from the inner radial position to the periphery (see Figure 4, liner 9 with raised projection 17), which implies a consequential decrease of the height of the channels formed between the ribs.

5.2 However, D1 does not pay particular attention (at least not expressly) to keeping variations in the actual local effective channel height (within the meaning of Claim 1 at issue) of the channels within specific quantified limits by adapting the cross-sectional areas of the ribs or channels, as required by Claim 1 at issue.

5.3 Over document D2

5.3.1 D2 (US 4,894,152), the other "X"-category document cited in the International Search Report, appears to

disclose (see Figure 1) a distribution system for chromatographic column in form of disk-shaped end plates 5 and 10 having a central opening. These plates (see Figures 2, 3 and 5) comprise radially oriented channels with a slope such that the channels decrease in depth from the center to the outer edge of the plate (see column 3, lines 51-53 and claim 1). The plates also comprise and raised radial "flutes" or barriers (60, 65, 70, 75, 80, 85 and 90).

D2 does not appear to describe flutes/barriers consisting of ribs with tapered portions. According to D2, the fluid control device disclosed enables uniform delivery of fluid in a chromatographic system (column 2, lines 1-3).

However, D2 too (at least) does not appear to be designed such that variations in the "actual local effective channel height" of the channels are kept within specific quantified limits by adapting the cross-sectional areas of the ribs (or channels), as required by Claim 1 at issue.

5.4 In the Board's judgement, the distribution system according to the claims at issue is novel over D1 or D2 (Articles 52(1) and 54 EPC).

6. Remittal

Considering that the pending claims are no longer objectionable under Articles 84 and 123(2) or for lack of novelty, the Board considers it appropriate to remit the case to the Examining Division pursuant to Article 111(1) EPC for further prosecution, i.e. for the examination of the application's compliance with the

other requirements of the EPC, in particular as regards inventive step.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted back to the Examining Division for further prosecution.

The Registrar:

The Chairman:



D. Magliano

B. Czech

Decision electronically authenticated