

One-phase, Two-dimensional Anode Modeling for Liquid-feed Direct Methanol Fuel Cell

정진수, 이성철^{1,*}

한양대학교 화학공학과; ¹한양대학교 응용화학공학부

(scyi@hanyang.ac.kr*)

A two-dimensional (2D), one-phase, isothermal anode model for liquid-feed direct methanol fuel cells (DMFCs) has been developed. Experimental data for development and validation of the model was taken from the published literatures. Developed model shows good agreement on cell performance with experimental data.

Employing present model, various operating parameters are investigated to evaluate the effect of these parameters on DMFC performance. Velocity field, local current density distribution, and species concentration variation along flow channel were numerically computed under various operating conditions. The performance of DMFC affected by temperature, pressure, and methanol concentration is investigated in this paper.