

Supporting Information

Syngas production from the CO₂ reforming of waste cooking oil over catalysts derived from La_{1-x}Sr_xNiO₃ perovskites

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For the reduced samples, La 3d and Ni 2p XPS spectra are very complicated due to the overlapping and strong interferences of Ni 2p and La 3d spectra¹. Hence, the interference-free Ni (3p) signal was used for the analysis of the surface Ni species (Figure S1). For the reduced catalyst, the high-resolution XPS spectrum of La 3d (Figure S1a) revealed two peaks, around 834.2 and 837.6 eV, consistent to the signals from La 3d, indicating that the valence state of La was +3. Figure S1b shows the high-resolution XPS spectrum of Ni 2p in LaNiO₃. The peaks located at 67.1 eV could be indexed to Ni 2p_{1/2}, respectively, which is characteristic of Ni⁰ cation².

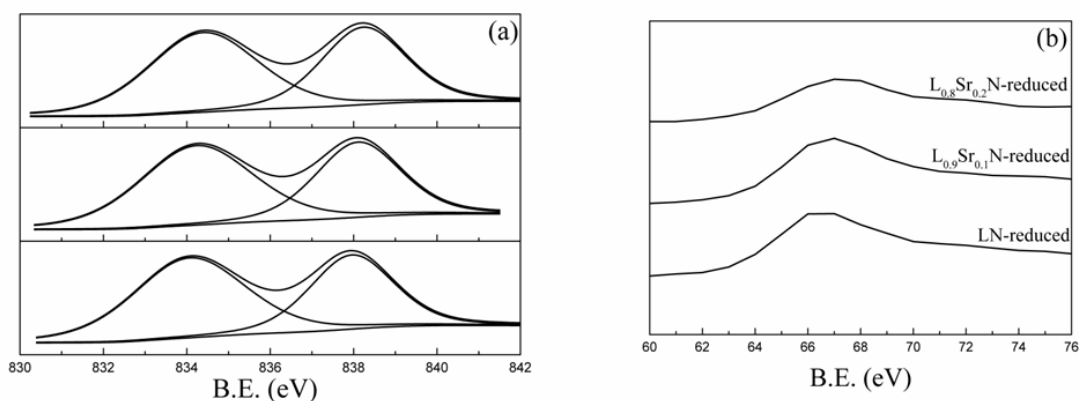


Figure S1 High-resolution XPS spectrum of La 3d (a) and Ni 2p (b) from the reduced catalyst.

1. Yang E, Moon D. Synthesis of LaNiO₃ perovskite by EDTA-cellulose method and comparison with conventional Pechini method: Application to steam CO₂ reforming of methane.
2. Liu K, Cheng Y, Shi Y, Zhang W, Wang Y, Lin X. Synergistic effect between La-Ni bimetallic oxides for the efficient decomposition of hydrogen peroxide[J]. New Journal of Chemistry, 2021, 45.