

Physical properties of reduced graphite oxide prepared via chemical reduction by using ammonia solution as a reducing agent

ABSTRACT

This research studied the synthesis of graphite oxide and reduced graphite oxide via a low-cost manufacturing method. The process started with the chemical oxidation of commercial graphite powder into graphite oxide by Staudenmaier's method, followed by the chemical reduction of graphite oxide in ammonium hydroxide vapor. Subsequently, graphite oxide and reduced graphite oxide were assembled into a thin film, and microscale liquid droplets were placed into the film surface for measurement of wettability and contact angle. It is found that a graphite oxide sheet is hydrophilic while a reduced graphite oxide is hydrophobic with a contact angle equal to 120° and 53° respectively.