

Selective Dibenzothiophene Adsorption on Graphene Prepared Using Different methods

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Graphite oxide synthesized with phosphoric acid (GOP) shows a higher degree of oxidation and has a larger interlayer spacing than the oxide prepared using the conventional Hummers method (GOH). This study was performed under the assumption that the oxygen-containing functional groups between the GOP layers are more easily reduced than those between the GOH layers. The relative extent of defects in graphene can be investigated by dibenzothiophene (DBT) adsorption, which requires π - π interactions between the free π -bonds of sp^2 atoms from graphene and those from the aromatic ring of DBT. The graphene obtained from GOP showed higher DBT adsorption capacity than that synthesized from GOH. In addition, the DBT adsorption capacity on graphene decreased as the concentrations of other aromatic compounds increased.