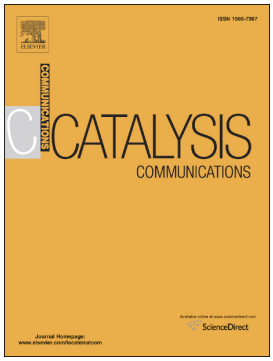

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Preparation and high performance of rare earth modified Co/USY for benzene catalytic combustion

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ABSTRACT

A series of rare earth elements (REE) modified Co/USY catalysts were prepared. Effects of REE-doped USY on the performance of Co/USY and on total combustion of benzene were evaluated. Characterization revealed that CeO_2 enhanced the dispersion of Co_3O_4, which might promote the redox performance of Co/USY and enhance the catalytic performance. Catalytic tests showed that the highest catalytic activity of 10%Co-7.5%Ce/USY, and 100% benzene conversion was achieved at temperature below 250°C. The high activity is likely attributed to Co_3O_4 particles with small size and high dispersion on USY and optimum synergistic interaction between highly dispersed CeO_2 and Co_3O_4 particles.

Keywords: USY; Co; Rare earth; Catalytic combustion; Benzene.

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