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Gold nano-particles stabilized in mesoporous MCM-48 as active CO-oxidation catalyst

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Abstract

Gold in nano-crystal size is known as highly active CO-oxidation catalyst. Using simple deposition techniques gold has been deposited as ~3 nm particles inside the channels of mesoporous silica–TiO_2–MCM-48. In the presence of gold nano-particles the catalyst converts CO to CO_2 at 50% level at −20 °C. The composite is stable against sintering up to at least 200 °C. XANES and EXAFS confirm the coexistence of elementary and ionic gold during the catalytic activity.

Keywords: Au/TiO_2–MCM-48; Au/TiO_2; CO oxidation; Au XANES; Au EXAFS