

83-723887/31 BASF AG 19.01.82-DE-201457 (28.07.83) C07c-01/04 C07c-04/04 C07c-11/02 Olefin prepn. by steam-cracking hydrocarbon raw material - prepd. by reacting carbon monoxide and hydrogen at supported ruthenium catalyst	A41 E17 H04 BADI 19.01.82 *DE 3201-457-A	A(1-D13) E(10-J2C3) H(4-B1, 4-E5) N(1-B, 2-E, 3) 080
C83-072107 In the prodn. of olefins by the steam cracking of hydrocarbons in an indirectly heated tubular cracking furnace, the improvement comprises using a hydrocarbon feedstock having been produced by the synthesis of CO and H <sub>2</sub> at 120-450°C and 10-350 bar over a supported Ru catalyst. <u>ADVANTAGE</u> The hydrocarbons contain over 70% n-hydrocarbons and have sufficiently low mol. wts. to allow easy dosage in use as cracking feeds. Ethylene yields can be up to 40% higher than those obtd. by naphtha cracking. In the synthesis, undesired by-prod. (e.g. CO <sub>2</sub> , O-contg. cpds. and CH <sub>4</sub> ) formation is minimised. <u>DETAILS</u> The supported catalysts contain 0.01-40 (0.1-20) esp. 1-5 wt. % Ru. In addn., they can also contain Mg, Zn, Mn, Pr, Ti, Mo and/or W as co-catalysts. The supports are	esp. SiO <sub>2</sub> gel, Al <sub>2</sub> O <sub>3</sub> , natural silicates and/or zeolites. The CO and H <sub>2</sub> are used in a molar ratio of 5 : 1 to 1 : 10 (2 : 1 to 5 : 1) esp. 1 : 1 to 1 : 2. In the steam cracking, the steam : hydrocarbon wt. ratio is suitably 0.1 : 1 and the reaction time 0.05-1 sec. <u>EXAMPLE</u> CO and H <sub>2</sub> were reacted with a molar ratio of 1 : 2, at 260°C and 100 bar using a catalyst contg. 4.8 wt. % Ru and 4.5 wt. % Mg on SiO <sub>2</sub> gel. 900g of the product (contg. 1.56 vol. % CH <sub>4</sub> and less than 0.1 vol. % CO <sub>2</sub> ) was cracked with a steam : hydrocarbon wt. ratio of 0.48 : 1 and an exit temp. of 813°C. Ethylene yield was 34.64 wt. %, as opposed to 24.55 wt. % in a control using 900 g naphtha as the feed. (11pp200DwgNo0/0).	DE3201457