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66406 E/32 E36 H09 CUMM/18.01.82
 CUMMINGS DR *GB 2092-174
 23.01.81-GB-002010 (+001274) (11.08.82) C10j-03
 Prodn. of synthesis gas from coal - with steam reforming step heated by fines which are too small for gasification step

E(10-E4E, 31-A, 31-N5) H(9-C)
 090

Coal gasification process comprises (a) sepg. lump coal from fines; (b) performing counter-current gasification on the lump coal to form a gas comprising H₂ and CO_x and some methane values; and (c) steam reforming at least a portion of the methane values in a reactor at least partially immersed in a fluidised bed of finely divided solids.
 At least some of the heat for the steam reforming is provided by heating the fluidised bed by combustion of the fines sepd. in (a).

coal:fines in the coal supply may be controlled to be equal to the ratio of consumption of lump coal in (b) to the rate of combustion of fines in (c). By-products from gasification (b) can also be used as a supplementary fuel for heating the fluidised bed.

Methanol synthesis may be incorporated either after steam reforming or after gasification. In the latter case (prefd.), the steam reforming is performed on a purge stream taken from the methanol synthesis recycle stream and reformed gas is returned to the methanol synthesis zone.(10pp959).

USE/ADVANTAGE

Used esp. for synthesis gas prodn. for prodn. of methanol. The process improves the overall utilisation of coal without the expense of having to employ an additional gasifier.

DETAILS

Gasification is pref. at above 30 bar. The ratio of lump

GB2092174