SiO₂@graphite Composite Generated from Sewage Sludge as Anode Material for Lithium Ion Batteries

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Sewage sludge treatment is an annoying issue due to the environmental pollution. We herein demonstrate the effective conversion of sewage sludge to a potential anode material for lithium ion batteries (LIBs) by a simple annealing method combined mechanical milling. The generated silica (SiO₂) hybridized with a handful of graphite exhibits good electrochemical performance. Stable reversible capacity of 433 mAh g⁻¹ is achieved after 100 cycles at 100 mA g⁻¹. At a high current density of 1000 mA g⁻¹, the reversible capacity is still stabilizing at 244 mAh g⁻¹ after 500 cycles, demonstrating the waste sewage sludge is a potential LIBs anode source.

Keywords: SiO₂; Graphite; Sewage sludge; Lithium ion batteries; Anode materials

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