Self-assembly of Graphene Oxide Nanoribbon via Slot-die Coating and its Application for Organic Solvent Nanofiltration

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Graphene Oxide Nanoribbon (GONR) has excellent mechanical strength and chemical stability in a harsh chemical environment, which is suitable in organic solvent nanofiltration. Herein, the slot-die coating was used to achieve uniform nanosheet GONR layer fabrication using low concentration (5 mg/mL) GONR solution. In the process of slot-die coating, self-assembly of GONR was observed during injection through the die-head. For the membrane performance, a 40 nm-thick GONR layer was coated on a porous polymer support. The membrane showed a high pure IPA flux of 186 LMH/bar on dead-end filtration mode and 679 LMH/bar on cross-flow mode, both with 961 Da of molecular weight cutoff.