

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
24 November 2022 (24.11.2022)



(10) International Publication Number
WO 2022/241545 A1

(51) International Patent Classification:

C01B 13/28 (2006.01) *C01B 33/18* (2006.01)
B01J 19/24 (2006.01) *H05H 1/48* (2006.01)
C01B 33/12 (2006.01)

(21) International Application Number:

PCT/CA2022/050770

(22) International Filing Date:

16 May 2022 (16.05.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/189,069 15 May 2021 (15.05.2021) US

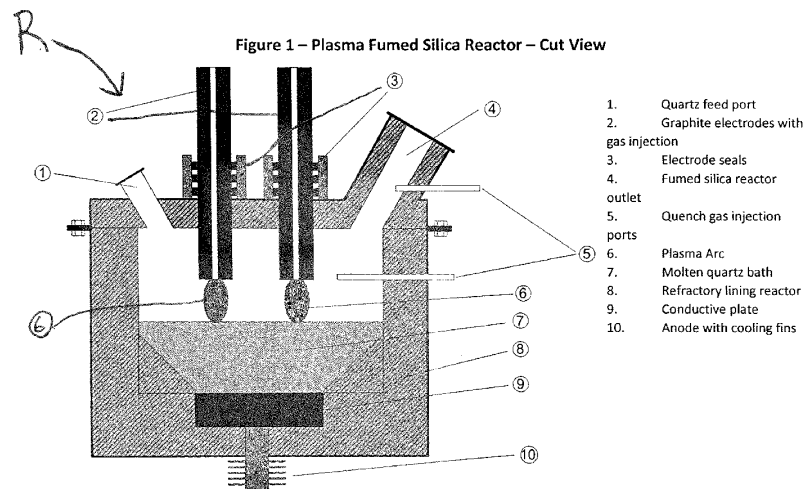
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(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, 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,

(54) Title: PLASMA ARC PROCESS AND APPARATUS FOR THE PRODUCTION OF FUMED SILICA



(57) Abstract: An apparatus for producing fumed silica from silica is described, wherein a plasma arc reactor includes at least one top electrode extending to the molten silica contained in the reactor, a conductive plate provided under the molten silica and a bottom anode. A plasma arc is adapted to be generated, wherein the plasma arc is provided at a tip of the electrode and is adapted to be transferred directly to the molten silica for forming SiO. A quenching system is also provided, such as hydrogen and oxygen containing gases that are injected within the reactor. The quenching system is adapted to reform SiO₂ but in nano-sized amorphous particles, with a reactor outlet being provided for allowing the amorphous SiO₂ nano particles in the form of fumed silica to exit the reactor.

[Continued on next page]

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, 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).

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*