

Supplementary text

To demonstrate the high flexibility of the Al/graphitic cell, a pouch cell was assembled in the glove box by sandwiching a glass filter paper between a thin Al foil anode (20–50 mg) and a pyrolytic graphite foil (20–30 mg) cathode with a suitable amount (~0.05 mL per mg of graphite foil) of ionic liquid electrolyte ($\text{AlCl}_3/[\text{EMIm}]\text{Cl}$ = 1.3 by mole). The Al/graphite cell was capable of powering a red LED light under both non-bending and bending conditions ([Video S1](#)). As part of the stability test, a metallic drill penetration test was performed using a fully charged Al/Pg cells connecting with a red LED. The working voltage of the Al/Pg cell was ~1.7 V. A sharp stainless steel drill was driven into the center of the cell body at a constant speed ([Video S2](#)).