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Hydroisomerisation of paraffin wax - with catalyst comprising a pillared layered titanate and hydrogenation metal

C91-034300

A petroleum wax or synthetic paraffin wax is hydroisomerised to reduce its pour point by contact with a hydroisomerisation catalyst comprising:

(a) a layered titanate containing interspathic polymeric oxide; and

(b) a hydrogenation component selected from Fe, Co, Ni, Ru, Rh, Pd, Os, Ir and Pt.

ADVANTAGE/USE

The pour point of the wax is lowered to give a salable high VI product of lube oil boiling range. Overcracking to lower mol. wt. materials outside this range is minimised.

CATALYST

Suitable catalysts are described in US 4600503. The polymeric oxide is esp. silica and (b) is esp. Pt. The catalyst may further comprise a binder, e.g. alumina.

H(4-E, 4-F2E) N(2,3-C,3-D)

PROCESS

The wax is pref. deoiled microcrystalline, intermediate, or paraffin wax, esp. a hydroprocessed or synthetic (e.g. Fischer-Tropsch) wax product.

The process takes place at 200 - 3000 psig, 232 - 454°C, LHSV 0.05 - 10, hydrogen circulation 500 - 10,000 scf/bbl.

EXAMPLE

A silicotitanate catalyst containing 0.99 wt. % Pt was prepd. by forming an octylammonium swollen trititanate, treated there of with tetraethylorthosilicate to produce a pillared material, and exchange of the latter with a $Pt(NH_3)_4Cl_2$ solution.

This catalyst was used to convert a hydrotreated paraffin wax at 400 psig, 0.5 LHSV. Fig. shows lube oil yield for a given pour point. Yields were 5 - 10 wt. % higher than obtained with a comparison catalyst consisting of Pt on silica-alumina. The Pt/silicotitanate catalyst was ca. 25°F more active than the Pt/silica-alumina catalyst on the same LHSV basis.

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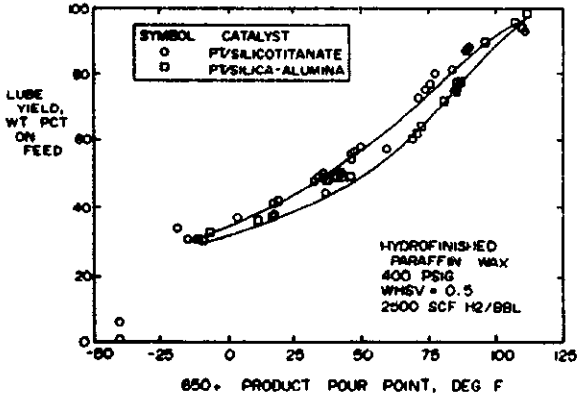

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