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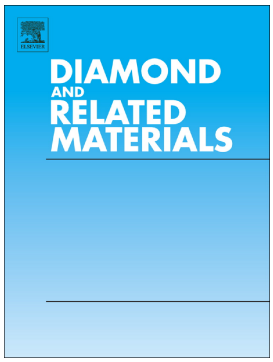

Polydopamine coated graphene oxide aerogels and their ultrahigh adsorption ability

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PII: S0925-9635(18)30004-9
DOI: doi:10.1016/j.diamond.2018.04.015
Reference: DIAMAT 7090

To appear in: *Diamond & Related Materials*

Received date: 4 January 2018
Revised date: 16 April 2018
Accepted date: 17 April 2018

Please cite this article as: Ting Huang, Jian Dai, Jing-hui Yang, Nan Zhang, Yong Wang, Zuo-wan Zhou , Polydopamine coated graphene oxide aerogels and their ultrahigh adsorption ability. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Diamat(2017), doi:10.1016/j.diamond.2018.04.015

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Polydopamine coated graphene oxide aerogels and their ultrahigh adsorption ability

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ABSTRACT: In this work, polydopamine (PDA) coated GO (PDA-c-GO) aerogels with different GO concentrations and GO/PDA ratios were prepared through the solution compounding and subsequent freeze-drying technologies. Microstructures and morphologies of these aerogels were comparatively characterized. Subsequently, the structure stability in different solution conditions and adsorption properties toward organic dyes and solvents were investigated in details. The results show that the self-polymerized PDA can be homogenously coated on GO sheets with polymerization time longer than 3 h, and the surface morphologies are greatly influenced by the GO concentration and GO/PDA ratio. Higher GO concentration and GO/PDA ratio lead to better structure stability in water solutions. Furthermore, all the aerogels can keep stable in cyclohexane. The excellent adsorption ability toward Methylene blue (MB) is obtained for the PDA-c-GO aerogels, among which the aerogel of 1.0mg/ml-2:1 exhibits the highest adsorbing amount (633 mg/g) and rate. Moreover, the good adsorbing selectivity and excellent adsorption ability for organic solvents are also obtained for the PDA-c-GO

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