

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
07 March 2024 (07.03.2024)



(10) International Publication Number
WO 2024/047624 A1

(51) International Patent Classification:
C10G 2/00 (2006.01)

Yarden St., 5228133 Ramat Gan (IL). **SEGAL, Uzi**; 2, Ha-Hermon St., 4063382 Tel Mond (IL).

(21) International Application Number:
PCT/IL2023/050860

(74) Agent: **KLING, Asa**; c/o NASCHITZ BRANDES AMIR & CO., 5 Tuval St., 6789717 Tel Aviv (IL).

(22) International Filing Date:
15 August 2023 (15.08.2023)

(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.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
63/402,660 31 August 2022 (31.08.2022) US

(71) Applicant: **ZOHAR CLEAN TECH. LTD.** [IL/IL]; HaHilazon St. 6, 5252270 Ramat Gan (IL).

(72) Inventors: **ZETTNER, Michael**; HaShita Street 35, POB 1357, 8496500 Omer (IL). **GABAY, Chanan**; 2, HaSharon St., 4426931 Kfar Saba (IL). **SHOHAT, Tsachi**; 25 Ha-

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, CV,

(54) Title: SYNTHESIS-GAS-REACTOR WITH PRE-HEATING FOR SEPARATED WATER FEEDING AND PROCESS FOR IT

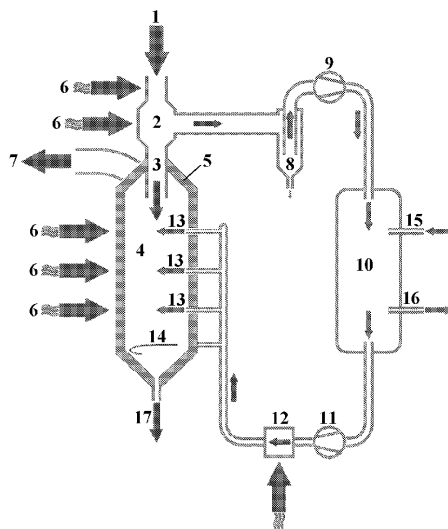


Fig. 1

(57) Abstract: The invention is a gas-synthesis reactor that performs chemical conversions of fed organic materials to synthesis-gas based on heating the fed organic material, thus adding energy from outside to the performed chemical-reaction, to a temperature that the fed material reacts with water to generate synthesis-gas, which is a combustible gas-mixture, usually with relatively low energy-content, mainly consisting of carbon- monoxide, methane, some smaller hydro-carbon molecules, hydrogen, and residues of the reaction and the feedstock. The reactors with additional features divide the reaction into two main steps to enable more control of the reaction to save energy and improve and control the energy-content and homogeneity of the generated synthesis-gas.

[Continued on next page]



WO 2024/047624 A1

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:

- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- *of inventorship (Rule 4.17(iv))*

Published:

- *with international search report (Art. 21(3))*