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Catalytic Combustion of Ethyl Acetate

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Abstract: The catalytic combustion of ethyl acetate over prepared metal oxide catalysts was investigated. CeO, Co_2O_3, Mn_2O_3, Cr_2O_3, and CeO-Co_2O_3 catalysts were prepared on monolith supports and they were tested. Before conducting the catalyst experiments, we searched for the homogeneous gas phase combustion reaction of ethyl acetate. According to the homogeneous phase experimental results, 45% of ethyl acetate was converted at the maximum reactor temperature tested (350 °C). All the prepared catalysts were tested in order to find the best catalyst for the complete combustion of ethyl acetate. According to the results, all these catalysts produced higher conversion rates than that of the homogeneous experiment; however, none of the prepared catalysts resulted in complete combustion. The maximum conversion obtained with the CeO catalyst at 350 °C was 72%.

Key Words: Catalytic combustion, ethyl acetate, incineration, metal oxide catalysts, monolith

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