

Abstract

Process for producing lower olefins from methanol or dimethylether

The present invention provides a process for producing lower olefins from methanol or dimethyl ether. The technical problem mainly addressed in the present invention is to overcome the defects presented in the prior art including high operation temperature, low yield and selectivity of lower olefins as the target products, and poor stability and short regeneration period of catalyst. The present process, which is carried out under the conditions of catalytic cracking methanol and dimethyl ether and the presence of diluting gas, and adopts as a feedstock methanol, dimethyl ether or their mixture, comprises the steps of: a) letting the feedstock firstly enter a first reaction zone to contact with a first crystalline aluminosilicate catalyst having a $\text{SiO}_2/\text{Al}_2\text{O}_3$ molar ratio of at least 10, to thereby produce a first reaction effluent containing lower olefins; b) letting the first reaction effluent enter in turn at least one second reaction zone to contact with a second crystalline aluminosilicate catalyst having a $\text{SiO}_2/\text{Al}_2\text{O}_3$ molar ratio of at least 10, to thereby produce a second reaction effluent containing lower olefins; and c) separating lower olefins from the second reaction effluent; wherein the weight ratio of the diluting gas to the feedstock is 0.01-6:1, while controlling the reaction conditions.