

92-064935/08 H04 (H07) **CALL 20.07.90**  
 CHEVRON RES & TECHN \*WO 9201-769-A

20.07.90-US-556946 (06.02.92) C07c-05/22 C10g-73/38

**Wax isomerisation using molecular sieve catalyst with oval pores - giving lube oil with improved viscosity index and pour point**

**C92-029792** R(AT BE CH DE DK ES FR GB IT LU NL SE) N(AT AU BB BG BR CA CH DE DK ES FI GB GR UV JP KP KR LK MC MG MW NL NO PL RO SD SE SU)

Lube oil is produced by isomerising a waxy feed having (1) above 50% wax and/or (2) high pour point above 0°C and having above 70% paraffinic carbon. The catalyst comprises molecular sieve having oval 1-D pores with axes 4.2-4.8 Å and 5.4-7.0 Å and a Gp.VIII metal. Pressure is 15-2000 psig.

#### USE/ADVANTAGE

Lube oil having viscosity index 120-180 and pour point -63 to -9°C is pref. obtd. The oil has low friction resistance and, in engines, causes less wear and increases fuel efficiency. It forms fewer performance-decreasing deposits.

#### PREFERRED MATERIALS

The waxy feed contains at least 80, pref. at least 90% wax and at least 80, pref. at least 90% paraffinic carbon. Gas oil, lubricating stock oil, synthetic oil, foos oil, slack wax, deoiled wax, normal  $\alpha$ -olefin wax or microcrystalline wax

H(4-E, 4-F2E) N(2-F2, 6-A)

may be used. Pref. the feed contains less than 50 ppmw, esp. less than 10 ppmw organic nitrogen. It comprises 20C+ paraffins and boils at above 230, esp. above 315°C.

The molecular sieve is SAPO-11, SAPO-41 or ZSM-22, 23 or 25 and the metal is Pt or Pd. SAPO-11 crystalline silico aluminophosphate and Pt hydrogenation component are pref.

#### PREFERRED PROCESS

Isomerisation is at 20-475 (250-450)°C and 15-2000 (100-600) psig, with liq. hourly space velocity 0.1-20 (0.1-5). Hydrogen may be present. The isomerised oil may be hydro-finished, pref. at 190-340°C and 400-3000 psig in presence of a metallic catalyst.

#### EXAMPLE

800°F+ hydrocracked waxy vacuum gas oil contg. 25.0% wax, having pour point 39°C, viscosity 4.485 cSt at 100°C viscosity index 152 paraffinic carbon content 92 wt.% and contg. 54% paraffins, 29% naphthenes and 17% aromatics was isomerised at 400 psig, 670°C, IHSV and 6M SCF/bbl once through H<sub>2</sub> on SAPO-11 catalyst contg. 0.5% Pt.

Product had pour and cloud pts. below -63°C viscosity

WO9201769-A\*

19.64 and 4.304 cSt at 40 and 100°C, and viscosity index 128.  
Yield was 55.0 wt. % (70pp945SLDwgNo0/3)  
(E) ISR: US4906351 US4956521 US4975177 US4992159