Characterization of Pt-impregnated MCM-41 and its catalytic performances in toluene oxidation

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Mesoporous molecular sieves were used as supports for active metal catalyst for the catalytic oxidation. X wt% Pt/MCM-41 (X=1, 3, 5) catalysts were prepared by impregnation method. All the catalysts showed high activity for toluene oxidation due to their high surface area. The catalysts with mesoporous support, MCM-41, were characterized with N_2-adsorption/desorption, XRD, NH_3-TPD, XPS, XANES and TEM to explain the correlation between the active sites and the catalytic activities. Their catalytic activity was related with the impregnated Pt oxidation states.