Internal distribution code:

(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 19 January 2015

Case Number: T 2090/12 - 3.3.05

Application Number: 04025972.3

Publication Number: 1508358

IPC: B01D46/24, B01D39/20

Language of the proceedings: EN

Title of invention:
Honeycomb filter and ceramic filter assembly

Patent Proprietor:
IBIDEN CO., LTD.

Opponents:
Saint-Gobain Centre de Recherches et d'Etudes Européen
THE DOW CHEMICAL COMPANY

Headword:
Surface area/IBIDEN

Relevant legal provisions:
RPBA Art. 13(1), 13(3)
EPC Art. 83, 100(b)

Keyword:
Late-filed evidence - admitted (yes)
Sufficiency of disclosure - lack of guidance
Sufficiency of disclosure - all requests (no)

Decisions cited:
T 0435/91, T 0409/91, T 0575/05, T 0817/11

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern
Boards of Appeal
Chambres de recours

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Opponent

Case Number: T 2090/12 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 19 January 2015

Appellant: (Patent Proprietor)	IBIDEN CO., LTD. 1, Kanda-cho 2-chome Ogaki-shi, Gifu-ken 503-8604 (JP)
Representative:	Hager, Thomas Johannes Hoefer & Partner Patentanwälte Pilgersheimer Strasse 20 81543 München (DE)
Respondent: (Opponent 1)	Saint-Gobain Centre de Recherches et d'Etudes Européen 18 Avenue d'Alsace 92400 Courbevoie (FR) Opposition withdrawn
Representative:	Teyssedre, Laurent Saint-Gobain Recherche Département Propriété Industrielle 39 Quai Lucien Lefranc 93300 Aubervilliers Cedex (FR)
Respondent: (Opponent 2)	THE DOW CHEMICAL COMPANY 2030 Abbott Road Dow Center Midland, Michigan 48640 (US)
Representative:	Beck Greener Fulwood House 12 Fulwood Place London WC1V 6HR (GB)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 12 July 2012**

revoking European patent No. 1508358 pursuant to Article 101(3)(b) EPC.

Composition of the Board:

Chairman G. Raths
Members: A. Haderlein
M. Blasi

Summary of Facts and Submissions

I. The present appeal lies from the decision of the opposition division to revoke European patent No. EP 1 508 358. The patent in suit concerns a honeycomb filter and ceramic filter assembly.

II. The opposition division found that none of the main and the auxiliary requests 1 to 4 of the patent proprietor complied with the requirement of sufficiency of disclosure.

III. In the course of the proceedings before the opposition division, the following document was filed by the patent proprietor:

D15: International Standard ISO 8213.

IV. Opponent 1 had withdrawn its opposition during the proceedings before the first instance.

V. The proprietor of the patent (appellant) filed an appeal against the decision of the opposition division.

VI. In its reply to the statement of grounds of appeal, opponent 2 (respondent) requested the dismissal of the appeal.

VII. In a communication, the board conveyed its preliminary opinion to the parties.

VIII. The appellant made further submissions by its letter dated 19 December 2014 submitting the following documents:

E1: sample preparation

E1': English translation of E1

IX. Oral proceedings were held on 19 January 2015 in the presence of the appellant and in the absence of the respondent who had informed the board that it would not attend the oral proceedings.

X. Claim 1 of the main request and of the auxiliary requests reads as follows (amendments to the main request underlined):

Main request and auxiliary requests 1 and 2

"1. An integral honeycomb filter assembly (9, 21, 49, 521) comprising a plurality of cells (12) defined by cell walls (13) for purifying fluid including particulates, said assembly comprises a plurality of honeycomb filters (F1, F100, 59, 523) each comprising said plurality of cells defined by cell walls, and a ceramic seal layer (15, 522) that adheres said plurality of honeycomb filters to one another through the outer surfaces thereof, characterized in that the specific surface area of the cell wall ranges from 0.1 to 1.0m^2/g."

Auxiliary request 3

"1. An integral honeycomb filter assembly (9, 21, 49, 521) comprising a plurality of cells (12) defined by cell walls (13) for purifying fluid including particulates, said assembly comprises a plurality of honeycomb filters (F1, F100, 59, 523) each comprising said plurality of cells defined by cell walls, and a ceramic seal layer (15, 522) that adheres said plurality of honeycomb filters to one another through the outer surfaces thereof, the cell wall being made of

sintered silicon carbide characterized in that the specific surface area of the cell wall ranges from 0.1 to 1.0m^2/g."

Auxiliary request 4

"1. An integral honeycomb filter assembly (9, 21, 49, 521) comprising a plurality of cells (12) defined by cell walls (13) for purifying fluid including particulates, said assembly comprises a plurality of honeycomb filters (F1, F100, 59, 523) each comprising said plurality of cells defined by cell walls, and a ceramic seal layer (15, 522) that adheres said plurality of honeycomb filters to one another through the outer surfaces thereof, the cell wall being made of sintered silicon carbide characterized in that the specific surface area of the particles forming the cell wall ranges from 0.1 to 1.0m^2/g."

XI. The relevant arguments of the appellant are summarised as follows:

The feature "the specific surface area of the cell wall" was to be construed to mean "specific surface area of grains/particles forming the cell wall"; the features "specific surface of grains forming the cell walls", "specific surface area of particles forming the cell walls" and "specific surface area of the cell walls" were synonyms in the patent in suit. This interpretation was supported in particular by paragraph [0174] of the application as published.

Moreover, it was obvious that the terms "particles" or "grains" related to the state of the cell walls after sintering, since only during sintering of the ceramic

material did the formation and growth of grains take place.

Thus, it was clear to the skilled person that the expression referred to the specific surface area of particles/grains which are obtained by grinding a sample of the cell wall.

The skilled person would know that the preferred method for grinding was milling. The test results shown in E1 indicated that the specific surface area of the ceramic sintered bodies did not change substantially with the milling time. Therefore, the skilled person could easily check the specific surface area of ceramic sintered bodies and could verify whether a ceramic sintered body fell within the scope of the claims or not. The test results provided in E1 showed that usual equipment available on the market enabled him to arrive at values falling within the claimed range.

XII. The relevant arguments of the respondent are summarised as follows:

Admissibility of the documents filed by the appellant

The experimental data submitted with the appellant's letter dated 19 December 2014 should not be admitted into the proceedings since they had been filed after the statement setting out the grounds of appeal and no grounds had been put forward as to why these documents could not have been submitted earlier. The experimental data had also been filed too late for the respondent to be able to repeat and verify them. Also, the data were incomplete and ambiguous.

Sufficiency of disclosure

There was no reason to suppose that the feature "the specific surface area of the cell wall" was not intended to refer to measurements carried out on the cell wall, i.e. on the sintered ceramic body itself, and not on particles/grains obtained after grinding a sample of the cell wall. The skilled person trying to measure the specific surface area on the cell wall itself would not know which method to use in order to do so.

Even if the skilled person knew that the feature "specific surface area of the cell wall" related to the particles obtained after grinding a sample of the cell wall, there was a lack of sufficiency of disclosure. This grinding method was not specified in the patent in suit, and nor was the method to be used to measure the specific surface area of the particles obtained after grinding.

The experimental data provided by the appellant were not conclusive since, in particular, the specific surface area decreased in the first 30 minutes, which was not plausible. It also decreased after 180 minutes of milling for sample A whereas it increased for sample B.

XIII. The appellant requested that the decision under appeal be set aside and that the European patent be maintained in amended form on the basis of the claims of the main request or, alternatively, on the basis of the claims of one of the auxiliary requests 1 to 4 on which the impugned decision was based.

The respondent requested that the appeal be dismissed.

Reasons for the Decision

1. Admittance of E1 and E1'

1.1 The evidence E1 and its translation E1' were filed on 19 December 2014, i.e. after the oral proceedings had been arranged. Hence, it was within the discretion of the board whether to admit them into the proceedings (Article 13(1) and (3) RPBA).

1.2 E1 and E1' were filed in reaction to the preliminary opinion set out in the communication in which the board expressed its concerns with regard to sufficiency of disclosure.

1.3 For the above reasons, and because the amendments to the appellant's case did not raise issues which the board or respondent could not reasonably be expected to deal with without adjournment of the oral proceedings, the board exercised its discretionary power under Article 13(1) and (3) RPBA and admitted documents E1 and E1' into the proceedings.

2. Sufficiency of disclosure - all requests

2.1 Statutory law and jurisprudence of the boards of appeal

2.1.1 A European patent must disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Articles 83 and 100(b) EPC).

2.1.2 According to the established jurisprudence of the boards of appeal, the requirement of sufficiency of disclosure is met only if the invention as defined in

the independent claim can be performed by the person skilled in the art within the whole area claimed without the burden of an undue amount of experimentation, taking into consideration common general knowledge and the whole information content of the patent in suit (see also T 435/91, OJ 1995, 188, Reasons 2.2.1, third paragraph; T 409/91, OJ 1994, 653, Reasons 2, first paragraph, penultimate sentence).

2.1.3 The requirement of sufficiency of disclosure is not met in particular if the patent lacks guidance and this lack of guidance cannot be overcome drawing on common general knowledge (cf. also T 575/05, Reasons 1, fourth and fifth paragraphs; T 817/11, Reasons 2.3 to 2.6).

2.2 Lack of guidance in the present case

2.2.1 According to the appellant the features "specific surface area of the cell wall" (main request and auxiliary requests 1 to 3) and "the specific surface area of the particles forming the cell wall" (auxiliary request 4) all related to the grains in the state after the formation of the cell walls and thus after sintering, since only during sintering of the ceramic material were grains formed and grown. Thus, it was clear to the skilled person that the expression referred to the specific surface area of grains obtained by grinding a sample of the cell wall.

2.2.2 According to the respondent, even if the skilled person knew that the feature "specific surface area of the cell wall" related to the particles obtained after grinding a sample of the cell wall, there was a lack of sufficiency of disclosure. This grinding method was not specified in the patent in suit, and nor was the method to be used to measure the specific surface area of the

particles obtained after grinding.

2.2.3 The board, in favour of the appellant, construes the features "specific surface area of the cell wall" (main request and auxiliary requests 1 to 3) and "the specific surface area of the particles forming the cell wall" (auxiliary request 4) to refer to the grains forming the cell wall in the state after sintering (cf. paragraphs [0023], [0123], [0124], and [0127] of the patent in suit).

However, the board cannot identify any passage in the patent in suit that would support the appellant's view that the skilled person would know that, for the purpose of measuring the specific surface area of those grains, a sample of the cell wall needed to be ground. What is more, there is no information in the patent in suit concerning
(i) the grinding method to be used and
(ii) the method for determining the surface area of the particles obtained after grinding.

2.2.4 The board thus concludes that there is a lack of guidance regarding the method to be applied in order to determine the specific surface area of the grains forming the cell wall in the state after sintering.

2.3 Drawing on common general knowledge

2.3.1 The question that arises is whether this lack of guidance could be overcome by drawing on common general knowledge.

In support of its contention that the skilled person would know which grinding method was to be applied, the appellant referred to ISO standard 8213 (document D15)

and to test report E1.

2.3.2 Document D15

D15 refers to a number of possible grinding/crushing techniques (see sections 4.2 to 4.2.1.5). As is known to the skilled person, the particle size (distribution) and hence the specific surface area are highly dependent on the type of grinding/crushing technique applied. Consequently, even assuming that the skilled person would have consulted D15 he would have been at a loss as to the type of grinding/crushing technique to be applied.

2.3.3 Test report E1

In E1 (page 5, section 3.1 to page 6, section 3.2 of E1'), milling using an agate mortar is repeated "until the powder for which measurement of specific surface area was possible was achieved". This type of milling is carried out three times before a milling is carried out for a specific time using 18 g of sample, 500g of ball stone of 5 mm diameter made of zirconia and 100 ml of ethanol.

Specific surface area vs milling time						
Milling time (minutes)	Sintered body particle A			Sintered body particle B		
	Total surface area (m^2)	Sample weight (g)	Specific surface area (m^2/g)	Total surface area (m^2)	Sample weight (g)	Specific surface area (m^2/g)
0	1.01	1.447	0.6999	1.20	1.774	0.676
30	0.65	1.442	0.449	0.89	1.365	0.652
180	0.73	1.315	0.559	0.86	1.007	0.859

As can be seen from the above table (see page 7 of E1'), the specific surface area for sintered body particles A decreases with time from 0.699 at t=0 minutes to 0.449 m^2/g at t=30 minutes and increases

again to 0.559 at t=180 minutes, i.e. a value below the initial value. The skilled person would expect the specific surface area to increase with time, since continued milling would normally result in smaller particles with a higher specific surface area.

For the board, it is not at all plausible that the specific surface area decreases with time during milling. Asked by the board at the oral proceedings, the appellant could not explain the data and referred to possible agglomeration phenomena occurring during milling. For the board, there is no indication whatsoever that the milling using a ball mill in E1 would lead to agglomeration rather than to disintegration of the particles.

Considering the data for sintered body particles B contained in the above table, the board observes that the specific surface area again decreases from 0.676 m^2/g at the beginning to 0.652 at t=30 minutes, but then increases to 0.859 m^2/g at t=180 minutes.

In the case of both sintered body particles A and sintered body particles B, the specific surface area changes significantly over time. It follows that the appellant's contention that "the specific surface area of the ceramic sintered bodies does not change substantially with the milling time" is not supported by the facts as evidenced by E1.

2.3.4 As a consequence, it is not possible to conclude from either E1 or D15 that the measured surface area does not depend on the grinding method used, and in particular on the duration of the grinding.

2.3.5 According to the appellant, the skilled person could verify whether or not a ceramic sintered body fell within the scope of the claims. The test results provided in E1 showed that usual equipment available on the market enabled the skilled person to arrive at values falling within the claimed range.

The board is not convinced by this argument. There is no evidence that would support the view that common general knowledge would prompt the skilled person to determine the specific surface area of the particles forming the cell wall according to the method set out in E1. Many other ways of milling/grinding, including different types of ball mills, different kinds of ball stones, different milling times and so forth, are conceivable for the skilled person. Obviously, not all of these different conceivable milling/grinding techniques would lead, for the same sample, to a specific surface area within the range claimed. It is therefore also not sufficient to show that a specific grinding and milling method leads to values within the range claimed.

2.3.6 The board thus concludes that the the skilled person cannot overcome the lack of guidance identified at 2.2.4 *supra* by drawing on common general knowledge.

2.4 It follows that the requirement of sufficiency of disclosure is not met for the main request or any of the auxiliary requests (Articles 83 and 100(b) EPC).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

C. Vodz G. Raths

Decision electronically authenticated