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**Datasheet for the decision  
of 6 May 2019**

**Case Number:** T 2843/18 - 3.2.07

**Application Number:** 12769044.4

**Publication Number:** 2753456

**IPC:** B24D3/14, C09K3/14

**Language of the proceedings:** EN

**Title of invention:**

BONDED ABRASIVE ARTICLE

**Applicant:**

3M Innovative Properties Company

**Headword:**

**Relevant legal provisions:**

EPC Art. 122, 123(2), 56

**Keyword:**

Re-establishment of rights - (yes)  
Amendments - allowable (yes)  
Inventive step - (yes)

**Decisions cited:**

J 0002/86, J 0003/86

**Catchword:**



**Beschwerdekammern**  
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Case Number: T 2843/18 - 3.2.07

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.07**  
**of 6 May 2019**

**Appellant:** 3M Innovative Properties Company  
(Applicant) 3M Center  
P.O.Box 33427  
St. Paul, MN 55133-3427 (US)

**Representative:** Vossius & Partner  
Patentanwälte Rechtsanwälte mbB  
Siebertstrasse 3  
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**Decision under appeal:** **Decision of the Examining Division of the  
European Patent Office posted on 1 February 2018  
refusing European patent application No.  
12769044.4 pursuant to Article 97(2) EPC.**

**Composition of the Board:**

**Chairman** V. Bevilacqua  
**Members:** A. Beckman  
R. Cramer

## **Summary of Facts and Submissions**

- I. The appellant (applicant) lodged an appeal against the decision of the examining division refusing European patent application 12 769 044.4.

The examining division held that

- the subject-matter of claim 1 of the main request filed with letter of 2 December 2016 did not involve an inventive step over the teaching of Document D1 (WO 2011/068714 A2) taken in combination with the common general knowledge of the person skilled in the art,
- the subject-matter of claim 1 of the first and second auxiliary request, filed with letter of 11 December 2017, respectively, did not involve an inventive step over the teaching of Document D3 (US 2010/05151196 A1) taken in combination with the common general knowledge of the person skilled in the art.

- II. On 26 October 2018, the appellant (applicant) filed a notice of appeal, a statement setting out the grounds of appeal and paid the appeal fee. Also on the same day, the appellant filed a request for re-establishment of rights under Article 122 EPC into the time limit for filing the notice of appeal, for paying the appeal fee and for filing the statement setting out the grounds of appeal and paid the corresponding fees.

- III. The appellant requested:

- re-establishment of rights under Article 122 EPC for the purpose of filing an appeal, paying the appeal fee and filing the grounds of appeal, and further
- that the decision under appeal be set aside and

as main request that a patent be granted on the basis of the set of claims of the main request on which the disputed decision is based,  
as first auxiliary request that a patent be granted on the basis of the set of claims of the first auxiliary request on which the disputed decision is based,  
as second auxiliary request that a patent be granted on the basis of the set of claims of the second auxiliary request on which the disputed decision is based.

- IV. In its communication pursuant to Article 15(1) RPBA the Board gave its preliminary opinion in respect of the above-mentioned appellant's requests. In particular, the Board expressed a preliminary positive opinion that the request for re-establishment of rights into the time limit for filing the notice of appeal, for paying the appeal fee and for filing the statement of grounds of appeal appeared to be allowable.

In response to this communication, the appellant filed new auxiliary requests 3 to 11 with letter of 5 April 2019, maintaining all pending requests.

- V. At the oral proceedings the appellant withdrew all its auxiliary requests and confirmed that its final requests were that the decision under appeal be set aside and that a patent be granted on the basis of the following documents:

- Claims 1-22 according to the main request filed with the statement of grounds of appeal;
- Description pages 1-2, 4-6, 10, 11, 13, 17-23, 25-31, 36, 37, 40-50, 53-55, 58-74 and 91-131 of the application as published;

- Description pages 3, 7-9, 12, 14-16, 24, 32-35, 38, 39 and 56 as filed with the letter of 24 April 2019;
- Description pages 51, 52, 57, 75 and 90 as filed during the oral proceedings;
- Figures 1-6 of the application as published.

The Board announced its decision at the end of the oral proceedings.

VI. Independent claim 1 of the main request under consideration in the decision under appeal reads as follows:

"A bonded abrasive article comprising 10 to 80 % by volume of shaped abrasive particles; 1 to 60 % by volume of a bonding medium comprising a vitreous bond, and secondary abrasive particles; wherein said shaped abrasive particles each comprising a first side and a second side separated by a thickness  $t$ , wherein said first side is a first face having a perimeter of a first geometric shape, wherein the thickness  $t$  is smaller than the length of the shortest side-related dimension of the particle, the second side either comprises a vertex or a ridge line or a second face having a perimeter of a second geometric shape which may be the same or different to the first geometric shape, said first and second geometric shapes are independently selected from regular and irregular polygonal shapes, the length of the shortest side related dimension of the particle is the length of the shortest facial dimension of the first face (if the particle has no second face) or is the length of the shortest facial

dimension of the larger face of the particle (if the particle has a second face)."

## **Reasons for the Decision**

### *1. Re-establishment of rights and admissibility of the appeal*

1.1 The decision under appeal was dispatched on 1 February 2018 and posted together with the minutes of the oral proceedings before the Examining division on the same day. According to Rule 126(2) EPC (delivery plus 10 days), the decision is deemed to have been received by the appellant on 11 February 2018. The two-month time limit for filing the notice of appeal (Article 108, first sentence, EPC) and for paying the appeal fee (Article 108, second sentence, EPC) ended on 11 April 2018, and the four-month time limit for filing the statement setting out the ground of appeal ended on 11 June 2018.

The appellant has made it credible that the removal of the cause of non-compliance with the time limits pursuant to Article 108 EPC occurred on 5 September 2018, as only when the appellant's representative was reviewing the case on this date it was recognized that the appeal had not been filed. Thus, the two-month time limit set forth in Rule 136(1) EPC ended not earlier than November 5, 2018. The one-year time limit under Rule 136(1) EPC did not expire before 11 February 2019 and is therefore also met. The omitted act, i.e. the filing of the notice of appeal, the statement of grounds of appeal and payment of the appeal fee, was completed on 26 October 2018.

The formal requirements for the request for re-establishment of rights (Rule 136 EPC) are thus met.

- 1.2 The appellant argued that the office of the appellant's representative uses a cross-check mechanism and a computer system for managing electronic files (the system being called Winpat) and deadlines. In addition the office has a manual docketing system, thus, two separate and independent docketing systems in place. The cross-check is in place by having two paralegals in the docketing department that docket and cross-check the deadlines independently from each other. The procedure in the office is that one of the two assistants performs the first docketing in Winpat and in the manual docketing system, and notes that due date(s) on the document from the patent office, and the other assistant is then checking the docketed terms.

The appellant's representative submits that in the present case, the minutes of the oral proceedings and the impugned decision of refusal were sent by the EPO stapled together with the minutes of the oral proceedings fixed on top of the stapled stack. Therefore, it was only the cover page of the minutes that contained the date stamp and not the decision of refusal. The paralegal in the docketing department erroneously and exceptionally did not note the relevant terms on the cover page of the decision of refusal when checking the entire stack of documents received from the EPO, did not enter the terms in the docketing system and did not proceed the file for cross-checking to her colleague. The paralegal, who erroneously did not docket the two relevant terms, i.e. for filing the formal appeal and for filing a substantiation of the appeal, in the docketing system has been in charge of



the docketing of deadlines since 2013 and was very experienced and known to be most diligent and careful.

The appellant submits that the belated filing of the appeal was due to an isolated mistake in an otherwise reliable system and that therefore the failure to file the appeal in time occurred in spite of all due care required by the circumstances having been taken.

- 1.3 In view of the reasons given by the representative to justify the request for re-establishment of rights, the Board comes to the conclusion that there exists in the office of the appellant's representative an elaborated, satisfactory and normally reliable system for the monitoring of the time limits and that the failure to observe the appeal deadline was caused by an isolated mistake by an employee which bypassed the safeguards of the system. According to established case law of the Boards of Appeal (see for example J 2/86, J 3/86) such a mistake can be excusable.

Moreover, the appellant's representative has persuaded the Board that the employee who made the mistake was experienced, had been familiar with the monitoring system and, like other staff, was fully trained. That means that the mistake of the employee was an isolated mistake by an otherwise reliable person and thus excusable.

Therefore, the Board does not have any reason to doubt that the non-docketing of the terms for filing formal appeal and for filing a statement setting out the grounds of appeal was the result of an isolated procedural mistake within a normally satisfactory system.

The Board therefore considers that the appellant's request for re-establishment of rights into the time limit for filing the notice of appeal, for paying the appeal fee and for filing the statement of grounds of appeal is allowable, Article 122(2) EPC.

1.4 Since the request for re-establishment of rights is allowable, the appeal is admissible.

2. *Amendments - Article 123(2) EPC*

The subject-matter of amended claim 1 according to the main request is based on claims 1, 7, 11, 23 to 26 and on page 6, lines 20 to 24, of the description as originally filed. The Board follows the appellant's arguments that the feature in claim 1 relating to "a second face" is disclosed in a general manner and independently from a sidewall in the application as originally filed, for example, in claim 23 or on page 16, line 5. The feature that the second face has a perimeter of a second geometric shape is disclosed on page 16, lines 5-6. In addition, it is clear and unambiguous to a skilled person (for example, from page 5, lines 6 to 10, of the application as originally filed) that the second face has a perimeter of a second geometric shape which may be the same or different to the first geometric shape.

The Board further follows the appellant's arguments that a basis for claim 19 of the main request is to be found on page 56, line 23 to page 57, line 5, of the application as originally filed, describing that the article can comprise a blend of shaped abrasive particles and secondary abrasive particles (page 56, lines 23 to 24 and lines 26 to 30), and, in particular, on page 57, line 4, describing that the bonded abrasive

article can include typically 20 to 60 percent by weight of shaped abrasive particles, based on the total weight of abrasive particles.

Claims 2 to 18 and 20 to 22 of the main request are based on claims 2, 5, 8, 9, 14, 17, 18, 20 to 22, 24, 27, 28, 35 to 37, 39, 42, 48 and 52 to 55, as originally filed, respectively.

Thus, the subject-matter of claims 1 to 22 according to the main request fulfills the requirements of Article 123(2) EPC.

3. *Inventive step - Article 56 EPC*

3.1 *Determination of the closest prior art*

3.1.1 The appellant contests that D1 could be considered as the closest prior art, since D1 relates to a coated abrasive article and is not concerned with a similar purpose or effect of providing a bonded abrasive article as the claimed subject-matter.

According to the appellant only D2 (WO 2007/040865) could be considered to be the closest prior art, since D2 is the only cited document which relates to a bonded abrasive article and, therefore, to a similar purpose as the claimed subject-matter.

3.1.2 The Board disagrees and is of the opinion that the abrasive articles disclosed in D1 or D3 represent, when compared with the abrasive article disclosed in D2, better, i.e. more promising starting points for discussing inventive step.

D2 relates to a bonded abrasive tool comprising an agglomerate of filamentary sol-gel alumina abrasive and non-filamentary abrasive grains, wherein a bond component and a binding material can comprise vitrified materials or vitrified bond compositions.

D1 discloses on page 15, lines 25-29, a bonded abrasive article which has a bonding medium comprising a vitreous bond, the bonded abrasive article comprising polygonal shaped abrasive particles 20, see Fig. 1 to 5 illustrating embodiments of such a shaped abrasive particle 20.

It follows that, in comparison to D2, D1 at least additionally discloses that the bonded abrasive article comprises shaped abrasive particles having polygonal shapes. Thus, D1 discloses the most common features with the subject-matter of claim 1 compared to D2.

Furthermore, contrary to the appellant's assertion, D1 is directed to the purpose of providing a bonded abrasive article (see page 15, lines 25 to 26: "It is also within the scope of this invention that the shaped abrasive particles 20 can be utilized in a bonded abrasive article, ...").

Hence, D1 is directed to a similar use and requires the minimum of structural modifications to arrive at the claimed subject-matter, thus, constituting a particularly promising starting point for a development leading to the invention.

The Board notes that the disclosure of D3 (see in particular paragraphs [0065] and [0071]; Fig. 1, 4, 5) is similar to that of D1. Therefore, D3 can equally be considered as the closest prior art.

3.2 *Content of the disclosure of D1 and D3*

3.2.1 The appellant argues that a multiple selection is necessary in order to conclude that D1 discloses a bonded abrasive article comprising shaped abrasive particles having a polygonal first face, the thickness relationship as defined in claim 1 and a bonding medium comprising a vitreous bond, namely, firstly, selecting a vitreous binder from different binders listed in D1 and, secondly, selecting a particular particle shape from Fig. 1 to 5 of D1.

3.2.2 The Board disagrees. D1 discloses on page 15, lines 25 to 29, Fig. 1 to 5, a bonded abrasive article comprising shaped abrasive particles and a bonding medium.

The feature that the bonding medium comprises a vitreous bond emerges clearly and unambiguously from page 15, lines 28 to 29 of D1. Furthermore, it is also clearly and unambiguously derivable from this passage of D1 that the shaped abrasive particles 20, which are illustrated in Fig. 1 to 5, pertain to this embodiment.

D1 therefore discloses a bonded abrasive article comprising shaped abrasive particles, wherein said shaped abrasive particles each comprise a first side and a second side separated by a thickness  $t$ , wherein said first side is a first face having a perimeter of a first geometric shape wherein the thickness  $t$  is smaller than the length of the shortest side-related dimension of the particle, the second side either comprises a vertex or a ridge line or a second face having a perimeter of a second geometric shape which may be the same or different to the first geometric

shape, said first and second geometric shapes being independently selected from regular and irregular polygonal shapes, the length of the shortest side related dimension of the particle being the length of the shortest facial dimension of the first face (if the particle has no second face) or being the length of the shortest facial dimension of the larger face of the particle (if the particle has a second face).

3.2.3 With regard to D3, the Board notes that the wording in paragraph [0071] of D3 corresponds to the wording on page 15, lines 28 to 29, of D1. Therefore, it is considered that D3 (see paragraph [0071] in combination with Fig. 1) discloses the same features of claim 1 as D1, and the reasons given under point 3.2.2 apply *mutatis mutandis*.

### 3.3 *Distinguishing features*

The subject-matter of claim 1 differs from the known bonded abrasive article, as defined in D1 on page 15, lines 25 to 29, in

- the presence of secondary abrasive particles and
- in that the bonded abrasive article comprises 10 to 80 % by volume of shaped abrasive particles and 1 to 60 % by volume of the bonding medium.

### 3.4 *Effect*

The addition of secondary abrasive particles reduces the cost of the abrasive article (page 57, lines 5 to 7, of application as originally filed). The bonding medium of the abrasive article serves to retain the particular combination of shaped abrasive particles and secondary abrasive particles in a vitreous bond (page 51, lines 26 to 28, of the application as originally

filed) which increases service life in grinding applications. The mixture with secondary abrasive particles provides together with the further distinguishing features a synergetic technical effect (page 57, lines 5 to 8, of application as originally filed) which resides in providing a cost effective bonded abrasive article having improved performance and increased service life in grinding applications.

3.5 *Problem to be solved*

The problem to be solved can therefore be seen in providing a cost effective bonded abrasive article which has an improved service life and can provide constant grinding results over a long period of time, particularly under severe grinding conditions (page 2, lines 28 to 31).

3.6 *Obviousness*

3.6.1 Thus, the question at stake is whether the skilled person starting from D1 or D3 as closest prior art and seeking to solve the above-mentioned problem would combine its common general knowledge or the teaching of D2 with the teaching of D1 or D3 and would arrive via such a combination at the subject-matter of claim 1 without exercising an inventive activity.

3.6.2 The Board notes that D1 discloses secondary abrasive particles used in a blend with shaped abrasive particles (see page 12, line 29 to page 13, line 13; page 13, lines 14 to 13). However, this disclosure does not relate to the bonded abrasive article mentioned at page 15, lines 25 to 29, and there is no indication in D1 which would lead the skilled person to add secondary abrasive particles into it. Furthermore, D1 gives no

hint that the bonded abrasive article should comprise 0 to 80 % by volume of shaped abrasive particles and 1 to 60 % by volume of the bonding medium comprising a vitreous bond, particularly because no discussion is given in D1 about the effect that these volume fractions have on the behaviour and, in particular, on the grinding service life of such a bonded abrasive article. There is no evidence on file that a skilled person would, even on the basis of its general knowledge, or by a process of trial and error, select these two particular ranges of percentages by volume in order to solve the above formulated problem.

Hence, neither the teaching of D1 alone nor the combination of the teaching of D1 with the common general knowledge would lead the skilled person to the subject-matter of claim 1 in an obvious manner.

3.6.3 As mentioned above, D2 teaches a bonded abrasive tool employing filamentary abrasive particles in a vitreous bond. The Board considers that a teaching given for filamentary abrasive particles is not directly and straightforwardly applicable to improve the bonded abrasive article of D1, teaching the use of polygonal shaped abrasive particles. Apart from this, D2 fails to disclose or suggest the volume fractions according to claim 1 or to mention any effect of volume fractions on the performance of a bonded abrasive article. In the absence of any suggestion in D2 for a specific volumetric combination of shaped abrasive particles and bonding medium, even a combination of the teaching of D2 and D1 cannot lead the skilled person to the subject-matter of claim 1 in an obvious manner.

3.6.4 Since the disclosure of D3, in a particular in paragraphs [0065] and [0071] and Fig. 1, 4, 5, is



considered to be similar to that of D1, the reasons given above under points 3.3 to 3.5 as well as the reasons given under points 3.6.2 to 3.6.3 with regard to "obviousness" apply *mutatis mutandis* if D3 is considered as closest prior art.

- 3.6.5 In view of the above, the person skilled in the art starting from the bonded abrasive article either known from D1 or from D3 and seeking to provide a cost effective bonded abrasive article having an improved service life would not be led by its common general knowledge or by one of the teachings of D1, D2 or D3 to the subject-matter of claim 1 in an obvious manner.

## **Order**

### **For these reasons it is decided that:**

1. The request for re-establishment of rights into the time limit for filing the notice of appeal, for paying the appeal fee and for filing the statement of grounds of appeal is allowed.
2. The decision under appeal is set aside.
3. The case is remitted to the department of first instance with the order to grant a patent on the basis of the following documents:
  - Claims 1-22 according to the main request filed with the statement of grounds of appeal;
  - Description pages 1-2, 4-6, 10, 11, 13, 17-23, 25-31, 36, 37, 40-50, 53-55, 58-74 and 91-131 of the application as published;

- Description pages 3, 7-9, 12, 14-16, 24, 32-35, 38, 39 and 56 as filed with the letter of 24 April 2019;
- Description pages 51, 52, 57, 75 and 90 as filed during the oral proceedings;
- Figures 1-6 of the application as published.

The Registrar:

The Chairman:



G. Nachtigall

V. Bevilacqua

Decision electronically authenticated