

ABSTRACT

Disclosed are a composite of aluminosilicate zeolite-hydrogenation metal component-alumina, and preparation and use thereof, wherein the composite comprises an
5 aluminosilicate zeolite, alumina and a hydrogenation metal component, wherein at least portion of the aluminosilicate zeolite in the composite is chemically bonded to at least portion of the alumina, such that the composite has an infrared spectrum exhibiting a characteristic peak within a range of 860-900 cm^{-1} . When the hydroalkylation catalyst based on the composite is used in the hydroalkylation reaction of benzene to prepare
10 cyclohexylbenzene, the excessive hydrogenation of benzene caused by too long diffusion path can be avoided, the selectivity of cyclohexane as a byproduct can be reduced, the utilization rate of benzene can be improved, and the energy consumption of reaction and separation can be reduced.

15 Fig.2