Sulfur doping effect on V_2O_5/TiO_2 catalysts promoted with W and Ce in selective cataytic reduction

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Selective catalytic reduction (SCR) system has been focused in recent centuries. Introduction of SCR system to diesel engine requires the low temperature SCR activity due to low temperature flue gas. Also, suppression of N_2O draws attention as known as greenhouse gas which has 300 times higher effect than CO_2. We applied two promoters, W and Ce, on 5wt% V_2O_5/TiO_2 catalyst and investigated the promoter effect of simultaneous impregnation of two promoters on SCR reaction. Furthermore, we observed improved NO_x conversion at low temperature after sulfur doping on prepared catalysts with following condition: 300ppm SO_2, 2% O_2 and N_2 balance during 12h. We utilized various analytic system, N2 adsoprtion desoprtion, NH_3 TPD, H_2 TPR and Raman spectroscopy, to investigate the role of promoters and sulfur doping of W and Ce promoted SCR catalysts.