

Preparation of Graphene Nanoplatelets from Polymer-derived Graphite Film by GIC (Graphite Intercalation Compound) via Process

Jung-Chul An, Eun-Jeong Lee, Hye-Jung Kim, Ikpyo Hong

RIST, 67, Cheongam-Ro, Nam-Gu, Pohang, 790-330, Korea

jcan@rist.re.kr

Abstract

A few-nanometer-thick at micrometer-wide graphene platelets were successfully prepared from the graphitized polymer (i.e., polyimide) film by simple GIC (Graphite Intercalation Compound) via exfoliation process. The intrinsic high crystalline structure of graphitized polyimide film were found to be beneficial in yielding thinner, wider and defectless graphene nanoplatelets. Sulfuric acid was served as the functional intercalating agent in the GIC formation step. XRD results revealed the stable and clear stage-one state formed in the GIC. Concentration of chemical agent, intercalation temperature were found to influence the average thickness of prepared graphene nanoplatelets. Pulverization condition such as sonication time and power influenced the averaged lateral size of the graphene platelets with variations from 5 to 30 micro meters.

References

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