

Adsorption Equilibria and Dynamic Characteristics of Pure and Mixture Gases

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This study performed adsorption dynamic characteristics and simulations of H₂, CH₄, CO and CO₂ mixture gases on layered bed. The adsorption dynamic characteristics were studied at various flow rates, 13.7 LPM to 20.4 LPM and at various adsorption pressures, 8 to 11 atm. To optimize adsorption bed, ADSIM was used. Adsorption dynamic characteristics and simulations were studied for H₂/CH₄, H₂/CO, H₂/CO₂, H₂/CO/CO₂, binary and ternary system on nonisothermal and nonadiabatic condition. Mathematical model was applied linear driving force (LDF) model and Dual-Site Langmuir (DSL) adsorption isotherm model considered to compare between simulated and experimental data.