

Catalyst and Preparation Method Thereof, and Method for Preparing Isobutylene by Applying the Same

Abstract

The present invention relates to the field of isobutylene preparation. Disclosed are a catalyst and preparation method thereof, and method for preparing isobutylene by applying the same; the catalyst has a core-shell structure, the core being an amorphous silica-alumina particle and/or an aggregate molding thereof, and the shell being aluminum oxide comprising silicon and tin; the weight ratio of the aluminum oxide comprising silicon and tin to the amorphous silica-alumina is 1:60-1:3; in the aluminum oxide comprising silicon and tin, on the basis of the weight of the aluminum oxide comprising silicon and tin and calculated as elements, the content of silicon is 0.5-2wt%, and the content of tin is 0.2-1wt%. The catalyst of the present invention is used to catalyze a mixture of MTBE and TBA to prepare isobutylene, enabling an MTBE cleavage reaction and a TBA dehydration reaction to be conducted simultaneously to generate isobutylene, achieving higher conversion rates of TBA and MTBE, and higher selectivity for generating isobutylene.