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Datasheet for the decision of 20 February 2015

Case Number: T 1555/13 - 3.2.07

Application Number: 07750435.5

Publication Number: 1986819

IPC: B24D13/02, B24D18/00, B29C45/14

Language of the proceedings: EN

Title of invention:
METHOD OF MAKING AN ABRASIVE ARTICLE COMPRISING A NON-POROUS ABRASIVE ELEMENT

Applicant:
3M Innovative Properties Company

Headword:

Relevant legal provisions:
EPC Art. 84
EPC R. 115(2)
RPBA Art. 15(3)

Keyword:
Oral proceedings - held in the absence of the appellant
Clarity - all requests (no)

Decisions cited:
T 1049/99, T 1704/06

Catchword:

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Case Number: T 1555/13 - 3.2.07

D E C I S I O N
of Technical Board of Appeal 3.2.07
of 20 February 2015

Appellant: (Applicant)	3M Innovative Properties Company 3M Center P.O.Box 33427 St. Paul, MN 55133-3427 (US)
Representative:	Lanoe, Benjamin 3M Belgium B.V.B.A./S.P.R.L. Hermeslaan 7 1831 Diegem (BE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 1 March 2013 refusing European patent application No. 07750435.5 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	H. Meinders
Members:	H. Hahn
	O. Loizou

Summary of Facts and Submissions

I. The applicant lodged an appeal against the decision of the Examining Division to refuse the European patent application No. 07 750 435.5.

With its statement of grounds of appeal the appellant requested that the decision be set aside and a patent be granted on the basis of the claims of the main request (identical with that underlying the impugned decision), alternatively on the basis of the claims of the first to third auxiliary request, all requests as re-filed or filed with the statement of the grounds of appeal. As an auxiliary request oral proceedings were requested.

II. The following documents of the examination proceedings are relevant for the present decision:

D1 = US-A-4 054 425
D2 = US-A-4 774 788
D5 = 3M: "Radial Bristle Discs" 22 October 2001, Retrieved from the Internet:
URL: http://multimedia.3m.com/mws/ mediawebserver?mwsId=66666UuZjcFSLXTtlXMXIXMcEVuQEcuZgVs6EVs6E666666--
[retrieved on 2010-11-10]

and the following document submitted by the appellant:

E1 = Brochure “abrasivi lampiflex” of abrisivi lampiflex srl, Milano, Italy

III. The Examining Division held, amongst others, at the oral proceedings on 5 February 2013 that the subject-matter of claim 1 of the main request lacks novelty over D1 and that the subject-matter of claim 9 of the

main request lacks novelty over the disclosures of D1 and D5. Claims 1 and 9 of the then first auxiliary request were considered to comply with Article 123(2) EPC but also to lack novelty over D1. The Examining Division further held that claims 1 and 8 of the then second to fourth auxiliary request complied with Article 123(2) EPC but lacked inventive step over a combination of the teachings of D5 with D1. Claim 1 of the then fifth auxiliary request was considered to comply with Article 123(2) EPC but to lack novelty over D1. Therefore the application was refused.

IV. Independent claims 1 and 9 of the **main request** read as follows (emphasis added by the Board:

"1. A method of making an abrasive article comprising an abrasive element having at least **a non-porous region,** and a hub for securing the abrasive element to a shaft positioned adjacent **the non-porous region,** the method comprising:
forming the hub by forming first and second flanges between which **the non-porous region** of the abrasive element is located and by integrally forming a connection joining the flanges through a bore in **the non-porous region** such that the hub is clamped onto the abrasive element."

"9. An abrasive article comprising an abrasive element having at least **a non-porous region,** and a hub for securing the abrasive element to a shaft positioned adjacent **the non-porous region,** the hub having first and second flanges and a connection joining the flanges through a bore in **the non-porous region, the non-porous region** of the abrasive element being located between the flanges such that the hub is clamped onto the abrasive element."

V. Claims 1 and 8 of the **first auxiliary request** read as follows (emphasis added by the Board):

"1. A method of making an abrasive article comprising an abrasive element having at least **a non-porous region**, and a hub for securing the abrasive element to a shaft positioned adjacent **the non-porous region**, the method comprising:
positioning a shaft at the centre of the abrasive element before forming the hub, forming the hub by forming first and second flanges between which **the non-porous region** of the abrasive element is located and by integrally forming a connection joining the flanges through a bore in **the non-porous region** such that the hub is clamped onto the abrasive element, whereby the shaft is secured in the hub."

"9. An abrasive article comprising an abrasive element having at least **a non-porous region**, and a hub for securing the abrasive element to a shaft positioned adjacent **the non-porous region**, the hub having first and second flanges and a connection joining the flanges through a bore in **the non-porous region**, **the non-porous region** of the abrasive element being located between the flanges such that the hub is clamped onto the abrasive element, and a shaft, whereby the shaft is secured in the hub."

VI. Claims 1 and 7 of the **second auxiliary request** read as follows (emphasis added by the Board):

"1. A method of making an abrasive article comprising **two or more ~~an~~** abrasive element**s** having at least **a non-porous region**, and a hub for securing the abrasive

element to a shaft positioned adjacent **the non-porous region**, the method comprising:
positioning a shaft at the centre of the abrasive element before forming the hub, forming the hub by forming first and second flanges between which **the non-porous region** of the abrasive element is located and by integrally forming a connection joining the flanges through a bore in **the non-porous region** such that the hub is clamped onto the abrasive element, whereby the shaft is secured in the hub."

"7. An abrasive article comprising **two or more** ~~**an**~~ abrasive element**s** having at least **a non-porous region**, and a hub for securing the abrasive element to a shaft positioned adjacent **the non-porous region**, the hub having first and second flanges and a connection joining the flanges through a bore in **the non-porous region**, **the non-porous region** of the abrasive element being located between the flanges such that the hub is clamped onto the abrasive element, and a shaft, whereby the shaft is secured in the hub."

VII. Claims 1 and 7 of the **third auxiliary request** read as follows (emphasis added by the Board):

"1. A method of making an abrasive article comprising two or more **an** [sic] abrasive element~~**s**~~ having at least **a non-porous region**, and a hub for securing the abrasive element to a shaft positioned adjacent **the non-porous region**, the method comprising:
positioning a shaft at the centre of the abrasive element before forming the hub, forming the hub by forming first and second flanges between which **the non-porous region** of the abrasive element is located and by integrally forming a connection joining the flanges through a bore in **the non-porous region** such that the

hub is clamped onto the abrasive element, wherein the flanges and connection are formed by injecting molten polymeric material and allowing the molten materials to cool and solidify, wherein the polymeric material is a thermoplastic material and wherein the shaft is fixed to the hub by means of the adhesive action of the thermoplastic material."

"7. An abrasive article comprising **an** abrasive element having at least **a non-porous region**, and a hub for securing the abrasive element to a shaft positioned adjacent **the non-porous region**, the hub having first and second flanges and a connection joining the flanges through a bore in **the non-porous region**, **the non-porous region** of the abrasive element being located between the flanges such that the hub is clamped onto the abrasive element, wherein the flanges and connection are formed by injecting molten polymeric material and allowing the molten polymeric material to cool and solidify, wherein the polymeric material is a thermoplastic material and wherein the shaft is fixed to the hub by means of the adhesive action of the thermoplastic material."

VIII. With a communication dated 9 December 2014 annexed to summons for oral proceedings set for 20 February 2015 the Board presented its preliminary and non-binding opinion with respect to the claims of the main request and the first to third auxiliary requests as re-filed or filed with the statement of the grounds of appeal.

It referred to G 10/93 (OJ EPO 1995, 172), stating that it has the power to examine the compliance of the application with requirements of the EPC, other than those invoked by the Examining Division.

The Board stated amongst others that the independent claims of all four requests appeared not to comply with Article 84 EPC as follows:

"*3. Clarity (Article 84 EPC)*

In this respect it is remarked that independent claims during the examination proceedings are interpreted by the present Board as they stand, i.e. without considering any specific meaning which might be derivable from the description or the drawings of the underlying application, if the claims - as presently - do not necessitate such particular interpretation.

3.1 The feature ***"non-porous region"*** *appears to render the subject-matter of the claims 1 and 9 of the main request unclear. A material which actually does not have any pores at all only exists in theory but* ***not*** *in reality. Therefore the question arises what is the meaning of the expression "non-porous region"?*
From the description it is derivable that it is intended to mean a material into which the material of the connection part of the hub does not penetrate under the (unspecified) applicable process conditions and that these materials have in common the fact that there are no continuous open channels or interconnecting voids into which the injected material of the connection part of the hub can penetrate under the applicable process conditions (see page 3, lines 18 to 27). In this context the further question arises as to how this property underlying this definition can be verified on a real abrasive article so as to know whether one is "in or out" of the claim. The description of the application is silent in this respect.

In any case there is quite a difference between the meaning of a "non-porous region" as defined in claims 1 and 9 of the main request and what shall be covered thereby as mentioned in the description.

3.2 The clarity objection of point 3.1 above also fully applies to the independent claims of the first to third auxiliary requests which contain the identical expression.

....

5. Novelty (Article 54 EPC)

Considering that the feature "non-porous region" seems to be obscure (see above point 3.1) the consequence appears to be that it cannot be used to distinguish the claimed subject-matter from the disclosures of the prior art such as D1 (or D2) since legal certainty requires that a claimed subject-matter cannot be regarded as novel over the prior art on the basis of an ambiguous feature (see T 1049/99, not published in OJ EPO, reasons 4.4).

In this context it is remarked that D1 (likewise D2) is silent with respect to any "non-porous region" or to the porosity of the abrasive elements of the described grinding wheels. However, it needs to be considered that the porosity of such a phenolic resin as mentioned in D1/D2 is firstly a function of the mole ratio of the phenolic resin to the formaldehyde and secondly of the curing conditions (i.e. temperature and time). Thus it is possible to produce discs with a very small amount of porosity but also to manufacture different ones having a relative high porosity. Insofar, the disclosure of E1 is not considered to restrict the

disclosures of D1 and D2 only to abrasive articles having a high porosity."

IX. With letter dated 16 February 2015 and submitted by fax on the same date the appellant stated that "It is with regret that I herewith inform you that the Applicant and the Representative for the Applicant will not be attending the Oral Proceedings scheduled for 20 February 2015 Furthermore, the Board was asked "to consider the arguments presented in the written submissions".

This letter did **not** contain any further argument concerning the objections raised in the above mentioned Board's communication dated 9 December 2014.

X. Oral proceedings before the Board were held on 20 February 2015. As announced, the appellant did not attend so that they were continued in its absence in accordance with Rule 115(2) EPC and Article 15(3) RPBA. At the end of the oral proceedings the Board announced its decision.

Reasons for the Decision

1. The statement of the appellant in its fax dated 16 February 2015 (see point IX above), is considered by the Board as withdrawal of its auxiliary request for oral proceedings, as is constant jurisprudence (see Case Law of the Boards of Appeal, 7th edition 2013, III.C.2.3), and relying on its written submissions only.

Furthermore, although the appellant did not attend the oral proceedings, the principle of the right to be

heard pursuant to Article 113(1) EPC is observed since it only affords the opportunity to be heard and, by absenting itself from the oral proceedings, a party gives up that opportunity (see the explanatory note to Article 15(3) RPBA cited in T 1704/06, not published in OJ EPO; see also the Case Law of the Boards of Appeal, 7th edition 2013, IV.E.4.2.3 c)).

2. In the communication accompanying the summons for oral proceedings dated 9 December 2014 (see point VIII above) the Board, taking account of the submissions of the appellant, raised objections under Article 84 EPC against the main request and the first to third auxiliary requests.

2.1 Therein the Board explained why in its opinion the subject-matter of claims 1 and 9 of the main request is rendered ambiguous and unclear through the feature **"non-porous region"** which therefore cannot be used to distinguish the claimed subject-matter from the disclosures of the prior art such as D1 since legal certainty requires that a claimed subject-matter cannot be regarded as novel over the prior art on the basis of an ambiguous feature (see T 1049/99, not published in OJ EPO, reasons 4.4.).

2.1.1 In this context the Board remarked D1 is silent with respect to any "non-porous region" or to the porosity of the abrasive elements of the described grinding wheels. However, it needs to be considered that the porosity of such a phenolic resin as mentioned in D1 is firstly a function of the mole ratio of the phenolic resin to the formaldehyde and secondly of the curing conditions (i.e. temperature and time). Thus it is possible to produce discs with a very small amount of porosity but also to manufacture different ones having

a relative high porosity. Insofar, the disclosure of E1 is not considered to restrict the disclosure of D1 only to abrasive articles having a high porosity.

2.1.2 In this context the Board further considered at the oral proceedings that
i) the present application is silent with respect to the applicable process conditions for forming the hub such that the connection part thereof does not penetrate (under these conditions) into the polymeric material of the abrasive element;
ii) non-woven materials into which foam has been injected should apparently also be considered as being non-porous in the context of the application;
iii) the independent claims are not restricted to any specific materials of the abrasive element or the hub.

Since the appellant was not present, the issues could not be further discussed with the appellant.

2.1.3 Taking account of the above and of the fact that the description of the application is silent on how this property of a "non-porous region" can be determined and verified on a real abrasive article the person skilled in the art does not know whether he is "in or out" of the scope of the claim. This is an issue which the independent claims have with Article 84 EPC.

2.2 In said communication the Board also set out, why claims 1 and 8 of the first auxiliary request and claims 1 and 7 of the second and third auxiliary requests are likewise rendered unclear (see point VIII above).

3. The appellant did not address these clarity objections, let alone replied in substance to them (see point IX

above). Since there has been no attempt by the appellant to refute or overcome these objections raised in the above communication, the Board sees no reason to depart from its preliminary opinion expressed therein.

4. Taking account of the preceding observations, the Board concludes for the above reasons that the subject-matter of the claims 1 and 9 of the main request, the subject-matter of claims 1 and 8 of the first auxiliary request, and the subject-matter of claims 1 and 7 of the second and the third auxiliary requests does not comply with Article 84 EPC.

5. Consequently, the main request and the first to third auxiliary requests are not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

G. Nachtigall H. Meinders

Decision electronically authenticated