

A PROCESS FOR PRODUCING UNSATURATED ALDEHYDES AND UNSATURATED CARBOXYLIC ACIDS

Abstract of the Disclosure

As an improvement in the process for preparing unsaturated aldehydes and unsaturated carboxylic acids through vapor-phase catalytic oxidation of at least one starting compound selected from propylene, isobutylene, t-butanol and methyl-t-butyl ether with molecular oxygen or a molecular oxygen-containing gas, using a fixed bed shell-and-tube type reactor which is filled with shaped catalysts, a process capable of effectively inhibiting occurrence of hot spots or excessive heat generation at the hot spots and producing unsaturated aldehydes and unsaturated carboxylic acids at high yields is provided. This process is characterized in that plural shaped catalysts exhibiting different activity levels are prepared by varying: [I] content of inert component of the shaped catalyst and [II] at least one of the factors (a) occupation volume of the shaped catalyst, (b) kind and/or amount of the alkali metal(s) in the shaped catalyst, and (c) calcining temperature of the shaped catalyst; and which catalysts are filled in each of the reaction tubes in such a manner that the catalytic activity level rises from the reactant gas-inlet side of each reaction tube toward the outlet side.



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