

Simulation Model Development of Pressure Swing Adsorption (PSA) Process for CoalBed Methane (CBM) Purification

고대호[†]

GS건설

(daeho.ko@gsconst.co.kr[†])

Coalbed methane (CBM) as one of the unconventional gas energies mainly consists of methane and minor impurities (carbon dioxide, nitrogen, etc). To make use of the CBM as an energy, it needs to be purified by gas treating processes. In this study, a vacuum pressure swing adsorption (VPSA) process is adopted and the VPSA simulation model is developed in the gPROMS modeling system by deriving a new interstitial gas velocity within the adsorption bed, which has a big influence on the convergence and accuracy of the simulation especially in scale-up designs. The developed simulation model is validated by comparing with experimental data and can predict the performances such as the purity and recovery very well. This simulation model can be useful for the scale-up design of VPSA processes.