

CWAO of p-chlorophenol over transition metal oxide catalysts supported on
 $\text{Ce}_{0.65}\text{Zr}_{0.35}\text{O}_2$ prepared by supercritical synthesis

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Supercritical synthesis is a method to prepare highly crystalline nanoparticles of homogeneous complex metal oxides as well as single metal oxides rapidly and continuously using supercritical water as antisolvent. Ceria-zirconia mixed oxide has widely been used as catalytic promoter due to its oxygen storage capacity. Ceria-zirconia mixed oxide with high surface area could be prepared by the supercritical synthesis, so that it also has the potential application as catalyst support due to its high surface area. In this study, ceria-zirconia mixed oxide prepared by the supercritical synthesis was used as a support of transition metal (Mn, Fe, Co, Ni, and Cu) oxide catalysts for wet oxidation of p-chlorophenol. Ceria-zirconia mixed oxide supported transition metal oxide catalysts showed the enhanced catalytic activity for the wet oxidation of p-chlorophenol due to its oxygen storage capacity. Ceria-zirconia mixed oxide prepared by supercritical synthesis is a promising catalyst support for wastewater treatment. Its oxygen storage capacity can assist the active element in removing organic pollutant such as p-chlorophenol.