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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations

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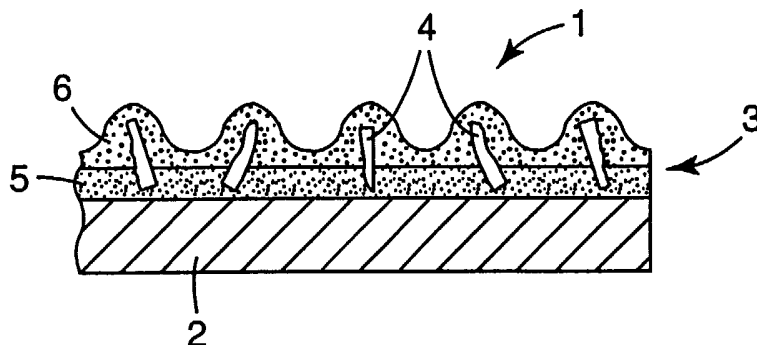
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3 July 2003

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD OF MAKING AMORPHOUS MATERIALS AND CERAMICS



(57) Abstract: Methods of making amorphous material and ceramic materials. Embodiments of the invention can be used to make abrasive particles. The abrasive particles can be incorporated into a variety of abrasive articles, including bonded abrasives, coated abrasives, nonwoven abrasives, and abrasive brushes.

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 02/24656

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C03C1/00 C03C6/00 C09K3/14

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C03C C03B C09K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, COMPENDEX, EPO-Internal, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE WPI Section Ch, Week 199712 Derwent Publications Ltd., London, GB; Class L01, AN 1997-130792 XP002223940 & SU 1 455 569 A (CONSTR TECH GLASS RES INST), 27 July 1996 (1996-07-27) abstract ---	1-32
X	KONDRASHOV V I ET AL: "Lines of synthesis of Decorit opacified glass" STEKLO KERAM; STEKLO I KERAMIKA 2001, no. 1, 2001, pages 8-11, XP002223939 the whole document ---	1-32
A	US 4 489 022 A (DESCHEPPER PIERRE ET AL) 18 December 1984 (1984-12-18) claims --- -/--	1-36



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

* & * document member of the same patent family

Date of the actual completion of the international search

6 December 2002

Date of mailing of the international search report

07/01/2003

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 02/24656

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 20 34 011 A (WUESTEFELD A) 13 January 1972 (1972-01-13) claims -----	1-36

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 02/24656

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

In view of the large number and also the wording of the claims presently on file, which render it difficult, if not impossible, to determine the matter for which protection is sought, the present application fails to comply with the clarity and conciseness requirements of Article 6 PCT (see also Rule 6.1(a) PCT) to such an extent that a meaningful search is impossible.

Present claims 1-36 relate to an extremely large number of possible methods. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the methods claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed by the examples, namely those parts relating to the methods in as far as they relate to the production of glass or glass-ceramic materials and in as far as they relate to the use of aluminum or magnesium as particulate metallic material.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International Application No

PCT/US 02/24656

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
SU 1455569	A	27-07-1996	SU 1455569 A1	27-07-1996
US 4489022	A	18-12-1984	AU 566482 B2	22-10-1987
			AU 9079682 A	02-06-1983
			BE 895067 A1	19-05-1983
			CA 1202334 A1	25-03-1986
			DE 3243668 A1	01-06-1983
			ES 8401233 A1	16-02-1984
			FR 2516915 A1	27-05-1983
			GB 2110200 A ,B	15-06-1983
			GB 2154228 A ,B	04-09-1985
			IL 67328 A	28-02-1986
			IN 158669 A1	03-01-1987
			IT 1157076 B	11-02-1987
			JP 2082895 C	23-08-1996
			JP 4013308 B	09-03-1992
			JP 58099162 A	13-06-1983
			MX 160795 A	22-05-1990
			NL 8204566 A ,B,	16-06-1983
			ZA 8208191 A	30-11-1983
DE 2034011	A	13-01-1972	DE 2034011 A1	13-01-1972