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# An alternative carbon source of silicon-based anode material for lithium ion batteries

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## Abstract

Using LA132 binder as carbon source, silicon/graphite/carbon (Si/G/L-C) anode material is successfully synthesized via liquid solidification and subsequent pyrolysis. The results show that Si/G/L-C composite presents an initial charge capacity of 909.8 mAh g<sup>-1</sup> with first coulombic efficiency of 76.8% and good electrochemical performance. The results of X-ray diffraction, X-ray photoelectron spectroscopy, and scanning electron microscopy show that LA132 is a good dispersion agent and LA132-derived carbon is N-doped. Besides, the Si/G/L-C anode exhibits higher capacity, initial coulombic efficiency and better cycle performance than that of anode material using phenolic resin as carbon source.

**Keywords:** Lithium ion batteries; Silicon; Carbon; Anode

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