

85-265040/43 E17 H04 SHEL 22.03.84
 SHELL INT RES MIJ BV *EP -159-057-A
 22.03.84-FR-004455 (23.10.85) B01j-23/12 C07c-1/4
 Hydrocarbon prodn. from synthesis gas - using catalyst comprising
 thorium oxide, zinc oxide and alkali metal promoter
 CBS-114591 (DE FR GB IT NL)

Prodn. of hydrocarbons is effected by passing synthesis gas
 at elevated temp. and pressure over a catalyst comprising
 ThO_2 and ZnO promoted with at least one alkali metal cpd. (I).

ADVANTAGE

The promoter improves selectivity for C_5+ hydrocarbons.

CATALYST

The catalyst has a specific surface area of 0.1-200 m^2/g
 and is prepd. by dissolving $\text{Th}(\text{NO}_3)_4$ and $\text{Zn}(\text{NO}_3)_2$ in H_2O ,
 adjusting the pH to 7-10 with NH_4OH , filtering off the ppt.,
 washing and drying it, calcining at 300-1000°C, impregnating
 with a soln. of (I), esp. K_2CO_3 , and calcining at 400-800°C.
 The alkali metal content is 0.01-20 (esp. 0.5-5) wt %. The
 $\text{ThO}_2:\text{ZnO}$ wt. ratio is 0.03-300:1.

PREFERRED CONDITIONS

The synthesis gas has an H_2/CO molar ratio of 0.25-6 and

is passed over the catalyst at 200-600°C and 0.1-1000 bar
 with a GHSV of 100-5000.

EXAMPLE

A 1:1 molar mixt. of CO and H_2 was passed over a 76.4:
 23.6 ThO_2/ZnO catalyst contg. 1% K_2O at 450°C, 80 bar and
 929 GHSV. The space-time yield of C_5+ gasoline (RON = 90)
 was 61.9 g/l hr. (cf. 28.7 g/l hr. without promoter). (7pp367
 RKMHDwgNo0/0).

(E) ISR: US2686196 US2437051