

Supplementary Materials: Fabrication of Stacked Graphene Oxide Nanosheet Membranes Using Triethanolamine as a Crosslinker and Mild Reducing Agent for Water Treatment

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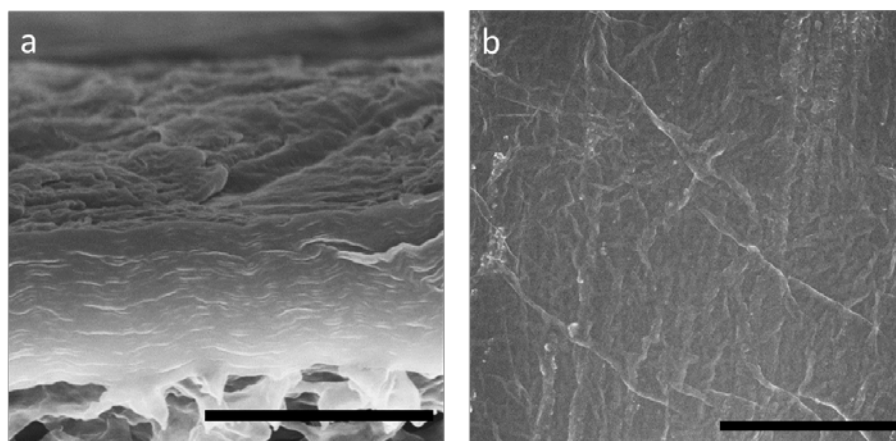


Figure S1. (a) Cross-section and (b) surface SEM images of the rGO membrane. Scale bar: (a) 1 μm , (b) 10 μm .

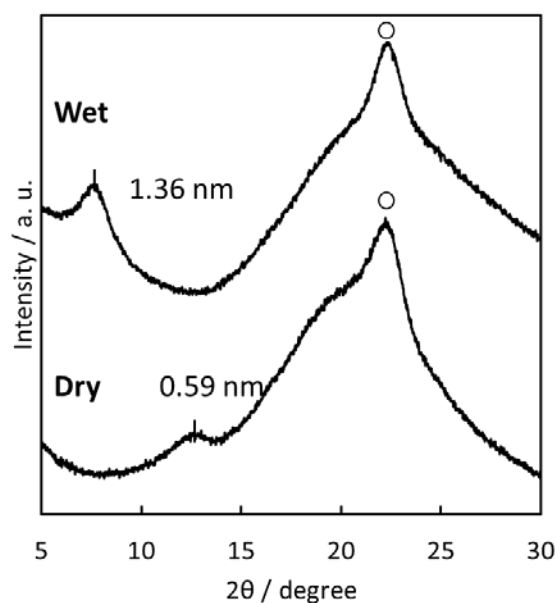


Figure S2. XRD patterns of the rGO membrane in dry and wet conditions; “o” denotes the cellulose nitrate support.

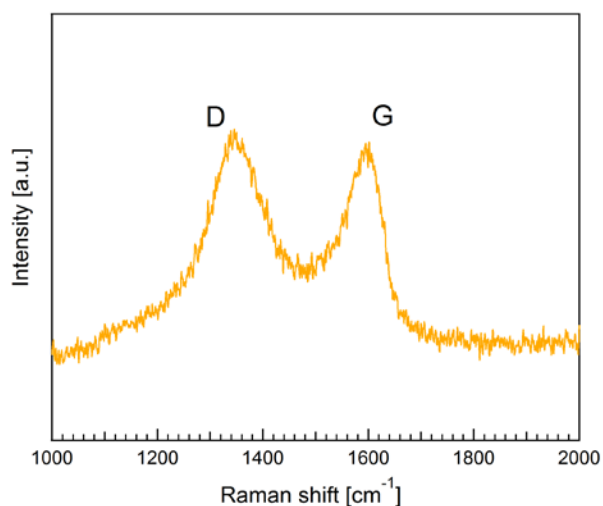


Figure S3. Raman spectra of rGO sample.

The value of I_D/I_G was 1.04, which is larger than those of GO and GO-TEOA samples. This result indicates that the degree of surface reduction of GO modified with TEOA was slightly lower than that of rGO.

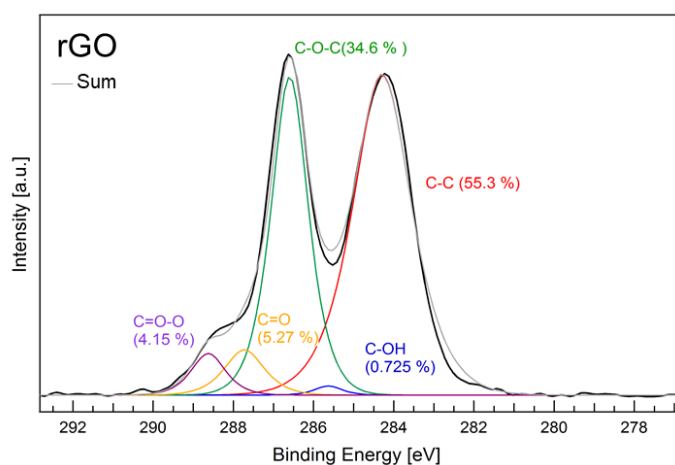


Figure S4. C 1s XPS spectra of the rGO membrane.

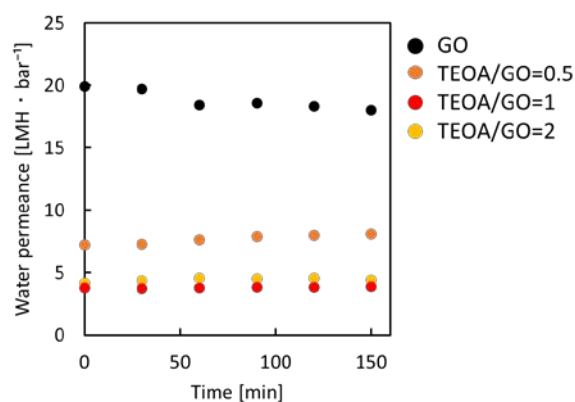


Figure S5. The change of water permeance with time of the unmodified GO membrane and GO-TEOA membranes fabricated with different TEOA/GO ratios at 1 bar.

Table S1. Comparison of performance of GO-TEOA membranes with those of various GO-based membranes and some commercial NF membranes.

Membrane (GO-modifier/support)	Fabrication Method	Thick- ness (nm)	Permeance (L/m ² h bar)	Rejection (%)			Refer- ence
				NaCl	Na ₂ SO ₄	Dyes	
GO-TEOA/ cellulose nitrate	Vacuum filtration	100	3	31	84	EB 100 AR 98.4	This work
GO-TMC/polydopamine modified polysulfone	Layer-by-layer	25-30	30	29	26	MB 66	[1]
GO-polyethyleneimine/ polyacrylonitrile	Electric field- assisted layer- by-layer	8	16.4	22.6	86.8	-	[2]
S-rGO-HPEI/nylon	Vacuum filtration	18	85.2	-	-	EB 100 MB 98.6	[3]
NTR-7450 (Nitto Denko)	-	-	9.2	51	92	-	[4]
NTR-7410 (Nitto Denko)	-	-	50.0	15	55	-	[4]

TMC: 1,3,5-benzenetricarbonyltrichloride, S-rGO-HPEI: solvent solvated rGO-hyperbranched poly(ethylene imine), EB: Evans blue (Mw: 960.8), AR: Acid red 265 (Mw: 635.6), MB: Methylene blue (Mw: 319.9).

References

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