Operating Condition Optimization for High-Pressure Water Electrolysis System for Hydrogen Production

박미경, 김희용, 이광순*, 문상봉[1]
서강대학교; [1](주)엘켐텍
(kslee@sogang.ac.kr*)

Hydrogen is considered new energy carrier which replace fossil fuel. In this study, we consider the high-pressure proton exchange membrane (PEM) water electrolysis system. The system characteristics are that the cathode side pressurized more than 100 bar, but the anode side operates only atmospheric pressure. Prior to optimization of operating conditions, we completed modeling of the system and performed the model parameter tuning using experiment data. Operating conditions are optimized by current efficiency and voltage efficiency using the model. The cost of hydrogen production can be reduced using the results of optimization.