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The Effect of Conducting Agent with Composite Cathode for Lithium Ion Battery

리튬이온전지 복합양극의 도전체에 대한 영향

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The layered trivanadate, LiV_3O_8 has been investigated as a cathode material for secondary lithium batteries. Early in its development, the preparation method of LiV_3O_8 strongly influenced its electrochemical properties, such as discharge capacity, rate capability and cycling efficiency. In the present experiment, a new synthesis route has been applied to obtain LiV_3O_8 . Instead of the conventional high temperature technique leading to the crystalline form, a solution technique producing the amorphous form has been used. This material, after dehydration, shows an electrochemical performance exceeding that of the crystalline one. The rationale for this behavior mainly lies in microscopic factors, *i.e.*, in the possibility for the unit cell of amorphous LiV_3O_8 to insert up to 9 Li^+ , instead of six for crystalline LiV_3O_8 . We used Graphite for conducting agent. As the graphite content was increased, the electroconductivity was also increased. These measurements showed that the ultrasonic treatment process of crystalline LiV_3O_8 causes a decrease in crystallinity and considerable increases in specific surface area and interlayer spacing.

Reference

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