

Supporting Information

Mechanism and Kinetics Characteristic of Self-discharge of FeS₂

Cathode for Thermal Batteries

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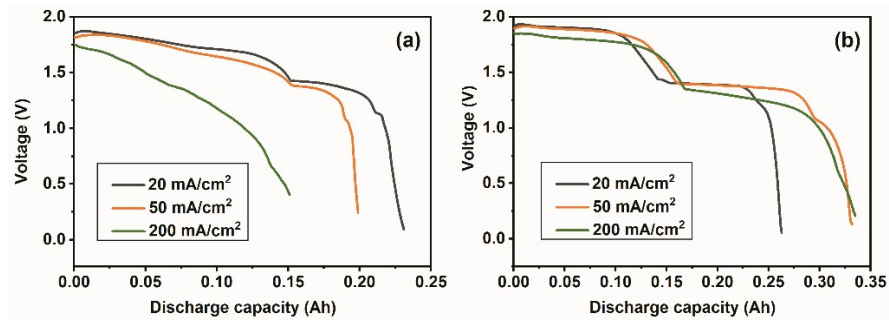


Fig. S1 galvanostatic discharge curves at (a) 450 °C and (b) 550 °C

Fig. S1 (a) and (b) show galvanostatic discharge curves at different current densities until 0 V at 450 and 550 °C. At 450 °C, it can be seen the discharge capacity gets smaller with the increase of current densities. The discharge capacity at 20, 50 and 200 mA/cm² is 0.231, 0.202 and 0.152 Ah, respectively, which is less than the theoretical capacity of 0.414 Ah. At 550 °C, the discharge capacity at 20, 50 and 200 mA/cm² is 0.262, 0.330 and 0.336 Ah, respectively, which is larger than that at 450 °C. This result is due to the smaller influence of polarization on capacity loss at 550 °C, which makes the discharge capacity larger. On the other hand, the discharge capacity increases with the increase of current densities at 550 °C, since the discharge time decreases at the larger current densities, which makes capacity loss of self-discharge decrease. Hence, polarization is a limiting factor on discharge capacity, especially at the relatively large current density and low temperature.