Effect of calcination Temperature on Selective Catalytic Reduction over Manganese Oxides at Low Temperature

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Natural manganese ore (NMO) exhibits the great activity for the selective catalytic reduction (SCR) of nitrogen oxides with ammonia at low temperatures. The catalytic behavior of NMO which consists mainly of manganese oxides depends strongly on the calcination temperature. It was found that the optimum calcination temperature is 300 - 400℃. Due to decrease of the activated surface by carbon impurities dried at 120℃, DeNOx was so poor. Meanwhile, the deficiency of oxygen for the redox function in the catalyst calcined at over 500℃ mghit result in low activity. In the presence of water, SCR activity decreased due to the competitive adsorption between water and ammonia, because water inhibit the adsorption for both NO and NH_3.