

Terminology and Notation Key

This is a complete list of terminology and notation as used in *A Conceptual Guide to Thermodynamics*—for both the book itself, as well as the additional chapters available online. The corresponding IUPAC Gold Book standards are also presented, where available, for comparison purposes.

<i>A Conceptual Guide to Thermodynamics</i>	IUPAC
activity, a	a
activity coefficient, γ	f or γ
amount of substance (number of moles), n	n
amount of substance (number of particles), N	N
Avogadro's number, N_A	L or N_A
Boltzmann constant, k	k
chemical potential, μ	μ
compressibility factor, Z	compression factor, Z
efficiency (heat engine), η	η
energy (molecular), E	E
enthalpy, H	H
entropy, S	S
equilibrium constant, K	K
exergy, E	
expansion coefficient, α	expansion factor, α
extent of reaction, ξ	ξ
force, F	F
fugacity, f	\bar{p} or f
gas constant, R	R
generic quantity change (chemical reaction), $\Delta_{\text{rxn}}X$	$\Delta_{\text{r}}X$
generic quantity change (mixing), $\Delta_{\text{mix}}X$	ΔX
generic quantity change (phase transition), $\Delta_{\text{trs}}X$	ΔX
generic thermodynamic quantity (molar), X_{m}	X_{m}
generic thermodynamic quantity (surroundings), X_{sur}	
generic thermodynamic quantity (system), X	X
generic thermodynamic quantity (total system), X_{tot}	
Gibbs free energy, G	G
heat, Q	q or Q
heat (infinitesimal), dQ	dq or dQ
heat capacity at constant pressure, C_P	C_p
heat capacity at constant volume, C_V	C_V
heat capacity ratio (adiabat coefficient), γ	
Helmholtz free energy, A	A
internal energy, U	U
internal pressure, π_T	π_T
isothermal compressibility, κ_T	κ_T
mass (per mole), M	relative molecular mass M_r
mass (per particle), m	m
mass (system), $Nm = nM$	nM_r
number of available molecular states, Ω	W
position, (x, y, z)	(x, y, z)
pressure, P	p
reaction Gibbs energy, $\Delta_{\text{r}}G$	$\Delta_{\text{r}}G$
reaction quotient, Q	
temperature, T	T
velocity, (v_x, v_y, v_z)	(v_x, v_y, v_z)
volume, V	V
work (expansion), W	w or W
work (infinitesimal), dW	dw or dW