

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
27 January 2022 (27.01.2022)



(10) International Publication Number
WO 2022/020236 A1

(51) International Patent Classification:

C09G 1/02 (2006.01) H01L 21/304 (2006.01)

C09K 3/14 (2006.01) H01L 21/306 (2006.01)

(21) International Application Number:

PCT/US2021/042178

(22) International Filing Date:

19 July 2021 (19.07.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/053,867 20 July 2020 (20.07.2020) US

(71) Applicant: CMC MATERIALS, INC. [US/US]; 870 North Commons Drive, Aurora, Illinois 60504 (US).

(72) Inventors: KITAMURA, Hiroshi; CMC MATERIALS, INC., 870 North Commons Drive, Aurora, Illinois 60504 (US). MASUDA, Tsuyoshi; CMC MATERIALS, INC., 870 North Commons Drive, Aurora, Illinois 60504 (US). MATSUMURA, Yoshiyuki; CMC MATERIALS, INC.,

870 North Commons Drive, Aurora, Illinois 60504 (US). NAMIKI, Akihisa; CMC MATERIALS, INC., 870 North Commons Drive, Aurora, Illinois 60504 (US). SAITO, Takeshi; CMC MATERIALS, INC., 870 North Commons Drive, Aurora, Illinois 60504 (US).

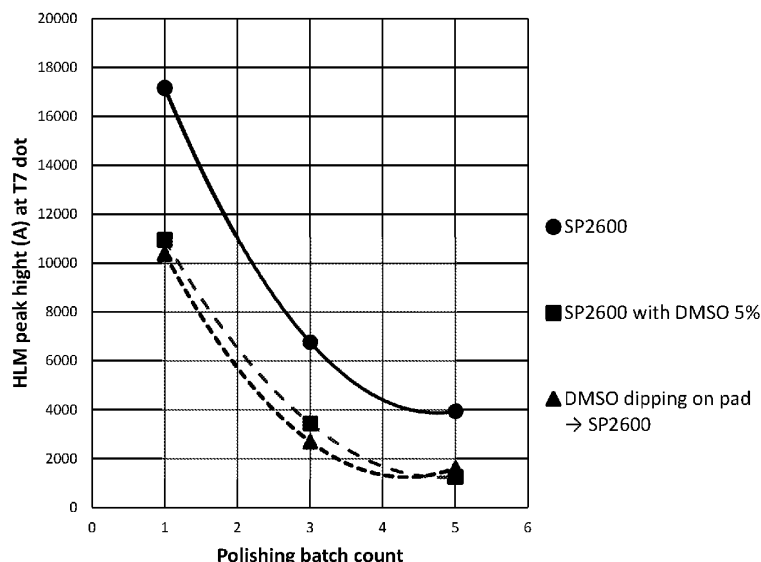
(74) Agent: OMHOLT, Thomas; CMC Materials, Inc., 870 North Commons Drive, Aurora, Illinois 60504 (US).

(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, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, 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, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

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

(54) Title: SILICON WAFER POLISHING COMPOSITION AND METHOD

FIG 1B



(57) Abstract: A chemical mechanical polishing composition for polishing a silicon wafer comprises, consists essentially of, or consists of a water based liquid carrier, colloidal silica particles dispersed in the liquid carrier, about 0.01 weight percent to about 2 weight percent of a dipolar aprotic solvent at point of use, and a pH in a range from about 8 to about 12. A method for polishing a silicon wafer may include contacting the wafer with the above described polishing composition, moving the polishing composition relative to the wafer, and abrading the wafer to remove silicon from the wafer and thereby polish the wafer.

[Continued on next page]

GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, 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, KM, 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))*

Published:

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