84-207236/34 H04 J04 MOBI 28.12.82
MOBIL OIL CORP *AU 8321-809-A
28.12.82-US-453970 (05.07.84) C10g-47/02

Upgrading high-boiling Fischer-Tropsch synthesis product fractions - by conversion over zeolite-contg. catalyst

C84-087192

CLAIMED PROCESS

Upgrading of high-boiling fractions of Fischer-Tropsch synthesis products is effected by contact at 200-500 deg. C, 500-20000 kPa and an LHSV of 0.1-20 with a catalyst comprising:

(a) a hydrogenation component (I) and

(b) a large-pore crystalline zeolite (II) having a SiO_2/Al_2O_3 ratio of at least 10:1.

USES/ADVANTAGES

Fischer-Tropsch fractions having an i.b.p. of at least 150 (pref. at least 174, esp. at least 343) deg. C are upgraded to distillate boiling range products having pour points of below -18 deg C and high -VI lubricants having pour point of below 0 deg. C.

PREFERRED MATERIALS

H(4-B3, 4-F2B) J(4-E1) N(6-B)

(I) are combinations of e.g. Gp-VA, VIA, VIIA, VIII, IB, IIB or IVB Co/Mo, Ni/W, Pt/Ir, Pt/Re and Pt/Ir/Re.

(II) have pore sizes of > 6Å amd SiO_2/Al_2O_3 ratios of > 50:1. partic. prefd. are high-Si zeolites Y, ZSM-20 and beta. (II) having a constraint index of < 2 (esp. 0.5-2) are prefd.

(II) may be composited with an inorganic oxide matrix.

PREFERRED OPERATING CONDITIONS

The process is carried out at < 425°C and at pressures of > 7000 kPa, in the presence of H_2 (H_2 partial pressure is 600-6000 kPa; H_2 rate = 10-3500 ml/l). The LHSV is 0.1-10, and unconverted feed may be recycled.

The distillate products will generally be useful as premium quality jet fuels and diesel fuels. Control over the distillate/lube oil proportion may be excercised by variations in the severity of the operating conditions; higher severities increase the proportion of distillate range products. (25pp 1639MHDwgNo0/0).