

- (51) International Patent Classification:
B01D 53/62 (2006.01) **B01D 15/36** (2006.01)
- (21) International Application Number:
PCT/US2024/013806
- (22) International Filing Date:
31 January 2024 (31.01.2024)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
63/442,292 31 January 2023 (31.01.2023) US
63/442,295 31 January 2023 (31.01.2023) US
- (71) Applicant: **THE REGENTS OF THE UNIVERSITY OF CALIFORNIA** [US/US]; 1111 Franklin Street, Twelfth Floor, Oakland, CA 94607-5200 (US).
- (72) Inventors: **SANT, Gaurav, N.**; 10889 Wilshire Blvd., Suite 920, Los Angeles, CA 90095-7191 (US). **CHEN, Xin**; 10889 Wilshire Blvd., Suite 920, Los Angeles, CA 90095-7191 (US). **SIMONETTI, Dante, Adam**; 10889 Wilshire Blvd., Suite 920, Los Angeles, CA 90095-7191 (US). **JASSBY, David**; 10889 Wilshire Blvd., Suite 920, Los Angeles, CA 90095-7191 (US). **LA PLANTE, Erika, Callagon**; 10889 Wilshire Blvd., Suite 920, Los Angeles, CA 90095-7191 (US). **BUSTILLOS, Steven**; 10889 Wilshire Blvd., Suite 920, Los Angeles, CA 90095-7191 (US). **TRAYNOR, Thomas**; 10889 Wilshire Blvd., Suite 920, Los Angeles, CA 90095-7191 (US). **BOUISSONNIÉ, Arnaud**; 10889 Wilshire Blvd., Suite 920, Los Angeles, CA 90095-7191 (US).
- (74) Agent: **HALSTEAD, David, P.** et al.; Foley Hoag LLP, 155 Seaport Boulevard, Boston, MA 02210-2600 (US).

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, 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, ME, 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))
— 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))

- (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, CV, 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, MG, MK, MN, MU, 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.

(54) Title: MITIGATING CHLORIDE ION OXIDATION DURING SALINE WATER ELECTROLYSIS FOR HYDROGEN PRODUCTION AND CARBON DIOXIDE MINERALIZATION

(57) Abstract: The present disclosure relates to methods of sequestering CO₂ comprising a first cathodic chamber, performing a first alkaline process, a first anodic chamber, performing a first acidic process, and dechlorinating a solution by contacting the solution with a dechlorinating agent. Also provided herein are systems comprising a first cathodic chamber and a first anodic chamber.