

## Different Mechanism between Metal Doped and Loaded-Ceria for the Enhanced Catalytic Activity of CO Oxidation

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As environmental pollution caused by automobile exhaust gases becomes serious, the regulations are being tightened. Therefore, it is inevitable to develop the catalyst that convert the automobile exhaust gases into environmentally friendly gases. Ceria has strong advantages as a support in CO oxidation catalysts. Cu-doping into the ceria increases the concentration of oxygen vacancy compared to pure ceria, thereby inducing the high activity. However, when Pd is impregnated onto the ceria, the concentration of vacancies of the support does not increase, but the reduction occurs at a much lower temperature than pure ceria. These Cu-doped and Pd-loaded ceria may have different mechanisms for enhancing the catalytic activities. In this study, we investigated what are the factors which affect the enhanced activity of CO oxidation when each metal is doped and loaded into the ceria compared to the pure ceria. We confirmed that the mechanisms are different due to the difference in the active factors of each sample. In addition, it was found that when the Cu-doped ceria is impregnated with Pd, the activity can be further increased by synergetic effect of the two different mechanisms.