AU-A-75980/81

DERWENT PUBLICATIONS LTD.

39846

39846 E/20 H09 TEXC 12.11.80
TEXACO DEV CORP *GB 2086-931
12.11.80-US-206240 (19.05.82) C10j-03 C10k-01/06

Particle-free synthesis gas mfr. in pressure gasifiers - using quenching and collection system facilitating ash removal

A process is claimed for the prodn. of particle-free synthesis gas by the partial oxidation, at superatmospheric pressure, of ash-contg. carbonaceous fuels, esp. coal.

The improvement relates to the quenching of the gaseous product stream which contains particles of ash and unconverted fuel, and partic. to the removal of the particles from the quench zone (A) and through a water-filled collection zone (B) to discharge. Movement of the particles through this path is assisted by maintaining water circulation from (A) to (B) through the upper lock hopper valve, water being introduced to (A) either by spraying onto the surface or below the surface directed either upwardly or downwardly.

ADVANTAGES

Ash removal is facilitated and the tendency of slag or ash particles to form a bridge across the entry into the lock hopper with consequent blockage problems is reduced.

H(9-C, 9-D)

DETAILS

In a prefd. embodiment, the gaseous product stream leaving the partial oxidation zone on its way to (A) is first passed through, for heat recovery, a radiation cooling zone and then, after diversion, a convection cooling zone. The gas direction is pref. downward in the former and upward in the latter although alternative arrangements, with gas flow being either upward or downward in either cooling zone, are also possible.

The water withdrawn from (B) is pref. combined with the blowdown stream from (A) and the mixt. is settled to provide water for recycle to the system, e.g. to (A) or to the partial oxidation zone.(5pp920).