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**Datasheet for the decision
of 30 July 2007**

Case Number: T 0926/05 - 3.5.02

Application Number: 97900341.5

Publication Number: 0875087

IPC: H02G 15/064

Language of the proceedings: EN

Title of invention:
Electrical stress control

Patentee:
Tyco Electronics Raychem GmbH

Opponent:
ABB Schweiz AG
Nexans

Headword:
-

Relevant legal provisions:
EPC Art. 54

Keyword:
"Novelty (no)"

Decisions cited:
-

Catchword:
-



Case Number: T 0926/05 - 3.5.02

D E C I S I O N
of the Technical Board of Appeal 3.5.02
of 30 July 2007

Appellant: Tyco Electronics Raychem GmbH
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 23 May 2005
revoking European patent No. 0875087 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: M. Ruggiu
Members: J.-M. Cannard
P. Mühlens

Summary of Facts and Submissions

I. The proprietor appealed against the decision of the opposition division revoking European patent No. 0 875 087. The reasons for the revocation were that claim 1 of the patent as granted lacked novelty with respect to document:

O1: thesis by Mr Ahmed Toufali.

II. The documents:

D11: US-A-4 639 217, and

D12: microphotographs of particles of zinc oxide powder,

were filed for the first time by the appellant with the statement of grounds of appeal, while the documents:

D10: comparative measurements, and

D13: declaration by Mr A. Toufali,

were filed for the first time by the respondents with respective letters both dated 8 June 2007.

III. Independent claim 1 of the patent in suit as granted reads as follows:

"An electrical stress-controlling composition, comprising:

(a) a polymeric matrix, and

(b) a particulate filler comprising doped zinc oxide varistor powder;

characterised in that

(i) the particles of the filler are calcined at a temperature between 800°C and 1400°C, and subsequently broken up such that substantially all of the particles retain their original shape,

(ii) at least 85% of the weight of the filler comprises zinc oxide,

(iii) more than 50% by weight of the filler particles have a maximum dimension of between 5 and 100 micrometres, such that the composition exhibits non-linear electrical behaviour whereby its specific impedance decreases by at least a factor of 10 when the electric field is increased by less than 5kV/cm at a region within an electrical field range of 5kV/cm to 50kV/cm, and

(iv) the filler comprises between 5% and 60% of the volume of the total composition."

IV. In the statement of grounds of appeal, the appellant proprietor requested that the decision under appeal be set aside and the patent be confirmed with the claims as originally granted. The appellant requested the opportunity to be heard in oral proceedings if the Board was minded not to accept its arguments. After summons to oral proceedings had been issued, the appellant informed the Board by letter dated 27 March 2007 that it had

decided not to be represented at the oral proceedings and requested that the case be decided upon the arguments already provided.

- V. The respondents (opponents) requested in their respective letters dated 8 June 2007 that the procedure be continued in writing in order to avoid additional costs, if the case was to be decided in favour of the opponents and the decision of the opposition division confirmed.
- VI. The oral proceedings were then cancelled by the Board.
- VII. The written arguments of the appellant proprietor can be summarised as follows:

The particulate filler produced by the method specified in feature (b)(i) of claim 1 of the patent in suit was inherently different from the filler produced by the method disclosed in document O1. The particles specified in feature (b)(i) were calcined at a high temperature under gravity and without any compression, as this appeared from the specification of the patent. Particles calcined under gravity and without compression were understood in the relevant art as particles produced in a rotary kiln of the type shown in document D11. The particles disclosed in document O1 could not be regarded as calcined under gravity and without any compression because they were provided in a static kiln in a crucible in the form of a heap and the particles at the bottom of the heap were subject to pressure from the ones higher up.

Claim 1 specified that substantially all the filler particles calcined and broken up retained their original shape, which, according to the patent specification, was spherical. The particles prepared in accordance with the invention had a more uniform spherical structure than the particles derived from grinding after calcination other than "under gravity", as appeared from the microphotographs of document D12. The particles of the invention, because they were produced in a different manner, had a significantly more uniform spherical structure. Thus the claimed composition was novel and involved an inventive step.

VIII. The written arguments of the respondents (opponents) can be summarised as follows:

The process feature (b)(i) could not be considered as a limiting feature of the composition set out in claim 1 because it could have been defined by a product feature, for instance the shape of the particles of the filler. The particles defined in claim 1, which according to the description of the patent had a generically spherical shape, could not be distinguished in this respect from the particles obtained with the first process of O1, as appeared from the declaration by Mr A. Toufali in document D13. The non-linear behaviours of the composition according to claim 1 and of the prior art composition disclosed in document O1 were identical. Because all the product features set out in claim 1 were disclosed in O1, the claimed composition was not novel and it was not necessary to determine whether or not the process feature (b)(i) was disclosed in O1.

The calcination process of claim 1 was nothing else than heating the powder without the prior formation of a compressed block, which did not differ from the first process disclosed in O1. No other meaning could be given to the term "high temperature heating under gravity without any compression". This was confirmed by the fact that, in the only embodiment given in the description of the patent, "the powder was calcined in a kiln" as in the first process of O1. The process feature (b)(i) of claim 1 was so broad that it covered the calcination process described in O1.

In the rotary kiln of document D11, the calcination was performed under and against gravity. It was possible to obtain generically spherical particles in any kind of kiln as this appeared from the patent specification and from the calcination in the kiln of O1 which led to the same result, as shown in the comparative measurements of document D10.

Reasons for the Decision

1. The appeal is admissible.
2. The considerations of the appealed decision, according to which document O1 (thesis by Mr A. Toufali) has been made available to the public before the priority date of the patent in suit and discloses an electrical stress-controlling composition comprising the features (a), (b)(ii), (b)(iii) and (b)(iv) recited in claim 1 of the patent in suit as granted, were not disputed by the appellant in the course of the appeal proceedings. Thus, the only remaining issue to decide is whether feature

(b)(i) of granted claim 1, according to which "the particles of the filler are calcined at a temperature between 800°C and 1400°C, and subsequently broken up such that substantially all of the particles retain their original shape", is disclosed or not in O1.

3. In feature (b)(i), the claimed composition is defined by reference to a process for producing the particles of the filler which comprises two steps for obtaining particles of a given shape. According to the Case Law of the Boards of Appeal of the European Patent Office" (5th edition 2006, I.C.3.2.7, page 87), process features comprised in a product claim, when they are the only features distinguishing the invention from the prior art, could establish the novelty of the claimed product only if they caused it to have different properties from the products previously described. In the present case, the process feature (b)(i) cannot establish the novelty of the claimed composition because it can be distinguished neither from the first process for producing the particles disclosed in O1, nor by the shape of these particles.

- 3.1 It is true, that paragraph [0011] of the patent in suit (column 3, lines 41 to 44) states that "calcination of the present invention is a high temperature heating under gravity without any compression". The calcination process defined in feature (b)(i) is however not restricted to a calcination performed "under gravity without any compression", but merely requires that the particles of the filler are calcined at a temperature between 800°C and 1400°C before being broken up, in accordance with the aspect of the invention specified in paragraph [0010] of the patent description. The non-

linear stress controlling composition of the invention, according to the only embodiment exemplified in the description of the patent specification (column 8, line 53 to column 9, line 25), comprises a powder which is calcined in a kiln at a temperature of about 1100°C (paragraph [0041]). There is no indication there of what should be understood by "calcined under gravity without any compression". Nor does the patent state that the kiln used for calcining the particles is restricted to a rotary kiln in which, according to the appellant, the particles would be regarded in the art "as falling under gravity". The Board therefore finds no reason in the patent in suit, and in particular not in its description, for construing the calcination process specified in feature (b)(i) of claim 1 as performed in a rotary kiln. Thus, claim 1 does not exclude that the calcination is performed in a static kiln.

3.2 According to feature (b)(i), the particles of the filler after calcination are broken up such that substantially all of them retain their original shape. This original shape is generically spherical, as appears from the patent specification, in particular from the passage of column 3, lines 48 to 51, according to which such a generically spherical shape "is the common shape of doped zinc oxide varistor powder as originally supplied by manufacturers", and from column 6, lines 13 to 17. This finding is not disputed by the parties.

3.3 According to the first process disclosed in document O1 (figures I.1 "Variorésistance A" and I.2; section I.2.1. "Premier procédé", in particular sub-section I.2.1.2.), the particles of the filler are calcined in a kiln at a temperature of 1250°C and subsequently broken up. The

particles prepared in this first process of O1 are characterised by their diameter or average diameter (sub-section I.2.1.3., page 14, first two lines, and section I.2.3., first paragraph; photograph I.1; section II.5., page 44, fourth paragraph; and section "Conclusions et Perspectives", page 129, seventh paragraph). The shape of the particles produced in the first process of O1 thus is to be understood as generically spherical, in accordance with the declaration by Mr A. Toufali in D13. Therefore, the first process disclosed in O1, according to which the particles are calcined at a temperature falling within the claimed temperature range and subsequently broken up such that the particles are generally spherical, takes away the novelty of feature (b)(i) of claim 1. It cannot thus be concluded that the claimed particulate filler and composition would inherently be different from that produced in O1 because they are produced in a different manner, as argued by the appellant.

4. Therefore, all the features of the composition according to claim 1, and in particular those implied by the process feature (b)(i), are disclosed in document O1. The Board concludes that the subject-matter of claim 1 is not considered to be new within the meaning of Article 54 EPC, so that the ground for opposition mentioned in Article 100a EPC prejudices the maintenance of the patent.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

D. Sauter

M. Ruggiu