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**Datasheet for the decision
of 22 May 2013**

Case Number: T 1340/10 - 3.3.05

Application Number: 01981411.0

Publication Number: 1332194

IPC: C09K 3/14, B24D 3/00,
C04B 35/10, B24D 11/02,
B24D 3/02, B24D 3/04,
B24D 3/28, B24D 3/34

Language of the proceedings: EN

Title of invention:
CERAMIC AGGREGATE PARTICLES

Patent Proprietor:
3M Innovative Properties Company

Opponent:
Center for Abrasives & Refractories
Saint-Gobain Abrasives, Inc.

Headword:
Ceramic Aggregates/3M

Relevant legal provisions:
EPC Art. 56, 108, 113
EPC R. 111(2)
RPBA Art. 11

Relevant legal provisions (EPC 1973):
-

Keyword:

"Substantial procedural violation (yes): lack of substantiation of one of the grounds for opposition; decision invalidated"

"Remittal (no) - length of the proceedings"

"Inventive step (main and auxiliary requests): no - obvious combination of features known from a prior art document"

Decisions cited:

G 0009/92, G 0004/93, T 0144/94, T 0017/97, T 0012/03,
T 0641/07

Catchword:

-



Case Number: T 1340/10 - 3.3.05

DECISION
of the Technical Board of Appeal 3.3.05
of 22 May 2013

Appellant I: Center for Abrasives & Refractories
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
19 April 2010 concerning maintenance of
European patent No. 1332194 in amended form.

Composition of the Board:

Chairman: G. Raths
Members: J.-M. Schwaller
C. Vallet

Summary of Facts and Submissions

I. The present appeals lie from the decision of the opposition division concerning maintenance of European patent No. 1 332 194 on the basis of an amended set of claims filed as fifth auxiliary request during the oral proceedings of 25 February 2010 (hereinafter called the "main request"), with claim 1 thereof reading:

"1. A plurality of ceramic aggregate particles said particles comprising a plurality of solid particulates bonded together by ceramic binding material, wherein the plurality of solid particulates have an average particle size in the range from 0.5 microns to 1500 microns and the ceramic binding material and plurality of solid particulates are separate phases; and wherein a majority of said plurality of ceramic aggregate particles have an aspect ratio greater than one and a substantially uniform cross-sectional dimension which does not vary by more than 10% and wherein the ceramic binding material coats each exterior surface of the solid particulate with a coating of between 0.05 and 150 μm in thickness, such that the exterior surface of the aggregate particle closely conforms to the outermost surface of the solid particulates therein and wherein said plurality of ceramic aggregate particles has a cross-sectional shape that is curved, circular, triangular or hexagonal."

II. Among the documents cited in the first-instance proceedings, the following are of relevance for the present decision:

D1: DE 29 41 298 A1

D2: WO 96/10471

D5: US 3 387 957

D9: Calculation of the thickness of the
inorganic binder coating

Annex B Photographs submitted during oral
proceedings of 16 January 2006 before the
examining division.

III. In the contested decision, the opposition division held the subject-matter of claim 1 above to involve an inventive step, in essence because when starting from document D2 - which did not disclose the cross-sectional shapes defined in claim 1, nor the fact that the cross-section did not vary by more than 10% - the technical problem to be solved was seen in the provision of further ceramic particle aggregates. The solution to this problem was not obvious because the skilled person was not encouraged by the prior art to modify the cross-sectional dimensions of the aggregates known from D2.

IV. With their statements of grounds of appeal, appellants I and II (also opponents I and II) submitted several new documents, the following being of relevance for the present decision:

A1: US 3 183 071

A4: Modern Ceramic Engineering; Properties, Processing,
and Use in Design, David W. Richerson (1982),
pages 205 to 209.

Appellant I/opponent I contested the novelty of the invention as maintained by the opposition division in the light of documents D1 and A1. Further, it held its subject-matter to lack inventive step in the light of the teaching of document D2, taken alone or in combination with inter alia D5, A1 or A4.

Appellant II contested the inventive step of the subject-matter of the invention as maintained by the opposition division, in particular in view of document D2 taken alone. It also contested its sufficiency of disclosure, arguing in particular as regards the feature "*a substantially uniform cross-sectional dimension which does not vary by more than 10%*" that the skilled person did not know how this parameter was to be measured, and therefore whether or not he was working within the area defined by the claims.

- V. With a letter dated 5 January 2011, the respondent requested that the appeals be dismissed. It also filed an amended set of claims as an auxiliary request, with claim 1 thereof reading (differences to claim 1 of the main request emphasised by the board):

"1. A plurality of ceramic aggregate particles said particles comprising a plurality of solid particulates bonded together by ceramic binding material, wherein the plurality of solid particulates have an average particle size in the range from 0.5 microns to 1500 microns and the ceramic binding material and plurality of solid particulates are separate phases; and wherein a majority of said plurality of ceramic aggregate particles have an aspect ratio greater than one and a substantially uniform

*cross-sectional dimension which does not vary by more than 10% and wherein the ceramic binding material coats each exterior surface of the solid particulate with a coating of between 0.05 and 150 μ m in thickness, such that the exterior surface of the aggregate particle closely conforms to the outermost surface of the solid particulates therein and wherein said plurality of ceramic aggregate particles has a cross-sectional shape that is ~~curved, circular, triangular or hexagonal~~ **and wherein the solid particulates are abrasive grains and the volume ratio of abrasive grains and ceramic binding material is 0.2 to 2.0.**"*

- VI. With a further letter dated 10 March 2011, the respondent filed observations challenging the opposition division's conclusions and the appellants' substantiations of their appeals. It argued in particular that none of the documents in the proceedings disclosed that the deviations in the cross-section of the extruded product was 10% or less. With respect to inventive step, it pointed out that the claimed aggregate particles had a higher abrasive efficiency than those of D2 because of a reduced concentration of binding material on the exterior surface of the aggregate particles.
- VII. Further observations from appellants I and II were received on 15 and 18 April 2013.
- VIII. At the opening of the oral proceedings, which took place on 22 May 2013, the respondent requested the board to remit the case to the first instance because the contested decision contained severe procedural deficiencies. It pointed out firstly that the decision

contained no statement as regards the opposition ground under Article 100(b) EPC. Secondly it took issue with the fact that the opposition division had not taken into account certain pieces of evidence that the patentee provided during the opposition proceedings, in particular the comparative tests (Annexes A and B) referred to in its reply of 25 June 2008 to the grounds for opposition. The respondent further stated that the decision contained the statement that "the principle of the calculation" made in D9 had not been disputed by the patentee although it had been vigorously challenged during the oral proceedings. Moreover, the decision was unsubstantiated regarding other issues, in particular the dismissal of late-filed documents that the opposition division had held to be "not relevant" without any further comment. The same applied to the statement that a solid particulate coated by a thin layer of 4.5 μm "automatically" fulfilled the requirement that the exterior surface of the aggregate particle closely conforms to the outermost surface of the solid particulate therein.

The appellants contested both the admissibility and allowability of the late-filed auxiliary request. They further requested that the case not be remitted to the first instance, in view of the duration of the proceedings.

The discussion further focused on the issues of sufficiency of disclosure of the invention, novelty and inventive step of the main and auxiliary requests. As regards disclosure of the invention, the appellants challenged in particular the feature "*a substantially uniform cross-sectional dimension which does not vary*

by more than 10%" because the skilled person did not know how it was to be measured.

IX. After closing the debate, the board established the parties' requests as follows:

The appellants requested that the decision under appeal be set aside and that the patent be revoked.

The respondent requested that the appeals be dismissed. Alternatively it requested that the decision under appeal be set aside and that the patent be maintained on the basis of the claims according to the auxiliary request filed on 5 January 2011.

Reasons for the Decision

1. *Substantial procedural violation*

1.1 Under the provisions of Rule 111(2) EPC, appealable decisions must be reasoned. The ground underlying this requirement is closely linked to the principle of the right to be heard laid down by Article 113 EPC, which means that the parties are able to determine whether their arguments have been duly considered even if not accepted. This requirement is also clearly related to the provisions of Article 108 EPC insofar as the reasoning developed by the deciding body constitutes the basis for the grounds of appeal.

1.2 In the present case, it is manifest that the contested decision does not contain any decision, let alone any

- reasoning, relating to the ground for opposition based on Article 83 EPC raised by the opponents.
- 1.3 The appellants objected to the admissibility of this request on the grounds that it was filed late and by a party which had not appealed. However, as a matter of principle, a substantial procedural violation, due to its very nature, may be raised at any stage of the appeal proceedings. Although the respondent waited until the last minute to introduce this objection, the procedural mistake is so obvious that the appellants cannot claim to be surprised. Obviously, the representatives were aware of this deficiency in the contested decision (see e.g. statement of grounds of appeal from opponent 2; page 3, point 3).
- 1.4 It is well-established case law that a party may, during appeal proceedings, file any kind of request aiming at the maintenance of the result obtained at the first-instance stage (cf. Enlarged Board of Appeal decisions G 9/92, reasons, point 12, and G 4/93, reasons, point 11, OJ EPO 1994, 875). An objection based on a severe procedural violation is thus not excluded. The request is therefore admissible.
- 1.5 As to its allowability, as already stated above, the lack of any reasoning, let alone an explicit decision, relating to the objection based on Article 100(b) EPC cannot be disputed. The minutes of the oral proceedings shows that a debate took place on this issue, contrary to the respondent's initial assertions. The lack of substantiation amounts to a substantial procedural violation which justifies that the decision be invalidated.

1.6 The board is not satisfied that the other grounds cited as procedural violations are such as to affect the validity of the contested decision. It is established case law of the boards of appeal that reasoning which is not sufficiently developed and thus not convincing enough cannot be regarded as a substantial procedural violation. The same applies to a mistaken evaluation of a piece of evidence or to a wrong conclusion drawn on the basis of the documents on file. This is also true where an error would not have led to a different outcome of the proceedings (see in particular T 0144/94, Reasons, point 4; T 0012/03, Reasons, point 4.5; T 0017/97, Reasons, point 8.2).

1.7 As to the request for remittal to the first instance, under the provisions of Article 11 RPBA the board must remit the case to the department of first instance if fundamental deficiencies are apparent, unless special reasons present themselves for doing otherwise.

In the present case, considering that the application was filed on 5 October 2001 and that the opposition proceedings started on 4 October 2007, the board is of the opinion that a remittal is not appropriate because the length of the procedure demands that a final decision be reached without delay. Moreover, the board notes that, as regards the procedural violation, the respondent could have raised its concerns at the beginning of the appeal phase, which could have led to speedier prosecution. Therefore, the request for remittal is rejected.

2. *Disclosure of the invention*

2.1 According to Article 83 EPC and its counterpart in Article 100(b) EPC, an invention must be disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

2.2 In the case at issue, the invention - which concerns ceramic aggregate particles - and its preparation have been disclosed in no fewer than twenty-two specific embodiments (see Examples 1 to 22), but appellant II - which bears the burden of proof - has not provided any evidence, for instance by reproducing at least one of the examples, showing that the preparation details disclosed in the patent in suit, in particular in its examples, were insufficient to arrive at the claimed subject-matter.

2.3 In these circumstances, with appellant II unable to identify any gap of information, the board concludes that the requirements of Article 83 EPC and its counterpart in Article 100(b) EPC are satisfied.

2.4 Appellant II's argument that the skilled person would not know whether or not he was working within the area defined by the claims concerns the boundaries of the claims, and thus their clarity, not the disclosure of the invention.

3. *Main request - novelty*

3.1 In the board's view, neither document D1 nor document A1 - that appellant I held to be individually novelty-destroying for claim 1 of this request - discloses

directly and unambiguously particles which have "a substantially uniform cross-sectional dimension which does not vary by more than 10%".

3.2 It follows that the board is not convinced that claim 1 of this request does not meet the requirements of Article 54(1) and (2) EPC.

4. *Main request - inventive step*

4.1 The invention concerns ceramic aggregate particles comprising solid particulates, preferably abrasive grains, bonded together by ceramic binding material (see paragraphs [0002] and [0010] of the contested patent).

4.2 As to the starting point for assessing inventive step, the parties agreed that document D2 represented the closest state of the art to the claimed subject-matter.

D2 (page 23, line 8 to page 29, line 3) discloses agglomerates comprising a plurality of abrasive grains bonded together by an inorganic binder. The abrasive grains have a particle size ranging from 0.1 to 1500 micrometers, preferably between 1 to 1300 micrometers. Examples of the inorganic binder include inorganic metal oxides such as vitreous binders, glass ceramic binders and ceramic binders. In producing a vitrified agglomerate comprising abrasive grains and a vitreous binder, the binder, prior to being vitrified, is preferably ground such that the resulting powder passes through a 325 mesh screen. In general, each abrasive agglomerate comprises, by weight, between 10 and 80%, preferably between 20 and 60% inorganic binder and

between 20 and 90%, preferably between 40 and 80% abrasive grains, based on the weight of the agglomerate. In one embodiment, the agglomerates have a substantially uniform size which does not vary by more than preferably 20% from the average. Preferably, the agglomerates are in the shape of a truncated four-sided pyramid or a cube.

4.3 While according to the contested patent the technical problem is defined as being the provision of ceramic aggregate particles having relatively consistent shapes and sizes in order to provide greater consistency of performance in articles made with such particles (see paragraph [0007]), the respondent added that higher abrasive efficiency would be obtained.

4.4 As a solution to this problem, the invention proposes the ceramic aggregate particles according to claim 1 at issue, characterised in particular in that they have an aspect ratio greater than one, a substantially uniform cross-sectional dimension which does not vary by more than 10%, a curved, circular, triangular or hexagonal cross-sectional shape, a binding material coating each exterior surface of the abrasive grains with a coating of between 0.05 and 150 μm in thickness, such that the exterior surface of the aggregate particle closely conforms to the outermost surface of the solid particulates therein.

4.5 As to the question whether the problem underlying the patent in suit has been solved, the board observes that there is no evidence for any improvement over the ceramic aggregate particles according to document D2.

Furthermore, as to the provision of ceramic particles having relatively consistent shapes and sizes, it is observed that the feature describing the agglomerates as having "*a substantially uniform cross-sectional dimension which does not vary by more than 10%*" suffers from serious deficiencies, because the contested patent is totally silent as to how this feature is to be determined. The patent is also silent on the specific values for this feature in the specific embodiments disclosed in the examples and supposed to illustrate the alleged invention. According to the board's knowledge, the feature in question does not have a generally recognised technical meaning in the field at issue, so that the skilled person does not know how it can be determined.

This total absence of data in the patent specification furthermore renders it impossible for the skilled person to identify the missing details of the determination method - for instance by calibration, as e.g. in T 641/07 (see point 3.2 of the reasons). It follows from the above considerations that the feature in question is vague and undefined and it therefore has to be interpreted as broadly as permitted by the patent.

In this respect, the board observes that the sole practical details given by the patent regarding the cross-sectional uniformity of the allegedly inventive aggregate particles can be taken from Figure 2, which represents such particles prepared according to a method of the present invention.

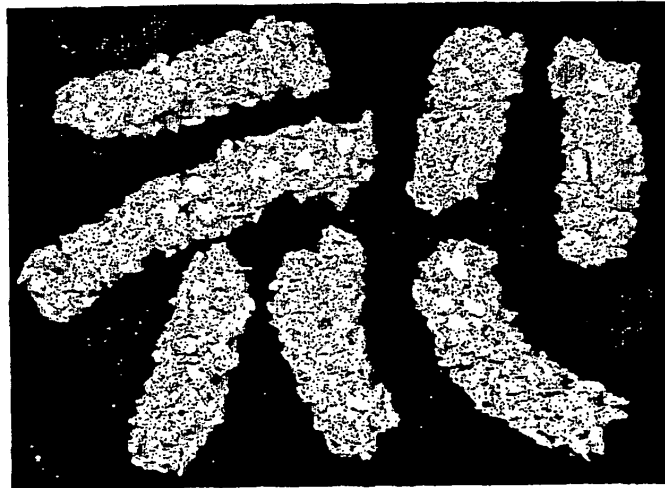


Fig. 2

In the board's view, the above particles however do not have a "*substantially uniform cross-sectional dimension which does not vary by more than 10%*", but rather have a size which do not vary by more than 30%, or at best 20%, i.e. they have a uniformity close to that of the agglomerates defined in document D2, page 28, last paragraph.

It follows from the above considerations that as regards the alleged "relatively consistent shapes and sizes", the aggregate particles disclosed in the contested patent, in particular those of Figure 2, do not have a higher uniformity than those known from D2.

Claim 1 being moreover not restricted to abrasive aggregates, the respondent's argument regarding an alleged higher abrasive efficiency is utterly pointless.

- 4.6 It follows that the problem identified in point 3.3 above is not solved, which means that the problem has to be reformulated as the provision of alternative ceramic aggregate particles.

- 4.7 The board has no doubt that this reformulated problem is solved, in particular in view of the multitude of specific examples illustrating the claimed invention.
- 4.8 It remains to be decided whether the proposed solution is obvious in view in particular of D2 and of the cited prior art.
- 4.8.1 As regards the aspect ratio of the agglomerate particles of D2, it is observed that they are not limited to a cubic form, let alone to a perfect cubic form with an aspect ratio of 1, as alleged by the respondent. D2 discloses in particular that the agglomerates can be shaped by moulding, extrusion and die cutting (page 31, lines 12 to 14), and the skilled person knows that extrusion and die cutting lead to agglomerates having an aspect ratio greater than one.
- 4.8.2 As to the cross-sectional shape, agglomerates with a curved, circular, triangular or hexagonal shape are not explicitly disclosed in D2. However, these types of shapes are commonly obtained by the extrusion and die cutting processes disclosed in D2, page 31, line 12 to 14. So, these types of shapes are obtained according to the teaching of D2.
- 4.8.3 As regards the thickness of the coating of the binding material, this feature is not explicitly disclosed by D2. In the board's view, however, at least as regards the vitreous agglomerates according to D2, their glass binder implicitly has a coating thickness which falls within the range of from 0.05 to 150 μm for the following reasons.

The vitreous agglomerates are obtained from a slurry which, in particular as regards example 1 of D2 (see Table 8, page 56), contains 47.2% wt. SAG2 - grade 200/230 (i.e. a cubic boron nitride abrasive with an average particle size of 74 μm (D2, page 52, line 5)) and 17.7% wt. glass powder finer than 325 mesh (D2, page 57, lines 2 and 3), i.e. finer than 43 μm .

By applying the calculation in document D9 to this example, the average thickness of the binder can be calculated to be approximately 8 μm . The respondent contested this calculation because it did not take into account numerous aspects such as the mixing effects, the porosity and the irregularity of the particulates, the capillarity effects, the actual particle size or the density of the different particulates. The board cannot accept this argument, because even if D9 provides an approximate value - which is uncontested - it is not plausible, at least in the case of the above specific example 1 of D2, that the above aspects would have such an impact on the calculation that the corrected value would fall outside the range claimed, because the actual (calculated) value of 8 μm is already 18 times lower than the upper limit (150 μm) of the claimed range and 160 times higher than the lower limit (0.05 μm) of the claimed range. Anyhow, no evidence has been provided as to the extent to which the above aspects would affect said value. The patent being furthermore totally silent on the method to be used for determining the thickness of the ceramic binder coating, each and every method - i.e. also the method according to document D9 - can be taken into account for its determination.

As regards the respondent's argument that the binder coating thickness could not be achieved in D2, due to the large amount of binder used in the agglomerates prepared therein, the board cannot accept this argument because - as explained hereinafter - the vitreous agglomerates of Example 1 in D2 have a similar composition and have a particle size close to those of the vitreous agglomerates according to Examples 1, 2, 3 and 8 of the contested patent, and so the thickness of the agglomerate particles according to Example 1 of D2 cannot be fundamentally different from the thicknesses of the agglomerates according to the above examples of the contested patent. According to Table 14 of the contested patent, the vitreous agglomerates of examples 1, 2, 3 and 8 have a weight ratio of abrasive grains to vitreous binder comprised between **3.0:1 and 1.5:1** (*in comparison, 2.67:1 in Example 1 of D2 (see Table 8, page 56)*). These vitreous agglomerates furthermore have been prepared (see patent, page 16, lines 11 and 12) from abrasive grains having particulate size grades varying between **60 and 320** (*in comparison, in Example 1 of D2 the grade of the abrasive grains is 200/230*) and a glass powder finer than 325 mesh (ca. 43 μm), i.e. a glass powder having the **same particulate size** as in D2 (see page 57, lines 2 and 3).

It follows from the above reasoning that, according to the teaching of D2, agglomerates are obtained having a thickness of the ceramic binding material coating which implicitly falls within the range of from 0.05 to 150 μm .

4.8.4 As to the feature that "the exterior surface of the aggregate particle closely conforms to the outermost

surface of the solid particulates therein", admittedly D2 does not explicitly disclose it. The respondent furthermore argued, on the basis of Annex B filed during the examination proceedings which showed photographs of cubic agglomerates, that this feature was not satisfied.

In the board's view, it is true that there might be a higher accumulation of binder in the corners of the cubes shown on said photographs. However, because of the **vague meaning** of the expression "closely conforms to the outermost surface of ...", also in this configuration the exterior surface of the aggregate particle "closely conforms" - to a certain extent - to the outermost surface of the solid particulates. If nevertheless, in favour of the respondent, one might consider this feature as distinguishing the cubic agglomerates of D2 from those claimed, it is noted that D2 is not limited to the cubic form since this document also discloses (D2; page 31, lines 12 to 14) agglomerates obtained by extrusion or die-cutting shaping processes, which inevitably will have the required configuration, i.e. an exterior surface of the aggregate particle which "closely conforms to the outermost surface" of the solid particulates therein.

- 4.8.5 It follows from the above reasoning that each and every feature in claim 1 at issue is individually derivable from document D2, and thus that the person skilled in the art seeking alternative agglomerate particles to those disclosed in the specific examples of D2 finds in this single document all the hints necessary to arrive in an obvious manner at the subject-matter of claim 1 at issue.

4.9 The skilled person further knows from e.g. documents A4 (pages 205 and 206) or D5 (column 4, lines 27 to 33) that agglomerated rods of uniform geometrical cross-section are obtained simply by extruding a slurry of abrasive grains and inorganic binder. Thus, in seeking alternative agglomerate particles to the cubic or truncated- pyramidal-shaped agglomerates from document D2, the skilled person also finds sufficient hints in these documents to arrive at the subject-matter of claim 1 at issue, which therefore does not meet the requirements of Article 56 EPC.

5. *Auxiliary request - admissibility*

Appellant 1 requested the board not to admit into the appeal proceedings the auxiliary request, because it was insufficiently substantiated as to why its subject-matter met the requirements of the EPC.

The board cannot allow this request because certain arguments already put forward in favour of the main request - in particular those concerning the abrasive grains - concern more the claims of the auxiliary request than those of the main request. Moreover, since the auxiliary request corresponds to auxiliary request 6 filed during the opposition proceedings, the arguments already put forward in the opposition proceedings might under certain circumstances be taken into consideration in the appeal proceedings.

6. *Auxiliary request - inventive step*

6.1 The invention now claimed further defines the agglomerates particles in that the solid particulates

are "abrasive grains" and in that "the volume ratio of abrasive grains and ceramic binding material is 0.2 to 2.0." (see claim 1 of the auxiliary request).

- 6.2 The reasoning under points 3.1, 3.2 and 3.3 applies mutatis mutandis to the claimed subject-matter of the auxiliary request, with however the emphasis of the problem being on the respondent's definition of the problem to provide ceramic aggregate particles having higher abrasive efficiency.
- 6.3 As a solution to this problem, the invention proposes the ceramic aggregate particles according to claim 1 at issue, characterised in particular in that the solid particulates are abrasive grains and the volume ratio of abrasive grains and ceramic binding material is 0.2 to 2.0.
- 6.4 As to the question whether the problem underlying the patent in suit has been solved by the proposed solution, the board observes that there is no evidence for any improvement over the aggregate particles disclosed in document D2, and in particular, as regards the alleged "relatively consistent shapes and sizes", that the aggregate particles disclosed in the contested patent, in particular those of Figure 2, do not - as explained above - have a higher uniformity than those known from D2.

The respondent's argument that the reduced concentration of binding material on the exterior surface of the aggregate particles resulted in higher abrasive efficiency of the claimed ceramic aggregate particles cannot be accepted, because the definition of

the claimed aggregate particles also includes those with a high concentration of binding material. In particular the lower limit of **0.2** of the range of volume ratio of abrasive grains and ceramic binding material implies that the agglomerate particles would have **5 times** more binding material than abrasive grains. Moreover, the ceramic binding material coating includes by definition thickness values of **up to 150 μm** , which in comparison to the thickness in Example 1 of D2 of about 8 μm manifestly cannot lead to an improvement in terms of abrasive efficiency, since the coating is much thicker than in D2, and so the abrasive efficiency will inevitably be diminished.

- 6.5 It follows that the problem as identified in point 3.3 above is not solved, which means that the problem has to be reformulated. In the present context, it boils down to the provision of alternative ceramic aggregate particles.
- 6.6 The board has no doubt that this reformulated problem is solved, in particular in view of the multitude of specific examples illustrating the claimed invention.
- 6.7 The question to be dealt with now is whether or not the solution as proposed in claim 1 at issue is obvious in view of the cited prior art.
- 6.7.1 The board observes in this respect that the agglomerates according to D2 also include abrasive grains as the solid particulate (D2, page 23, lines 8 to 10), so this feature, which has been added as an amendment to claim 1 at issue, cannot support an inventive step of the claimed subject-matter.

6.7.2 Regarding the other amendment to claim 1, namely the volume ratio of abrasive grains to ceramic binding material, this is not explicitly disclosed in D2 but, at least as regards the vitreous agglomerates prepared in Example 1 of D2, it can reasonably be stated that their **volume** ratio of abrasive grains to binder falls within the range of from 0.2 to 2.0, since their weight ratio of 2.67:1 falls - as explained under point 4.8.3 above - within the weight ratio range of similar agglomerates disclosed in the contested patent (3.0:1 to 1.5:1), which according to Table 14 at page 29 of the contested patent have a corresponding volume ratio of from **0.81:1 to 1.62:1**.

6.7.3 It follows from the above considerations that D2 offers all the hints necessary for the skilled person seeking alternative agglomerates to those known in the specific embodiments of D2 to arrive at the subject-matter of claim 1 at issue.

6.7.4 For the sake of argument and in favour of the respondent, even if the volume ratio of abrasive grains to binder had not been derivable from D2, the range of from 0.2 to 2.0 now defined in claim 1 at issue can in any case not support an inventive step, because this range of values is totally arbitrary, since there is no support for any particular effect in this range of values. In this context, the skilled person seeking alternatives would under these circumstances also arrive in an obvious way at the subject-matter of claim 1 at issue, which thus does not meet the requirements of Article 56 EPC.

7. It follows from the above that none of the requests on file can be allowed.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The request for remittal is rejected.
3. The patent is revoked.

The Registrar:

The Chairman:

C. Vodz

G. Rath