

ABSTRACT

The present invention provides: a palladium-containing catalyst which is used for highly selectively or highly productively producing an α,β -unsaturated aldehyde and an α,β -unsaturated carboxylic acid from an olefin or in that way producing an α,β -unsaturated carboxylic acid from an α,β -unsaturated aldehyde; a method for producing the catalyst; and a method for highly selectively or highly productively producing an α,β -unsaturated aldehyde and an α,β -unsaturated carboxylic acid from an olefin or in that way producing an α,β -unsaturated carboxylic acid from an α,β -unsaturated aldehyde. In particular, the present invention resides in a palladium-containing catalyst comprising 0.001 to 0.40 mole of tellurium metal to 1.0 mole of palladium metal. This catalyst can be preferably produced by a method having a step of reducing a compound containing palladium atom in its oxidized state and tellurium atom in its oxidized state by a reducing agent.