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Synthesis gas prodn. from solid, liq. and/or gaseous fuels - supplied separately but simultaneously to a reactor for oxidn. allowing e.g. heavy metals from residual oil to be trapped in slag from coal  
CB6-038117

Prod. comprises introducing into a reactor vessel, sepd. from each other, at least 2 different fuels from the gp. comprising particulate solid fuel, liq. fuel and gaseous fuel, and allowing the fuels to partially oxidise inside the reactor vessel, using an O<sub>2</sub>-contg. gas. Appts. for effecting the process is also claimed.

USE/ADVANTAGE

Synthesis gas is useful e.g. as fuel or as feedstock for hydrocarbon synthesis. The present prodn. method is cheap, produces a clean, S-free gas, and is very flexible. When coal and residual oil are burned, the slag from the coal contains much of the heavy metals from the oil, giving a small metals concn. in the gas. For a given residual oil, the amt(s). of other fuel(s) burned can be adapted to minimise the concn. of heavy metals in the gas, and to maximise the

E(10-J2D) H(4-E4, 9-C)

amt. of gas produced.

PROCESS

The gaseous fuel may be a hydrocarbon, the liq. fuel a hydrocarbon or residual oil, and the particulate fuel may be carbonaceous, e.g. coal. The central axes of the means of introducing the fuels into the reactor vessel may intersect at or near the central longitudinal axis of the vessel. The regions in which the fuels oxidise may substantially coincide.

EMBODIMENT

A reactor vessel (41) contains 2 opposed coal burners (43,42), and below them 2 opposed residual oil burners (45, 46). The axes of each pair of burners intersect on the longitudinal reactor axis (59), and the 2 members of a pair are fed with fuel and air at the same rate. There are inlets for a dispersion of coal N<sub>2</sub> or other carrier gas (48,49), residual oil (52,53) and air (50,51,54,55). Slag gathers at a slag outlet (57) and is removed by a slag tap (58). Prod. gas leaves from the reactor top (56) for cooling, cleaning and conversion. (9pp1492RKMHDwgNo3/4).

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