

Activated Carbon-Embedded Reduced Graphene Oxide Electrodes for Capacitive Desalination

Tarif Ahmed¹, Jin Sun Cha², Chan-gyu Park³, Ho Kyong Shon⁴, Dong Suk Han⁵, and Hyunwoong Park^{1*}

¹School of Energy Engineering, Kyungpook National University, Daegu 41566, Republic of Korea

²Material Technology Center, Korea Testing Laboratory, Seoul 08389, Republic of Korea

³Environmental Technology Division, Korea Testing Laboratory, Seoul 08389, Republic of Korea

⁴Center for Technology in Water and Wastewater, School of Civil and Environmental Engineering, University of Technology Sydney, Sydney, NWS 2007, Australia

⁵Center for Advanced Materials, Qatar University, Doha 2713, Qatar

Table S1. Comparison of carbon materials for capacitive desalination performance

Electrode	NaCl (mg L ⁻¹)	Voltage (V)	SAC (mg g ⁻¹)	ref
CNT/G	780	2.0	26.42	[1]
CNF/rGO	400	2.0	2.99	[2]
AC/FrGO	100	1.8	12.58	[3]
GA/TiO ₂	500, 6000	1.2	15.1, 24.2	[4]
rGO/SnO ₂	400	1.2	17.62	[5]
rGO/MC	40	2.0	0.73	[6]
rGO/HPC	25	1.2	6.18	[7]
rGO/CNTs/AC	-	1.2	2.30	[8]
G/MC	500	1.5	24.3	[9]
rGO/AC	500	1.3	13.92	This work

[1] Y. Wimalasiri and L. Zou, *Carbon*, **2013**, *59*, 464-471.

[2] H. Song, Y. Wu, S. Zhang, W. Li, B. Wang, C. Wang, J. Gao, and A. Li, *Electrochim. Acta*, **2016**, *205*, 161-169.

[3] X. Liu, C. Ting, Q. Wei-chuan, W. Zhuo, and L. Yu, *J. Taiwan Inst. Chem. Eng.*, **2017**, *72*, 213-219.

[4] H. Yin, S. Zhao, J. Wan, H. Tang, L. Chang, L. He, H. Zhao, Y. Gao, and Z. Tang, *Adv. Mater.*, **2013**, *25(43)*, 6270-6276.

[5] S. K. Sami, J. Y. Seo, S.-E. Hyeon, M. S. A. Shershah, P.-J. Yoo, and C.-H. Chung, *RSC Adv.*, **2018**, *8*, 4182-4190.

[6] D. Zhang, X. Wen, T. Yan, and J. Zhang, *Nanoscale*, **2012**, *4*, 5440-5446.

[7] X. Wen, D. Zhang, T. Yan, J. Zhang, and L. Shi, *J. Mater. Chem. A*, **2013**, *1*, 12334-12344.

[8] G. Zhu, W. Wang, X. Li, J. Zhu, H. Wang, and L. Zhang, *RSC Adv.*, **2016**, *6*, 5817-5823.

[9] O. Noonan, Y. Liu, X. Huang, and C. Yu, *J. Mater. Chem. A*, **2018**, *6*, 14272-14280.

*E-mail address: hwp@knu.ac.kr

DOI: <https://doi.org/10.33961/jecst.2023.00066>

This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.