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D E C I S I O N
of 1 July 2005

Case Number: T 0120/03 - 3.2.07

Application Number: 90309151.0

Publication Number: 0414494

IPC: B24D 3/34

Language of the proceedings: EN

Title of invention:
Conductive coated abrasives

Patentee:
MINNESOTA MINING AND MANUFACTURING COMPANY

Opponents:
EKAMANT AB
Vereinigte Schmirgel- und Maschinen-Fabriken AG

Headword:

-

Relevant legal provisions:
EPC Art. -

Keyword:
"Board empowered to decide on admissibility of a previous appeal before another Board - no"
"Limitation of extent of proceedings - no"
"Experimental report filed during oral proceedings - not admitted"
Unannounced participation of employee of appellant - not allowed"
"Auxiliary requests filed during oral proceedings - not admitted"
"Inventive step (main and auxiliary request) - no"

Decisions cited:
G 0004/95, T 0079/89, T 0951/91, T 0002/98

Catchword:

-



Case Number: T 0120/03 - 3.2.07

D E C I S I O N
of the Technical Board of Appeal 3.2.07
of 1 July 2005

Appellant: Vereinigte Schmirgel- und Maschinen-
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
22 November 2002 concerning maintenance of
European patent No. 0414494 in amended form.

Composition of the Board:

Chairman: H. Meinders
Members: P. A. O'Reilly
C. Holtz

Summary of Facts and Submissions

- I. Opposition was filed against European Patent No. 0 414 494 as a whole and based on Article 100(a) EPC (lack of novelty and lack of inventive step).

The Opposition Division decided to maintain the patent in amended form. The Opposition Division held that the subject-matter of claim 1 of the only request was novel and involved an inventive step.

- II. The appellant (opponent II) filed an appeal against the decision.

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

The respondent requested that the appeal be rejected as inadmissible, alternatively as a main request that it be dismissed, alternatively that the decision under appeal be set aside and the patent be maintained in amended form in accordance with the first or third auxiliary requests filed during the oral proceedings before the Board on 1 July 2005, or in accordance with the second auxiliary request filed with letter of 1 June 2005. The respondent further requested that the appeal proceedings be limited to the questions of novelty and inventive step and not extend to formal matters.

The other party (opponent I) made no request and did not attend the oral proceedings, as it had indicated in its letter of 17 May 2005.

III. The independent claim of the main request reads as follows:

"1. A coated abrasive article obtainable by a method comprising the steps of:

(a) providing a support member having a front surface and a back surface, optionally saturating said support member with a saturant, optionally applying a presize coating on said front surface of said support member, and optionally applying a backsize coating on said back surface of said support member,

(b) applying a first layer of binder adhesive onto the front side of said support member,

(c) at least partially embedding abrasive granules in said first layer,

(d) conventionally curing said coatings, layers, and saturant, wherein there is applied at least one additional layer of binder adhesive overlying said first layer of binder adhesive, and wherein at least one of said coating, layers, and saturant contains a quantity of carbon black aggregates sufficient to provide a cured binder adhesive containing said black aggregates having a surface resistivity of less than 2000 kilo-ohms/cm and

wherein said coating, layers, and saturant containing said carbon black aggregates is made by a method comprising the steps of:

(a) blending carbon black aggregates, at least one dispersion aid, and a liquid dispersing medium to provide a dispersion comprising carbon black aggregates; and

(b) blending said dispersion into an adhesive binder system."

The independent claim of the first auxiliary request reads as follows (amendments when compared to claim 1 of the main request are depicted in bold or struck through):

"1. A coated abrasive article obtainable by a method comprising the steps of:

(a) providing a support member having a front surface and a back surface, optionally saturating said support member with a saturant, optionally applying a presize coating on said front surface of said support member, and optionally applying a backsize coating on said back surface of said support member,

(b) applying a first layer of binder adhesive onto the front side of said support member,

(c) at least partially embedding abrasive granules in said first layer,

(d) conventionally curing said coatings, layers, and saturant, wherein there is applied at least one additional layer of binder adhesive overlying said first layer of binder adhesive, ~~and~~ wherein at least one of said coating, layers, and saturant contains a quantity of carbon black aggregates **in a size range of less than 300 to 125 micrometers** sufficient to provide a cured binder adhesive containing said black aggregates having a surface resistivity of less than 2000 kilo-ohms/cm, and

wherein said coating, layers, and saturant containing said carbon black aggregates is made by a method comprising the steps of:

(a) blending carbon black aggregates **in a size range of less than 300 to 125 micrometers**, at least one dispersion aid, and a liquid dispersing medium to

provide a dispersion comprising carbon black aggregates; and

(b) blending said dispersion into an adhesive binder system, **wherein the total solids comprising the uncured adhesive binder system comprising said dispersion is in the range of 20 to 75 weight percent.**"

The independent claim of the second auxiliary request reads as follows (amendments when compared to claim 1 of the main request are struck through or depicted in bold):

~~"1. A coated abrasive article obtainable by a method~~
for making an electrically conductive coated abrasive article comprising the steps of:

(a) providing a support member having a front surface and a back surface, optionally saturating said support member with a saturant, optionally applying a presize coating on said front surface of said support member, and optionally applying a backsize coating on said back surface of said support member,

(b) applying a first layer of binder adhesive onto the front side of said support member,

(c) at least partially embedding abrasive granules in said first layer,

(d) conventionally curing said coatings, layers, and saturant, wherein there is applied at least one additional layer of binder adhesive overlying said first layer of binder adhesive, ~~and~~ wherein at least one of said coating, layers, and saturant contains a quantity of carbon black aggregates sufficient to provide a cured binder adhesive containing said black aggregates having a surface resistivity of less than 2000 kilo-ohms/cm, and

wherein said coating, layers, and saturant containing said carbon black aggregates is made by a method comprising the steps of:

- (a) blending carbon black aggregates, at least one dispersion aid, and a liquid dispersing medium to provide a dispersion comprising carbon black aggregates; and
- (b) blending said dispersion into an adhesive binder system."

The independent claim of the third auxiliary request reads as follows (amendments when compared to claim 1 of the second auxiliary request are depicted in bold):

- "1. A method of making an electrically conductive coated abrasive article comprising the steps of:
- (a) providing a support member having a front surface and a back surface, optionally saturating said support member with a saturant, optionally applying a presize coating on said front surface of said support member, and optionally applying a backsize coating on said back surface of said support member,
 - (b) applying a first layer of binder adhesive onto the front side of said support member,
 - (c) at least partially embedding abrasive granules in said first layer,
 - (d) conventionally curing said coatings, layers, and saturant, wherein there is applied at least one additional layer of binder adhesive overlying said first layer of binder adhesive, wherein at least one of said coating, layers, and saturant contains a quantity of carbon black aggregates **in a size range of less than 300 to 125 micrometers** sufficient to provide a cured binder adhesive containing said black aggregates having

a surface resistivity of less than 2000 kilo-ohms/cm
and

wherein said coating, layers, and saturant containing
said carbon black aggregates is made by a method
comprising the steps of:

(a) blending carbon black aggregates **in a size range of
less than 300 to 125 micrometers**, at least one
dispersion aid, and a liquid dispersing medium to
provide a dispersion comprising carbon black
aggregates; and

(b) blending said dispersion into an adhesive binder
system, **wherein the total solids comprising the uncured
adhesive binder system comprising said dispersion is in
the range of 20 to 75 weight percent.**"

IV. The documents relevant to the present decision are the
following:

D1: US-A-3 942 959

D5: Schriftreihe Pigmente der Firma Degussa,
"Pigmentruße für Kunststoffe", Nr. 40, March 1988

D4: Schriftreihe Pigmente der Firma Degussa, "Ruß für
leitfähige Kunststoffe", Nr. 69, April 1983

D8: JP-A-58 171264 (and translation filed during the
appeal proceedings)

D10: Schriftreihe Pigmente der Firma Degussa, "Degussa
Pigmentruße und Pigmentruß-Präparationen für
Sondergebiete", Nr. 47, August 1979

D11: Schriftreihe Pigmente der Firma Degussa, "Degussa-Pigmentruße und Pigmentruß-Präparationen für Kunststoffe", Nr. 7, October 1986

V. The appellant argued in written and oral submissions essentially as follows:

- (i) The request that the appeal be deemed inadmissible has been filed too late so that the request should not be admitted. The respondent has already accepted the earlier decision (T 2/98) of Board 3.2.3 and cannot now attack it again.
- (ii) There is no reason to restrict the examination of the patent as amended to an examination only of novelty and inventive step.
- (iii) The experimental report which was filed at the start of the oral proceedings should be admitted into the proceedings. Also, an employee of the appellant should be allowed to explain the report.
- (iv) The auxiliary requests of the respondent filed in the oral proceedings are late filed. Because the feature added to the independent claim of each of these requests is taken from the description it would be necessary to adjourn the oral proceedings to allow the appellant a further study of the amendment and an additional search.
- (v) A product-by-process claim as in the main and first auxiliary requests should not be allowed.

There is no reason for allowing such a claim since the claims as granted included a product claim which shows that it is possible to define the product by its own technical features and that therefore a product-by-process claim is not necessary.

(vi) The subject-matter of claim 1 of the main request lacks an inventive step. D8 is the closest prior art document. It is admitted that this document does not disclose an additional binder layer. However it is normal in the art to provide such an extra layer. The carbon powder is partially embedded in the binder adhesive since when the binder is cured it will shrink, leaving part of the particles extending from the surface. It is also known from D4 that carbon black aggregates can improve the surface conductivity since they produce conductive paths.

(vii) The subject-matter of claim 1 of the second auxiliary request lacks an inventive step. The use of a pre-dispersion is well known in the art as for example disclosed in D10 or D11. Therefore the extra features of claim 1 of this request are obvious to the person skilled in the art.

VI. The respondent argued in written and oral submissions essentially as follows:

(i) The preceding appeal T 2/98 before Board 3.2.3 concerning the patent in suit was inadmissible because the grounds of appeal were based solely on new documents introduced for the first time in

those appeal proceedings. Since the appeal grounds did not indicate any reasons why the appealed decision was incorrect that appeal was inadmissible. Therefore subsequent proceedings, such as the present appeal, are no longer possible with the result that the present appeal is also inadmissible.

- (ii) If the appeal in T 2/98 was admissible then the matters decided in that appeal are *res judicata*. Board 3.2.3, when remitting the case to the department of first instance for further prosecution, after amendments made to the patent in the appeal proceedings, would automatically have examined these amendments for compliance with the EPC, i.e. Articles 84 and 123(2) and (3) EPC. Thus that Board took in fact a decision on these matters and as a consequence the patent was remitted to the department of first instance solely to examine inventive step. Therefore the further first instance proceedings had been limited to the examination of inventive step. Consequently, the same applies to the present appeal proceedings and formal objections pursuant to Articles 84 and 123 EPC can no longer be admitted.

- (iii) The experimental report filed by the appellant at the start of the oral proceedings should not be admitted into the proceedings, as it is filed too late. Also the content of the report is not relevant since the conditions under which the experiments were carried out are not given in the report. The employee of the appellant should not

be allowed to speak since this was not announced one month in advance of the oral proceedings as required by the case law of the Enlarged Board of Appeal.

- (iv) The newly filed first and third auxiliary requests should be admitted into the proceedings. The appellant has introduced a new argument during the oral proceedings that the aggregates are automatically destroyed in the mixing process. Therefore it is appropriate to allow a new request to counter this argument. The extra feature is clearly disclosed in the description.

- (v) A product-by-process claim is justified in the present case since it is not possible to specify important features of the invention in the form of product features. The manner of adding the carbon black aggregates specified in the claim would result in an end product which has a surface resistivity which is lower for a given amount of the aggregates than would be the case if the carbon black aggregates were added without using a pre-dispersion. This increase would allow the skilled person to recognise from the final product that it has been formed by using a pre-dispersion. Also, there would remain some of the dispersing aid and dispersing medium in the end product so the skilled person could ascertain that a dispersing aid or dispersing medium had been used in the manufacture. Although the claims as granted included product claims the amendment to the claims in response to the opposition

required the introduction of features which could only be defined in a product-by-process claim.

The amendment to a product-by-process claim does not extend the scope of protection. Method claim 7 as granted contained all the features of product claim 1. The change of category of claim 7 to a product-by-process claim therefore does not add subject-matter. Also, the fact that claim 1 only requires that the product be obtainable from the process does not add subject-matter since the claimed subject-matter remains the product and even if it can be obtained by another process it still must have the features of the process from which it is obtainable.

Although not all the features of claim 8 as granted have been included in amended claim 1 this is not necessary. Claim 8 contained two features, one related to the dispersion of the aggregates and one related to the percentage of solids in the binder system. Since these features are separately mentioned in the description as being preferable it is permissible to introduce only one of the features into the independent claim. This amendment does not therefore result in added subject-matter.

Since features of claim 8 as granted have been added to the features of claim 7 from which it depended amended claim 1 incorporating these features is more limited than the granted claim and hence the scope of protection has not been extended.

- (vi) The subject-matter of claim 1 of the main request involves an inventive step. The closest prior art is D8. Claim 1 is distinguished over this prior art in that there is an additional layer of binder adhesive overlaying the first layer, in that the abrasive granules are at least partially embedded in the first layer, and in that one of the layers contains aggregates of carbon black. It is undisputed that D8 does not disclose the additional layer or the use of aggregates of carbon black. D8 describes mixing the abrasive particles with the binder; it does not state that they are partially embedded. Although the abrasive particles are depicted in the drawing as being partially embedded the small size of the abrasive grains means that this cannot be technically correct. Such grains would always be introduced by mixing and then would not be partially embedded. Embedding is achieved by scattering the abrasive on to the surface of the adhesive binder and this process is not disclosed in D8.

The skilled person would not take into account D4 because in D8 it is indicated that increasing the grain size reduces the conductivity. The skilled person starting from D8 would not therefore take D4 into consideration which relates in particular to increasing the grain size.

- (vii) The subject-matter of claim 1 of the second auxiliary request involves an inventive step. By providing a pre-dispersion problems of viscosity

which arise when conductive particles are added later are overcome.

VII. The other party made no submission.

Reasons for the Decision

1. *Admissibility of the appeal*

1.1 The respondent has argued the inadmissibility of the present appeal on the basis that the preceding appeal (T 2/98) on the same patent was itself inadmissible. The present Board notes that in the reasons for that decision Board 3.2.3 has explicitly indicated that the appeal was admissible (see point 1 of the reasons) and has taken a decision on that issue. In the opinion of the present Board it does not lie within the power of a Board to decide again upon the admissibility of an appeal in preceding appeal proceedings. When a case is remitted by a Board of Appeal it is not within the power of the department of first instance to reconsider the admissibility of the appeal since that power lies solely with the Board of Appeal, based on the notice and grounds of appeal. A subsequent Board of Appeal is bound by the decision of the preceding Board in the same manner as the department of first instance (Article 111(2) EPC in conjunction with Article 111(1) EPC), see also decision T 79/89, OJ EPO 1992, 283, point 3 of the reasons.

1.2 The Board considers the requirements for admitting the present appeal to be met.

2. *Extent of the present appeal proceedings*

Decision T 2/98 concerned an appeal against a decision of the Opposition Division to maintain the patent in amended form. In that decision there is a reference to the documents considered in the appealed decision without any discussion of their disclosure (see reasons point 2). This is followed by a discussion of D9 to D11 which had been introduced with the appeal grounds (see reasons point 3). The Board then explained why the introduction of D9 to D11 into the proceedings necessitated a remittal of the case to the first instance. There is thus no explicit discussion by the Board of the formal admissibility of the amendments to the claims.

The respondent argued that the Board in question would have automatically examined the amendments to the patent for compliance with the so-called formal requirements of the EPC before remittal to the department of first instance, so that implicitly a decision had been taken on these matters. The present Board cannot agree with this argument. There is no indication in the said decision of the result of such an examination so that it is mere speculation as to whether such an examination has actually taken place. Moreover, if a case is remitted for examination in respect of newly filed documents further amendments could be made to the claims. In such a case it would not necessarily have served a useful purpose to examine the claims to be remitted for formal deficiencies. There is thus no reason to assume, even implicitly, that the preceding Board has examined the amendments to the claims for compliance with formal requirements of

the EPC. The present Board therefore considers that the formal allowability of the claims as remitted to the department of first instance, now forming the basis of the present appeal, are not *res judicata* and it is free to apply the formal requirements of the EPC to these claims.

3. *Late filed experimental report and participation of employee of the appellant*

3.1 The experimental report which was filed by the appellant during the oral proceedings before the present Board comprises the results of two experiments which are meant to show that the experiments performed by the respondent, of which the results were filed during the opposition proceedings, had not been correctly carried out. The fact that the report was filed during the oral proceedings means that it is clearly late filed. Given that it is an experimental report the representative of the respondent could not necessarily be expected to assess its content without the advice of a technical expert. Moreover, since the report does not give all the experimental conditions relevant to the tests it is not possible to assess the relevance of its contents during the oral proceedings. The offer of the appellant that an employee of the appellant, who was present in the oral proceedings, could explain the tests is not acceptable. In accordance with G 4/95 (OJ EPO 1996, 412, see point 10 of the reasons) the presence of a technical expert and the subject-matter on which he would speak should have been announced sufficiently in advance of the oral proceedings for the other party to prepare itself for that subject-matter. It is clear that the respondent,

for whom only his representative was present at the oral proceedings, would be at a clear disadvantage if the experimental reports were to be admitted into the proceedings and if the technical expert of the appellant were to be allowed to explain them.

- 3.2 The Board therefore decided not to admit the late filed experimental reports into the proceedings and not to allow the technical expert to speak (see also T 951/91, OJ EPO 1995, 202).

4. *Late filed requests*

- 4.1 The first and third auxiliary requests of the respondent were filed during the oral proceedings before the Board. The requests each include a new feature taken from the description. The feature is in each case a size range for the carbon black aggregates.

This feature had not previously been in the discussion so that the appellant could not have been expected to anticipate such an amendment and to carry out a further search in the prior art. A further search could have been contemplated since it would have been relevant to the question of inventive step to know if carbon black aggregates, which are mentioned in the prior art, commonly have a size within the range now specified in each claim 1 of the respective first and third auxiliary requests.

The view of the respondent that the appellant had introduced a new argument regarding the size of the aggregates as late as during the oral proceedings cannot be shared by the Board. In the first place it

was the respondent itself which for the first time in the oral proceedings laid stress on the difference between the implied sizes of an aggregate and a particle. The appellant merely produced arguments in the oral proceedings to counter this argument of the respondent. This argument of the respondent together with appropriate requests could have been submitted earlier, at the latest in response to the communication of the Board in preparation of the oral proceedings.

- 4.2 The Board therefore considers that the late filing of these requests is not justified. Accordingly, the first and third auxiliary requests are not admitted into the proceedings.

Main request

5. *Product-by-process claim*

- 5.1 Claim 1 is set out in the form of a product-by-process claim involving features of the process claims 7 and 8 as granted. Since in particular the features from method claim 8 as granted cannot be expressed in terms of product features, it is justified to cast the claim in the form of a product-by-process claim.

- 5.2 It therefore needs to be considered which method steps result in features in the ensuing product and what those features are. It has not been shown by the respondent that forming a dispersion of the carbon black aggregates and blending this dispersion with the binder adhesive forms an abrasive product different from one for which the carbon black aggregates have been added directly to the adhesive system. The fact

that a dispersing aid and a dispersing medium are employed also does not necessarily imply a different final product since the adhesive system is, in accordance with the claim, subject to being "conventionally cured". Conventional curing may include heating in an oven (cf. description of the patent, page 5, line 28). Such a heating step can mean that the dispersing aid and dispersing medium volatilise and are no longer present in the abrasive article to which the claim is directed. The Board thus considers that this feature of the process of manufacture of the product does not necessarily result in a corresponding feature of the product itself and therefore will not be taken into account when assessing the subject-matter of the claim for inventive step. This is particularly the case since the product need only be "obtainable" by the method.

- 5.3 The respondent has further argued that the skilled person would recognise that the product was obtained by the claimed method steps due to the decreased surface resistivity which could only have been obtained when a pre-dispersion using a dispersing aid had been employed.

The Board cannot agree. In the first place the respondent presented no evidence to support this allegation. Moreover, this is not a direct feature of the product but rather a comparison with one other particular method of preparing the product. There could be further methods of preparation, however, which produce lower surface resistivities so that the claimed method steps may not uniquely lead to the claimed feature.

6. *Article 123(2) and (3) EPC*

6.1 The product claim as granted contained concrete product features. Claim 1 as amended now specifies the product features by way of the method steps by which the product can be obtained. Method claim 7 as granted contained, expressed as method steps, all the product features of product claim 1. The change of category of claim 7 to a product-by-process claim therefore does not add subject-matter.

6.2 As well as using the method steps of claim 7 as granted to form claim 1 as a product-by-process claim some of the steps set out in method claim 8 as granted are also incorporated into claim 1.

Claim 8 as granted contained two steps (a) and (b). Step (b) as well as specifying "blending said dispersion into an adhesive binder system" also contained the feature that "wherein the total solids comprising the uncured adhesive binder system comprising said dispersion is in the range of 20 to 75 weight percent". This latter feature, however, is not included in amended claim 1. The appellant considers that the failure to include this part of feature (b) in amended claim 1 adds subject-matter contrary to Article 123(2) EPC.

However, the Board notes that on page 4, lines 3 to 5 of the description of the patent, it is explained that the use of a dispersion aid and a dispersing medium is preferable and that the dispersion so formed is added to the binder. Separately, in the description on page 5, lines 17 to 18, it is stated that preferably

the total solid content of uncured adhesive binder is in the range of 20 to 75 weight percent. It is thus clear to the skilled person that the second part of feature (b) of claim 8 as granted is an independently preferable feature. Moreover, the extra method features added to amended claim 1 compared to claim 7 as granted may be seen as being derived directly from the description on page 4, lines 3 to 5, quite independent of their presence in claim 8 as granted. The Board concludes therefore that also this amendment complies with Article 123(2) EPC.

- 6.3 As already explained above with respect to the main request the Board considers that claim 1 contains all the product features of claim 1 as granted. The fact that the claim only requires that the product be "obtainable" by the process does not extend the scope of protection since the claimed subject-matter remains the product and even if the product could be obtained by another process it still must have the features of the product of claim 1, i.e. those obtained from the specified method steps. The Board therefore concludes that the amendment of claim 1 to the present product-by-process claim does not extend the scope of protection. The Board concludes therefore that this amendment complies also with Article 123(3) EPC.

7. *Inventive step*

- 7.1 The closest prior art is represented by D8. The document discloses a coated abrasive article having a support member, a first layer of binder adhesive on the front surface of the adhesive, abrasive grains in the first layer which are at least partially embedded

therein, the first layer including a quantity of carbon therein and the surface having a resistivity of less than 2000 kilo-ohms/cm in examples 2 and 3.

The respondent disputed that the carbon powder disclosed in D8 was at least partially embedded in the first layer.

The expression "at least partially embedded" clearly includes that the grains may be wholly embedded. Embedded means that the grain is surrounded by the binder and the words "at least partially" only modify this in that the grain need not be fully surrounded by the binder but can have a part which is not surrounded. There is no doubt therefore that the powder disclosed in D8 is embedded in the first layer and hence is "at least partially embedded" therein. The Board is also satisfied that the resistivity value specified in the claim is disclosed in D8. D8 does not specify the manner of measuring the resistivity. However also claim 1 of the request does not require a specific manner of measurement. The claimed resistivity range is thus not distinguished from the resistivity value disclosed in D8.

- 7.2 With regard to the feature of claim 1 that first a dispersion is formed by blending the carbon black aggregates, at least one dispersion aid and a dispersing medium and then the dispersion is blended into an adhesive binder system, the Board is not convinced that this constitutes a feature of the claimed product for the reasons already explained above, see point 5.2.

- 7.3 The Board therefore concludes that the subject-matter of claim 1 is distinguished over the disclosure of D8 in that (a) there is at least an additional layer of binder adhesive overlying the first layer of binder adhesive and in that (b) the carbon black is in the form of aggregates.
- 7.4 With regard to feature (a) the Board would note that according to the description of the patent it is conventional to provide up to three layers of binder adhesive, cf. page 3, lines 13 to 26. The first layer which includes the adhesive is called the "make coat". The second layer which overlies the first layer is called the "size coat". A third optional layer is called the "supersize coat". Thus, according to the description of the patent feature (a) is conventional. The Board also notes that D1 discloses such a size coat overlying a conductive layer. There is thus no prejudice against providing such a size coat even when one of the layers contains conductive material. The Board therefore considers that the provision of feature (a) is obvious to the person skilled in the art.
- 7.5 With regard to feature (b) the problem to be solved by this feature is to decrease the surface resistivity of an abrasive article so as to reduce the generation of static electricity, cf. description of the patent, page 2, lines 42 to 46. D4 discusses the usefulness of carbon black in providing electrical conductivity in polymer material, cf. page 4, section 4. Carbon black particles are discussed on page 5 of the document in a part of section 4.1. On page 6 in a further part of section 4.1 it is suggested that carbon black aggregates would lead to an increased electrical

conductivity on the basis of their shape. D4 does not limit the field of application of carbon black. This may be seen on page 2, section 1.1 which mentions the origins of static electricity in general, including rubbing. On page 3, section 3 the need for good surface and body conductivity is mentioned. On page 4, section 4 the universal applicability of carbon black is indicated and as already mentioned above it is in subsection 4.1 that carbon black aggregates are mentioned. D4 thus provides a general teaching that the provision of carbon black aggregates can be expected to improve the conductivity and hence reduce the resistivity. The skilled person wishing to improve the resistivity of the product known from D8 is thus taught to achieve this by providing the carbon black in the form of carbon black aggregates. In applying this teaching the skilled person would therefore arrive at the subject-matter of claim 1 in an obvious manner.

- 7.6 The respondent argued that the teaching of D8 would lead the skilled person away from considering D4 since it is stated in D8 that increased grain size reduces conductivity. However, in D4 it is first of all confirmed that normally a reduction in grain size increases conductivity (see page 5, left hand column to middle column), but then it is explained how aggregates due to their form could increase the conductivity (see page 6, left hand column, third paragraph). Thus the skilled person receives from D4 an explanation why the prejudice stated in D8 is not justified and would take the teaching of D4 into account.

7.7 For the above reasons the Board concludes that the subject-matter of claim 1 of the main request does not involve an inventive step in the sense of Article 56 EPC.

Second auxiliary request

8. *Article 123(2) and (3) EPC*

8.1 The request contains as claim 1 a method claim formed from the combination of claims 7 and 8 as granted whereby not all of claim 8 has been included in the amended claim. The part of claim 8 which is not included is the same part which was not included in claim 1 of the main request. This omission does not add subject-matter for the same reasons as already explained above with respect to the main request, see point 6.2.

8.2 Also the amendments limit the scope of independent claim 7 as granted so that the scope of protection is not extended.

8.3 The Board is therefore satisfied that the requirements of Article 123(2) and (3) EPC are satisfied.

9. *Inventive step*

9.1 Claim 1 of the second auxiliary request has the same wording as claim 1 of the main request except that it is directed to the method of producing the abrasive articles rather than the product obtainable by such a method. The features of former claim 8 which specify the method of making the carbon black aggregates, which

were not considered to be product features when discussing the inventive step of product-by-process claim 1 of the main request, now have to be taken into account for the assessment of inventive step of the subject-matter of claim 1 of the present request.

- 9.2 With regard to the features of claim 1 of this request which correspond to the product features of claim 1 of the main request, the same reasoning applies concerning inventive step as applied to claim 1 of the main request.

Claim 1 of this request in addition specifies that the carbon black aggregates, dispersion aid and dispersing medium are first blended together to form a dispersion. This dispersion is then blended into the adhesive binder.

In D10 it is explained on page 1 that a pigment which is already provided in dispersed form in a suitable binder avoids the need to deal with the powder. Also on page 12, right hand column, the advantages of using a prepared dispersion of carbon black is explained. It may also be noted that even in a normal household a dispersion of drinking chocolate powder is prepared by first forming a pre-dispersion of the chocolate powder with a small amount of the dispersing medium (e.g. milk) and then blending this dispersion into the final medium (e.g. milk). It is thus standard practice with dispersions to first blend the powder in liquid medium and then to blend this mixture into the final medium. Also the use of a dispersing aid is a standard practice in this art. This is shown in D5 (see section 5.5) where the importance of wettability to improve

dispersion is explained, together with Table 2 (see section 2.4) of D11 which indicates carbon black dispersions which contain wetting agents in commercial products. The skilled person would thus arrive in obvious manner at the extra features of claim 1 of this request.

9.3 The respondent has argued on the basis that the later addition of conductive particles causes viscosity problems which are solved by the pre-dispersion. However, as explained above, pre-dispersion is a standard measure which the skilled person would carry out. Any possible improvement in the question of viscosity is then a mere bonus effect which does not justify an inventive step.

9.4 Therefore, also the subject-matter of claim 1 of the second auxiliary request does not involve an inventive step in the sense of Article 56 EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:

G. Nachtigall

H. Meinders