**LIST OF SYMBOLS AND ABBREVIATIONS**

**SYMBOLS**

- \( q \) - adsorbate concentration in solid phase [g/g]
- \( q_e \) - adsorbate concentration in solid phase [g/g]
- \( Q \) - adsorbate concentration in solid phase = \((q-q_o)/(q_e-q_o)\) [-]
- \( q_s \) - adsorbate concentration in solid phase, in equilibrium with \( p_s \) [g/g]
- \( q_o \) - adsorbate concentration in solid phase in equilibrium with \( p_o \) [mg/g]
- \( \rho_p \) - adsorbent particle density [g/cm\(^3\)]
- \( q_t \) - amount of adsorbate adsorbed with in a particle at contact time = \( t \) [g/g]
- \( D_e \) - apparent diffusivity based on solid concentration gradient [cm\(^2\)/s]
- \( t \) - contact time [sec]
- \( T \) - dimensionless contact time = \( t D_e/\rho_p^2 \) [-]
- \( E \) - energy of adsorption [cal/mol]
- \( n \) - exponent
- \( W \) - filled volume of adsorption space [cm\(^3\)/gm]
- \( K \) - Kelvin
- \( W_o \) - limiting value of micro adsorption space [cm\(^3\)/gm]
- \( R_p \) - mean particle radius [cm]
- \( R \) - particle radius = \( r/R_p \) [-]
- \( A \) - Polanyi’s adsorption potential [cal/mol]
- \( P_D \) - pore diameter [Å]
- \( D_p \) - pore diffusivity[cm\(^2\)/s]
- \( V_P \) - pore volume of adsorbents [cc/gm]
\( \varepsilon_p \) - porosity of adsorbent particle [-]
\( p \) - pressure of gas in adsorption chamber [atmosphere]
\( r \) - radial coordinate of adsorbent particle [cm]
\( \beta \) - slope of linear isotherm (\( dq/dp \))
\( S_a \) - surface area of adsorbents [m\(^2\)/gm]
\( D_s \) - surface diffusivity [cm\(^2\)/s]
\( K_p \) - tortuosity factor of adsorbent pore [-]
\( M \) - weight of adsorbent particles [g]

**ABBREVIATIONS**

ACF - Activated Carbon Fibre
ANG - Adsorbed Natural Gas
atm - Atmosphere
BET - Brunauer-Emmet-Teller
CBG - Compressed Biogas
\( \text{CH}_4 \) - Methane
CNG - Compressed Natural Gas
IUPAC - International Union of Pure and Applied Chemistry
KMPL - Kilometer Per Litre
LNG - Liquefied Natural Gas
LPG - Liquefied Petroleum Gas
MPSD - Micropore Size Distribution
NG - Natural Gas
NGV - Natural Gas Vehicle
nm - Nanometer
PSA - Pressure Swing Adsorption
PSD - Pore Size Distribution
VNG - Vehicular Natural Gas