



(51) International Patent Classification:

C09K 17/50 (2006.01) *E04B 1/66* (2006.01)
E02D 31/02 (2006.01) *C12P 3/00* (2006.01)

(21) International Application Number:

PCT/SG2022/050379

(22) International Filing Date:

02 June 2022 (02.06.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

10202105945Y 03 June 2021 (03.06.2021) SG

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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, 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).

(54) Title: MICROBIALLY INDUCED GELATION FOR REDUCTION OF PERMEABILITY OF GRANULAR MATERIALS

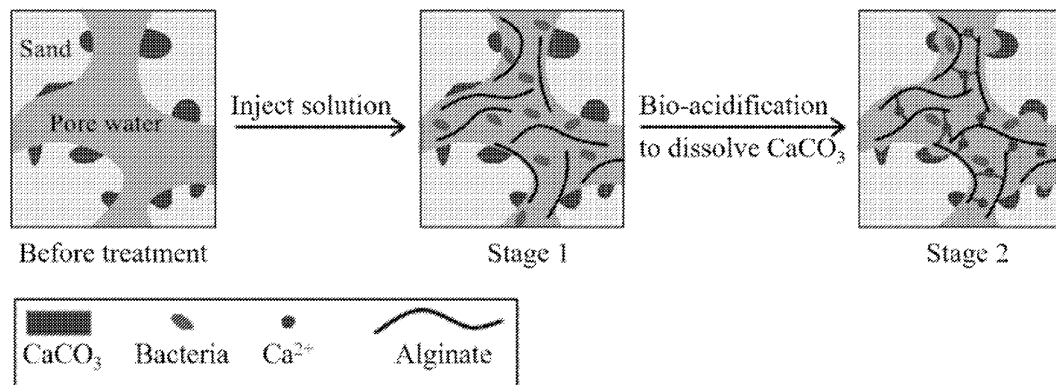


FIG. 2

(57) Abstract: Disclosed herein is a process of forming an organic barrier layer in a porous material in need thereof, the process comprising the steps of: (a) providing a porous material in need thereof and a bio-gelation mixture, the bio-gelation mixture comprising: water; a polysaccharide suitable for crosslinking; glucose; and a bacterial population suitable for converting glucose to a carboxylic acid; and (b) injecting the bio-gelation mixture into; or spraying the bio-gelation mixture onto a surface of the porous material to form an organic barrier layer comprising the polysaccharide crosslinked by a plurality of calcium ions, wherein the plurality of calcium ions are obtained from reaction of the carboxylic acid with a calcium ion source, where the calcium ion source is present in the porous material and/or is added as an additional component within the bio-gelation mixture.

[Continued on next page]

Declarations under Rule 4.17:

— *of inventorship (Rule 4.17(iv))*

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))*

(88) Date of publication of the international search report:

02 February 2023 (02.02.2023)