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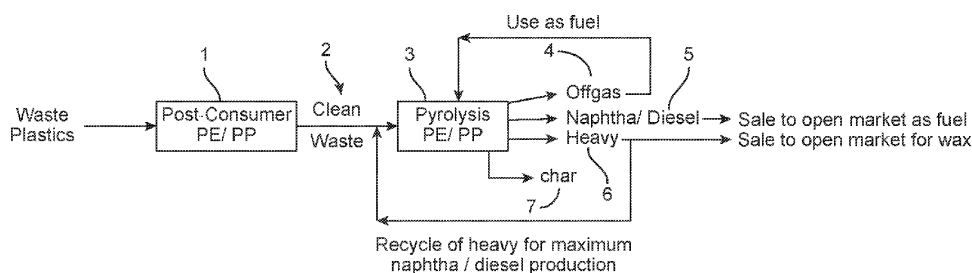
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(54) Title: CIRCULAR ECONOMY FOR PLASTIC WASTE TO POLYETHYLENE VIA REFINERY CRUDE UNIT

FIG. 1

Pyrolysis of Waste Plastics to Fuel or Wax



(57) Abstract: Provided is a continuous process for converting waste plastic into a feedstock for polyethylene polymerization. The process comprises selecting waste plastics containing polyethylene and/or polypropylene, and then passing the waste plastics through a pyrolysis reactor to thermally crack at least a portion of the polyolefin waste and produce a pyrolyzed effluent. The pyrolyzed effluent is then separated into offgas, a pyrolysis oil comprising a naphtha/diesel/heavy fraction, and char. The pyrolysis oil is passed to a crude unit in a refinery from which a naphtha fraction (C<sub>5</sub>-C<sub>8</sub>), or a propane and butane (C<sub>3</sub>-C<sub>4</sub>) fraction, is recovered. The naphtha fraction, or propane and butane (C<sub>3</sub>-C<sub>4</sub>) fraction, is then passed to a steam cracker for ethylene production.

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