

Abstract

OXIDE CATALYST AND METHOD FOR PRODUCING THE SAME, AND
METHODS FOR PRODUCING UNSATURATED ALDEHYDE, DIOLEFIN, AND
UNSATURATED NITRILE

An object of the present invention is to provide an oxide catalyst that prevents the reduction degradation of the catalyst even during industrial operation for a long time and less reduces unsaturated aldehyde yields, diolefin yields, or unsaturated nitrile yields, and a method for producing the same, and methods for producing unsaturated aldehyde, diolefin, and unsaturated nitrile using the oxide catalyst. The present invention provides an oxide catalyst for use in the production of unsaturated aldehyde, diolefin, or unsaturated nitrile from olefin and/or alcohol, the oxide catalyst satisfying the following (1) to (3): (1) the oxide catalyst comprises molybdenum, bismuth, iron, cobalt, and an element A having an ion radius larger than 0.96 Å (except for potassium, cesium, and rubidium); (2) an atomic ratio a of the bismuth to 12 atoms of the molybdenum is $1 \leq a \leq 5$, an atomic ratio b of the iron to 12 atoms of the molybdenum is $1.5 \leq b \leq 6$, an atomic ratio c of the element A to 12 atoms of the molybdenum is $1 \leq c \leq 5$, and an atomic ratio d of the cobalt to 12 atoms of the molybdenum is $1 \leq d \leq 8$; and (3) the oxide catalyst comprises a disordered phase consisting of a crystal system comprising the molybdenum, the bismuth, the iron, and the element A.