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Datasheet for the decision of 23 February 2012

Case Number: T 1486/08 - 3.3.05

Application Number: 02749521.7

Publication Number: 1377356

IPC: B01D 39/20, B01J 20/32

Language of the proceedings: EN

Title of invention:
Process for manufacturing particles coated with activated lignosulfonate

Applicant:
THE PROCTER & GAMBLE COMPANY

Opponent:
-

Headword:
Filter material/PROCTER

Relevant legal provisions:
EPC Art. 56, 84

Keyword:
"Support by the description (main request): no - claims should define the matter for which protection is sought"
"Inventive step (auxiliary request 1): yes - non obvious provision of a further process"

Decisions cited:
T 0409/91

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1486/08 - 3.3.05

D E C I S I O N
of the Technical Board of Appeal 3.3.05
of 23 February 2012

Appellant: (Applicant)
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Decision under appeal:
Decision of the Examining Division of the European Patent Office posted 1 February 2008 refusing European patent application No. 02749521.7 pursuant to Article 97(2) EPC.

Composition of the Board:

Chairman: G. Raths
Members: J.-M. Schwaller
S. Hoffmann

Summary of Facts and Submissions

I. This appeal lies from the decision of the examining division refusing European patent application No. 02 749 521.7 on the grounds that amended claims 1, 2, 4 to 8 and 10 dated 20 June 2007 lacked novelty under Article 54(1) and (2) EPC in the light of document

D1: JP 05 049921 A & abstract AN 1993-112084, Database WPI, week 199314, Derwent Publications.

Amended claim 1 read as follows:

"*1. A process for forming a filter material, comprising the steps of*
a) coating a filter particle with a coating comprising a lignosulfonate;
b) carbonizing the coating; and
c) activating the coating."

The examining division also held the subject-matter of above claim 1 lack an inventive step under Article 56 EPC in the light of the disclosure of document

D2: JP 2000325783 A & Patent Abstract of Japan, vol. 2000, no. 14,

arguing in particular that there was no evidence that the claimed lignosulfonate gave rise to any unexpected effect when compared with the aromatic sulfonate of D2.

II. With the grounds of appeal, the applicant (hereinafter "the appellant") submitted a translation of document D1

in English as well as four amended sets of claims as a main request and first to third auxiliary requests, respectively.

III. In a first communication dated 23 December 2010, the board expressed a provisional opinion that the newly submitted claims did not meet the requirements of Articles 54(1)(2) and 84 EPC.

IV. By communication dated 1 July 2011, the appellant withdrew all the requests previously on file and submitted three amended sets of claims with claim 1 of the main request reading as follows:

"1. A process for forming a filter material, comprising the steps of:
a) coating filter particles with a coating comprising a lignosulfonate;
b) carbonizing the coating by heating the coated filter particles in an atmosphere including inert gases or nitrogen to reduce the non-carbon species in the coating; and, next,
c) activating the coating by heating the carbonized, coated filter particles in an activation atmosphere, which is a mixture of an oxidant and carrier gases, to render the coating more porous;
wherein the ratio of the sum of the mesopore and macropore volumes to the micropore volume of the filter material is between 0.3 and 3; wherein "micropore" refers to a pore having a width or diameter less than 2 nm; "mesopore" refers to a pore having a width or diameter between 2 nm and

50 nm and "macropore" refers to a pore having a width or diameter greater than 50 nm; and wherein further the BET surface area of the filter material after the activation step is between 500 and 3000 m^2/g."

V. By a second communication dated 21 July 2011, the board informed the appellant that the range of values "*between 0.3 and 3*" which quantified the parameter "ratio of the sum of the mesopore and macropore volumes to the micropore volume of the filter material" was too broad in comparison to the feature "of the order of 1:1" that the appellant identified in the grounds of appeal as solving the problem underlying the invention. The board concluded that the application so lacked the requirements of Article 84 EPC.

VI. By communication dated 18 November 2011, the appellant filed two sets of amended claims as new main and first auxiliary requests, respectively, with claim 1 of the main request being amended so that the ratio of the sum of the mesopore and macropore volumes to the micropore volume still is within the range "*between 0.3 and 3*".

Claim 1 of the new auxiliary request 1 has a more restricted scope and reads as follows:

"1. A process for forming a filter material, comprising the steps of:
a) coating filter particles with a coating comprising a lignosulfonate;
b) carbonizing the coating by heating the coated filter particles in an atmosphere including inert

gases or nitrogen to reduce the non-carbon species in the coating; and, next,
c) activating the coating by heating the carbonized, coated filter particles in an activation atmosphere, which is a mixture of an oxidant and carrier gases, to render the coating more porous;
wherein the ratio of the sum of the mesopore and macropore volumes to the micropore volume of the activated coating is between 0.8 and 1.5; wherein "micropore" refers to a pore having a width or diameter less than 2 nm; "mesopore" refers to a pore having a width or diameter between 2 nm and 50 nm and "macropore" refers to a pore having a width or diameter greater than 50 nm; the sum of the mesopore and macropore volumes is measured during the BET nitrogen adsorption and calculated as the difference between the total pore volume and the volume of nitrogen adsorbed at P/P_0 of 0.15; and
wherein further the BET surface area of the filter material after the activation step is between 500 and 3000 m^2/g; "g" refers to the mass of the carbon in the activated coating."

VII. The appellant requested in writing that the contested decision be set aside and that a patent be granted on the basis of the set of claims of the main request, or alternatively, of the first auxiliary request, both filed on 18 November 2011.

Reasons for the Decision

1. *Main request (Article 84 EPC)*

1.1 In the grounds of appeal (paragraph bridging pages 2 and 3), the appellant stated that the claimed process aimed at solving the problem of removing bacterial and viral contaminants from drinking water by means of an activated carbon having a particular pore size distribution with "*a balance of mesopores/macropores (tens of nm) to micropores (less than 2 nm)* ***of the order of 1:1***" (emphasis added by the board).

1.2 In its communication dated 21 July 2011, the board acknowledged the above feature to represent the solution to the problem underlying the application-in-suit. It further invited the appellant to amend the claims, the scope of which was too broad to meet the requirements of Article 84 EPC, and suggested in this respect to restrict the range of values defining the ratio of the sum of the mesopore and macropore volumes to the micropore volume to the range of from 0.8 to 1.5.

1.3 In its reply to the above communication, the appellant argued that the range that the board suggested was simply described in the application-in-suit to represent the preferred range; it was however not considered to be an essential feature.

1.4 The board observes that it is the established case law of the boards of appeal that the scope of the claims must not be broader than is justified by the extent of the description and also the contribution to the art

(T 0409/91, OJ EPO 9/1994, 653, Reasons 3.2, penultimate sentence and Reasons 3.3, second sentence).

In the present case, the alleged invention is illustrated by only two specific embodiments, namely by the filter materials in Examples 1 and 2, which have the following specifications:

– BET area of 1472 m^2/g, micropore volume of 0.61 mL/g, sum of the mesopore and macropore volume of 0.86 mL/g (Example 1),

– BET area of 1631 m^2/g, micropore volume of 0.72 mL/g, and a sum of the mesopore and macropore volume of 0.67 mL/g (Example 2).

The above data lead to a (calculated) ratio of the sum of the mesopore and macropore volumes to the micropore volume of 1.41 and 0.93, respectively. The board observes that these two values fall comfortably within the range of "from 0.8 to 1.5" without however going beyond the limits of this range.

The efficiency of these two filtering materials in removing bacterial contaminants from water has been tested and reported in the test procedures on pages 18 to 20 of the application in suit. It can be seen that both materials efficiently achieve the expected effect.

1.5 The appellant, which has the onus of demonstrating that a claim is fully supported by the description over the whole of its breadth, did not however provide any evidence that filtering materials with a ratio of the sum of the mesopore and macropore volumes to the

micropore volume falling outside the range of "from 0.8 to 1.5" also have any bacterial removal efficiency and so achieve the expected effect.

Since claims are supposed to define the matter for which protection is sought, their scope should correspond to the invention as disclosed in the description. In the present case, this requirement is not fulfilled, since the scope of claim 1 is broader than is justified by the extent of the description, contrary to the requirements of Article 84 EPC.

Therefore the main request is rejected.

2. *Auxiliary request 1*

2.1 Amendments

The claims of this request have a basis as follows in the application as filed and published as WO 02/098536:

- Claim 1 results from the combination of claims 1, 9, 11 and the passages at page 5, lines 7 to 13; page 5, line 30 to page 6, line 4; page 11, line 7; page 12, lines 3 and 4; page 12, line 30 to page 13, line 2; page 13, lines 13 to 15; page 13, line 29 to page 14, line 2 as filed.

- Claims 2 and 3: in claim 2 and the examples as filed;

- Claim 4: in the passage at page 7, lines 7 and 8 as filed;

– Claims 5 to 9: in claims 5, 6, 7, 8 and 10 as filed, respectively.

It follows that the amended claims of this request meet the requirements of Article 123(2) EPC.

2.2 Article 84 EPC

The subject-matter of claim 1 having been limited as suggested (communication dated 21 July 2011), the board is satisfied that the scope of protection of the invention now claimed is justified. The subject-matter of claim 1 now reflects the filtering materials specifically exemplified in the application-in-suit. The board's concerns raised in said communication are therefore considered overcome and the requirements of Article 84 EPC met.

2.3 Novelty

The board is satisfied that the subject-matter now claimed is distinguished from the disclosure in documents D1 and D2 cited in the search report as neither of these prior art documents disclose the combination of steps b) and c) in claim 1 at issue, nor do these documents disclose the ratio of the sum of the mesopore and macropore volumes to the micropore volume to be between 0.8 and 1.5. D2 is further distinguished therefrom in that the sulfonate is of the lignosulfonate type.

Therefore, claim 1 and claims 2 to 9, which depend thereon, meet the requirements of Article 54(1),(2) EPC.

2.4 Inventive step

2.4.1 The present application concerns a method for manufacturing a filter material capable of removing bacteria and/or viruses from a fluid (page 2, lines 22 to 24 of the application-in-suit).

2.4.2 D2, which relates to the same technical field, represents the closest state of the art and thus the starting point for assessing inventive step. It is observed that D1 cannot represent the closest state of the art since it concerns a different technical field, namely the preparation of a supporting material for microorganisms.

D2 (abstract) discloses an antibacterial particulate activated carbon prepared by mixing a silver zeolite with an aqueous solution of a condensation product of aromatic sulfonic acids or salts to prepare a slurry. The slurry is then atomised into fine particles and spray-dried, baked, carbonised and activated to produce an antibacterial activated carbon containing 0.5 to 10 wt.% of silver zeolite.

2.4.3 The problem to be solved in the light of D2 is to be seen in the provision of a process for preparing a further filter material capable of removing bacteria and/or viruses from a fluid.

2.4.4 As a solution to this problem, the application in suit proposes the process according to claim 1, characterized in particular in that the ratio of the sum of the mesopore and macropore volumes to the

micropore volume of the activated coating is between 0.8 and 1.5.

2.4.5 Concerning the question of whether the above problem has been effectively solved, the application in suit provides evidence that it has been, since the filtering materials prepared in the examples have been tested and reported as efficient in removing bacterial contaminants from water (see the test procedures at pages 18 to 20 of the application in suit).

2.4.6 It remains to be decided whether the proposed solution to the above problem is obvious or not in view of the state of the art.

In this respect, the board observes that the solution proposed according to the subject-matter of claim 1 comprises a specific ratio of the sum of the mesopore and macropore volumes to the micropore volume of the activated coating. The feature defining the said ratio makes the solution proposed by the application in suit totally different from the one proposed in D2, which in comparison requires a silver zeolite for removing the contaminating microorganisms.

Concerning the other state of the art (D1) cited in the search report, this document concerns a different technical problem, namely the preparation of a supporting material for microorganisms, and the skilled person confronted with the problem of removing microorganisms from water would thus not take the content of this document into consideration. Even if he did so, he would not arrive at the claimed solution,

since the material in D1 has a porosity different from the one claimed.

2.4.7 It follows from the above that the subject-matter of claim 1 of this request, and of claims 2 to 9, which depend thereon, involves an inventive step within the meaning of Article 56 EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to grant a patent on the basis of the set of claims according to auxiliary request 1 filed with letter of 18 November 2011, and a description and figures to be adapted.

The Registrar: The Chairman

C. Vodz G. Raths