

Performance Evaluation of Capacitive Deionization under Key Operating Conditions

박준형, 이재욱*

조선대학교

(jwlee@chosun.ac.kr*)

Electrosorption is a promising method for water purification and desalination. Activated carbon powder was coated with polyvinylidene fluoride (PVdF) binder in a thin sheet-like formulation for electrosorption process. The electrosorption efficiency and electrosorption capacity for 0.002 M NaCl solution with an applied potential of 0.6 V are 36.7% and 24.5 mmol/g, respectively. The electrosorption-desorption of ions is a reversible process and follows Langmuir isotherm and pseudo-second-order adsorption kinetics. The electrosorption capacity and rate increased with the increasing of the potential and electrolyte concentration. The performance of capacitive deionization was evaluated under key operating conditions including concentration, flow rate and potential.