

83-815880/46 SASOL ONE PTY LTD	E17 H04	SASO-05.05.82 *DE 3316-444-A	E(10-J2D) H(4-E5) N(2-A) 049
05.05.82-ZA-003092 (10.11.83) C07c-01/04 Increasing output of Fischer-Tropsch reactor - by parallel raising of pressure and synthesis gas feed rate, temp. remaining controllable			reaction temp. is pref. about 200-250°C and the pressure about 35-60 bar. The feed rate of fresh (make-up) gas to each reactor tube is pref. increased in proportion to the pressure, i.e. from about 10-40 N cu. m/h at about 26 bar to about 23-92 N cu. m/h at about 60 bar. The feed rate of recycled gas, if used, should rise in the same proportion. As a result of these changes, the linear velocity of the gas remains unchanged.
C83-110688	In the prodn. of hydrocarbons from synthesis gas by the Fischer-Tropsch reaction in a continuous fixed-bed reactor, the pressure is raised from the normal value of about 26 bar, pref. to at least 35 bar, and the feed rate is raised also, pref. about proportionately to the pressure.		
<p>ADVANTAGES</p> <p>When pressure and feed rate are raised in parallel, the output of hydrocarbon wax rises in the same proportion, the conversion of CO and H₂ and the selectivity remaining constant. Catalyst ageing does not accelerate. An expected runaway reaction due to faster heat liberation does not occur, assumedly because of still adequate heat transfer to the reactor wall.</p> <p>DETAILS</p> <p>The reactor pref. comprises a number of relatively long catalyst-filled tubes, surrounded by coolant medium. The</p>			
<p>EXEMPLARY EMBODIMENT</p> <p>The fixed-bed reactors at Sasolburg comprise tubes about 6-12 m long and having an i.e. of about 5 cm. These are surrounded by liq. coolant and filled with Fischer-Tropsch catalyst (e.g. extruded, pptd. Fe catalyst of surface area about 200 sq. m/g). Each tube contains about 20 kg catalyst at a packing density of about 1 kg/l. The reaction temp. is 200-250°C. In normal operation at 26 bar, conversion of CO and H₂ is initially about 47% and the selectivity to wax is initially about 53%. These values remain almost unchanged when the pressure is raised to 60 bar and the gas feed rate increased in the same proportion. (14pp1492APSDwgNo0/3). DE3316444-A</p>			