Total oxidation of propane over Cu-Mn mixed oxide

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Total catalytic oxidation technology is widely used in several industrial process for air pollution abatement, especially for the control of volatile organic compound emissions. In this study, catalytic activity of Cu-Mn mixed oxides varying Cu/Mn ratios prepared by co-precipitation method was examined for the total oxidation of propane. The catalytic activity of Cu-Mn mixed oxide for propane oxidation was much higher than those of individual metal oxides. The nature and phase of the metal oxide species formed were characterized by various kinds of methods such as X-ray diffractometry (XRD), X-ray photoelectron spectroscopy (XPS), H_2 temperature programmed desorption (TPR) as well as BET surface area measurement. The higher catalytic activity seems to be related to the existence of spinel structure of mixed oxide and easier reducibility of the catalysts.