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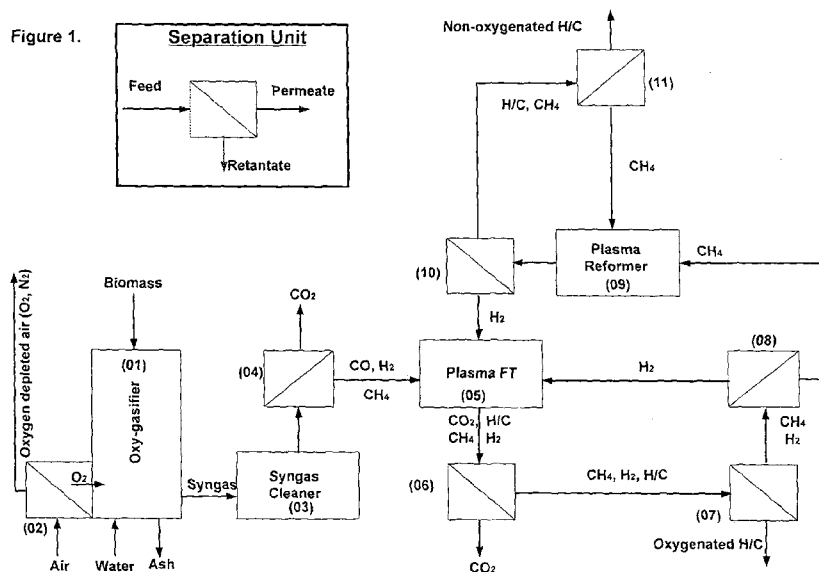
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(54) **Title:** INTEGRATED INTENSIFIED BIOREFINERY FOR GAS-TO-LIQUID CONVERSION



(57) **Abstract:** A support device for carrying a selectively permeable membrane is disclosed along with apparatuses and methods of removing long chain hydrocarbons from a stream of gas. The gas cleaning apparatus uses, individually or in combination, plasma, catalyst and electrodes containing catalysts to perform the cleaning of the gas.