

3D simulation analysis of Vanadium Redox battery performance with flow channel configuration

전영재, 장지웅¹, 양대륙[†]
고려대학교; ¹금오공대
(dryang@korea.ac.kr[†])

The electric performance of a vanadium redox flow battery (VRB) was studied depending on channel configuration. The battery cell is comprised of porous electrodes and electrolyte channels and its three-dimensional model was used to estimate the performance of VRB. The model is based on charge, species, mass and momentum balances.. The simulations results includes the performance of VBR in the presence and absence of channels. Moreover, the performance of VBR could be optimized by flow distribution of electrolytes in the porous electrodes with flow channel configurations. The horizontal channel configuration enabled uniform flow of the electrolytes in the electrodes.