

Effect of Alcohols on Supercritical Fluid Reduction of Graphene Oxide

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Graphene has been widely studied due to its beneficial properties including the high electron mobility, thermal conductivity, specific area, and tensile modulus. Reduced graphene oxide (RGO) was synthesized by supercritical alcohol reduction, which is one of the well-known green technology. The effect of alcohols (methanol, ethanol, n-propanol, n-butanol, iso-propanol, and iso-butanol) was examined at 573K and 673K. The obtained RGO was analyzed with various methods (Fourier transform infrared spectroscopy, X-ray photoelectron spectroscopy, scanning electron microscopy, high-resolution transmission electron microscopy, X-ray diffraction, and BET for surface area). Longer carbon chain in alcohol was found to more effective for high carbon to oxygen ratio and large specific surface area. Electrochemical properties of RGO was also presented.