

Accepted Manuscript

Carbon paper substrate for silicon-carbon composite anodes in lithium-ion batteries

Q. Si, M. Matsui, T. Horiba, O. Yamamoto, Y. Takeda, Norio Seki, N. Imanishi



PII: S0378-7753(13)00880-X

DOI: [10.1016/j.jpowsour.2013.05.090](https://doi.org/10.1016/j.jpowsour.2013.05.090)

Reference: POWER 17418

To appear in: *Journal of Power Sources*

Received Date: 28 March 2013

Revised Date: 10 May 2013

Accepted Date: 20 May 2013

Please cite this article as: Q. Si, M. Matsui, T. Horiba, O. Yamamoto, Y. Takeda, N. Seki, N. Imanishi, Carbon paper substrate for silicon-carbon composite anodes in lithium-ion batteries, *Journal of Power Sources* (2013), doi: 10.1016/j.jpowsour.2013.05.090.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Carbon paper substrate for silicon-carbon composite anodes in lithium-ion batteries

Q. Si^{a,*}, M. Matsui^a, T. Horiba^a, O. Yamamoto^a, Y. Takeda^a, Norio Seki^b, N. Imanishi^a

^a Department of Chemistry for materials, Graduate School of Engineering,
Mie University, 1577 Kurimamachiya-cho, Tsu, Mie 514-8507, Japan

^b Industrial Technology Center, Gifu Prefectural Government, 777 Maeno,
Mino, Gifu 501-3716

Abstract

We have developed a new Si-based anode for lithium secondary batteries consisting of a carbon paper substrate and Si/C composite deposited on it (Si/C/CP electrode). The Si/C composite was formed by pyrolysis of a slurry consisting of Si power and THF solution of PVC as the carbon precursor.

The electrode contains no additional conductive carbon and binder, which supports the tight contact among the Si particle, pyrolytic carbon and carbon paper. The Si/C/CP electrode with the three-dimensional carbon fiber framework of the carbon paper was also advantageous to absorb severe volume changes of silicon particles.

The electrode performance revealed that the Si/C/CP electrode prepared from the

Download English Version:

<https://daneshyari.com/en/article/7740604>

Download Persian Version:

<https://daneshyari.com/article/7740604>

[Daneshyari.com](https://daneshyari.com)