Electrochemical alloying of lead in potassium-ion battery

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SUPPLEMETARY MATERIALS:

Figure S1. Galvanostatic charge/discharge process of K/Pb half cells with different potential windows: 0.0-1.2 V (bottom) and 0.0-2.0 V (top).



S1

Figure S2. Galvanostatic charge/discharge process of K/Pb half cells after an applied current pulse before the first discharge. Use of different potential window: 0.0-0.8 V (bottom) 0.0-1.2 V (middle) and 0.0-2.0 V (top).



In order to estimate the effective capacity of the carbon additives in the electrode formulation, galvanostatic measurements were performed at C/26 rate on a C65//VGCF/CMC (wt. 0% 35/35/30) electrode which showed a practical capacity of 260 mAh/g for the first discharge, and a reversible capacity of 156 mAh/g. The C65 electrode shows a sustainable capacity of 115 mAh/g for 20 cycles.





Figure S4 XRD *operando* pattern recorded at the beginning of the discharge. The peak with (*) comes from inactive impurity on the Beryllium window surface.

