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Property evaluations and application for separation of small molecules of a nanodiamond-polymer composite monolithic column

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Abstract

A nanodiamond-polymer composite monolithic column was first prepared successfully with modified nanodiamond (ND) as monomer, ethylene glycol dimethacrylate (EDMA) as cross-linker, 1-dodecanol as porogenic agent and benzoyl peroxide/dimethylacetamide (BPO/DMA) as initiator at 35℃ for 2.5 h. There was a sharp increase of specific surface area with ND added about 22 times from 0 mg (3.90 m^2/g) to 7 mg (81.2 m^2/g) determined with BET. Characterizations including scanning electron microscopy (SEM), fourier-transform infrared spectra (FIRT) and mercury intrusion porosimetry (MIP) were used to determine the microstructure, group