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Datasheet for the decision of 8 January 2019

Case Number: T 0917/15 - 3.4.02

Application Number: 06843323.4

Publication Number: 2031378

IPC: G01N21/894, G01N15/08

Language of the proceedings: EN

Title of invention:
METHOD OF DETECTING POROUS MATERIAL DEFECT

Applicant:
NGK Insulators, Ltd.

Headword:

Relevant legal provisions:
EPC 1973 Art. 84

Keyword:
Claims - clarity (no)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
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Beschwerdekammern

Boards of Appeal

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Case Number: T 0917/15 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 8 January 2019

Appellant: (Applicant)	NGK Insulators, Ltd. 2-56, Suda-cho, Mizuho-ku Nagoya-shi, Aichi 467-8530 (JP)
Representative:	Mewburn Ellis LLP City Tower 40 Basinghall Street London EC2V 5DE (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 12 December 2014 refusing European patent application No. 06843323.4 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	R. Bekkering
Members:	C. Kallinger
	B. Müller

Summary of Facts and Submissions

I. The applicant lodged an appeal against the decision of the examining division refusing European patent application No. 06 843 323.4.

II. In its decision the examining division cited *inter alia* the following documents:

D1: JP 6-134 268 A
D2: H. Nierdig: "Optik - Wellen- und Teilchenoptik", 2004, Walter de Gruyter, Berlin - New York, pages 423 to 424
D4: JP 2002-357562 A

and held that claim 1 of the main request was not allowable. In particular, the examining division found that

- claim 1 contained added subject-matter (Article 123(2) EPC),
- claim 1 lacked clarity (Article 84 EPC),
- the subject-matter of claim 1 did not involve an inventive step (Article 56 EPC) in view of documents D1 or D4 combined with the skilled person's knowledge as documented by document D2.

III. In a communication annexed to a summons to oral proceedings the board presented its preliminary assessment of the applicant's case on appeal, in particular with respect to clarity and inventive step.

IV. In reply to the summons to oral proceedings, the applicant, with its letter dated 5 December 2018, submitted further arguments supporting clarity and the presence of an inventive step.

V. Oral proceedings before the board were held on 8 January 2019. During the oral proceedings the applicant submitted an amended set of claims according to an auxiliary request.
As final requests, the appellant requested that the decision under appeal be set aside and that a patent be granted
- on the basis of claims 1 to 7 of the main request filed with the statement of grounds of appeal dated 7 April 2015 or
- on the basis of claims 1 to 4 of the first auxiliary request filed during the oral proceedings of 8 January 2019.

At the end of the oral proceedings the chairman announced the decision of the board.

VI. Claim 1 of the main request reads as follows:

"1. A method of detecting a defect in a porous body (1), the porous body having one end face (44) and another end face (42), the method comprising introducing fine particles into the porous body through said one end face, applying a differential pressure between said one end face and said other end face and applying a planar light beam (13) to fine particles (12) discharged from said other end face of the porous body, and detecting the contrasting density of scattered light caused by the fine particles to specify the position of a defect,
characterized in that
the contrasting density of the scattered light being detected at a position facing the light beam such that when a light source that emits the light beam is defined as an origin, a straight line that extends from

the origin toward the detection position (16) of the scattered light is defined as l_2 , and the angle formed by the plane formed by the light beam and the straight line l_2 is defined as θ_2, the contrasting density of the scattered light is detected at a detection position at which the angle θ_2 is 10 to 80°,
and when a position in a plane formed by the light beam corresponding to a center (C1) of said other end face of the porous body through which the fine particles are discharged is defined as a center point (C2), center point (C2) being in register with the center (C1) of said other end face of the porous body, a straight line that extends from the origin toward the center point is defined as l_1, a straight line that extends from the origin toward the detection position (16) of the scattered light is defined as l_2, and the angle formed by the straight line l_1 and the straight line l_2 in the plane formed by the light beam is defined as θ_1, the contrasting density of the scattered light is detected at the detection position at which the angle θ_1 is 0 to 20°."

VII. Claim 1 of the auxiliary request reads as follows (the amendments with respect to claim 1 of the main request have been marked by underlining and strike-through):

"1. A method of detecting a defect in a porous body (1), the porous body having one end face (44) and another end face (42), the method comprising introducing fine particles into the porous body through said one end face, applying a differential pressure between said one end face and said other end face and applying a planar visible light beam (13) to fine particles (12) discharged from said other end face of the porous body, and detecting the contrasting density

of scattered light caused by the fine particles to specify the position of a defect,
characterized in that
the contrasting density of the scattered light being detected as an image using a camera or a naked eye at a position facing the light beam such that when a light source that emits the light beam is defined as an origin, a straight line that extends from the origin toward the detection position (16) of the scattered light is defined as l_2 , and the angle formed by the plane formed by the light beam and the straight line l_2 is defined as θ_2, the contrasting density of the scattered light is detected at a detection position at which the angle θ_2 is 20 to 30° ~~10 to 80°~~,
and when a position in a plane formed by the light beam corresponding to a center (C1) of said other end face of the porous body through which the fine particles are discharged is defined as a center point (C2), center point (C2) being in register with the center (C1) of said other end face of the porous body, a straight line that extends from the origin toward the center point is defined as l_1, a straight line that extends from the origin toward the detection position (16) of the scattered light is defined as l_2, and the angle formed by the straight line l_1 and the straight line l_2 in the plane formed by the light beam is defined as θ_1, the contrasting density of the scattered light is detected at the detection position at which the angle θ_1 is 0 to 20°."

Reasons for the Decision

1. Main request

1.1 Correction of the translation - Article 14(2) EPC

In comparison to the English translation of the original application (PCT application filed in Japanese language and published on 4 October 2007) (filed with entry into the European phase on 24 September 2008), the phrase *"light and shade of scattered light"* has been replaced by *"contrasting density of scattered light"* throughout claim 1 and in parts of the description.

The examining division argued that the term *"contrasting density"* was not clearly and unambiguously disclosed in the originally filed documents and thus did not fulfil the requirements of Article 123(2) EPC. The examining division argued further that the applicant had provided no evidence why *"contrasting density"* would be a better translation than *"light and shade"*.

The applicant argued, with reference to a "certification by the Japanese translator" filed with the statement setting out the grounds of appeal, that the replacement of the term *"light and shade"* of the scattered light by *"contrasting density"* of the scattered light, according to the provisions of Article 14 (2) EPC, only brought the translation of the original application into conformity with the original application and could thus not constitute a violation of Article 123(2) EPC.

According to Article 14(2), second sentence, EPC the applicant can bring the translation (i.e. in the present case the translation into English language, filed on 24 September 2008 with entry into the European phase) of the application into conformity with the application as filed (i.e. the PCT application published on 4 October 2007). Pursuant to Rule 7 EPC, in the absence of evidence to the contrary, the board assumes that the corrected translation filed under Article 14(2) EPC is in conformity with the original text of the application. The modifications in the claims and descriptions therefore do not constitute amendments in the sense of Article 123(2) EPC.

1.2 Clarity - Article 84 EPC 1973

Claim 1 of the main request is directed to a method of detecting a defect in a porous body, the method essentially comprising

- introducing fine particles into the porous body through a first end face by applying a differential pressure,
- applying a planar light beam to fine particles discharged from a second end face of the porous body, and
- detecting light scattered by the fine particles to specify the position of a defect.

Claim 1 requires that the *"contrasting density"* of scattered light is detected at the position defined by the two angles θ_1 and θ_2.

The board is of the opinion that the feature *"contrasting density"* is not clear.

The applicant argued that the meaning of the term *"contrasting density"* was clear in the context of the application, because the term "contrast" was clear in itself and the term "density" conveyed the information that the contrast was a "spatial contrast" caused by a varying density of scattering particles.

The board is not convinced by this argumentation because the term *"contrasting density"* neither has a generally recognized meaning in the field of optical sensors nor is it clear from the claim as a whole what is meant by it.

The description of the application, at several occasions (see e.g. paragraphs [0007], [0009], [0014], [0018], [0020], [0021], [0022], [0024] and [0037]), refers to the detection of the *"contrasting density"*, however without providing any further definition or explanation of the meaning of this term.

Furthermore, in the context of light detection, the term "contrast" relates to a difference in light properties. With claim 1 defining *"the contrasting density of the scattered light being detected at **a** [implying: single] position facing the light beam"*, it is not clear, how a difference in light properties can be detected at a single position, e.g. by way of a single photocell, which is encompassed by the subject-matter of claim 1.

The applicant's argument that the detection position was to be understood as the position where the detector, e.g. a camera or the human eye, was located, is not convincing, because claim 1 does not specify a detector.

In view of these considerations, the board concludes that claim 1 of the main request lacks clarity and, therefore, does not meet the requirements of Article 84 EPC 1973.

2. Auxiliary request

2.1 Admissibility - Article 13 RPBA

The applicant submitted an amended set of claims. The board exercised its discretion in admitting these amended claims into the proceedings according to Article 13 RPBA . These claims were intended to overcome the clarity objections and did not raise any new issues which the board would not have been able to deal with during the oral proceedings.

2.2 Disclosure - Article 123(2) EPC

The amendments in claim 1 (as marked in section VII. above) are based on the original application as follows:

- visible light beam: paragraph [0026], second sentence;
- an image using a camera or a naked eye : paragraph [0032], last two sentences;
- angle θ_2 is 20 to 30° : paragraph [0037].

The board is therefore satisfied that the requirements of Article 123(2) EPC are met.

2.3 Clarity - Article 84 EPC 1973

Claim 1 now further defines that the contrasting density of the scattered light is detected *"as an image using a camera or a naked eye"* at a position facing the light beam.

The applicant argued that the amendment clarified that the detection was not a detection at a single point but the taking of an image containing a contrast. Therefore the defined single position now clearly related to a detector position and the term *"contrasting density"* was now also clear.

The board agrees insofar as the detection of light is now clearly defined to be the taking of an image rather than a detection of light at a single point. Therefore the definition of "a [single] detection position" now clearly relates to the position of a detector. However, the board is of the opinion that the additional definition of an image being taken using a camera or a naked eye does not provide a clarification of the term *"contrasting density"*. Therefore, with respect to this term, the same arguments as those given in relation to the main request apply.

In view of these considerations, the board concludes that claim 1 of the auxiliary request lacks clarity and, therefore, does not meet the requirements of Article 84 EPC 1973.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

M. Kiehl R. Bekkering

Decision electronically authenticated