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(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, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO.

(54) Title: INTEGRATED CONTINUOUS CONVERSION AND SEPARATION METHODS FOR UPCYCLING MIXED PLASTIC WASTE TO CLEAN GASOLINE AND DIESEL FUELS AND OTHER PRODUCTS

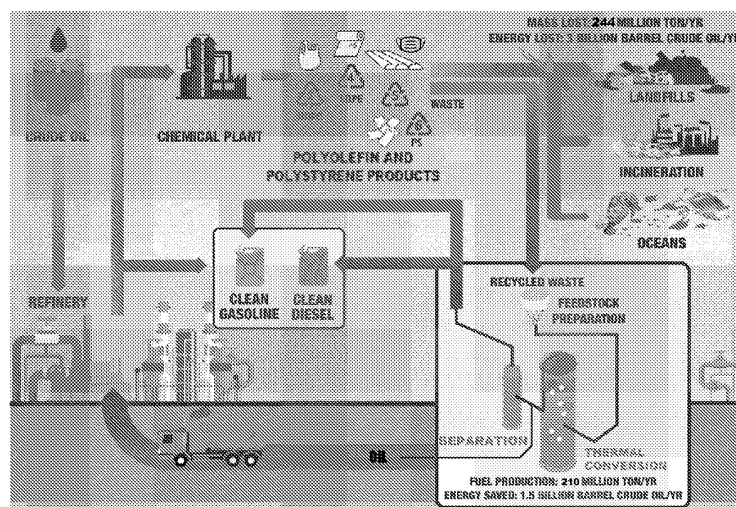


FIG. 1

(57) Abstract: A method of producing useful fuel fluids from solid plastic waste, including loading solid plastic waste matter into a reaction chamber to define a load, subjecting the load to HTP to extract hydrocarbon mixtures, filtering the hydrocarbon mixtures to extract solid matter, and separating the hydrocarbon mixtures into a light fraction (C₁ to C₂₅) and a heavy fraction (C₂₆ to C₃₁). The heavy fraction is directed to a first container and the light fraction is directed to a second container. The light fraction is separated into diesel (C₈–C₂₅), gasoline (C₄–C₁₂), and vapor (C₁–C₅), and the diesel is directed to a third container, the gasoline is directed to a fourth container, and the vapor is directed to a fifth container. The hydrocarbon mixtures have a carbon number distribution between C₁ and C₃₁. The pressure in the reaction chamber is typically between 0.1 and 10 MPa and the temperature in the reaction chamber is between 350 and 500 degrees Celsius. The plastic waste is selected from the group consisting of PS, PE, PP, and mixtures thereof.

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WO 2022/011241 A1

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