

Synthesis of poly(vinylbenzylchloride–styrene–hydroxyethylacrylate) with various aminating agents and their permselectivity about nitrate

박희만, 황치원, 황택성*
충남대학교
(tshwang@cnu.ac.kr*)

The copolymer solutions were synthesized with 4-vinylbenzylchloride, styrene and 2-hydroxyethyl acrylate via free radical polymerization. To confirm the membrane properties according to bulkiness of aminating agent, these solutions were aminated with various aminating agents including trimethylamine, triethylamine, tripropylamine and tributylamine and then we have prepared anion-exchange membranes using these aminated copolymer solutions, respectively. The structure of aminated copolymer solutions were investigated by fourier transform infrared (FT-IR) analysis. The membrane properties such as water content, ion exchange capacity, electrical resistance, ion conductivity and permselectivity about nitrate were measured. The maximum water content, ion exchange capacity, electrical resistance and ion conductivity were 45.5%, 0.90 meq/g dry membrane, 60.2 $\Omega \cdot \text{cm}^2$ and 0.0109 S/cm, respectively. The permselectivity about nitrate of membrane containing tributylamine groups was the highest in comparison with other membranes.