Suttipong Leruraivong 2011: Synthesis of Cu/SUZ-4 Catalysts for Reduction of NO_x: Effect of Cu Loading Techniques. Master of Engineering (Chemical Engineering), Major Field: Chemical Engineering, Department of Chemical Engineering. Thesis Advisor: Associate Professor Paisan Kongkachuichay, Ph.D. 68 pages.

This research is the synthesis of Cu/SUZ-4 catalyst in NO reduction by using rice husk ash (RHA) as a combined silica source. The starting synthesized molar composition was RHA:Silica sol = 50:50. The hydrothermal temperature was set at 150 °C, rotation speed was 250 rpm and hydrothermal time was 4 days. The obtained SUZ-4 was loaded with $Cu(NO_3)_2$ by several techniques, including incipient wetness impregnation, ion exchange, incorporation, and leaching, using various concentrations of $Cu(NO_3)_2$ at 2 and 5 wt.%. Subsequently, the Cu/SUZ-4 catalysts were used to catalyze the NO reduction in a packed-bed reactor using H_2 as a reducing gas. The feed containing H_2-NO-O_2-He with a molar composition of 20:20.67:3.33:50 was fed with a flow rate 60 ml/min. The reaction was carried out at 280 °C, atmospheric pressure. The effluent gases composition was analyzed by Gas Chromatograph and the total conversion of NO was determined. It was found that the maximum conversion of 82.22 % was achieved when using 5 wt% Cu/SUZ-4 with incipient wetness impregnation technique. For reaction with O_2 presence, the conversion of NO was decreased to 55.05 %.

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