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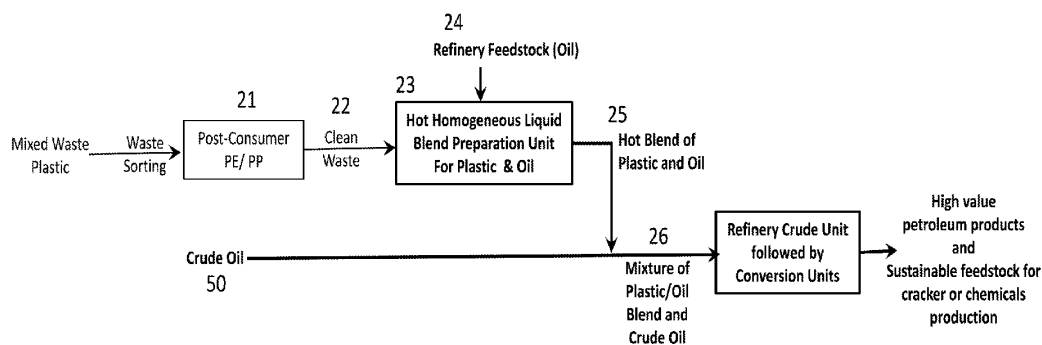
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(54) Title: CIRCULAR ECONOMY FOR PLASTIC WASTE TO POLYPROPYLENE AND BASE OIL VIA REFINERY CRUDE UNIT

Figure 2
Preparation of a Hot Homogeneous Blend of Plastic and Petroleum Feedstock
for Direct Conversion of Plastic Waste in Oil Refinery Units



(57) Abstract: Provided is a continuous process for converting waste plastic into recycle for polypropylene polymerization. The process comprises selecting waste plastics containing polyethylene and/or polypropylene and preparing a stable blend of petroleum and the selected plastic. The amount of plastic in the blend comprises no more than 20 wt. % of the blend. The blend is passed to a refinery crude unit. A liquid petroleum gas C₃ olefin/paraffin mixture is recovered from the crude unit. The C₃ paraffins and C₃ olefins are separated into different fractions with the C₃ olefin fraction passed to a propylene polymerization reactor, and the C₃ paraffin fraction passed to a dehydrogenation unit to produce additional propylene. Product streams from the crude unit can also be passed to a hydrocracking unit, with a recovered heavy fraction then being passed to an isomerization dewaxing unit to prepare base oil.

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