

Preparation and characterization of $V_2O_5 - WO_3$ catalysts supported by $Fe^{2+} - TiO_2$ and FeO_x / TiO_2 for $NH_3 - SCR$ reaction

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This work has been focused on preparation and characterization of $V_2O_5 - WO_3$ catalysts supported by $Fe^{2+} - TiO_2$ and FeO_x / TiO_2 for $NH_3 - SCR$ reaction in order to depressing the emission of N_2O from the $NH_3 - SCR$ reaction. In order to prepare a $Fe_{2+} - TiO_2$ support, TiO_2 (DT51, Millennium Inorganic Chemicals) after drying at $110^\circ C$ was hydroxylated in an aqueous solution of NH_4OH (Aldrich, 28 - 32%). After hydroxylation, the sample was washed repeatedly and finally dried at $110^\circ C$. Introduction of Fe^{2+} ions was conducted by a well mixing of the hydroxylated TiO_2 and $FeCl_2 \cdot 4H_2O$ followed by subliming this mixture in a quartz reactor under various conditions. the samples prepared here were extensively charaterized by using X-ray diffraction (XRD), temperature-programmed desorption (TPD), Raman spectroscopy, in situ diffuse reflectance infrared Fourier-transformed spectroscopy (DRIFTS) measurements.