



(51) International Patent Classification:

B24D 3/20 (2006.01) *C09C 1/68* (2006.01)
C09K 3/14 (2006.01)

(21) International Application Number:

PCT/US2012/066273

(22) International Filing Date:

21 November 2012 (21.11.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/563,373 23 November 2011 (23.11.2011)

US

(71) **Applicants** (for all designated States except US): **SAINT-GOBAIN ABRASIVES, INC.** [US/US]; One New Bond Street, Worcester, Massachusetts 01615 (US). **SAINT-GOBAIN ABRASIFS** [FR/FR]; Rue de l'Ambassadeur, F-78700 Conflans-Sainte-Honorine (FR).

(72) **Inventors**: **SARANGI, Nilanjan**; 17 Birch Lane, Shrewsbury, Massachusetts 01545 (US). **CAMPANIELLO, John**; 30 Lovett Rd, Oxford, Massachusetts 01540 (US). **GAFFNEY, James M.**; 1 Cubard, Worcester, Massachusetts 01603 (US). **FOX, Stephen E.**; 215 May Street, Worcester, Massachusetts 01602 (US). **BESSE, John R.**; 34 Fieldstone Lane, Beacon Falls, Connecticut 06403 (US). **WOODS, Stephen**; Doxey Road, Stafford ST16 1EA (GB). **FIX, Renaud**; 15 rue Esquirol, F-75013 Paris (FR).

(74) **Agents**: **ABEL LAW GROUP, LLP** et al.; 8911 North Capital of Texas Hwy, Bldg. 4, Suite 4200, Austin, TX 78759 (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, BN, 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, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, 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, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, 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))
- with amended claims (Art. 19(1))

(54) **Title**: Abrasive Article For Ultra High Material Removal Rate Grinding Operations

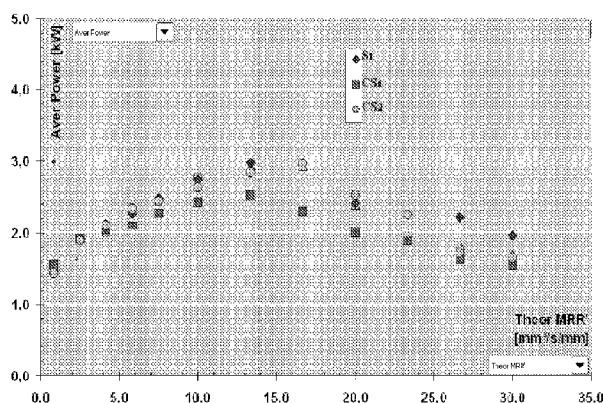


FIG. 1

(57) **Abstract**: An abrasive article including a bonded abrasive body having a bond material present in an amount of not greater than about 15 vol% for the total volume of the body, abrasive particulate material contained in the bond material, the abrasive particulate material including abrasive agglomerates and unagglomerated abrasive particles, wherein the body comprises an abrasive particulate ratio (APp:APagg) within a range between 3:1 and about 1:3, wherein APp represents the amount (vol%) of unagglomerated abrasive particles present in the body and APagg represents the amount (vol%) of abrasive agglomerates present in the body, and a porosity of at least about 42 vol% of the total volume of the bonded abrasive body.