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 BRITISH PETROLEUM PLC (MCAT/) *WO 8607-350-A
 15.06.85-GB-015222 (18.12.86) B01j-23/76 B01j-29/24 C07c-01/04
 Prod'n. of hydrocarbon(s) above methane by reacting syn-gas - on
 mixed oxide catalyst contg. cobalt, cerium, and opt. alkali metal and
 lanthanum
 C86-150495 N(AU JP NO US)

Patentees: British Petroleum Plc; McAteer C.H. (US only).

Hydrocarbons with more than 1C are obtd. by contacting
 synthesis gas at raised temp. and atmos. or superatmos.
 pressure with a solid catalyst of compsn.



A = alkali metal;

a = more than 0 and up to 25 wt.%, w.r.t. total compsn.;

b = 0-5 wt.%;

c = 0-15 wt.%;

x = number satisfying valency requirements of the other
 elements.

PREFERRED CATALYST

Opt., b = 0, or b is more than 0 and A = Na or K. The
 value of a is less than 5 wt.%, and c is greater than 0. The
 catalyst may include a protectometallosilicate, esp. an

E(10-J2D, 35-V) H(4-E5, 4-F2E) N(1-A1, 2-B1, 3-A)

aluminosilicate with ratio of $SiO_2:Al_2O_3$ greater than 10:1;
 the aluminosilicate may be a zeolite, e.g. ZSM-5. The
 catalyst may be activated by redn. before use.

PREFERRED PROCESS

Reaction may be at 190-400°C and 0-100 bars. The prod.,
 or a part of the prod. may be up-graded.

EXAMPLE

(A) A soln. of 0.75 g of Co (III) tri-acetate in 35 cc of
 acetone was added slowly to 60 g of CaO_2 , to form a paste,
 which was dried to a powder and stored at 150°C overnight.

(B) The prepn. was repeated, replacing the Co acetate
 soln. with a soln. of 1.12 g of Fe (III) triacetate in 60 cc of
 acetone.

(C) Each catalyst was heated in N_2 at 0.5°C/min. to
 450°C, held at this for 6 h, and cooled to room temp. In H_2 ,
 each catalyst was heated at 2°C/min. to 125°C, held at this
 for 2 h, heated to 225°C and held at this for 2 h, and heated
 to 320°C and held at this for 6 h, followed by cooling to room
 temp. The treated catalysts were pressed to 4 tons,

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crushed, sieved, charged into a reactor, and reduced in a slow stream of H_2 by heating at $2^\circ C/min.$ to $150^\circ C$, then at $1^\circ C/min.$ to $225^\circ C$ and held for 14 h.

(D) At the end of treatment C, syngas was fed into the reactor, at 20 bars and A $282^\circ C$, or B $400^\circ C$. Results were: CO conversion, A 41%, B 14%; molar selectivity (excluding oxygenates), to CO_2 , A 6.2%, B 44.4%; to CH_4 , A 18.3%, B 28.5%; 2C, A 4.5%, B 13.5%; 3+C, A 67.9%, B 13.5%; 5+C, A 49.9%, B 0%; 3+C productivity, kg/m^3 catalyst/h, A 132, B 17. (17pp510RKMHDwgNo0/0).

(E)ISR; DE3316320 US4399234 DE2750007 US4374819 DE2739466 GB1458247.

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