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LUMMUS CO \*US 4172-02415.06.78-US-915796 (23.10.79) C10g-01/08  
Catalytic coal liquefaction process - with improved catalyst  
withdrawal and introduction technique

Hi(9-A1).

70

pref. 750-850°F, 500-4000 psig; an H<sub>2</sub> partial pressure of 500-3000 psig and LHSV of 0.5-4.

The catalyst concn. in the combined stream introduced into (B) is 0.1-5 vol. %.

Fresh catalysts and liquid are combined under pressure, to give a stream contg. 10-40 vol. % catalyst, and introduced under pressure into (A). (5pp920).

A process is claimed for the hydroliquefaction of coal in a catalytic hydroliquefaction reactor (A) from which the product stream is passed to a solids sepn. zone (B) for the separation of ash-contg. solids from the liquid product.

The improvement comprises (i) periodically withdrawing from (A) a separate stream (including liquid product and a portion of the catalyst) while simultaneously withdrawing a main product stream, (ii) combining the separate stream with a portion of the liquid recovered from the main product stream to provide a combined stream having a reduced (pref. 10-40 vol. %) solids concn; and (iii) introducing the diluted, catalyst-contg. liquid to (B) where catalyst and ash are sepd. from liquid.

Fresh catalyst is added to (A) in a stream of liquid recovered from the main product stream.

#### DETAILS

The liquefaction reactor (A) is suitably that disclosed in US2987465. Liquefaction conditions are conventional,

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