

Abstract

Disclosed is an unsupported hydrogenation catalyst, its preparation and application thereof, the unsupported hydrogenation catalyst is composed of a complex formed by bonding a metal central atom or central ion with an organic ligand through coordination bond, wherein
5 the metal is selected from the group consisting of Group VB metals, Group VIB metals, Group VIII metals, Group IB metals or combinations thereof that have a hydrogenation activity, the organic ligand comprises a hydrocarbyl moiety and a coordinating group, and forms a coordination bond with the metal central atom or central ion through an oxygen atom. The unsupported hydrogenation catalyst can be used for hydrogenation reaction of hydrocarbons,
10 and has high oil solubility, dispersibility and hydrogenation activity.

FIG. 2