Achieving High Cyclability in Inexpensive Soluble Lead Flow Batteries†

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Received (in XXX, XXX) Xth XXXXXXXXX 20XX, Accepted Xth XXXXXXXXX 20XX
DOI: 10.1039/b000000x

5 Supplemental Figures

Figure S1. Voltage profile of three SLFBs galvanostatically charged at 20mA/cm² and discharged at the same current density to 1.1 V, but stopped during their second charge cycle at three different points – 1.85 V, 1.93 V, and 2.01 V, highlighted by inset.
Figure S2. SEM images of deposits formed at the positive electrode during the 1st cycle at (A) 10 minutes, (B) 15 minutes, and (C) 20 minutes into charge, as well as deposits formed during the 2nd charge cycle at the (D) 1.85V plateau, (E) 1.93V inflection, and (F) 2.01 V plateau, from SLFBs, galvanostatically charged.
Figure S3. Voltage (dotted lines) and current-time transients (solid lines) of two SLFBs, potentiostatically charged at 1.8V (red) and 1.9V (black), for 30hrs.

Figure S4a. XRD spectra of positive electrode deposits from SLFBs 10 (black), 20 (red), and 30 (blue) minutes into the 1st cycle, charged at 20mA/cm².

Figure S4b. XRD spectra of positive electrode deposits formed during the 2nd cycle at the 1.85V plateau (black), 1.93V inflection (red), and 2.01V plateau (blue), corresponding to batteries in Figure S1.
Figure 5S. XRD spectra and Rietveld refinement of positive electrode deposits from SLFBs charged at (A) 1.8V and (B) 1.9V, corresponding to batteries in Figure S3.

Notes and references

† Electronic Supplementary Information (ESI) available: See DOI: 10.1039/b000000x/