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**Datasheet for the decision  
of 20 October 2016**

**Case Number:** T 0822/14 - 3.3.03

**Application Number:** 05256752.6

**Publication Number:** 1652860

**IPC:** C08B11/22, B01D33/44,  
B01D33/073

**Language of the proceedings:** EN

**Title of invention:**

Method of separating water-soluble cellulose ether

**Patent Proprietor:**

Shin-Etsu Chemical Co., Ltd.

**Opponents:**

THE DOW CHEMICAL CO.  
AKZO NOBEL CHEMICALS INTERNATIONAL B.V.

**Relevant legal provisions:**

EPC Art. 54, 111(1)

**Keyword:**

Novelty - (yes)  
Appeal decision - remittal to the department of first instance  
(yes)



**Beschwerdekammern**  
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Case Number: T 0822/14 - 3.3.03

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.03**  
**of 20 October 2016**

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**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 16 December  
2013 revoking European patent No. 1652860  
pursuant to Article 101(3) (b) EPC.**

**Composition of the Board:**

**Chairman**            F. Rousseau  
**Members:**            D. Marquis  
                              C. Brandt

## **Summary of Facts and Submissions**

- I. The appeal by the patent proprietor lies against the decision of the opposition division posted on 16 December 2013 to revoke European patent EP-B-1 652 860.
- II. Claim 1 of the patent as granted read as follows:
- "1. A method of separating a water-soluble cellulose ether from a suspension of particles thereof in water, comprising the steps of  
passing the suspension through a pressure filter,  
leaving a cake of the water-soluble cellulose ether on the filter,  
removing the filter cake from the filter medium, and  
cleaning the filter medium with steam, compressed air or water under pressure;  
characterised in that the filter medium in the pressure filter is a perforated metallic or ceramic filter medium."
- III. Two oppositions were filed, requesting that the patent be revoked on the grounds of lack of novelty and lack of inventive step.
- IV. In its contested decision, the opposition division arrived at the conclusion that the main request (claims as granted) lacked novelty over D1 (US-A-4 954 268) because a "multi-layered wire mesh filter medium", especially a "multi-layer sintered metal wire mesh" as disclosed in claim 1, column 2, lines 2-3, and example 1 of D1 was considered to have openings which could be seen as "naturally" occurring holes. Having regard to the meaning of "perforated" in the Oxford English Dictionary, according to which "perforated" not only

denoted the result of the action of perforating, but also extended "to the presence of naturally occurring hole or holes (e.g. perforated rock)", the opposition division held that the definition of a perforated metallic filter medium in claim 1 of the patent in suit did not provide any distinguishing feature over the disclosure of D1. Accordingly, the subject-matter of granted claim 1 lacked novelty and the main request was refused. Auxiliary requests 1-3 filed with letter of 21 November 2011 and auxiliary request 4 filed with letter of 12 September 2013 did not fulfil the requirements of Article 123(2) EPC.

- V. In the statement of grounds of appeal filed with letter of 28 April 2014, the appellant referred *inter alia* to the following documents, a copy of D12 and D13 being first submitted with letter of 8 May 2014:

D11: Excerpts from (I) Concise Oxford Dictionary; (II) New Oxford Dictionary; (III) Merriam-Webster; (IV) Compact [sic] Oxford Dictionary concerning the meaning of "perforate", "perforated" and "perforation".

D12: Filters and Filtration Handbook, 4th edition 1997, T. Christopher Dickenson, published by Elsevier, pages 82, 105 to 116, 118, 120 to 129, 906 and 909 to 911

D13: Filter Media, ed. D. Purchas and K. Sutherland, Elsevier 2002, pages 8 to 10, 20, 21, 201, 202, 204 to 207, 211 to 214, 216, 222 to 226, 230 to 232 and 259.

- VI. With letter of 9 May 2014, the appellant submitted a copy of D15: Filtration Dictionary and Glossary, R. J. Wakeman, The Filtration Society 1985, pages 56/57, 80/81, 90/91 and 100/101.

VII. With letter of 1 August 2016, respondent 2 indicated that he would not attend the oral proceedings.

VIII. Oral proceedings were held on 20 October 2016.

IX. As far as they are relevant to the present decision, the appellant's arguments may be summarised as follows:

Main request

Novelty in view of D1

The superimposed set-up of woven wires of D1 did not fall under the claimed subject-matter. D12 did not provide evidence that meshes fell under the wording of claim 1. D12 disclosed the conventional usage of the term "perforated" to indicate materials through which holes had been formed, as distinct from mesh made from overlaid fibres or wires. Like D12, D13 consistently used the term "perforated" only in relation to plate or sheet-form materials through which holes had been formed, and not in relation to woven or knitted media, whether sintered or otherwise. D11 showed that the verb "perforate" and the noun "perforation" referred specifically to the forming of holes through a material, structure or article. D15, which should be admitted into the proceedings, confirmed the meaning of the term "perforated". In the context of the patent in suit, it was clear that meshes could not be seen as a perforated medium. Therefore the claimed subject-matter was novel over D1.

X. As far as they are relevant to the present decision, the respondents' arguments may be summarised as follows:

Main request

Novelty in view of D1

The issue of novelty relied on the scope of the terms "medium" and "perforated" that defined the claimed subject-matter. The term "medium" equally encompassed mono-layered as well as multi-layered filter assemblies. A perforation could be obtained by weaving a wire around a hole. As a result, a filter medium in the form of meshes that was obtained by weaving was a "perforated" medium. Since the filter medium of D1 had holes, it had to be considered as a perforated medium. D12, which related to filtration technology, contained a chapter concerning woven wires and also dealing with electroformed meshes. That section disclosed that very finely perforated and uniform wire mesh could be produced by electroforming. That indicated that the skilled person knew that perforations were used in the context of meshes. D12 also did not make any distinction between a perforated metal sheet and a wire mesh filter. In that respect, D12 disclosed that an expanded metal mesh was cut (i.e. perforated) and stretched from a metal sheet into the form of a jointless grille, with no interweaving and no joints to loosen or part under stress. D13 did not support a distinction between a perforated metallic filter medium (as claimed) and a wire mesh filter medium (as disclosed in D1). D11 defined "perforated" as pierced with one or more holes, especially an object constructed with small holes, spaces, or openings

passing through (as a wall or carved panel). From this definition it was clear that "perforated" did not imply that the perforations had been made after the construction of the object. The term "pierced" was defined by Merriam-Webster as "having holes". Claim 1 therefore lacked novelty over D1. D15 should not be admitted into the proceedings as it had been filed late and was no more relevant than the documents already on file.

XI. The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of the main request (patent as granted), or alternatively on the basis of any of the first to fifth auxiliary requests filed with the statement setting out the grounds of appeal.

XII. Respondent 1 requested that the appeal be dismissed. Respondent 2 requested that the appeal be dismissed and that the first to fifth auxiliary requests not be admitted into the proceedings. Should any of the auxiliary requests be admitted into the proceedings, it was requested that the case be remitted to the opposition division for further prosecution.

## **Reasons for the Decision**

Main request

1. Novelty in view of D1

1.1 D1 discloses in claim 1 and example 1 a process for removing cellulose ethers from a cellulose ether particle suspension thereof in water in which the



cellulose ethers are recovered as a filter cake from a pressure filtration, wherein said pressure filtration is conducted in a pressure filter containing a multi-layered wire mesh filter medium comprised of mesh layers having different mesh sizes wherein said filter medium comprises a multi-layer square-opening mesh, linen-bonded to a filter cloth with at least one protective mesh on each side and wherein said filter cloth has a mesh size corresponding to about the mean particle diameter size of the cellulose ether suspension particles and, subsequent to removal of said filter cake from said filter medium, said filter medium is cleaned with steam, compressed air or water under pressure.

1.2 D1 discloses that the filter medium is made of several layers of wire mesh of different mesh sizes as indicated in example 1, lines 32-46, figure 2 and its description in column 4, lines 33-47. That assembly is preferably a sintered metal wire mesh (column 2, lines 2-5) that consists of a highly corrosion-resistant stainless steel in order to avoid corrosion (column 2, lines 54-55). The passage in column 4, lines 37-50, mentions that the individual meshes are woven as square-hole meshes and that the four-layer wire mesh of Figure 2 is sintered. D1 does not contain a reference to perforation as a manufacturing step of the multi-layered meshes. The question in dispute between the parties was whether the metallic wire meshes of D1 could nonetheless be seen as a perforated metallic filter medium in the sense used in claim 1 of the main request.

1.3 It is a well-established principle laid down by the boards' case law that a non-specific definition in a claim should be given its broadest technically sensible

meaning in the context of that claim (see Case Law of the Boards of Appeal of the EPO, 8th edition 2016, II-A.6.1). It is therefore necessary to assess whether the usual terminology in the field of filters and filtration techniques would, with the wording "a perforated metallic medium", define a class of filter media that comprises the metallic wire meshes disclosed in D1. The parties in this respect made reference to D11, D12, D13 and D15, which were intended to throw light on the terms used in D1 and in the patent in suit.

1.4 D12 and D13 are extracts from handbooks pertaining to filters and filtration techniques. Both documents establish that there are many different types of filter media covering a broad range of materials including perforated metals, woven wires and sintered metals (D12, page 82; D13, page 9). While they acknowledge that it is difficult to consistently divide media into precisely defined types with sharp divisions between categories, they nevertheless contain detailed and differentiated sections on woven wires and perforated metal sheets.

1.4.1 The sections on pages 120 to 129 of D12 and pages 230 to 232 of D13 pertain to perforated sheets and plates. Perforated sheets are said to be generally produced by high-pressure presses that punch groups of holes through a metal sheet as it is indexed through the press. Alternatively, D12 discloses that perforated sheets and plates may also be manufactured by drilling and milling (pages 124 and 125). In addition to the thickness and type of metal, the variable parameters include the shape of the holes, their size, the pattern in which they are arranged, the number of holes per unit area, and the distance between adjacent holes

(D13, page 230). Perforated metal sheets are said to be more rigid and can be made stronger than woven wire cloths (D12, page 120). D12 and D13 therefore teach that the manufacturing of filters through perforation of a metal sheet or plate provides these assemblies with a strength that is comparatively superior to those of woven wires. Multi-layered meshes of the type described in D1 or structures resembling them are not mentioned in these sections.

- 1.4.2 Woven wires and meshes are disclosed in the sections on pages 105 to 115 of D12 and 201 to 226 of D13. Both documents agree in defining a woven wire by its material and its form of weave, mesh count and aperture opening (D12, pages 105-107; D13, Table 6.8, page 206 and Table 6.10, page 211). The manufacture of wire meshes through perforation of metallic substrates is not mentioned. Sintered meshes of the type disclosed in D1 are described on pages 214-223 of D13. This type of mesh is made basically from woven wire mesh that has been sintered at a temperature sufficient to cause localised melting at the contact points between warp and weft wires (D13, page 214, first paragraph). The key feature of the sintered wire mesh is that it involves one layer of woven mesh to act as the filtration medium, with others, where necessary, to give the whole medium adequate stiffness and mechanical support (fourth paragraph). That definition implies that, in the case of sintered mesh, the strength of the filter assembly is provided by the superposition of multiple layers, as is confirmed in D1 (column 2, lines 24-28). That section does not describe those woven wires and meshes of the type disclosed in D1 as perforated metallic filters.

1.5 Woven wires, in particular sintered woven wires, and perforated sheets or plates are disclosed in different parts of D12 and D13. D12 and D13 show that woven wires and perforated sheets and plates are two different types of assembly that are obtained by different manufacturing processes. Also, the structural parameters used to characterise these two types of assembly are different.

The passage on pages 110-113 of D12 that deals with electroformed mesh also mentions perforations. It is above all unclear how that passage could relate to D1, since D1 does not deal with electroforming, but with a different type of filter medium, i.e. sintered wire meshes. Hence that passage does not show that a skilled person in the relevant field would designate a sintered wire mesh as a perforated medium. Therefore in D12 and D13 there is no information showing that the multi-layered mesh assemblies of D1 could be seen as being a perforated medium.

1.6 With respect to D15, although the submissions of respondent 2 of 1 September 2014 contain the heading "Inadmissibility of D15", no further indication has been submitted as to why the board should not consider that document. The board notes that D15 is a dictionary and glossary about filtration, and therefore also a document relevant to the question at stake in the present appeal. That document was even used by respondent 2 in its submission on novelty over D1. That document is therefore admitted into the appeal proceedings (Article 13(1) RPBA). The passages of D15 referred to by the parties also do not indicate that a mesh, let alone a multi-layered mesh assembly, would be considered by the skilled person to be as designated as "a perforated metallic filter medium".

- 1.7 Moreover, the conclusion that the multi-layered mesh assemblies of D1 cannot be seen as being a perforated medium within the meaning of claim 1 of the contested patent is not contradicted by the essence of the present invention described in paragraph 5 of the specification, which is to be read in conjunction with the description of the prior art in paragraph 4, mentioning D1. Said paragraph 5 explains that the filter medium as defined in claim 1 of the patent in suit provides technical advantages compared to the multi-layer sintered metal structure used in D1, implicitly confirming that a multi-layer sintered metal structure is not meant to be a perforated metal medium within the meaning of the patent in suit.
- 1.8 As to the excerpt from the dictionary mentioned in the contested decision or the collection of definitions found in general dictionaries mentioned in D11, these lack relevance for the present decision because the documents are general dictionaries which do not address the technical meaning of the term "perforated" in the specific context of filter media and therefore cannot clarify whether a multi-layered mesh as disclosed in D1 would be described by the person skilled in the art as a "perforated" metallic filter.
- 1.9 In conclusion, having regard to the terminology in the field of filters and filtration techniques, the metallic wire mesh filter disclosed in D1 cannot be described as "a perforated metallic medium" within the meaning of claim 1 of the patent as granted. The subject-matter of claim 1 of the main request is therefore novel over D1.
2. Since the ground of lack of inventive step in respect of the main request was not dealt with in the

opposition division's decision, and since there is an express request from the respondent that the case be remitted to deal with that ground for opposition, the board exercises its discretion under Article 111(1) EPC to remit the case to the opposition 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 the main request (patent as granted).

The Registrar:

The Chairman:



B. ter Heijden

F. Rousseau

Decision electronically authenticated