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 GULF OIL CORP *WP 8001-280
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 Coal liquefaction process with slurry recycle - with control of the solids concn. of the slurry

H(9-A1) N(6).

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as (I) but with particles having a larger median dia. than the particles in the recycle slurry. (I) is recycled to the liquefaction zone and (II) is passed to the product separator.

ADVANTAGES

The dilution effected by addition of (I) reduces the amt. of recycled solids while still maintaining adequate catalytic activity or enhances the catalytic activity for a given solids level.

DETAILS

The residue slurry contains 5-40 wt.% solids. The median dia. of the particles of suspended mineral residue in the first portion of the slurry is 1-10 μ and the dia. of particles in (I) is 0.5-5 μ . (I) pref. contains 0.2-20 wt.% solids and pref. less than an aliquot wt. proportion of solids while (II) contains more than an aliquot wt. proportion of solids related to the wt. proportion of solids in the third portion of the slurry. The third portion comprises 10-75 wt.% of the total residue slurry.

D/S: N(BR, JA, SU)+E(DT, FR, GB, NL).

A coal liquefaction process, partic. for incorporation in an integrated liquefaction/gasification system, is claimed with the improvement relating to the control of the solids concn. in the recycle slurry when processing high-ash (contg. ≥ 15 , esp. ≥ 20 , wt.% inorganic mineral matter on a dry basis) feed coals.

Specifically, the liquefaction zone effluent is passed to a vapour-liquid separator where H_2 , hydrocarbon gases and naphtha are removed overhead. The residue slurry is split into three streams, the first being recycled in the liquefaction zone, the second being passed to a product separator and the third to a hydrocyclone. The hydrocyclone provides an overhead slurry (I), comprising liquid coal and normally solid dissolved coal contg. particles of suspended mineral residue having a smaller median dia. than the particles in the first (recycle) slurry portion, and an underflow slurry (II) of similar compsn.

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The product separation is pref. effected by vacuum distillation. The second portion of the slurry is pref. filtered to remove solids, and the normally solid dissolved coal is recycled to extinction. (39pp920).

(E) ISR: US4102775; US4090943; US3962070; US3884796; US3540995; 4 Journal References.