

Preliminary Studies on Anode Active Materials for Rechargeable Lithium-ion Batteries Using 3D Printing Technology

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Lithium-ion batteries (LIBs) are one of the most important energy storage devices. However, present LIB technologies are facing great challenges from the emerging applications. The application of 3D printing technology in LIBs may provide a new technology solution by manufacturing various 3D structures of electrode materials.

In this study, we have been working on the investigation about anode electrode ink, suitable for 3D printing technology. Since the anode electrode ink that has suitable viscosity is required to produce various types of electrodes, it is important to select an appropriate amount and type of binders, solvents, and so on. In conclusion, we analyze whether the prepared anode electrode by 3D printing technology is suitable as an electrode for rechargeable LIBs.

In order to investigate the crystallinity and morphology of the prepared anodes, X-ray diffraction and etc. have been basically used. In addition, the electrochemical properties of anodes prepared by 3D printing technology are compared with those of anodes prepared by conventional technology to test their suitability as an electrode.