DERWENT PUBLICATIONS LTD.

68071

68071 C/39 H09 MITU 16.03.79

MITSUBISHI CHEM IND KK *DT 3009-694

16.03.79-JA-030737 *(18.09.80)* C10g-01/06

Catalytic hydro-liquefaction of coal - using iron ore as catalyst

H(9-A1) N(2-A).

Coal liquefaction is carried out by heating coal with a hydrocarbon solvent in an H_2 atmosphere under pressure and in the presence of a catalyst comprising pulverised Fe ore.

ADVANTAGES

The catalyst is readily available and inexpensive and gives high yields of coal liquids (esp. heavy oils) from brown coal.

DETAILS

The pulverised Fe ore pref. has a particle dia. of <40 μm and is used in an amt. of 0.1-10 wt.% based on MAF coal. Liquefaction is pref. effected at 350-500°C and an H_2 partial pressure of 20-250 bar using an H_2:coal wt. ratio of 0.01-0.2:1. Elemental S or an S cpd. is pref. present. The reaction time is pref. 5-120 min.

EXAMPLE

Australian Robe river Fe ore was ground to <35 μm and added in an amount. of 1.0 wt.% to screened Moel brown coal (-200 mesh), and S was added in an amt. equiv. to the amt. of catalyst. The mixt. was slurried in creosote oil (b.pt. 180-400°C) and the slurry was autoclaved at 425°C and an initial H_2 pressure of 90 bar for 60 min. The product contained 12.7 wt.% ash-free quinoline-insolubles and 36.0-wt.% ash-free benzene-insolubles (both based on MAF coal). (17pp367)