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GULF OIL CORP *US 4159-236
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Combined coal liquefaction-gasification process - with excess synthesis gas generated in the gasification step

A process is claimed for the combined liquefaction/gasification of bituminous coal with the process feed comprising a mixt. of coal, H_2, recycle liquid solvent, recycle dissolved coal and r ecycle mineral residue. The improvement comprises controlling the gasification step so as to produce an amt. of synthesis gas in excess of the H_2 requirements of the process.

Specifically, the combustion heating value of the excess amt. of synthesis gas is 5-100% of the total energy requirements of the process; the excess synthesis gas is burned as fuel in the process.

The control is effected by reference to the following formula R = 13 + (8-O)-3(Fe-1.5) where R is the range of the yields of 850°F + dissolved coal in excess of that necessary to satisfy the H_2 requirements (the yields expressed in wt. %); O is the O_2 content of the coal (in wt. %) and Fe is the Fe content of the coal (in wt. %).

ADVANTAGES

H(9-A1, 9-C). 6 a

The shifting of some of the processing load to the gasification zone unexpectedly increases the thermal efficiency of the process.

DETAILS

The total coke yield of the liquefaction zone is <1 wt. % (based on the feed coal). The gasification zone is operated at a max. temp. of 2200-3600 (pref. 2500-3600)°F.

In an alternative embodiment, for subbituminous coals and lignites, the formula is R = 13 + (18-O)-3(Fe-0.5). (17pp920).

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