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**Catalytic Purification of 1, 2-Dichloroethane on CeTiO<sub>x</sub>-Cordierite Honeycomb Catalysts-----Influence of Particle Sizes of Catalytic Components**

**Abstract:** The cordierite honeycomb ceramics were coated with TiO<sub>2</sub> and CeTiO<sub>x</sub> oxides prepared by sol-gel method, and their catalytic activities on catalytic combustion of 1,2-dichloroethane(DCE) were investigated. The results showed that the catalysts exhibit high catalytic activity, e.g., the combustion conversion of 1,2-DCE was 93.1% and 98% at the reaction temperature of 400°C on the TiO<sub>2</sub> coated catalyst and the CeTiO<sub>x</sub> coated catalyst, respectively. It was observed that at even lower temperature such as 300°C, the combustion conversion of 1,2-DCE was 85.6% on the CeTiO<sub>x</sub> coated catalyst, which was very close to the best performance on non-noble metal catalysts for the reaction. The catalysts were characterized by XRD, SEM and BET, and it was observed that the activity of the catalysts was markedly related to particle size of active species on the catalysts. The particles of CeTiO<sub>x</sub> active species grew larger with increasing the calcination temperature, which led to a decrease in the activity of 1, 2-DCE combustion.

**Key words:** honeycomb catalyst; particle effect; combustion conversion; laser particle size analyzer; particle size analyzer; aimsizer; as-2011 micron laser particle size analyzer; as-2012 submicron laser particle size analyzer

*Excerpt from CHINA POWER SCIENCE AND TECHNOLOGY*

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