

### The Promoting and Chlorine Effects of Ceria & Vanadium Oxide with Palladium on Alumina for Automotive Application

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The nature of Pd active sites and chlorine effect on Pd/Al<sub>2</sub>O<sub>3</sub>, Pd-CeO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub>, Pd-V<sub>2</sub>O<sub>5</sub>/Al<sub>2</sub>O<sub>3</sub> catalysts was investigated. The activities of Pd series alumina strongly depended on the preparation method. Pd-V<sub>2</sub>O<sub>5</sub>/Al<sub>2</sub>O<sub>3</sub> is significantly more active than other catalysts in various condition. Possible mechanisms for the improved performance of Pd-V<sub>2</sub>O<sub>5</sub>/Al<sub>2</sub>O<sub>3</sub> are discussed.