

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
28 September 2006 (28.09.2006)

PCT

(10) International Publication Number
WO 2006/100114 A1

(51) International Patent Classification:

C01B 33/033 (2006.01) **C30B 15/00** (2006.01)
C01B 33/037 (2006.01) **C30B 29/06** (2006.01)

(21) International Application Number:

PCT/EP2006/002937

(22) International Filing Date: 24 March 2006 (24.03.2006)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

05075701.2	24 March 2005 (24.03.2005)	EP
60/665,352	28 March 2005 (28.03.2005)	US
05076550.2	7 July 2005 (07.07.2005)	EP

(71) Applicant (*for all designated States except US*): **UMI-CORE** [BE/BE]; Rue du Marais 31, B-1000 Brussels (BE).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **ROBERT, Eric** [BE/BE]; Rue Fond Pirette 142, B-4000 Liège (BE). **ZIJLEMA, Tjakko** [NL/BE]; Kerkhofstraat 51, B-3110 Rotselaar (BE).

(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, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, 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, 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, IS, IT, LT, LU, LV, 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).

Published:

— *with international search report*

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: PROCESS FOR THE PRODUCTION OF SI BY REDUCTION OF SICLJ WITH LIQUID ZN

(57) **Abstract:** The invention relates to the manufacture of high purity silicon as a base material for the production of e.g. crystalline silicon solar cells. SiCU is converted to Si metal by contacting gaseous SiCU with liquid Zn, thereby obtaining a Si-bearing alloy and Zn-chloride, which is separated. The Si-bearing alloy is then purified at a temperature above the boiling point of Zn. This process does not require complicated technologies and preserves the high purity of the SiCU towards the end product, as the only reactant is Zn, which can be obtained in very high purity grades and continuously recycled.



WO 2006/100114 A1