

91-149895/21 E17 H04 J04 (H08) SASO-14.11.89  
 SASOL IND PTY LTD \*DE 4035-544-A  
 14.11.89-ZA-008668 (16.05.91) B01j-21/18 B01j-23/74 C07c-01/04  
 C07c-09/22

Solid-bed fischer-tropsch catalyst for wax prodn. - obtd. by adding  
 1-80 wt. per cent active carbon, w.r.t. iron content of catalyst at any  
 stage before extrusion  
 C91-064806

Catalyst (I) for Fischer-Tropsch process contains active  
 carbon (II).

Prodn. of an Fe-based catalyst (I) is also claimed and  
 comprises adding 1 - 80 wt. % (II) (w.r.t. amt. of Fe) to  
 one of the catalyst precursors at any stage before  
 extrusion.

Paraffin wax obtd. by the process is further claimed.

#### USE/ADVANTAGE

(I) is useful for the prodn. of hydrocarbon waxes with  
 improved colour, by contacting a suitable synthesis gas  
 with (I) in a solid-bed reactor at elevated temp. and  
 pressure. Catalyst (I) gives wax with a high Saybolt no.  
 (pref. at least 20) directly, without the need for  
 subsequent hydrogenation.

E(31-N4C, 35-U5) H(4-E5, 4-F2E) J(4-E4) N(2-A, 4-A)

#### MORE SPECIFICALLY

(I) is useful for the low-temp. variant of the Fischer-  
 Tropsch, esp. as a solid-bed catalyst.  
 Amt. of (II) is 1 - 80 (5-10) wt. % w.r.t. Fe, and (II) is  
 uniformly distributed in (I). At least 50 (at least 80)  
 wt. % of the particles of (II) are smaller than 100  $\mu$ , pref.  
 with at least 90 wt. % smaller than 45  $\mu$ , or the same  
 proportion is in the size range 850 - 1200  $\mu$ .  
 (II) is produced from pinewood tanniferous acacia or  
 coconut shells, and is preactivated with steam or mineral  
 acid.

#### FURTHER DETAILS

Incorporation of (II) with the above particle size gives  
 catalyst grains with a higher side-crushing strength. A  
 suitable active carbon (II) is Ceca 2S (RTM).  
 (II) is pref. preactivated with steam at 600°C before  
 incorporation into (I).

#### EXAMPLE

A solid-bed iron-based Fischer-Tropsch catalyst was  
 produced as described by Frohning et al. in

DE4035544-A+

"Chemierohstoffe aus Kohle", George Thieme, Stuttgart 1977, p. 234. Before the final filtration, Ceca 2S (RTM: active carbon) was added to the slurry (5 g active carbon to 100 g Fe) and stirred for 5-6 mins., and the mixt. was filtered, extruded, dried as granules, crushed and sieved. 20 l. of the 2-5 mm fraction was reduced in hydrogen and used as a solid-bed catalyst in a low-temp. Fischer-Tropsch pilot plant (at, e.g. 227-327°C and 20-30 bar under downward flow conditions).

The wax obtd. had Saybolt no., 21 (after 3 days' operation), 20 (after 21 days). When active carbon was omitted, the Saybolt no. was 17 after 3 days' operation, and dropped to 9 after using the catalyst for 21 days. (7pp1712SLDwgNo0/1).