

Abstract

The present invention refers to a method and device for preparing propylene and C4 hydrocarbons from oxygen-containing compounds. The main characteristics of the method lie in that: returning 70 wt.% or more of the light fractions in the generated product to a dense phase zone of a fast fluidized-bed reactor from a reactor feed distributor at the bottom-most of the fast fluidized-bed reactor to react ethylene and the oxygen-containing compounds to perform an alkylation reaction in presence of a catalyst to produce products of propylene and the like, and circulating 80 wt.% or more of the hydrocarbons with 5 or more carbons into a catalytic cracking lift pipe to perform a cracking reaction to generate a product containing propylene and C4 hydrocarbons, which is subsequently fed into a dilute phase zone of the fast fluidized-bed reactor. The method and device of the present invention improve the reaction rate of ethylene alkylation, and the unit volume production capacity of reactor is high.