

# Composite Cu-SSZ-13 and CeO<sub>2</sub>-SnO<sub>2</sub> for enhanced NH<sub>3</sub>-SCR resistance towards hydrocarbon deactivation

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## Description

The state-of-the-art Cu-SSZ-13 was mixed with CeO<sub>2</sub>-SnO<sub>2</sub> to form a Composite catalyst which was resistant towards hydrocarbon poisoning of the NH<sub>3</sub>-mediated NO<sub>x</sub>-SCR reaction. The Composite was prepared via a solid-state synthesis through ball milling, which did not influence the final morphology. The resistance towards propylene poisoning was remarkably enhanced as the NO<sub>x</sub> conversion over the Composite catalyst decreased only 9% compared to 40 % over the unmodified Cu-SSZ-13. Transient and dynamic reactivity studies showed that the coke formed during the C<sub>3</sub>H<sub>6</sub> protolytic polymerization was dispersed inside the zeolite pores and the addition of CeO<sub>2</sub>-SnO<sub>2</sub> did not prevent its formation nor enhance its oxidation with O<sub>2</sub>. The ion-exchanged Cu was the principal active component for the coke and hydrocarbon oxidation and the hydrocarbon poisoning prevention was attributed to the complex ...