

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
28 July 2022 (28.07.2022)



(10) International Publication Number
WO 2022/159034 A1

(51) International Patent Classification:

C04B 28/04 (2006.01) *C04B 14/10* (2006.01)
C04B 28/14 (2006.01) *C04B 14/28* (2006.01)

(21) International Application Number:

PCT/SG2022/050020

(22) International Filing Date:

19 January 2022 (19.01.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

10202100552W 19 January 2021 (19.01.2021) SG

(71) Applicants: **NANYANG TECHNOLOGICAL UNIVERSITY** [SG/SG]; 50 Nanyang Avenue, Singapore 639798 (SG). **SURBANA JURONG PRIVATE LIMITED** [SG/SG]; 168 Jalan Bukit Merah, #01-01 Connection One, Singapore 150168 (SG).

(72) Inventors: **SUBHASIS, Pradhan**; c/o Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798 (SG). **QIAN, Shunzhi**; c/o Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798 (SG). **YU, Hua**; c/o Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798 (SG).

(74) Agent: **SPRUSON & FERGUSON (ASIA) PTE LTD**; P.O. Box 1531, Robinson Road Post Office, Singapore 903031 (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, 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, 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:

— of inventorship (Rule 4.17(iv))

Published:

— with international search report (Art. 21(3))
— in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE

WO 2022/159034 A1

(54) Title: CEMENTITIOUS MATERIAL AND USES THEREOF

(57) Abstract: The present disclosure refers to a cementitious composition comprising Portland cement clinker in an amount of from about 70 wt% to 95 wt% by dry weight based on the total dry weight of the cementitious composition; and supplementary cementitious material in an amount from about 5 wt% to about 30 wt% by dry weight based on the total dry weight of the cementitious composition, wherein the supplementary cementitious material comprises calcined clay material produced from heating a clay material at a maximum temperature of between about 700 °C to about 900 °C; carbonate material selected from the group consisting of limestone, calcium magnesium carbonate, and mixtures thereof; and sulphate material selected from the group consisting of gypsum, bassanite, anhydrite, and mixtures thereof, wherein the weight ratio of the calcined clay material to the carbonate material is about 1.5:1 to about 2.1:1. The present disclosure also refers to a method of producing the cementitious composition disclosed herein.