



(51) International Patent Classification:

B24D 3/10 (2006.01) **B24D 7/00** (2006.01)
C09K 3/14 (2006.01) **B24B 37/04** (2006.01)
B24D 3/34 (2006.01)

(21) International Application Number:

PCT/US2010/054347

(22) International Filing Date:

27 October 2010 (27.10.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/255,254 27 October 2009 (27.10.2009) US

(71) Applicants (for all designated States except US):

SAINT-GOBAIN ABRASIVES, INC. [US/US]; One
 New Bond Street, Worcester, Massachusetts 01615-0138
 (US). **SAINT-GOBAIN ABRASIFS** [FR/FR]; Rue de
 l'Ambassadeur, F-78700 Conflans-Sainte-Honorine (FR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **VEDANTHAM,
 Ramanujam** [IN/US]; 15 Arrowsic Street, Worcester,
 Massachusetts 01606 (US). **UPADHYAY, Rachana** [IN/
 US]; 11 Amherst Road, Shrewsbury, Massachusetts
 01545 (US). **QUEREL, Gilles** [FR/FR]; 28ter Rue
 d'Amiens, F-60200 Compiègne (FR).

(74) Agents: **LARSON NEWMAN & ABEL, LLP** et al.;
 5914 West Courtyard Drive, Suite 200, Austin, Texas
 78730 (US).

(81) Designated States (unless otherwise indicated, for every

kind of national protection available): AE, AG, AL, AM,
 AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,
 CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO,
 DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
 HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP,
 KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,
 ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI,
 NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD,
 SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR,
 TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every

kind of regional protection available): ARIPO (BW, GH,
 GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG,
 ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ,
 TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
 EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,
 LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,
 SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
 GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

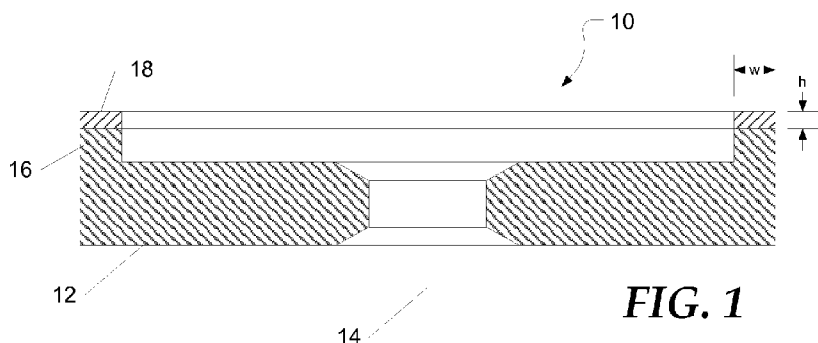
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report (Art. 21(3))

[Continued on next page]

(54) Title: VITREOUS BONDED ABRASIVE

**FIG. 1**

(57) Abstract: A vitrified superabrasive product includes a superabrasive component and a vitrified bond component in which the superabrasive component is dispersed. The vitrified bond includes an oxide of a lanthanoid. Additionally, the vitrified bond component defines pores that can be essentially all less than 800 μm in diameter. Seventy percent of the pores are in a range of between about 40 μm and about 500 μm and have an average aspect ratio less than about 2. The porosity is in a range of between about 50% and about 90% of the total volume of the superabrasive product.



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:
22 September 2011