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Datasheet for the decision of 21 January 2016

Case Number: T 0547/12 - 3.3.09

Application Number: 99926890.7

Publication Number: 1095970

IPC: C08J9/14

Language of the proceedings: EN

Title of invention:
Phenolic foam

Patent Proprietor:
Asahi Kasei Kabushiki Kaisha

Opponent:
Kingspan Holdings (IRL) Limited

Headword:

Relevant legal provisions:
EPC 1973 Art. 14(2)
EPC Art. 83

Keyword:
Sufficiency of disclosure - (no, all requests)

Decisions cited:
G 0003/14, T 0700/05, T 0593/09

Catchword:

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Case Number: T 0547/12 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 21 January 2016

Appellant: (Patent Proprietor)	Asahi Kasei Kabushiki Kaisha 3-23, Nakanoshima 3-chome Kita-ku, Osaka-shi Osaka 530-8205 (JP)
Representative:	Strehl Schübel-Hopf & Partner Maximilianstrasse 54 80538 München (DE)
Respondent: (Opponent)	Kingspan Holdings (IRL) Limited Dublin Road Kingscourt, County Cavan (IE)
Representative:	O'Brien, John Augustine John A. O'Brien & Associates Third Floor, Duncairn House, 14 Carysfort Avenue Blackrock, Co. Dublin (IE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 23 December 2011 revoking European patent No. 1095970 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman W. Sieber
Members: J. Jardón Álvarez
E. Kossonakou

Summary of Facts and Submissions

I. This decision concerns the appeal filed by the proprietor of European patent No. 1 095 970 against the decision of the opposition division to revoke the patent.

II. With the notice of opposition the opponent had requested revocation of the patent in its entirety on the grounds of Article 100(a) (lack of novelty and inventive step) and (b) EPC, and had cited *inter alia* document D1:

D1: US 4 444 912 A.

III. The opposition division's decision was based on a set of twelve claims filed with letter dated 12 October 2011. The opposition division held that the requirements of Articles 123, 84, 83 and 54 EPC were met, but revoked the patent because the subject-matter of at least claim 1 lacked inventive step in view of D1 alone. Concerning Article 83 EPC, the opposition division noted that the patent in suit provided thirteen working examples and that there was no experimental evidence showing that it was not possible to perform the invention over the whole area claimed.

Independent claims 1 and 10 of this sole request read as follows:

"1. A phenolic foam having a density of 10 kg/m^3 to 100 kg/m^3 and containing a hydrocarbon, which is characterized by having an average cell diameter in a range from 5 µm to 200 µm, a void area ratio of 3% or less in its cross section, and substantially no holes in the cell walls, the voids being defined as vacancies

having an area of 2 mm^2 or more on a cut surface of the foam."

"10. A process for producing a phenolic foam, comprising mixing a resol resin having a viscosity increase rate constant of 0.005 to 0.5, a water content of 4 to 12% by weight and a viscosity of 1 to 30 Pas (1000 to 30000 cps) at 40°C, a surface active agent, a hydrocarbon-containing blowing agent, and a curing catalyst in a mixing machine having a temperature of 10 to 70°C and a pressure of from the vapor pressure of the blowing agent to the blowing agent's vapor pressure plus 5 kg/cm^2, expanding the mixture, and elevating the temperature stepwise in a subsequent curing reaction stage."

Claims 2 to 9, 11 and 12 were dependent claims.

IV. On 27 February 2012 the patent proprietor (in the following: the appellant) lodged an appeal. The statement setting out the grounds of appeal was filed on 2 May 2012 and included:

- the main request before the opposition division:

- auxiliary requests 1, 1a and 2 to 8;

- corrected page 5 of the published patent and two declarations that the corrections were correct translations of the original (PCT) Japanese text; and

- four new documents including experimental data.

V. In its reply dated 26 November 2012, the opponent (in the following: the respondent) requested that the

appeal be dismissed. It objected to the appellant's request to correct page 5 of the opposed patent, on the grounds of non-compliance with Article 123 EPC. Furthermore, it raised objections under Articles 83, 84 and 56 EPC against the various requests. It also filed several documents and some experimental evidence in support of its objections, including documents already filed during the opposition proceedings but not admitted by the opposition division.

VI. Further submissions were filed by the appellant (including four new documents) and by the respondent (including a further experimental report).

VII. On 14 February 2014 the board dispatched a summons to oral proceedings, and a communication indicating the issues to be discussed at them.

VIII. Replies to the communication of the board were filed by both parties. The submission of the appellant of 22 August 2014 included two further auxiliary requests, namely auxiliary requests 0 and 9, a second amended page 5 as an auxiliary request for correction, and experimental results and further documents. The submissions of the respondent included the request not to admit auxiliary requests 0 and 9 into the appeal proceedings, a copy of the SEM control manual for the Hitachi S-800, and further experimental results.

IX. On 25 September 2014 first oral proceedings were held before the board. They began with a discussion of the issues concerning the request for correction of page 5 of the granted patent. The board decided that the requested corrections complied with Article 123(2) and (3) EPC.

Next, the compliance of claim 1 with Articles 83 and 84 EPC was discussed. Regarding Article 83 EPC, the discussion focused in particular on how "substantially no holes" in claim 1 was to be understood and whether paragraph [0046] of the specification defined the necessary parameters with sufficient precision. The board pointed out that the arguments of both parties relating to this issue appeared to be incomplete.

As the evaluation of the claim's compliance with Article 84 EPC and, associated therewith, Article 83 EPC depended directly on the outcome of the referral pending before the Enlarged Board of Appeal as case G 3/14, it was agreed to stay the proceedings until the referral had been decided.

X. In a letter of 8 May 2015, the respondent elaborated on its objections, in particular in relation to the invention's compliance with Article 83 EPC, and filed the following document:

D53: First declaration of Stephen Bennett dated 23 April 2015 (3 pages) including Annex A (1 page) and Annex B (4 pages).

XI. In a communication dated 23 June 2015, the board indicated the points to be discussed during the second oral proceedings.

XII. On 21 January 2016, second oral proceedings were held before the board in the absence of the appellant, which had informed the board by letter of 9 November 2015 that it would not be represented at them. In accordance with Rule 115(2) EPC the proceedings were continued without the appellant. During the oral proceedings the respondent withdrew its request that auxiliary

requests 0 and 9 not be admitted into the proceedings. It also agreed that there was no need to consider its requests for non-admission of the various documents. In the end, D53 was the only decisive document, the admissibility of which had never been contested.

XIII. The claims of the main request are the claims before the opposition division (see above point III).

Claim 1 of all auxiliary requests includes, like claim 1 of the main request, the feature that the phenolic foam has "substantially no holes in the cell walls".

XIV. The arguments of the appellant, insofar as they are relevant for the present decision, may be summarised as follows:

- The corrections of the published patent were based on the corresponding passages in the Japanese-language PCT application and fulfilled the requirements of Article 123(2) and (3) EPC. The skilled person interpreting the feature "substantially no holes in the cell walls" in granted claim 1 would refer to paragraphs [0027] and [0046] of the specification. The correction in paragraph [0027] did not change the subject-matter of the above feature in claim 1 because the terms "depression" and "hole" had the same meaning in the patent.

- With the instructions in paragraph [0046] of the patent the skilled person could determine a value for the number of holes in the cell walls and determine whether or not a foam was covered by the claim. The patent clearly instructed the skilled

person to use an SEM micrograph at 5000 times magnification, prepared using a Hitachi S-800; the outer boundaries of the observed area were then fixed and defined by the boundaries of the micrograph.

XV. The relevant arguments of the respondent may be summarised as follows:

- The requested correction of the specification extended the protection conferred, contrary to Article 123(3) EPC, the reason being that while the granted patent was restricted to foams that had no holes in any of the walls that defined or divided the cells making up the foam, the amendment made to paragraph [0027] would now encompass foams with holes in the walls that divided the cells. The amendment resulted further in the claims failing to comply with Articles 83 and 84 EPC.

- Concerning Article 83 EPC, it was impossible with the instructions in paragraph [0046] of the patent to put the invention into practice, in particular because the boundaries of a micrograph prepared with a Hitachi S-800 scanning electron microscope were not fixed. In the declaration D53 it was shown that crucial information, namely the field of view to be included in the micrograph, was missing and that this information did not form part of a skilled person's common general knowledge.

XVI. The appellant requested that the decision under appeal be set aside and that the patent be granted on the basis of the claims of either the main request or of

any of auxiliary requests 0, 1, 1a, or 2 to 9. The main request and auxiliary requests 1, 1a, and 2 to 8 were filed with the statement setting out the grounds of appeal dated 2 May 2012. Auxiliary requests 0 and 9 were filed with letter dated 22 August 2014.

The appellant further requested two corrections in paragraphs [0027] and [0035] of the granted patent.

XVII. The respondent requested that the appeal be dismissed.

Reasons for the Decision

1. Correction/amendment of the granted patent

1.1 With its statement of grounds of appeal the appellant requested two corrections in paragraphs [0027] and [0035] of the patent specification which, in the appellant's own words, "account for translation errors from the Japanese language text of the basic PCT application".

1.2 The first correction requested by the appellant is the only one relevant to this decision, because it concerns the key issue in the present case, namely the interpretation of the feature "substantially no holes in the cell walls" in claim 1 of all requests. This first correction replaces the definition in paragraph [0027] of the granted patent (and, presumably, in the same place in the original translation as filed):

"The language "substantially no holes nor depressions in the cell wall" means that the cell wall cut surface has 10 or less, preferably 5 or less, holes or

depressions per cell wall cut surface under electron microscopic observation."

by the definition:

"The language "substantially no holes ~~nor depressions~~ in the cell wall**s**" means that the cell wall cut surface has 10 or less, preferably 5 or less, holes or depressions per cell wall cut surface under electron microscopic observation." (deletion struck through and addition bold/underlined).

1.3 In the first oral proceedings before the board it was established that it is Article 14(2) EPC 1973 that is to be applied in the present appeal proceedings and not the corresponding article of the EPC 2000.

Article 14(2) EPC 1973 relates to the languages in which European patent applications have to be filed. It allows natural or legal persons having their residence or principal place of business within the territory of a contracting state having a language other than English, French or German as an official language to file European patent applications in an official language of that state. Nevertheless, a translation in one of the official languages of the European Patent Office must be filed. The last sentence of Article 14(2) EPC 1973 concludes with the statement that "such a translation may be brought into conformity with the original text of the application".

1.4 In the present case, the international patent application PCT/JP1999/003567 was filed in Japanese at the Japanese Patent Office by an applicant having its place of business in Japan. As stated in T 0700/05 (point 4.1.1 of the reasons), Article 14(2) EPC 1973

must be applied by analogy to allow also the translation into English of an original PCT application filed in Japanese (as in the present case) to be brought into conformity with the original Japanese text of the application at any time during the proceedings before the European Patent Office, i.e. also including opposition and appeal proceedings.

1.5 In the light of the two declarations filed by the appellant, the board accepts that the requested correction reflects the text of the Japanese-language original application. Nor did the respondent object to the accuracy of the new translation provided by the appellant. Thus, the application as filed could be corrected in accordance with Article 14(2) EPC 1973.

1.6 Nevertheless, as set out in T 0700/05 (point 5 of the reasons), the post-grant change in the patent amounts to an amendment of the text of the patent as granted, even where the change is justified as a correction necessary to bring the text into conformity with the originally filed Japanese text. Thus, the amendment(s) need to be checked for conformity with Articles 84, 123(2) and (3) EPC.

1.7 In the first oral proceedings of 25 September 2014, the board decided that the above corrections complied with Article 123(2) and (3) EPC. Whilst there was agreement that the amendment in paragraph [0035] did not give rise to issues in this respect, the respondent argued that the amendment in paragraph [0027] led to a shift of the meaning of claim 1 with regard to the interpretation of the feature "substantially no holes in the cell walls". However, the board concluded that a person skilled in the art would interpret the relevant

feature of claim 1 after the correction/amendment of paragraph [0027] in the same way as before.

1.8 For the same reasons as given in relation to Article 123(3) EPC, no new clarity objection can arise out of the amendment.

MAIN REQUEST

2. New evidence

2.1 Over 30 documents and/or experimental reports were filed by the parties after the nine-month opposition period. The admission into the proceedings of the new evidence filed by one party was in most cases contested by the other. On some of the documents the board has even decided in the first oral proceedings (see minutes).

2.2 There is, however, no need to consider the requests for admission or non-admission of the various documents. As set out below, the only document relied on by the board in this decision is D53. Its admissibility has not been contested by the appellant and the board saw no reason not to admit the document into the proceedings.

3. Sufficiency of disclosure

3.1 The subject-matter of claim 1 is directed to a phenolic foam having a density of 10 kg/m^3 to 100 kg/m^3 and containing a hydrocarbon, which is essentially characterised by parameters, namely by its average cell diameter, by its void area ratio and by having substantially no holes in the cell walls.

Claim 1 itself does not give any indication of how this last parameter ("substantially no holes in the cell walls") is to be measured or established. However, the patent specification as amended explains in paragraph [0027] that the language "substantially no holes in the cell walls" means that the cell wall cut surface has 10 or less, preferably 5 or less, holes or depressions per cell wall cut surface under electron microscopic observation.

3.2 A key issue to be answered in relation to sufficiency of disclosure in the present case is whether or not the skilled person is taught by this information in the patent, supplemented by his common general knowledge, how to determine if a given foam fulfils this feature or not.

3.3 The method for the measurement of holes or depressions in the cell walls is described in paragraph [0046] of the specification, where it is stated that:

"A specimen of about 2 to 3 mm in thickness and about 1 cm^2 in area was cut with a trimming cutter out of a cut surface of a foam, the cut surface being in approximately the middle in the thickness direction of the foam and parallel with the front and back sides of the foam. The specimen was fixed on a mount, and gold was sputtered thereon (15 mA, 3 mins). A micrograph was taken of the cell wall cut surface under a scanning electron microscope (Hitachi S-800) at a magnification of 5000 times and observed. Ten cut surfaces were observed, and the counts of holes or depressions were averaged for making a judgement."

The "cell wall cut surface" referred to therein is defined in paragraph [0026] as the cross section of the resin part of the foam surrounded by three cells.

3.4 The respondent has always argued that the above method of measurement cannot be carried out by the skilled person in a meaningful and reliable way, because necessary information is missing. In order to support its argument, the respondent filed a declaration from Stephen Bennett, D53.

3.4.1 In paragraph 5 of his declaration, Mr Bennett states:

"If it is not possible to repeatedly reproduce micrographs with the same field of view (FOV) on a foam sample (showing portions each with the same dimensions on the sample) on the basis of this information [this being the information provided in the patent], it would be impossible to tell how many holes or depressions each cell wall cut surface contains. As a consequence, it would also be impossible to know whether or not a foam has substantially no holes in its cell walls."

3.4.2 The patent's reference to the resin part of the foam surrounded by three cells is not sufficient for this purpose, because it does not specify how much of this part should be included in the micrograph (see paragraph 6 of the declaration).

3.4.3 Further, the requirement that the micrograph be taken with an S-800 SEM at a magnification of 5000 times is also not sufficient because the magnification value cannot be relied on as an accurate indicator of the actual dimensions of the FOV. As explained by Mr Bennett in paragraphs 9 and 10, there are many reasons for this. In particular, the FOV visible in the final

micrograph would depend upon the format (size) of the film or digital capture device used in the camera, and the degree to which the image is cropped or enlarged after capture. The diagram set out in Annex A to D53 illustrates this effect, showing that, depending on the film format used, there are 9, 16 or 19 holes or depressions visible on the same sample.

3.4.4 Mr Bennett concludes that the FOV, or area, on a sample visible in a micrograph taken with an S-800 (or any other scanning electron microscope) is not dependent upon just the magnification setting used, and that other variables have a significant influence upon it (paragraph 11). It is therefore impossible to repeatedly reproduce micrographs with the same field of view on a foam sample (showing portions each with the same dimensions on the sample) from a magnification setting on an S-800 alone (paragraph 12).

3.5 The board has no reason to doubt the statements and conclusions of Mr Bennett. In fact, they address concerns the board raised during the first oral proceedings in relation to sufficiency of disclosure. The appellant has not argued, let alone provided any evidence, that the person skilled in the art would know how to supplement the missing information, for example on the basis of the common general knowledge at the filing date of the opposed patent. Nor has it provided any counter-argument to declaration D53 in order to show that the holes in the cell walls can indeed be measured on the basis of the information in the patent.

3.6 In view of the above, there can be no doubt that the claim contains an ill-defined ("unclear", "ambiguous") parameter. As set out in T 593/09 (point 4, in particular point 4.1.4 of the reasons), such an unclear

definition within the meaning of Article 84 EPC may give rise to an objection under Article 83 EPC. What is then decisive is whether the parameter, in the specific case, is so ill-defined that the skilled person is not able to identify (without undue burden) the technical measures to be taken to solve the problem underlying the patent at issue.

3.7 The patent aims at the provision of a phenolic foam which has low thermal conductivity despite the use of a hydrocarbon-containing blowing agent and has excellent mechanical strength and reduced brittleness (paragraph [0012]). According to paragraph [0028] of the specification the existence of the holes or depressions in the cell walls constitutes one of the main causes of reduced mechanical strength and increased brittleness. A person skilled in the art trying to carry out the invention would have to find out by himself the actual relation between holes in the cell walls and the promised technical effect. The appellant has submitted nothing which would suggest that this task could be carried out without undue burden. Thus, the patent is at most a suggestion to perform a research programme to identify improved phenolic foams.

3.8 One could argue, in favour of the appellant, that the invention is sufficiently disclosed for foams having no holes at all in the cell walls. However, as pointed out by the respondent during the second oral proceedings, this appears to be a rather hypothetical possibility. First of all, for such an embodiment, if it can be produced at all, it is virtually impossible to prove the "negative" result (i.e. no holes) with the above-mentioned unreliable method of measurement. Secondly, this would mean that the invention is sufficiently disclosed at most for one embodiment at the edge of the

claim, but certainly not across the whole scope of the claim. In fact, the ambiguity relating to the ill-defined parameter still deprives the skilled person of the promise of the invention over virtually the entire scope of the claim.

3.9 Consequently, the claimed invention is not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. Therefore the main request is not allowable.

AUXILIARY REQUESTS 0, 1, 1a AND 2 TO 9

4. Sufficiency of disclosure

4.1 Claim 1 of all auxiliary requests is directed to phenolic foams, or to processes for producing such phenolic foams, having in all cases "substantially no holes in the cell walls".

4.2 Thus, the subject-matter of all auxiliary requests suffers from the same insufficiency of disclosure as the main request, and these requests are likewise not allowable.

5. In summary, none of the appellant's requests is allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

M. Cañueto Carbajo W. Sieber

Decision electronically authenticated