

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
18 June 2009 (18.06.2009)

PCT

(10) International Publication Number
WO 2009/075935 A1

(51) International Patent Classification:
C30B 23/00 (2006.01) **C01B 31/36** (2006.01)
C30B 29/36 (2006.01)

(74) Agent: **TROY, Timothy, J.**; Patent Department - Mail
CO1232, Dow Corning Corporation, 2200 West Salzburg
Road, Midland, MI 48686-0994 (US).

(21) International Application Number:
PCT/US2008/079126

(22) International Filing Date: 8 October 2008 (08.10.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/013,083 12 December 2007 (12.12.2007) 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, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(71) Applicant (*for all designated States except US*): **DOW CORNING CORPORATION** [US/US]; 2200 West Salzburg Road, Midland, MI 48686-0994 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **LOBODA, Mark** [US/US]; 4729 Morningside Drive, Bay City, MI 48706 (US). **PARK, Seung-ho** [KR/US]; 5109 Amberwood Court, Midland, MI 48640 (US). **TORRES, Victor** [US/US]; 2251 North Old Pine Trail, Midland, MI 48642 (US).

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(54) Title: METHOD TO MANUFACTURE LARGE UNIFORM INGOTS OF SILICON CARBIDE BY SUBLIMATION/CONDENSATION PROCESSES

(57) Abstract: This invention relates to a method for the manufacture of monolithic ingot of silicon carbide comprising: i) introducing a mixture comprising polysilicon metal chips and carbon powder into a cylindrical reaction cell having a lid; ii) sealing the cylindrical reaction cell of i); iii) introducing the cylindrical reaction cell of ii) into a vacuum furnace; iv) evacuating the furnace of iii); v) filling the furnace of iv) with a gas mixture which is substantially inert gas to near atmospheric pressure; vi) heating the cylindrical reaction cell in the furnace of v) to a temperature of from 1600 to 2500 °C; vii) reducing the pressure in the cylindrical reaction cell of vi) to less than 50 torr but not less than 0.05 torr; and viii) allowing for substantial sublimation and condensation of the vapors on the inside of the lid of the cylindrical reaction cell of vii).



WO 2009/075935 A1