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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

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