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 Coal liquefaction - by heating coal slurry contg. solvent and hydrated iron oxide catalyst in pressurised hydrogen atmos.

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

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In the liquefaction of coal by heating a slurry consisting of coal, solvent and catalyst in pressurised hydrogen atmos., iron ores mainly comprising hydrated iron oxide are used as the catalyst.

Pref. the iron ore is limonite, scale-like iron ore, needle iron ore, bog iron ore, etc. and contains 20-70wt.% (esp. 30-65 wt. %) of Fe and under 3 wt.% S, and is used in amt. 0.3-10 wt.% on the coal. The coal is coking coal, bituminous coal, brown coal, lignite, etc. Solvent is at least one fraction having a b.pt. above 200 deg.C b.pt. obtd. by liquefaction of coal or their hydrogenated products. Liquefaction is carried out at above 10 kg/cm.sq. (pref. 50-500 kg/cm.sq.) hydrogen pressure, 300-500 deg.C (pref. 400-470 deg.C) and for 10-120 minutes.

The catalyst is inexpensive and can be thrown away after being used once. The catalyst contains little sulphur, and liquefied oil of low sulphur content is obtd. (Esp)