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Enhancing performance of Co/CeO₂ catalyst by Sr doping for catalytic combustion of toluene

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Abstract

Cobalt-based catalyst supported on strontium-doped ceria was prepared by impregnation method. The physical and chemical properties were investigated by various technologies and the catalytic combustion of toluene was evaluated at fixed-bed. The possible reaction process of toluene oxidation on Co/Sr-CeO₂ was also investigated. The results showed that Sr doping enlarges the specific surface area of CeO₂, accompanied by strong interaction between Co and Ce and high dispersion of Co oxides. Sr doping increases the lattice defects of CeO₂, which creates oxygen vacancies and enhances the oxygen mobility in Co/Sr-CeO₂. Sr doping also changes

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