



(51) International Patent Classification:

C22B 26/20 (2006.01) C22B 3/06 (2006.01)
C22B 26/22 (2006.01) B01D 53/62 (2006.01)
C01F 5/24 (2006.01)

(21) International Application Number:

PCT/SG2014/000613

(22) International Filing Date:

23 December 2014 (23.12.2014)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

201309557-5 24 December 2013 (24.12.2013) SG

(71) Applicant: AGENCY FOR SCIENCE, TECHNOLOGY
AND RESEARCH [SG/SG]; 1 Fusionopolis Way #20-10,
Connexis, Singapore 138632 (SG).

(72) Inventors: BU, Jie; c/o Institute of Chemical and Engi-
neering Sciences, 1 Pesek Road, Jurong Island, Singapore
627833 (SG). YEO, Tze Yuen; c/o Institute of Chemical
and Engineering Sciences, 1 Pesek Road, Jurong Island,
Singapore 627833 (SG). SHARRATT, Paul; c/o Institute

of Chemical and Engineering Sciences, 1 Pesek Road, Jur-
ong Island, Singapore 627833 (SG).

(74) Agent: VIERING, JENTSCHURA & PARTNER LLP;
P.O. Box 1088, Rochor Road, Rochor Post Office, Singa-
pore 911833 (SG).

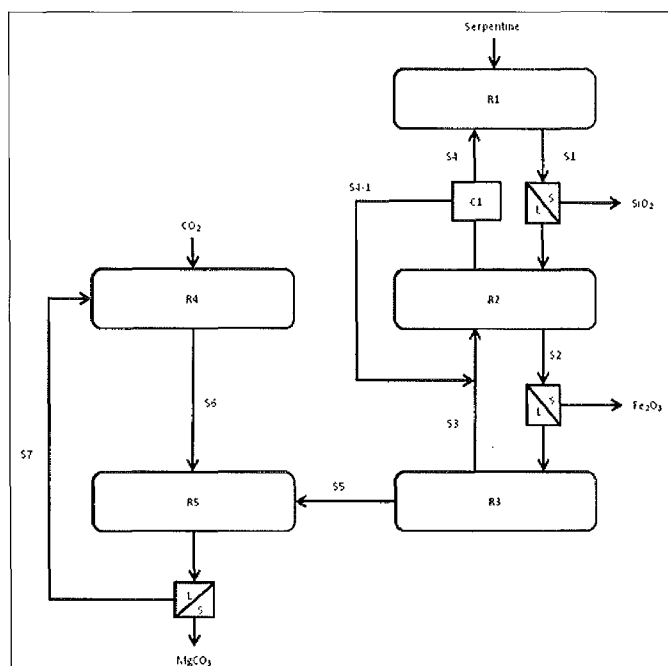
(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,
BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,
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, SM, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, 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,

[Continued on next page]

(54) Title: METHOD OF PRODUCING METAL CARBONATE FROM AN ULTRAMAFIC ROCK MATERIAL

FIG. 5



(57) Abstract: A method of producing a metal carbon-
ate from an ultramafic rock material is provided. The
method includes providing an ultramafic rock material
comprising a metal silicate; reacting the ultramafic
rock material with an acid to form a mixture compris-
ing a salt of the metal; contacting the mixture compris-
ing a salt of the metal with oxygen so as to aerate im-
purities in the mixture and/or to remove residual acid
from the mixture; heating the resultant mixture to de-
compose the salt of the metal to form metal oxide; and
reacting the metal oxide with aqueous ammonium car-
bonate to obtain the metal carbonate. A system for pro-
ducing a metal carbonate from ultramafic rock material
is also provided.



LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, **Published:**
SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, — *with international search report (Art. 21(3))*
GW, KM, ML, MR, NE, SN, TD, TG).