

Improvement of Hydrothermal Stability and NH<sub>3</sub>-SCR Activity of High Silica Cu-UZM-12박순희, 박진희<sup>1</sup>, 정하나<sup>1</sup>, 조성준<sup>1,†</sup>고려대학교; <sup>1</sup>전남대학교(sjcho@chonnam.ac.kr<sup>†</sup>)

Small pore zeolites have attracted a lot of attention due to improved hydrothermal stability for the selective catalytic reduction of NO with NH<sub>3</sub> (NH<sub>3</sub>-SCR). Especially, high silica zeolite with low aluminum contents of their frameworks is more stable even hydrothermal treatment up to 800 °C. In this work, copper ion exchanged UZM-12 (ERI) with different Si/Al ratios was synthesized through hydrothermal reaction from various gel composition by using the hexamethonium and tetraethylammonium ions as organic structure-directing agents (OSDAs). Their NH<sub>3</sub>-SCR reaction activities were investigated after hydrothermal treatment at 750 °C which is similar to exhaust gases containing water. NH<sub>3</sub>-TPD, NO-TPD, H<sub>2</sub>-TPR analysis results revealed a change of their acidic properties and reactant adsorption abilities. *In-situ* ESR and *in-situ* XAFS measurement also provided the change of Cu<sup>2+</sup> ion during the NH<sub>3</sub>-SCR reaction on Cu-UZM-12.