88-300072/43 E36 H06 SKFK 24.03.87
SKF STEEL ENG AB *BR 8701-328-A
24.03.87-BR-001328 *(27.09.88)* C10j-03

Carbon monoxide and hydrogen-contg. gas prodn. - from carbonaceous materials and/or hydrocarbon(s) in reactor fed with gas heated by plasma generator

C88-133018

The process produces a gas mixt. for use as reduction gas, fuel gas or synthesis gas, from any raw material contg. carbon and/or hydrocarbons, and eliminates the need for washing and energy-consuming and high cost stages. The raw material and oxidant is supplied to a reaction chamber simultaneously with gas heated by a plasma generator in order to crack hydrocarbons in the gas.

E(31-A1) H(9-C)

87-037506/06 E36 H09 (H04) SKFK 25.09.85
SKF STEEL ENGG AB *BE -905-480-A
25.09.85-SE-004439 (16.01.87) C10j C10k
E(31-A1) H(4-E4, 9-C)

Prodn. of gas contg. carbon monoxide and hydrogen - from carbonaceous matter or hydrocarbon(s) by pyrolysis with oxidiser and heating with plasma generator

C87-015833

In prodn. of a gas contg. CO and H_2 from carbonaceous matter and/or hydrocarbons and an oxidising agent, the gas is fed to a supplementary chamber at the same time as a gas geated by a plasma generator, so that cracking of the hydrocarbon contains in the gas takes place in this chamber.

USE

The gas can be used as reducing agent, as synthesis gas, or for combustion.

ADVANTAGE

Know technology is applied. Any kind of starting material contg. C and/or hydrocarbon can be used. The gas is not subjected to vigorous washing procedures using a large amt. of energy.

PREFERRED PROCESS

After passing into the supplementary chamber, the gas is fed past a limestone or dolomite charge, to eliminate S, to crack all remaining hydrocarbon, and to cause reaction with the oxidising agent. Finely divided coke and/or water are injected into the supplementary chamber. The content of CO_2 +H_2O in the gas leaving the supplementary chamber is controlled at below 5%.

EXAMPLE

Per h, 10 tons of wood waste contg. 30% of water and with the compsn. 51% C, 6.2% H, 42% O, 0.2% N, 0.5% S, and 0.5% ash, was fed to the head of a gasification appts., while 3,700 N cubic m of air at 1,000 °C was fed to the base. The compsn. of the gas at the outlet was 25.8% CO, 9.8% CO_2, 41.1% H_2, 4.8% H_2O, 15.8% N_2 and 2.9% CH_4; the gas also contained 3.2g of tar/N cubic m. The vol. of gas was 17,200 N cubic m, at 550°C.

This gas was passed to a supplementary reaction chamber and was heated to 1,250°C by 2,100 N cubic m of air heated by a plasma generator. The energy used was 8.7 MWh. Methane and tar were eliminated from the pyrolysis gas, and the compsn. of the gas leaving the chamber was 28.6% CO 4.8% CO_2, 29.6% H_2, 13.6% H_2O and 23.4% N_2; the amt. was 19,900 N cubic m. (11pp510RKMHDwgNo0/1). BE-905480-A