

### TPD Studies of NH<sub>3</sub>-SCR Catalysts and DeNO<sub>x</sub> Activity Correlation

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A series of metal-exchanged zeolite catalysts was tested for its DeNO<sub>x</sub> activity in ammonia selective catalytic reduction (NH<sub>3</sub>-SCR) reactions. Activity was found to depend strongly on metal species such that at a certain metal, NO<sub>x</sub> conversion is achieved at 473 K. Ammonia-temperature programmed desorption (NH<sub>3</sub>-TPD) was used in an attempt to explain the findings of these experiments. Specifically, we have used NH<sub>3</sub>-TPD to determine the population and strength of the acid sites present in the catalysts as a function of metal species. At temperatures where DeNO<sub>x</sub> activity differs significantly among the catalysts, corresponding differences in their acid site distributions, and hence surface NH<sub>3</sub> populations, are observed.