

Electronic Supporting Information

The Cathode Surface Composition of a Cycled Li-O₂ Battery: a Photoelectron Spectroscopy Study

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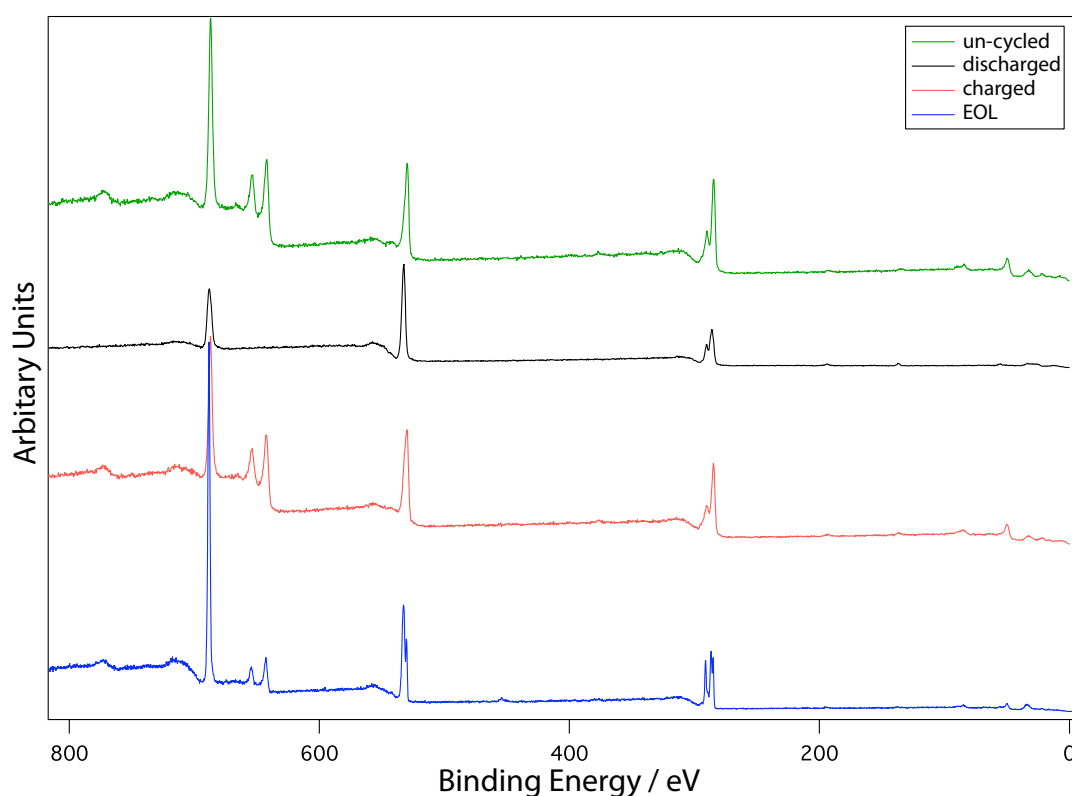


Figure S1. Survey scan of the un-cycled, discharged, charged, EOL samples.

Reference PES measurements of the O 1s and Li 1s peaks in Li₂O₂ powders scraped on aluminum foil showing the binding energy positions of these core lines, see figure S2. The spectra were energy calibrated versus measurements of adventitious carbon, which was positioned at 285 eV. The binding energy of the main O 1s peak is 531.5 eV and of the Li 1s peak is 54.6 eV. Traces of surface adsorbed oxygen are detected on the sample, see small peak at lower binding energy side of the main oxygen peak.

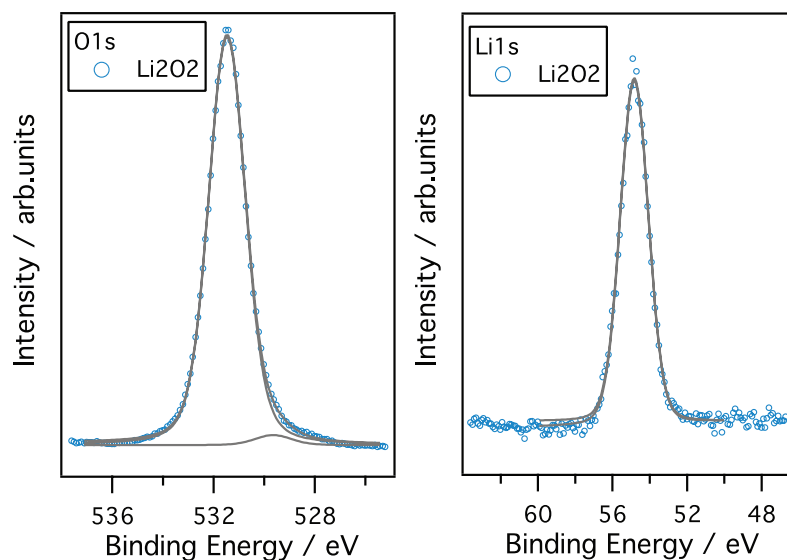


Figure S2. PES measurement of Li_2O_2 on aluminum foil.

The C1s spectra of un-cycled and pristine electrode are shown in figure S3. Comparison between the pristine and un-cycled spectra show that only minor residues of the solvent can be detected in the un-cycled sample.

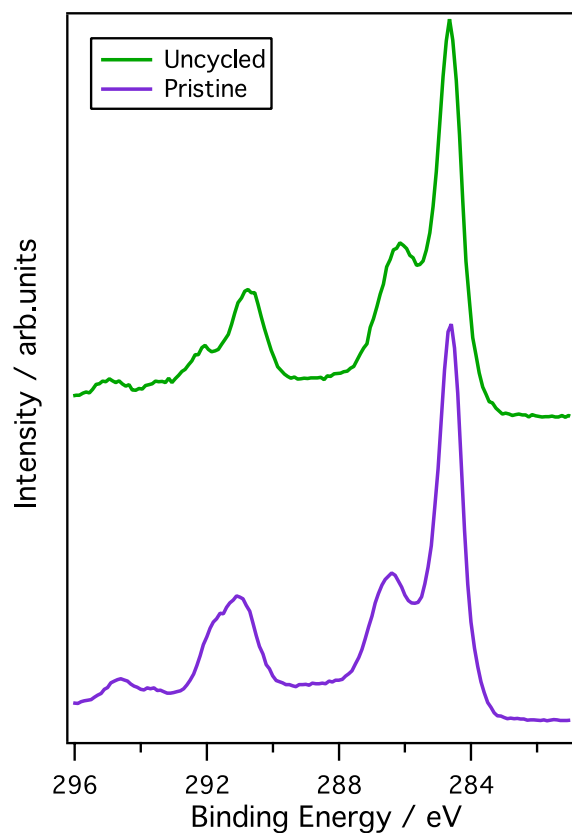


Figure S3. The C1s spectra of the pristine and the un-cycled sample, showing minor residues of solvent on the un-cycled sample after washing with DMC.