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(54) Title: METHOD FOR PRODUCING METHANOL, DIMETHYL ETHER, DERIVED SYNTHETIC HYDROCARBONS AND THEIR PRODUCTS FROM CARBON DIOXIDE AND WATER (MOISTURE) OF THE AIR AS SOLE SOURCE MATERIAL

(57) Abstract: A method for producing methanol and dimethyl ether using the air as the sole source of materials. This method separates water and carbon dioxide from atmospheric air for use in the subsequent production of methanol and dimethyl ether. These compounds can be used as fuel or fuel additives or further converted to synthetic hydrocarbons and their products. Carbon dioxide is captured on a suitable absorbent, preferentially polyethyleneimine supported on nano-structured fumed silica. The process can also involve hydrogenation with hydrogen produced by electrolysis of the water obtained from the air.



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