

This Sheet Has Been Replaced



49

Abstract

Disclosed is a method for producing methacrolein, which comprises subjecting at least one member selected from the group consisting of isobutylene and tert-butanol to gas phase catalytic oxidation with a molecular oxygen-containing gas in the presence of an oxide catalyst composition represented by the formula $\text{Mo}_{12}\text{Bi}_a\text{Ce}_b\text{K}_c\text{Fe}_d\text{A}_e\text{B}_f\text{O}_g$, wherein A is Co solely, or a mixture of Co and Mg wherein the atomic ratio of Mg to Co is not more than 0.7, B is Rb, Cs or a mixture thereof, and a, b, c, d, e, f and g are, respectively, the specific atomic ratios of Bi, Ce, K, Fe, A, B and O, relative to twelve atoms of Mo. By the method of the present invention, it is possible to stably produce methacrolein in high yield, using an oxide catalyst composition which has a relatively simple structural composition and therefore can be easily prepared, and which has not only a prolonged catalyst life due to the excellent thermal stability and reduction resistance, but also excellent selectivity for methacrolein, wherein the catalyst composition contains Bi, Ce, K and Fe in specific amounts and in a specific relative amount ratio, and does not contain such elements as cause environmental pollution and toxicity problems, and also does not require the use, as raw materials for the preparation thereof, compounds having low solubility in water, such as compounds of W, Sb and Nb, which have frequently been used in order to achieve desired catalytic performances, but the use of which is disadvantageous because of difficulties in obtaining uniform catalyst compositions.