

Title (en)

SYSTEM AND PROCESS FOR PRODUCING SYNTHETIC FUELS WITHOUT EMITTING CARBON DIOXIDE

Title (de)

ANLAGE UND VERFAHREN ZUR HERSTELLUNG VON SYNTHETISCHEN KRAFTSTOFFEN OHNE KOHLENDIOXIDEMISSION

Title (fr)

SYSTÈME ET PROCÉDÉ DE PRODUCTION DE COMBUSTIBLES SYNTHÉTIQUES SANS ÉMISSION DE DIOXYDE DE CARBONE

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Application

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Abstract (en)

[origin: WO2022223458A1] The invention relates to a system for producing synthetic fuels, in particular aviation turbine fuel (kerosene), petroleum and/or diesel, the system comprising: a) a synthesis gas production device for producing a raw synthesis gas from methane, water and carbon dioxide, wherein the synthesis gas production device comprises at least one reaction portion in which methane, water and carbon dioxide react to form the raw synthesis gas, and at least one heat generation portion in which, by combusting fuel to form flue gas, the heat required for reacting methane and carbon dioxide to form the raw synthesis gas is generated; b) a separating device for separating carbon dioxide from the raw synthesis gas produced in the synthesis gas production device; c) a Fischer-Tropsch device for producing, by means of a Fischer-Tropsch process, hydrocarbons from the synthesis gas from which carbon dioxide was separated in the separating device; and d) a refining device for refining the hydrocarbons produced in the Fischer-Tropsch device to form the synthetic fuels; wherein the system further comprises: e1) a separating device for separating carbon dioxide from the flue gas removed from the synthesis gas production device via the removal line for flue gas; and/or e2) a flue gas recirculation line, which is connected to the heat generation portion of the synthesis gas production device; wherein i) the carbon dioxide separated from the flue gas, or, via the flue gas recirculation line, the flue gas and ii) the carbon dioxide separated from the raw synthesis gas are either directly fed to the synthesis gas production device or first fed to a carbon dioxide compressing device and fed from there to the synthesis gas production device; wherein the system also comprises an electrolysis device for separating water into hydrogen and oxygen; wherein the electrolysis device comprises a water supply line, an oxygen removal line and a hydrogen removal line; and wherein a line leads from the oxygen removal line into the supply line for oxygen-containing gas to the synthesis gas production device.

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