

The Effects of Ion-selective Polymers as an Electrode Binder for Capacitive Deionization

Ayu Tyas Utami Nugrahenny¹, 김지영^{1,2}, 임성엽^{1,2,*},
김상경^{1,2}, 백동현², 정두환^{1,2}

¹University of Science and Technology;

²한국에너지기술연구원
(syylim@kier.re.kr*)

Capacitive deionization (CDI) which has low-energy consumption and no secondary pollution is drawing attention as the eco-friendly technology for the water purification. The electrode is made by using a mixture of activated carbons, conductive carbons and polymeric binder, and fabricated with the ion-selective membrane. This paper reports the effect of addition of the ion-selective polymer as an electrode binder on the ionic desalination performance. We investigated the influence of ion-selective polymer upon the specific capacitance of carbons using electrochemical method - cyclic voltammetry and electrical impedance spectroscopy. The performance of ion adsorption from CDI unit-cell experiment is discussed on the viewpoint of the role of ion-selective polymer as an electrode binding material.