



(51) International Patent Classification:

C10G 1/10 (2006.01) C10G 9/00 (2006.01)  
C10G 1/00 (2006.01) C10C 3/00 (2006.01)

(21) International Application Number:

PCT/US2023/018505

(22) International Filing Date:

13 April 2023 (13.04.2023)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/362,929 13 April 2022 (13.04.2022) US

(71) Applicant: **LUMMUS TECHNOLOGY LLC** [US/US];  
5825 North Sam Houston Parkway West, Suite 600, Houston, TX 77086 (US).

(72) Inventors: **GILLIS, Daniel, Bruce**; 5825 North Sam Houston Parkway West, Suite 600, Houston, TX 77086 (US). **CHAKRABORTY, Sudipto**; 5825 North Sam Houston Parkway West, Suite 600, Houston, TX 77086 (US). **SOM, Manoj, Roy**; 5825 North Sam Houston Parkway West, Suite 600, Houston, TX 77086 (US). **CHEN, Liang**;

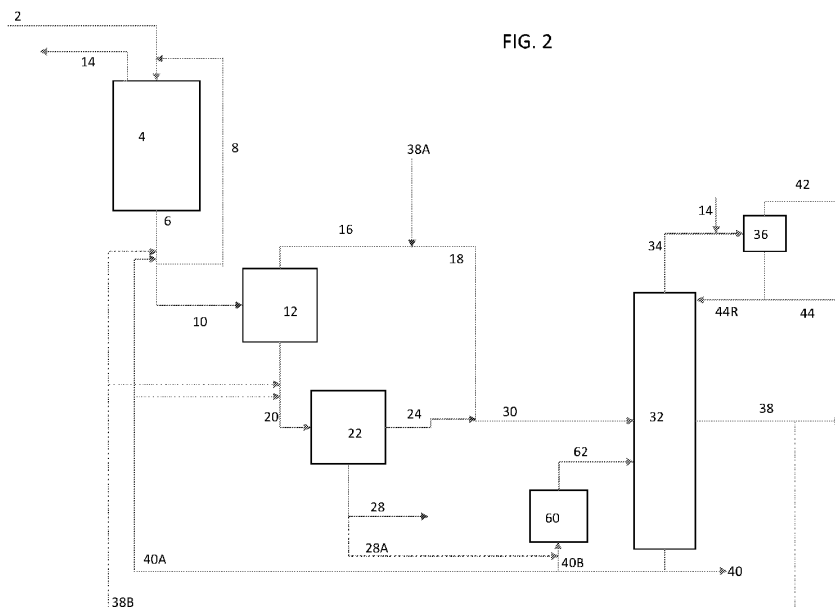
5825 North Sam Houston Parkway West, Suite 600, Houston, TX 77086 (US). **CABRALES, Fredy, Antonio**; 5825 North Sam Houston Parkway West, Suite 600, Houston, TX 77086 (US).

(74) Agent: **GRIFFITH, Aron, T.** et al.; Osha Bergman Watanabe & Burton LLP, 1100 Louisiana Street, Suite 4900, Houston, TX 77002 (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,

(54) Title: INTEGRATED MIXED PLASTIC PYROLYSIS WITH HEAVY OIL PRODUCT THERMAL CRACKING



(57) Abstract: Systems and processes for converting waste plastics and other waste materials to useful end products. The systems integrate a plastics pyrolysis reactor and a liquid phase thermal cracking reactor to advantageously process the waste plastics to form various hydrocarbon products.

[Continued on next page]

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).

**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))*