

Fabrication and Discharge properties of FeS₂ for as active material by Mechanical Alloying for lithium batteris

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In recent years, according to the popularization of the electronic equipment, the development of the advanced secondary battery for power source is proceeded extensively. As the electrodes of the secondary battery are made of lithium and sulfur, the batteries have excellent electrode system because of the light weight of the lithium, the high electronic density, rich resources and low cost. Li/S battery has good first discharge capacity, it has however poor cycle characteristic due to the loss of the active material. With this reason, the electrode material of metal sulfide series is recently being studied as substitute.

In this study, the possibility of FeS₂ composite powder which has fine particle size was examined by mechanical alloying method, and the discharge properties FeS₂ composite powder was evaluated for active materials of the lithium battery.

As the mechanical alloying time increases, the mean particle size of 46.5Fe-53.5S(wt%) decreased, and the FeS₂ alloy powders was formed compositely by 20 hrs mechanical alloying. FeS₂ composite powders fabricated by mechanical alloying for 30hrs showed a good specific first discharge capacity of 910mAh/g-FeS₂.