Article

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PII: S2095-9273(18)30236-6
DOI: https://doi.org/10.1016/j.scib.2018.05.015
Reference: SCIB 406

To appear in: *Science Bulletin*

Received Date: 23 April 2018
Revised Date: 29 April 2018
Accepted Date: 30 April 2018

Please cite this article as: Q. Zhang, X. Qian, K.H. Thebo, H-M. Cheng, W. Ren, Controlling reduction degree of graphene oxide membranes for improved water permeance, *Science Bulletin* (2018), doi: https://doi.org/10.1016/j.scib.2018.05.015

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Received 23 April 2018

Received in revised form 29 April 2018

Accepted 30 April 2018

Controlling reduction degree of graphene oxide membranes for improved water permeance

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Abstract

Tailoring the pore structure and surface chemistry of graphene-based laminates is essentially important for their applications as separation membranes. Usually, pure graphene oxide (GO) and completely reduced GO (rGO) membranes suffer from low water permeance because of the lack of pristine graphitic sp^2 domains and very small interlayer spacing, respectively. In this work, we studied the influence of reduction degree on the structure and separation performance of rGO membranes. It was found that weak reduction retains the good dispersion and hydrophilicity of GO nanosheets. More importantly, it increases the number of pristine graphitic sp^2 domains in rGO