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 RES ASSOC PETROLEUM *DE 3218-787
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 01/04

H(4-E5, 4-F2E) N(2-A, 2, 3-D, 6-B)

020

Catalyst for mfg. high-octane gasoline from synthesis gas - contains Fischer-Tropsch catalyst, zeolite and another specified metal

e.g. the ZSM series. A part or all of the zeolite's Al may be replaced by trivalent Fe, Cr, V, Bi, La, Ce, or Ti.

The wet mixing of (I) and (II) may involve mixing and kneading a preformed Fe oxide and a zeolite powder with water; or suspending the zeolite powder in an aq. soln. of an Fe salt and ppting. with aq. ammonia. Other additives (e.g. Cu and K) may be present as in normal Fischer-Tropsch catalysts.

The hydrocarbon synthesis involves passing synthesis gas with an H₂/CO mole ratio wt. 0.2-6 over the catalyst at 200-500°C, 5-200 bars and a GHSV of 250-10000. (34pp1492)

A catalyst for the prodn. of hydrocarbons from synthesis gas comprises (i) an Fe-contg. Fischer-Tropsch catalyst (I); (ii) a zeolite (II); and (iii) at least one metal (III) selected from Ru, Rh, Pt, Pd, Ir, Co and Mo. The catalyst is pref. prepd. by (a) wet or dry mixing (I) and (II), the mixt contg. 5-80 wt. % Fe₂O₃, (b) adding 0.1-10 (pref. 0.3-5) wt. % (III) by impregnation, and (c) calcining for 1-20 hrs. at 300-500°C.

USES/ADVANTAGES

A gasoline fraction of high octane number is obtd. in increased yields. Yields of methane and CO₂ are reduced, and relatively low pressures (e.g. 10-20 bars) give adequate conversion.

DETAILS

Component (I) contains pptd. or melted Fe. Component (II) may be any zeolite; for high gasoline yields, those of pore dia. 0.5-0.9 nm and SiO₂/Al₂O₃ ratio ≥ 12 are prefd.,

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