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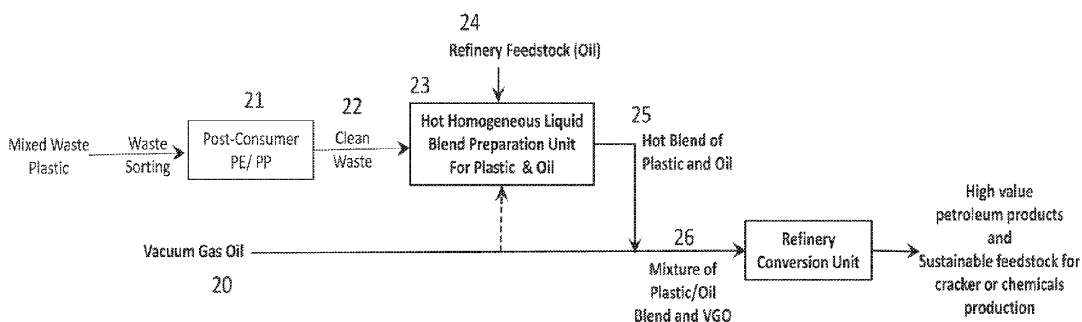
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(54) Title: CIRCULAR ECONOMY FOR PLASTIC WASTE TO POLYETHYLENE AND BASE OIL VIA REFINERY HYDROCRACKING UNIT

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 polyethylene polymerization. The process comprises selecting waste plastics containing polyethylene and/or polypropylene and preparing a 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 hydrocracking unit. A liquid petroleum gas C3-C4 olefin/paraffin mixture, and optionally naphtha, is recovered from the hydrocracking unit and passed to a steam cracker to make ethylene. A heavy fraction can also be recovered from the hydrocracking unit and passed to an isomerization dewaxing unit to prepare base oil.