Mesoporous transition metal oxide catalysts for CO preferential oxidation (CO-PROX) reaction

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The mesoporous transition metal oxide catalysts were investigated for CO preferential oxidation (CO PROX) reaction, which was synthesized via nano-replication method using a hard template of KIT-6. The catalysts were characterized by X-ray diffraction, N_2 adsorption-desorption, H_2-temperature programmed reduction, CO-temperature programmed desorption and X-ray photoelectron spectroscopy. All of the catalysts had uniform mesopores and high surface areas. The distinct catalytic properties of these well-characterized mesoporous materials were demonstrated for preferential CO oxidation. Among them, the Mn:Co:Ce=23.75:71.25:5 system presented the best CO conversion at low temperatures and the best selectivity toward CO_2. The received mesoporous Mn-Co-Ce mixed oxide possessed excellent textural properties.