

ABSTRACT

Disclosed is an in-situ preparation method for a catalyst for Reaction I: methanol and/or dimethyl ether with toluene are used to prepare light olefins and co-produce para-xylene, and/or Reaction II: methanol and/or dimethyl ether with benzene are used to prepare at least one of toluene, para-xylene and light olefins, comprising: contacting at least one of a phosphorus reagent, a silylation reagent and water vapor with a molecular sieve in a reactor to prepare, in situ, the catalyst for the Reaction I and/or the Reaction II, wherein the reactor is a reactor of the Reaction I and/or the Reaction II. By directly preparing a catalyst in a reaction system, the entire chemical production process is simplified, the catalyst preparation and transfer steps are saved, and the operation thereof is easy. The catalyst prepared in situ can be directly used for in situ reactions.

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