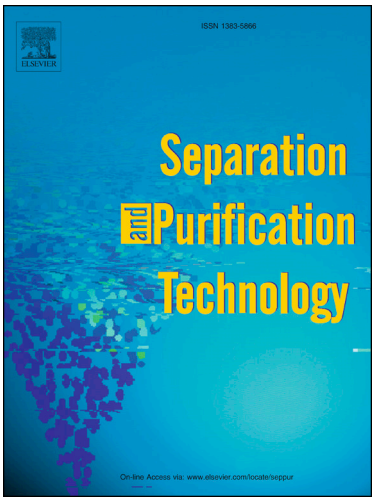

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PII: S1383-5866(18)31019-0
DOI: https://doi.org/10.1016/j.seppur.2018.05.048
Reference: SEPPUR 14633

To appear in: *Separation and Purification Technology*

Received Date: 25 March 2018
Revised Date: 19 May 2018
Accepted Date: 19 May 2018

Please cite this article as: Y-S. Guo, Y-F. Mi, F-Y. Zhao, Y-L. Ji, Q-F. An, C-J. Gao, Zwitterions Functionalized Multi-walled Carbon Nanotubes/Polyamide Hybrid Nanofiltration Membranes for Monovalent/Divalent Salts Separation, *Separation and Purification Technology* (2018), doi: https://doi.org/10.1016/j.seppur.2018.05.048

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Abstract N-aminoethyl piperazine propane sulfonate (AEPPS) modified multi-walled carbon nanotubes (MWCNTs) (AEPPS-PD@MWCNTs) were prepared by co-deposition of dopamine and AEPPS on MWCNTs surfaces. AEPPS-PD@MWCNTs were mixed with piperazine aqueous solution and polymerized with 1,3,5-benzenetricarboxylic chloride (TMC, dissolved in hexane solution) to prepare negatively charged NF membranes, which were characterized by Fourier Transform Infrared Spectroscopy, X-ray Photoelectron Spectroscopy, Transmission Electron Microscopy and Atomic Force Microscopy. It was found that compatibility between AEPPS-PD@MWCNTs and polyamide matrix was enhanced as a result of the multiple interactions between AEPPS-PD@MWCNTs and TMC monomers. At optimized conditions, pure water permeability of hybrid membrane was 127.3L.m^{-2}.h^{-1}.MPa^{-1}, 1.8 times as high as pristine PIP/TMC membrane without compromising Na_2SO_4 rejection. Meanwhile, NaCl rejection of hybrid membrane was 19.0%, much lower than pristine PIP/TMC membrane. Hybrid membrane exhibited applications in separation of monovalent/divalent salts and monovalent salts/neutral organics coupled with good stability and better anti-fouling property which is sought for applications in the field of desalination, food and biological separation processes.

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