Layered Graphite Prepared by an Ozone Aeration Treatment as an Anode Material for Lithium Ion Batteries

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Layered graphite was prepared by performing an ozone aeration treatment. The results showed that surface oxidation of the layered graphite formed a unique structure with more exposed ravines and gaps. As the anode material for lithium ion batteries, this graphite exhibited lower diffusion resistance compared with traditional graphite, with an improvement in the performance rate of 40%, 50% and 80% at 1 C, 3 C and 5 C, respectively. Moreover, the ozone aeration-treated layered graphite electrodes exhibited a higher reversible capacity of 393 mAh g⁻¹ compared to 340 mAh g⁻¹ for layered graphite electrodes and offered better cycling performance compared to traditional graphite, retaining 78% of the initial reversible capacity after 800 cycles at rate 5 C. This exciting discovery based on ozone aeration treatment may provide some novel ideas for improving the performance of graphite electrodes.

Keywords: Layered graphite; Ozone aeration; Commercial battery; Electrical properties; Edges and defects

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