

Supporting Information

Facile surface improved method of LaCoO_3 for toluene oxidation

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Fig. S1 Toluene conversion over LaCoO_3 and LaMnO_3 .

Fig. S2 Toluene conversion over LCO-0 and LCO-x (x=1, 6, 12 and 24 h).

Fig. S3 XPS spectra (La 3d) of LCO-0 and LCO-1.

Fig. S4 The long-term stability of LCO-1-500 at 230 °C.

Fig. S5. Effects of H_2O on the activity of the LCO-1-500 at 230 °C.

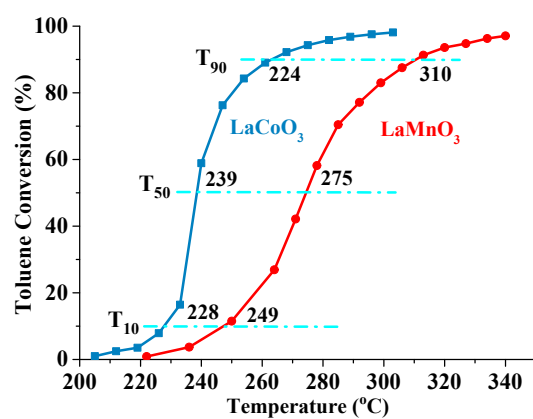


Fig. S1 Toluene conversion over LaCoO₃ and LaMnO₃.

Reaction conditions: 0.10 g catalyst, 1000 ppm toluene, 20% O₂, balance N₂, total flow rate = 100 mL min⁻¹, WHSV = 60000 mL g⁻¹ h⁻¹.

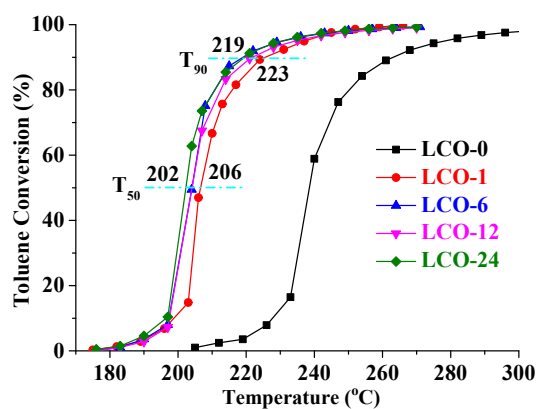


Fig. S2 Toluene conversion over LCO-0 and LCO-x (x=1, 6, 12 and 24 h).

Reaction conditions: 0.10 g catalyst, 1000 ppm toluene, 20% O₂, balance N₂, total flow rate = 100 mL min⁻¹, WHSV = 60000 mL g⁻¹ h⁻¹.

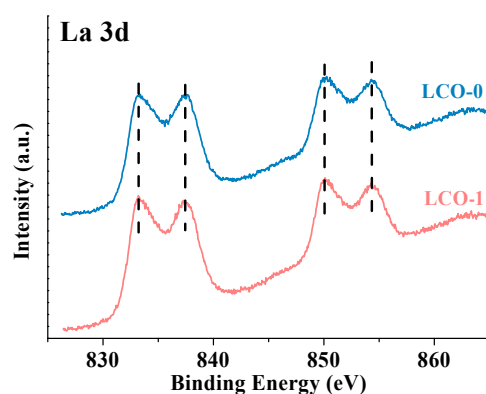


Fig. S3 XPS spectra (La 3d) of LCO-0 and LCO-1.

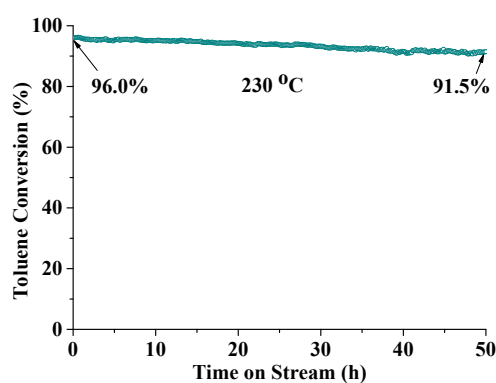


Fig. S4 The long-term stability of LCO-1-500 at 230 °C. Reaction conditions: 0.10 g catalyst, 1000 ppm toluene, 20% O₂, 5% H₂O, balance N₂, total flow rate = 100 mL min⁻¹, WHSV = 60000 mL g⁻¹ h⁻¹.

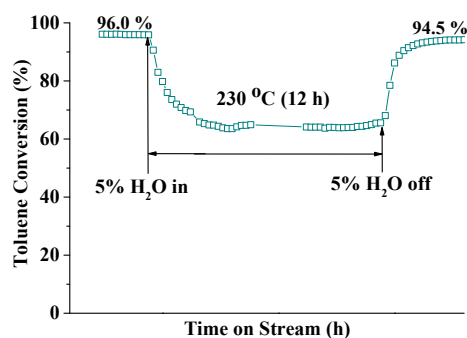


Fig. S5. Effects of H₂O on the activity of the LCO-1-500 at 230 °C. Reaction conditions: 0.10 g catalyst, 1000 ppm toluene, 20% O₂, 5% H₂O, balance N₂, total flow rate = 100 mL min⁻¹, WHSV = 60000 mL g⁻¹ h⁻¹.