

Au-CuO + Pt Catalyst for Low Temperature CO Oxidation

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Technology Summary

As engines become more efficient and exhaust temperature decrease the typical Pt or Pd catalyst found in catalytic converters become more inefficient. Silica supported Au@CuO core@shell nanoparticles, which were formed through the oxidation of AuCu alloy nanoparticles, have shown to be highly active for the oxidation of CO into CO₂ at low temperatures. Unfortunately, introducing hydrocarbons or NO into the gas stream severely inhibits the low temperature catalytic oxidation of CO over the Au@CuO catalyst. Creating a physical mixture of a Au@CuO catalyst with a Pt catalyst improves the CO oxidation activity in the presence of hydrocarbons and NO. More importantly, the conversion of NO to NO₂ was nearly doubled.

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