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New Fischer-Tropsch catalyst for olefin prodn. - having cobalt on steam treated, acid extracted modified LZ-210 zeolite support

C89-113911

E(10-J2C3, 10-J2D3, 31-P5A) H(4-E5, 4-F2E); N(6-B)

1.6% Mn (promoter), and mixed with a silica binder and shaped.

EXAMPLE

Anhydrous TC-123 (100 g) was impregnated with a mixt. of 7.21 g  $Mn(NO_3)_2 \cdot xH_2O$ , 55.8 g  $Co(NO_3)_2 \cdot 6H_2O$  and 48 g ethylene glycol, dried at 100 deg. C for 10 hr, heated to 200 deg. C in 0.5 hr, heated at 200 deg. C for 0.5 hr, heated to 450 deg. C in 1.25 hr, and heated at 450 deg. C for 4 hr. The prod. was mixed with silica, extruded, dried at 110 deg. C overnight and calcined at 250 deg. C for 2 hr to give a catalyst comprising 8.2% Co, 1.6% Mn, 15%  $SiO_2$  and 72.1% TC-123. (17pp367RKMHDwgNo0/0).

Fischer-Tropsch catalysts comprises Co on a steam-treated, acid-extracted LZ-210 zeolite.

ADVANTAGES

Compared with known supported Co catalysts, the catalysts exhibit better selectivity and stability, as evidenced by lower  $CH_4$  prodn., higher  $C_{5+}$  yields, increased olefin prodn. and longer catalyst life.

PREFERRED CATALYSTS

The modified LZ-210 zeolite (designated TC-123) is produced by converting a Y zeolite to LZ-210 with a  $SiO_2/Al_2O_3$  ratio of at least 8, subjecting the LZ-210 to  $NH_4$  exchange, steaming at 750 deg. C for 1 hr in 100% steam, and extracting with 3 M HCl for 3 hr under reflux.

The TC-123 is impregnated with  $Co(NO_3)_2$  and  $Mn(NO_3)_2$  in ethylene glycol,  $H_2O$  or EtOH to incorporate 8.2% Co and

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