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## Nanosized spinel oxide catalysts for CO-oxidation prepared via CoMnMgAl quaternary hydrotalcite route

M. Mokhtar\*, S.N. Basahel, Y.O. Al-Angary

Chemistry Department, Faculty of Science, King Abdulaziz University, 21589 Jeddah, P.O. Box 80203, Saudi Arabia

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### ABSTRACT

Catalytic activity of the Co–Mn–Mg–Al mixed oxide spinel catalysts was examined in CO oxidation with O<sub>2</sub>. The prepared catalysts were characterized by chemical analysis (ICP), infrared spectroscopy, thermal analysis (TG, DTG), powder X-ray diffraction (XRD), surface area measurements, and scanning electron microscopy (SEM). The calcined hydrotalcite-like precursor was composed of spinel Co–Mn–Mg–Al mixed oxide as the only XRD crystalline phases. The nanosized spinel oxide catalysts produced by calcination of hydrotalcites showed higher  $S_{\text{BET}}$  than CoMn-hydrotalcite samples as calcination led to dehydroxylation and carbonate decomposition of anions in interlayer spaces. All the catalysts showed 100% CO conversion at high temperature even those calcined at 800 °C. A catalyst with Co<sub>2</sub> and calcined at 500 °C showed 100% CO conversion at 160 °C. Moreover, this catalyst exhibited quite durability without deactivation in 60 h stability test.

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