



- (51) **International Patent Classification:**
B01D 3/14 (2006.01) *C10G 7/12* (2006.01)
- (21) **International Application Number:**
PCT/US2024/044439
- (22) **International Filing Date:**
29 August 2024 (29.08.2024)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
63/580,642 05 September 2023 (05.09.2023) US
- (71) **Applicant:** **GEVO, INC.**, [US/US]; 345 Inverness Drive South, Building C, Suite 310, Englewood, Colorado 80112 (US).
- (72) **Inventors:** **GALVEZ, III, Adriano**; 345 Inverness Drive South, Building C, Suite 310, Englewood, Colorado 80112 (US). **STARKEY, Paul**; 345 Inverness Drive South, Building C, Suite 310, Englewood, Colorado 80112 (US).

(74) **Agent:** **KINNEAR, Brian**; Husch Blackwell LLP, 1801 Wewatta Street, Suite 1000, Denver, Colorado 80202 (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, 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.

(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,

(54) **Title:** SYSTEMS FOR ADSORBER REGENERATION AND ASSOCIATED METHODS

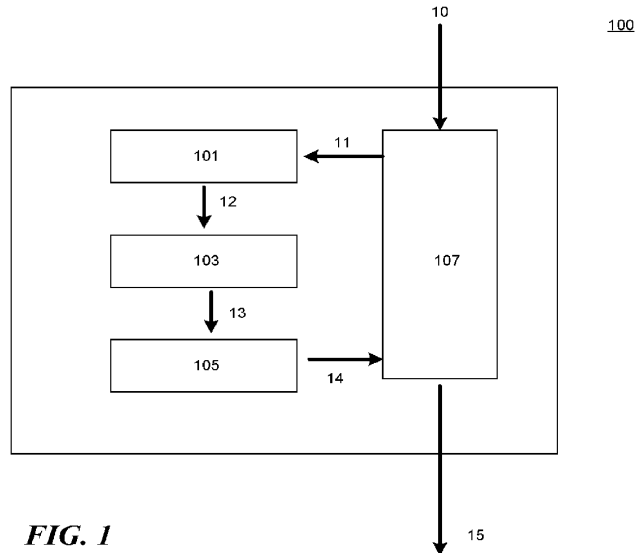


FIG. 1

(57) **Abstract:** A method for removing a target impurity substance from a main process flow by a regenerate material and associated systems are provided. In some embodiments, the method includes (1), directing an input flow from the main process flow to a parallel structure of components; (2) introducing the regenerate material, by the parallel structure, to the input flow to generate an impurity laden regenerate flow; (3) cooling the impurity laden regenerate flow to generate a cooled regenerate flow; (4) cleaning up the cooled regenerate flow to generate a clean regenerate flow.

[Continued on next page]

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).

Published:

- *without international search report and to be republished
upon receipt of that report (Rule 48.2(g))*