Short Communication

Acetylene Black Loaded on Graphene as a Cathode Material for Boosting the Discharging Performance of Li/SOCl₂ Battery

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Lithium thionyl chloride (Li/SOCl₂) battery is a promising primary battery owing to its highest theoretical working voltage (3.6 V), excellent output specific energy (up to 590 Wh/kg) and large working temperature interval. However, drawbacks such as insoluble product (LiCl) and non-fully dissolved sulfur deposited on the electrode will cause the failure of the full battery. Herein, we report a cathode material that can boost the discharging performance of Li/SOCl₂ battery by facile assembly of acetylene black nanoparticles on graphene nanosheets. The resulting acetylene black/graphene hybrid exhibits an excellent discharging performance, delivering a capacity as high as 1706 mAh/g at a current density of 5 mA/cm².

Keywords: Li/SOCl₂ batteries; Cathode; Assembly; Graphene; Acetylene black

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