리튬-흑연 층간 화합물의 합성 및 특성 분석

Synthesis and Cheracterization of Lithium-Graphite Intercalation Compounds

홍승현, 김태영, 서광석
Senug Hyun Hong, Tae Young Kim, Kwang S. Suh

고려대학교
Korea University

Abstract : The intercalation chemistry of graphite presents an attractive route to obtain few-layered graphene platelets based on the expanded interlayer spacing. We report that the lithium can be intercalated into the graphite in a controllable manner by adjusting the variables such as temperature, pressure, and reaction time. From the X-ray diffraction experiments, the lithium-graphite intercalaltion compounds (Li-GICs) can be produced as the first stage compounds (LiC_6), the second-stage compounds (LiC_{12}), and the mixtures, which is most likely to be dependent on the temperature and reaction time. Since these Li-GICs are expected to facilitate the exfoliation of graphite, we investigated the feasibility of Li-GICs as a effective precursors for the generation of single- or few-layered graphite nano-platelets.

Key Words : Lithium-graphite intercalation compounds, XRD, exfoliation, graphene