Short Communication

Causes of Germanium Phosphide Degradation under Prolonged Cycling. EIS Study

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Negative electrodes (anodes) of a germanium-phosphide-based sodium-ion battery were cycled at different current densities. Germanium phosphide impedance spectra were measured and analyzed for different cycles. It was found that prolonged cycling at low current densities (0.02 C) leads to an increase in the resistance of the solid electrolyte film and the consequent increase in the effective charge transfer resistance. It was concluded that changes in these equivalent circuit parameters cause the degradation of germanium phosphide under cycling.

Keywords: germanium phosphide, sodium-ion battery, impedance spectroscopy, degradation, cycling.

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