

NO Removal of Copper-supported MCM-41 Mesoporous Materials

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The effect of copper content on MCM-41 mesoporous materials was investigated in order to NO removal. MCM-41 mesoporous materials were prepared by hydrothermal synthesis using a gel mixture of colloidal silica solution as silica source and cetyltrimethylammonium as template. Cu/MCM-41 were manufactured by different concentrations of copper (5, 10, 20, 40%) in Cu(II) acetylacetonate. The surface properties of Cu/MCM-41 were investigated using FT-IR analysis. $N_2/77K$ adsorption isotherm characteristics, including the specific surface areas and micropore volumes were studied by BET and t-plot methods. NO removal efficiency was confirmed by gas chromatographic technique. From the experimental results, the copper content supported on MCM-41 appeared to increase the NO removal efficiency in spite of decreasing the specific surface areas or micropore volumes. Consequently, the copper content in MCM-41 played an important role in improving the NO removal, which was mainly attributed to the catalytic reactions in this system.