Environmental Engineering

Here, we present two methods to control the interlayer spacing of ultrathin graphene oxide (GO) laminates on the nm-scale and discuss their potential environmental and energy applications. The first method involves vacuum filtration followed by UV, HNO3, or ultrasound reduction to control GO laminate nanochannel dimensions on the Angstrom-scale. The nanochannel dimension determines the permeability and selectivity, which makes it a versatile membrane material. The second method involves Langmuir-Blodgett deposition and a novel 2D phase analysis technique to control GO laminate wrinkle height between 1-20 nm. Wrinkles act as a spacer preventing face-to-face aggregation, which improves the specific capacitance of 3D electrodes.

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