Supporting information for

“Shape-controlled synthesis of high tap density cathode oxides for lithium ion batteries”

Anmin Cao* and Arumugam Manthiram*

**Fig. S1** (a-d) SEM images of samples collected at different reaction stages: (a) 1 h, (b) 2 h, (c) 3 h, and (d) 15 h; The EDS measurements show that the corresponding Mn/Ni ratios are, respectively, 94.3/5.7, 89.2/10.8, 76.7/23.3 and 74.2/25.8. After cooling down, the pH values of the solutions at different reaction stages are, respectively, 8.21, 8.56, 9.13 and 9.18. (e) XRD patterns of the corresponding samples, in which the unfilled and filled rectangles refer, respectively, to MnCO$_3$ and NiCO$_3$.

**Figure S2.** SEM images of a commercial sample at low (a) and high (b) magnifications.