



- (51) International Patent Classification:
B01D 21/00 (2006.01)
- (21) International Application Number:
PCT/US2008/068564
- (22) International Filing Date:
27 June 2008 (27.06.2008)
- (25) Filing Language:
English
- (26) Publication Language:
English
- (30) Priority Data:
60/937,786 28 June 2007 (28.06.2007) US
61/017,392 28 December 2007 (28.12.2007) US
61/073,326 17 June 2008 (17.06.2008) US

(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, BR, BW, BY, BZ, CA, CH, 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, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(71) Applicant (for all designated States except US):
CALERA CORPORATION [US/US]; 14600 Winchester Blvd., Los Gatos, CA 95032 (US).

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and
(75) Inventors/Applicants (for US only): CONSTANTZ, Brent [US/US]; 16 Ohlone Street, Portola Valley, CA 94028 (US). FARSAD, Kasra [US/US]; 677 Colleen Drive, San Jose, CA 95123 (US). FERNANDEZ, Miguel [US/US]; 1371 Rosalia Avenue, San Jose, CA 95130 (US).

Published:

— with international search report (Art. 21(3))

(74) Agent: FIELD, Bret; 1900 University Avenue, Suite 200, East Palo Alto, CA 94303 (US).

(88) Date of publication of the international search report:
17 December 2009

(54) Title: DESALINATION METHODS AND SYSTEMS THAT INCLUDE CARBONATE COMPOUND PRECIPITATION

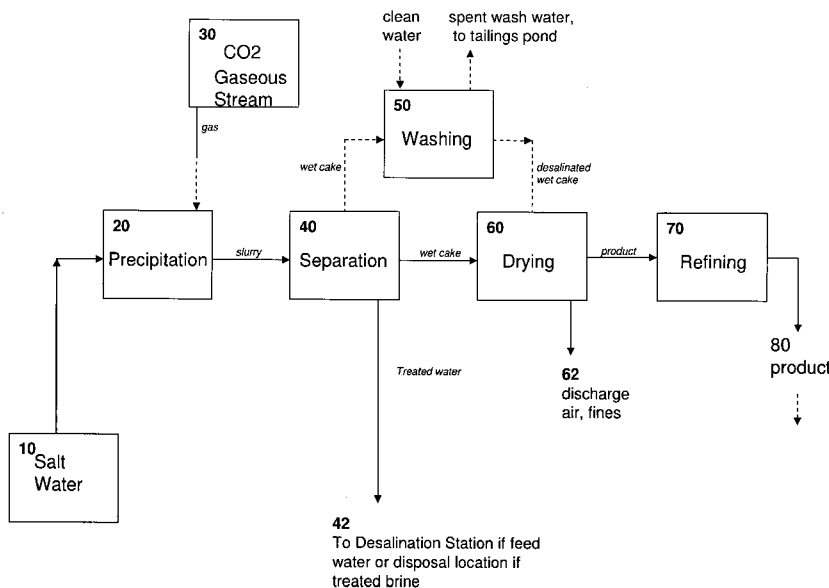


FIGURE 1

(57) Abstract: Desalination methods that include carbonate compound precipitation are provided. In certain embodiments, feed water is subjected to carbonate compound precipitation conditions prior to desalination. In certain embodiments, desalination waste brine is subjected to carbonate compound precipitation conditions. In yet other embodiments, both feed water and waste brine are subjected to carbonate compound precipitation conditions. Aspects of embodiments of the invention include carbonate dioxide sequestration. Embodiments of the invention further employ a precipitate product of the carbonate compound precipitation conditions as a building material, e.g., a cement. Also provided are systems configured for use in methods of the invention.

WO 2009/006295 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 08/68564

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - B01D 21/00 (2008.04)
USPC - 210/702

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
210/702

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

USPTO Patent; USPTO PGPUB; Dialog Web ? 344, 345, 347, 348, 349, 351, 371, 652, 654; Google saltwater, brackish water, sea water, brine, saline, waste brine, desalin\$, Distillation, membrane, reverse osmosis, feed water, carbonate compound precipitate, carbonate precipitate, boron, boric, borate, concrete, cement

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X - Y	US 2006\0060532 A1 (Davis), 23 March 2006 (23.03.2006), para [0004]-[0006], [0035]-[0038], [0056]-[0058], [0090]-[0092], fig 1-3	1,3,5-6,8-10,13-14,17-19, 22-24,26,30-33, and 35 ----- 2,4,7,11-12,15-16,20-21,25,27-28,34, and 36-37
Y	US 4,188,291 A (Anderson) 12 February 1980 (12.02.1980), col 2 in 24-29 and 65-70, col 3 in 1-4, fig 1	2,4,15, 25,27,34, and 36
Y	US 5,785,868 A (Li et al.) 28 July 1998 (28.07.1998), col 4 in 40-55, col 5 in 24-27	7,11, and 16
Y	US 4,264,367 A (Schutz) 28 April 1981 (28.04.1981), col 5 in 32- 40	12,20-21,28-29, and 37

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

10 September 2008 (10.10.2008)

Date of mailing of the international search report

17 SEP 2008

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450
Facsimile No. 571-273-3201

Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774