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Effect of Reduced Graphene Oxide on the Electrochemical Properties of Overlithiated Oxide Cathode Materials for Li-Ion Batteries

Lithium-ion batteries (LIBs) have been used in many fields such as military power supply, electric vehicles (EVs), and portable electronic products. Cathode material is one of the key factors of LIBs, which is now becoming a technological bottleneck to achieve a high powder/energy density.^[1-4] In this contribution, we successfully prepared nano-particles overlithiated oxide cathode material $\text{Li}_{1.2}\text{Mn}_{0.6}\text{Ni}_{0.2}\text{O}_2$ by solid phase method through ball milling. Reduced graphene oxide was introduced into nano-particles $\text{Li}_{1.2}\text{Mn}_{0.6}\text{Ni}_{0.2}\text{O}_2$ through hydrothermal method. Structure characterization and performance testing show that the addition of 3 wt% graphene gives rise to the improved electrochemical properties (Figure 1).

References

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Figures

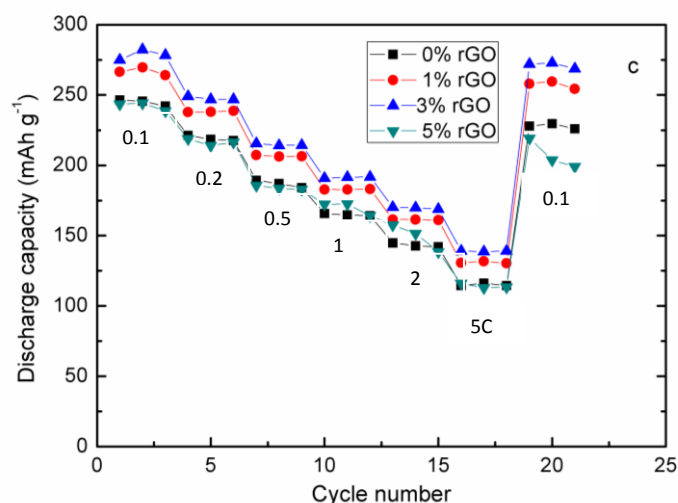


Figure 1: Rate performance of $\text{Li}_{1.2}\text{Mn}_{0.6}\text{Ni}_{0.2}\text{O}_2$ with addition of different amounts of reduced graphene oxide