

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
7 April 2005 (07.04.2005)

PCT

(10) International Publication Number
WO 2005/031048 A1

(51) International Patent Classification⁷: **C30B 29/26**,
15/00, 11/00

(21) International Application Number:
PCT/US2004/030804

(22) International Filing Date:
17 September 2004 (17.09.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/669,135 23 September 2003 (23.09.2003) US

(71) Applicant (for all designated States except US): **SAINT-GOBAIN CERAMICS & PLASTICS, INC.** [US/US];
1 New Bond Street, Box Number 15138, Worcester, MA
01615-0138 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KOKTA, Milan**
[US/US]; 1906 SE 331st Avenue, Washougal, WA 98671
(US). **STONE-SUNDBERG, Jennifer** [US/US]; 3138

SW Cascade Drive, Portland, OR 97205 (US). **COOKE, Jeffrey** [US/US]; 26206 NE 34th Street, Camas, WA 98607 (US). **ACKERMAN, Ronald** [US/US]; 4220 SW 6th Avenue, Camas, WA 98607 (US). **ONG, Hung** [US/US]; 16000 NE 40th Street, Vancouver, WA 98682 (US). **CORRIGAN, Emily** [US/US]; 9014 NE Humboldt, Portland, OR 97220 (US).

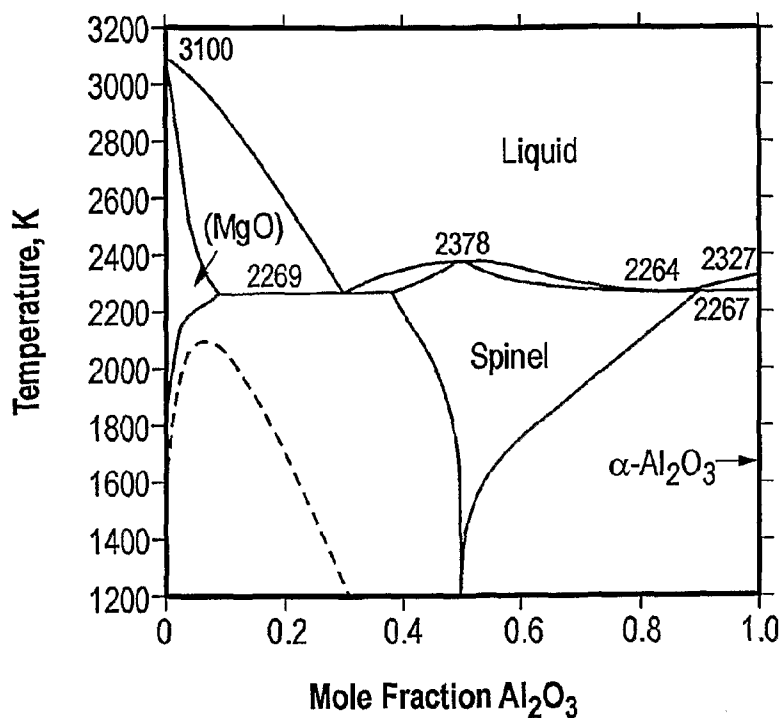
(74) Agent: **BUJOLD, Michael J.**; Davis & Bujold, P.L.L.C.,
500 North Commercial Street, Fourth Floor, Manchester,
NH 03101-1151 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, 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, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: SPINEL ARTICLES AND METHODS FOR FORMING SAME



(57) Abstract: Single crystal spinel boules, wafers, substrates and active devices including same are disclosed. In one embodiment, such articles reduced mechanical stress and/or strain represented by improved yield rates.

WO 2005/031048 A1



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, 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)) for all designations*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations*

Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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.