

**aSupplementary Information**

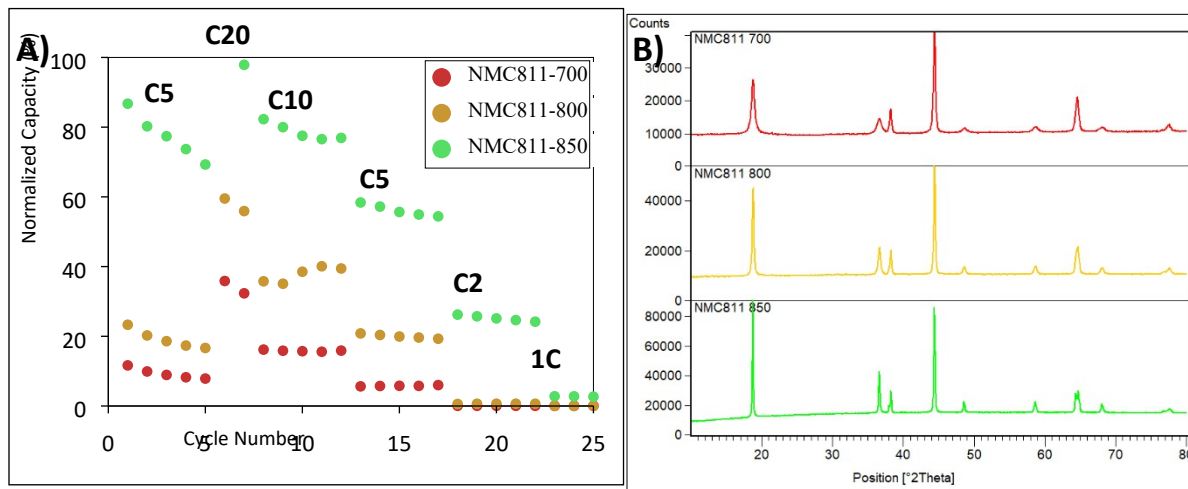


Figure S1. A) C-rate normalized capacity results and B) XRD spectra of NMC811 samples calcined at 700 °C, 800 °C, and 850 °C in air for 6h.

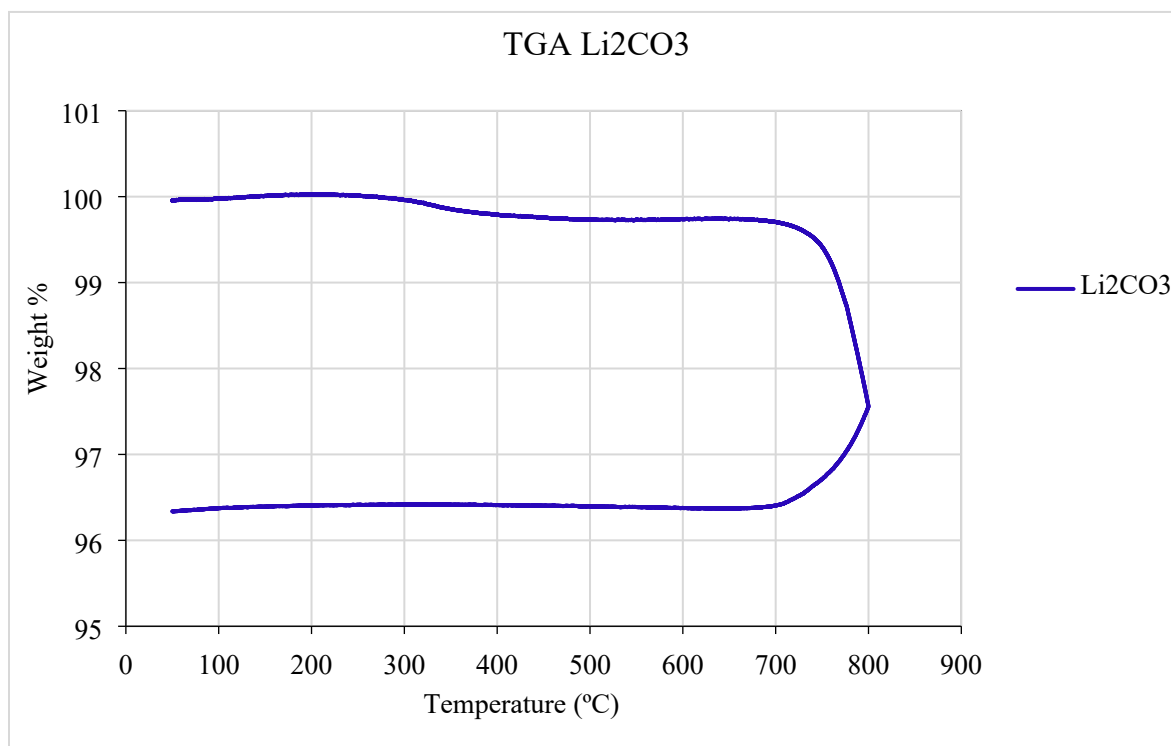


Figure S2.  $\text{Li}_2\text{CO}_3$  TGA results.

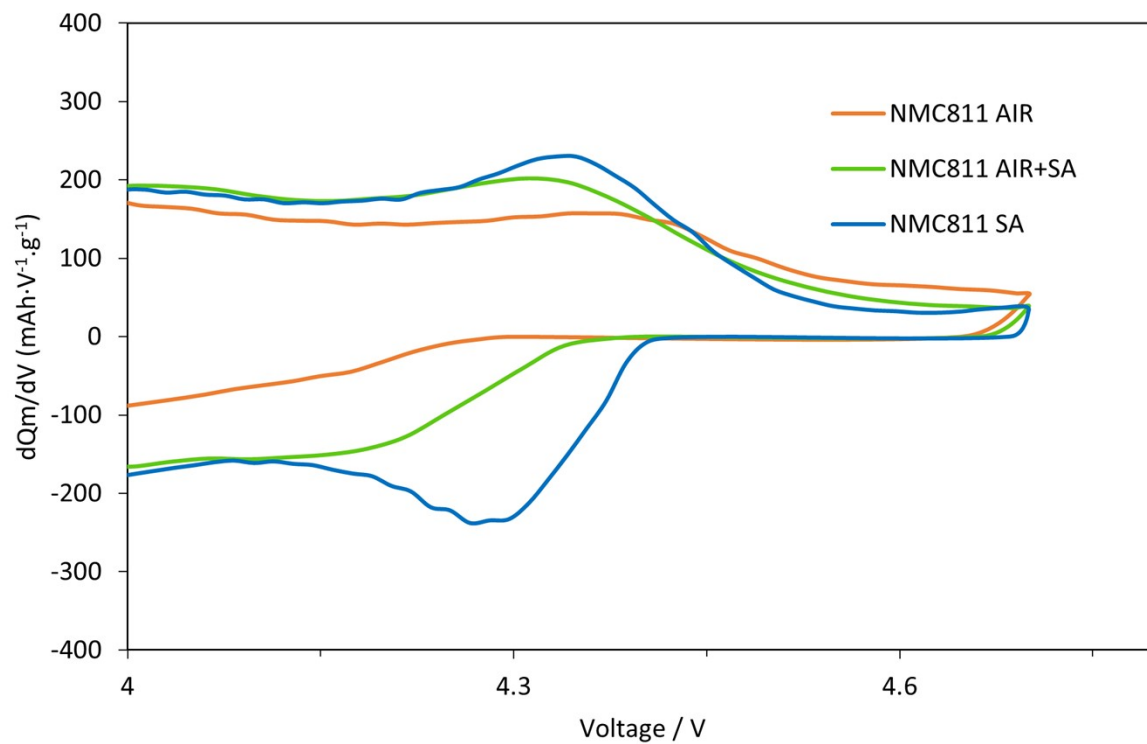


Figure S3.  $dQ_m/dV$  of the NMC811 AIR, AIR+SA, and SA samples of the formation cycle at C/20. The cut-off voltage was increased to 4.7V.

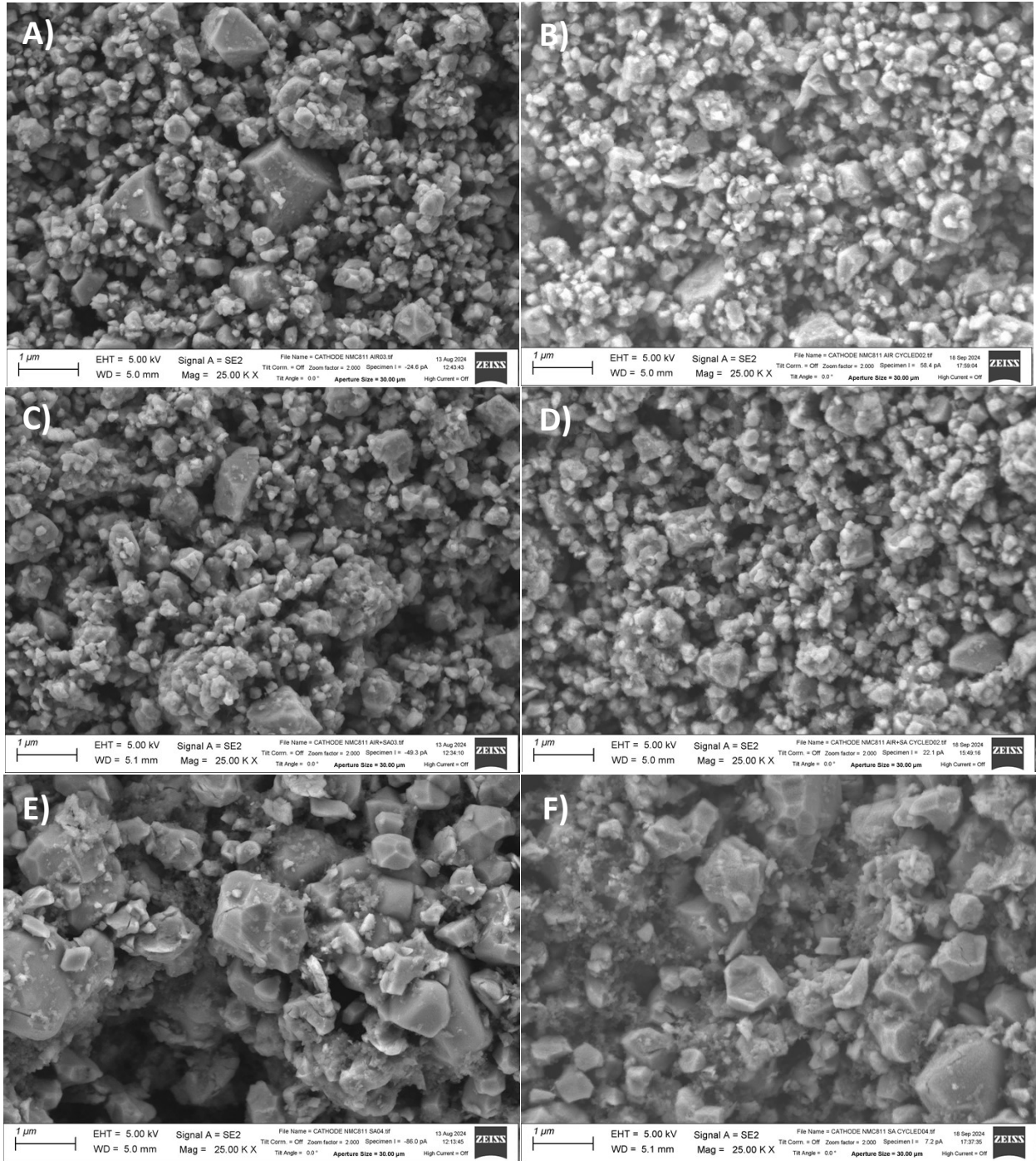


Figure S4. SEM micrographs at 25,000 magnifications of the fresh cathode electrodes and after the C/10 50 cycles program. A-B) NMC811 AIR electrodes, C-D) NMC811 AIR+SA electrodes, and E-F) NMC811 SA electrodes.