A_Ω	Absorptance, directional	-
A	Amplitude	varies
A	Area	m^2
A_σ	Area, cross-sectional	m^2
$\breve{A}$	Area, interfacial, per unit volume	m^{-1}
A_S	Area, surface	m^2
A	Arrhenius pre-exponential factor	varies
A	Helmholtz energy	J
$\vec{a}$	Acceleration	$m\,s^{-2}$
$\vec{a}_r$	Acceleration, radial	$m\,s^{-2}$
a	Activity	-
a	Turns ratio, primary:secondary[e]	-
a	Van der Waals cohesion pressure	$J\,m^3\,mol^{-2}$
B	Bottoms mass flow rate[d]	$kg\,s^{-1}$
$\vec{B}$	Magnetic field flux density	T
$\mathbf{B}$	Maxwell-Stefan diffusivity, inverted	$s\,m^{-2}$
B_i	McMillan-Mayer virial coefficient i	-
B_s	Mold constant, Chvorinov	$s\,m^{-2}$
B_f	Spectral radiance per unit frequency	$W\,sr^{-1}\,m^{-2}\,Hz^{-1}$
B	Susceptance	S
Bi	Biot number	-
BCF	Bioconcentration factor[g]	-
b	Molality	$mol\,kg^{-1}$
b	Steady state value[b]	varies
b	Van der Waals excluded volume	$m^3\,mol^{-1}$
C	Capacitance	F
$C_\mathrm{sb,f}$	Capacity factor[d]	-
C	Centroid[f]	m
C_0	Coefficient, discharge[g]	-
C_d	Coefficient, drag	-
C_P	Coefficient, power	-
C_v	Coefficient, valve[d]	-
C	Concentration, mass	$kg\,m^{-3}$
C	Constant, numerical	-
C	Contrast[a]	-
C_P	Heat capacity, constant pressure	$J\,K^{-1}$
C_V	Heat capacity, constant volume	$J\,K^{-1}$
$\hat{C}$	Heat capacity, specific	$J\,K^{-1}\,kg^{-1}$
C_H	Heat, humid	$J\,K^{-1}\,kg^{-1}$
CI	Confidence interval[a]	varies
Cp	Process capability[c]	varies
CoP	Coefficient of performance	-
c	Concentration, molar	$mol\,m^{-3}$
c	Speed of light in medium	$m\,s^{-1}$
$\tilde{c}$	Speed of sound in medium	$m\,s^{-1}$
$\breve{D}$	Diffusion per unit volume of reactor	$mol\,m^{-3}\,s^{-1}$
D_{AB}	Diffusivity, A through B	$m^2\,s^{-1}$
$\bar{D}$	Diffusivity, overall	$m^2\,s^{-1}$
D_K	Diffusivity, Knudsen	$m^2\,s^{-1}$
$\mathcal{D}$	Diffusivity, Maxwell-Stefan	$m\,s^{-2}$
D_a	Dispersion coefficient, axial	$m^2\,s^{-1}$
D	Distillate mass flow rate[d]	$kg\,s^{-1}$
$\dot{D}$	Drying rate	$kg\,h^{-1}\,m^{-2}$
$\dot{D}_\mathrm{c}$	Drying rate, constant	$kg\,h^{-1}\,m^{-2}$
Da	Damköler number	-
DR	Decay ratio	-
d	Dilution factor	-
$\vec{d}$	Generalised driving force	m^{-1}
d_2	Unbiasing constant, expected range[c]	-
d_3	Unbiasing constant, d_2 std. dev.[c]	-
E	Effect[a]	-
$\vec{E}$	Electric field strength	$V\,m^{-1}$, $N\,C^{-1}$
$\mathcal{E}$	Electromotive force	V
E	Emissions[g]	kg
$\dot{E}$	Emissions rate[g]	$kg\,h^{-1}$
E	Energy	J
E_a	Energy, activation	$J\,mol^{-1}$
E_k	Energy, kinetic	J
$\dot{E}_\mathrm{k}$	Energy, kinetic, transfer rate	$J\,s^{-1}$
E_p	Energy, potential	J
$\dot{E}_\mathrm{p}$	Energy, potential, transfer rate	$J\,s^{-1}$
$\mathcal{E}'$	Generator internal voltage, constant[e]	V
E_e	Irradiance	$W\,m^{-2}$
$\mathcal{E}^\circ$	Standard electrode potential	V
E	Young's modulus[f]	Pa
e	Error signal[b]	varies
e_s	Error, standard[a]	varies
e	Residual[a]	varies
F_0	F-factor[a]	-
F_c	F-distribution critical value[a]	-
F	Feed mass flow rate[d]	$kg\,s^{-1}$
F	Feed molar flow rate	$mol\,s^{-1}$
F_{LV}	Flow parameter[d]	-
$\vec{F}$	Force	N
$\vec{F}_\mathrm{b}$	Force, buoyancy	N
$\vec{F}_\mathrm{d}$	Force, drag	N
$\hat{F}_\mathrm{k}$	Force, friction, kinetic	N
$\hat{F}_\mathrm{r}$	Force, friction, rolling	N
$\hat{F}_\mathrm{s}$	Force, friction, static	N
$\vec{\mathcal{F}}$	Force, magnetomotive	A–turn
$\vec{F}_n$	Force, normal	N
$\vec{F}_\mathrm{r}$	Force, resultant	N
$\vec{F}_\mathrm{t}$	Force, tension	N
$\hat{F}$	Frictional loss	$J\,kg^{-1}$
FR	Fractional recovery[d]	-
Fr	Froude number	-
f_c	Constriction factor	-
f_E	Emissions factor[g]	-
f	Fanning friction factor	-
f	Fraction / factor	-
f_I	Fraction of inhibition	-
f	Frequency	s^{-1}
f_n	Frequency, n-th harmonic	s^{-1}
f°	Fugacity, ideal	Pa
f	Fugacity, mixture	Pa
$f^\star$	Fugacity, pure substance	Pa
$f^{\star\ominus}$	Fugacity, pure substance at reference	Pa
f_T	Heat exchanger correction factor	-
f_Q	Quality factor	-
f_s	Scale factor	-
f	Vapour fraction of feed[d]	-
G	Conductance	S
G	Gas mass flow rate	$kg\,s^{-1}$
G	Gibbs energy	J
$\bar{G}$	Gibbs energy, partial molar	$J\,mol^{-1}$
$\vec{G}$	Mass velocity	$kg\,m^{-2}\,s^{-1}$
G	Shear modulus[f]	Pa
Gr	Grashoff number	-
g_R	Relative centrifugal force	-
H	Enthalpy	J

$\bar{H}$	Enthalpy, partial molar	$\mathrm{J\,mol^{-1}}$
H	Enthalpy, vapour (*cf.* h)	J
H	Entropy, Shannon	bit
$\tilde{H}$	Head	m
$\tilde{H}_P$	Head, pressure	m
$\tilde{H}_v$	Head, velocity	m
H_H	Heating value, higher	J
H_L	Heating value, lower	J
$\mathscr{H}$	Henry's law constant	varies
$\underset{\cdot}{H}$	Humidity, absolute	$\mathrm{kg_{water(v)}\,kg^{-1}_{dry\ air}}$
$\underset{\cdot}{H}_\mathrm{c}$	Humidity, critical	$\mathrm{kg_{water(v)}\,kg^{-1}_{dry\ air}}$
$\underset{\cdot}{H}_\mathrm{M}$	Humidity, molal	$\mathrm{mol_{water(v)}\,mol^{-1}_{dry\ air}}$
$\underset{\cdot}{H}_\mathrm{P}$	Humidity, percentage	-
$\underset{\cdot}{H}_\mathrm{R}$	Humidity, relative	-
$\underset{\cdot}{H}_\mathrm{S}$	Humidity, wet bulb temperature	$\mathrm{kg_{water(v)}\,kg^{-1}_{dry\ air}}$
$\vec{H}$	Magnetic field strength	$\mathrm{A\,m^{-1}}$
h	Enthalpy, liquid (*cf.* H)	J
h_d	Fouling coefficient	$\mathrm{W\,m^{-2}\,K^{-1}}$
h	Heat transfer coefficient	$\mathrm{W\,m^{-2}\,K^{-1}}$
$\hbar$	Height	m
$\hbar_G$	Height, gas enthalpy transfer unit[d]	m
I	Electric current	A
$\dot{I}$	Electric current, per unit	pu
$\bar{I}$	Electric current, phasor domain	A
I_e	Electron current	$\mathrm{s^{-1}}$
I	Intensity, sound	$\mathrm{W\,m^{-2}}$
I_{Sx}	Moment of area (2nd) / area mt. of inertia[f]	$\mathrm{m^4}$
I_{Mx}	Moment of mass (2nd) / mass mt. of inertia[f]	$\mathrm{kg\,m^2}$
I_{Pxy}	Product moment of inertia[f]	$\mathrm{m^4}$
i	Electric current, time dependent	A
i	van 't Hoff factor	-
J_D	Colburn mass transfer factor	-
J	Current density	$\mathrm{A\,m^{-2}}$
$\vec{J}$	Impulse	N s
J	Ising model interaction	-
K_a	Acid dissociation constant	-
K_b	Base dissociation constant	-
K	Bulk modulus[f]	Pa
K_fp	Cryoscopic constant	$\mathrm{kg\,K\,mol^{-1}}$
K_d	Dry soil-water partition coefficient[g]	-
K_bp	Ebullioscopic constant	$\mathrm{kg\,K\,mol^{-1}}$
K_e	Equilibrium constant	-
K_ad	Equilibrium constant, adsorption	$\mathrm{Pa^{-1}}$
K_cat	Equilibrium constant, catalysis	-
K_c	Equilibrium constant, concentration	-
K_de	Equilibrium constant, desorption	Pa
K_p	Equilibrium constant, pressure	-
K_s	Equilibrium constant, surface reaction	varies
K'	Equilibrium distribution coefficient[d]	-
K	Equilibrium vapour-liquid ratio[d]	-
K_f	Fitting loss coefficient	-
K_v	Flow factor	$\mathrm{m^3\,h^{-1}\,bar^{-1/2}}$
K_I	Fracture toughness, plane-strain[f]	$\mathrm{Pa\,m^{1/2}}$
K_M	Michaelis constant	$\mathrm{mol\,m^{-3}}$
K_ow	Octanol-water partition coefficient[g]	-
K_oc	Organics soil-water partition coeff.[g]	-
K_p	Process gain[b]	-
K_c	Proportional gain constant[b]	-
K_sp	Solubility product	varies
K_s	System gain[b]	-

K_w	Water autoionisation constant	-
k	Angular wavenumber	$\mathrm{rad\,m^{-1}}$
k	Coupling coefficient[e]	-
k_c	Mass transfer coeff., conc.	$\mathrm{m\,s^{-1}}$
k'_c	Mass transfer coeff., conc., EMCD	$\mathrm{m\,s^{-1}}$
k_y	Mass transfer coeff., gas, frac.	$\mathrm{mol\,s^{-1}\,m^{-2}\,x^{-1}}$
k'_y	Mass transfer coeff., gas, frac., EMCD	$\mathrm{mol\,s^{-1}\,m^{-2}\,x^{-1}}$
k_G	Mass transfer coeff., gas, press.	$\mathrm{mol\,s^{-1}\,m^{-2}\,Pa^{-1}}$
k'_G	Mass transfer coeff., gas, press., EMCD	$\mathrm{mol\,s^{-1}\,m^{-2}\,Pa^{-1}}$
k_L	Mass transfer coeff., liq., conc.	$\mathrm{m\,s^{-1}}$
k'_L	Mass transfer coeff., liq., conc., EMCD	$\mathrm{m\,s^{-1}}$
k_x	Mass transfer coeff., liq., frac.	$\mathrm{mol\,s^{-1}\,m^{-2}\,x^{-1}}$
k'_x	Mass transfer coeff., liq., frac., EMCD	$\mathrm{mol\,s^{-1}\,m^{-2}\,x^{-1}}$
k_e	Power loss emp. constant, eddy, specific[e]	$\mathrm{W\,kg^{-1}\,Hz^{-2}\,T^{-2}\,m^{-2}}$
k_h	Power loss emp. const., hysteresis, specific[e]	$\mathrm{W\,kg^{-1}\,Hz^{-1}\,T^{-}}{}^{n_\mathrm{S}}$
k	Probit parameter[a]	varies
k	Radius of gyration[f]	m
k	Reaction rate constant	varies
k_ad	Reaction rate constant, absorption	$\mathrm{Pa^{-1}\,s^{-1}}$
k_de	Reaction rate constant, desorption	$\mathrm{s^{-1}}$
$\hat{k}_\mathrm{p}$	Reaction rate constant, pellet, areal	varies
$\hat{k}_\mathrm{p}$	Reaction rate constant, pellet, specific	varies
$\check{k}_\mathrm{p}$	Reaction rate constant, pellet, volumetric	varies
k_s	Reaction rate constant, surface	varies
k	Spring constant	$\mathrm{N\,m^{-1}}$
k	Thermal conductivity	$\mathrm{W\,m^{-1}\,K^{-1}}$
k_eff	Thermal conductivity, effective	$\mathrm{W\,m^{-1}\,K^{-1}}$
$\vec{L}$	Angular momentum	$\mathrm{kg\,m^2\,s^{-1}}$
L	Inductance	H
L_m	Inductance, mutual	H
L	Length, dimensionless	-
L	Liquid mass flow rate[d]	$\mathrm{kg\,s^{-1}}$
$\bar{L}$	Liquid mass flow rate in reboiler[d]	$\mathrm{kg\,s^{-1}}$
L_S	Solid loading	kg
$\dot{L}_S$	Solid loading mass flow rate	$\mathrm{kg\,s^{-1}}$
L_I	Sound intensity level[g]	dB
LCL	Lower control limit[c]	varies
LFL	Lower flammability limit[g]	%
LOC	Limiting oxygen concentration[g]	%
LSL	Lower specification limit[c]	varies
ℓ	Azimuthal quantum number	-
ℓ	Length	m
ℓ_a	Length, arc	m
ℓ'	Length, characteristic	m
ℓ_f	Length, focal	m
M	Conductor material temperature constant[e]	K
M	Modulus	m
M_T	Modulus, Thiele	-
M	Molarity	$\mathrm{mol\,L^{-1}}$
$\vec{M}$	Moment, bending[f]	N m
M_x	Moment of mass (1st)[f]	kg m
M	Optical magnification	-
MS	Mean square[a]	-
MSE	Mean squared error[a]	-
$\mathbf{m}$	Flux, mass, relative to $\langle\vec{v}_m\rangle$	$\mathrm{kg\,s^{-1}\,m^{-2}}$
$\mathbf{m}'$	Flux, mass, relative to $\langle\vec{v}_n\rangle$	$\mathrm{kg\,s^{-1}\,m^{-2}}$
m_ℓ	Magnetic quantum number	-
m	Mass	kg
m_a	Mass, atomic	Da
$\dot{m}$	Mass flow rate	$\mathrm{kg\,s^{-1}}$

$\breve{m}$	Molar mass (molecular weight)	$\mathrm{g\,mol^{-1}}$
$\langle\breve{m}\rangle$	Molar mass, average	$\mathrm{g\,mol^{-1}}$
m	Order parameter, magnetic, per spin	-
N_e	Number of electrons transferred	-
N_L	Number of levels^a	-
N_t	Number of turns in a coil	-
N	Quantity	-
$\dot{N}_\mathrm{r}$	Revolutions per minute	$\mathrm{min^{-1}}$
N	Size of population^a	-
Nu	Nusselt number	-
$\mathrm{Nu_p}$	Nusselt number, particle	-
$\mathrm{NPSH_A}$	Net positive suction head available	m
n	Diffraction order	-
n_H	Hill coefficient	-
n	Index of refraction	-
$\mathbf{n}$	Flux, molar, relative to $\langle\vec{v}_m\rangle$	$\mathrm{mol\,s^{-1}\,m^{-2}}$
$\mathbf{n}'$	Flux, molar, relative to $\langle\vec{v}_n\rangle$	$\mathrm{mol\,s^{-1}\,m^{-2}}$
$\dot{n}$	Molar flow rate	$\mathrm{mol\,s^{-1}}$
n	Number of moles	mol
n	Number of samples^a	-
n	Polytropic index	-
n	Principal quantum number	-
n	Size of sample^a	-
n_S	Steinmetz coefficient^e	-
OSFC	Out of service fuel concentration^g	%
$\vec{P}$	Momentum	$\mathrm{kg\,m\,s^{-1}}$
P^*	Overpressure, scaled^g	-
$\underset{\cdot}{P}_\mathrm{gs}$	Permeability, gas-solid^d	$\mathrm{m^3_{solute\ominus}\,s^{-1}\,m^{-2}_{solid}\,Pa^{-1}\,m_\delta}$
$\underset{\cdot}{P}_G$	Permeability, membrane, gas^d	$\mathrm{mol\,s^{-1}\,m^{-1}\,Pa^{-1}}$
$\underset{\cdot}{P}_L$	Permeability, membrane, liquid^d	$\mathrm{m\,s^{-1}}$
$\underset{\cdot}{P}_\mathrm{slv}$	Permeability, membrane, solvent^d	$\mathrm{kg_{solvent}\,s^{-1}\,m^{-1}\,Pa^{-1}}$
$\hat{\mathrm{P}}_\mathrm{e}$	Power loss, eddy, specific	$\mathrm{W\,kg^{-1}}$
$\hat{\mathrm{P}}_\mathrm{h}$	Power loss, hysteresis, specific	$\mathrm{W\,kg^{-1}}$
P	Power, real	W
$\dot{\mathrm{P}}$	Power, real, per unit	pu
$\mathscr{P}$	Poynting correction factor	-
P	Pressure	Pa
P_c	Pressure, critical	Pa
$\mathscr{P}$	Pressure, dynamic	Pa
PB	Proportional band^b	-
Pe	Péclet number	-
PI	Prediction interval^a	varies
PO	Percent overshoot^b	-
Pr	Prandtl number	-
$\vec{p}$	Electric dipole moment	C m
p	Power, instantaneous	W
p	Pressure, partial	Pa
$p^\star$	Pressure, vapour	Pa
p	Probability value^a	-
p	System pole^b	-
pf	Power factor	-
Q	Heat	J
$\dot{Q}$	Rate of heat flow	W
$\dot{Q}_x$	Rate of heat flow in x direction	W
Q_r	Reaction quotient	-
Q_c	Reaction quotient, molar concentration	-
Q_p	Reaction quotient, pressure	-
Q	Reactive complex power	VAR
$\dot{\mathrm{Q}}$	Reactive complex power, per unit	pu
Q	Total charge enclosed	C

$\breve{Q}$	Volumetric heat generation	$\mathrm{W\,m^{-3}}$
q_λ	Charge density, linear	$\mathrm{C\,m^{-1}}$
q_σ	Charge density, surface	$\mathrm{C\,m^{-2}}$
q_ρ	Charge density, volume	$\mathrm{C\,m^{-3}}$
q	Electric charge	C
q	Liquid fraction of stream^d	-
q	Mass ratio of adsorbate to adsorbent^d	-
R^2	Coefficient of determination^a	-
R	Consumption/generation rate, mass	$\mathrm{kg\,s^{-1}}$
$\breve{R}$	Cons./gen. rate, mass, volumetric	$\mathrm{kg\,s^{-1}\,m^{-3}}$
$\hat{R}$	Gas constant, specific^e	$\mathrm{J\,kg^{-1}\,K^{-1}}$
R	Radius	m
$\bar{R}$	Radius, geometric mean^e	m
$\bar{R}$	Range, average^c	-
R	Reflux ratio^d	-
$\mathcal{R}$	Reluctance	$\mathrm{H^{-1}}$
R_f	Resistance of filter medium^d	$\mathrm{m^{-1}}$
R	Resistance	Ω
$\dot{R}$	Resistance, per unit	pu
R	Resistance, thermal	$\mathrm{K\,W^{-1}}$
R	Tunneling reflection coefficient	-
Re	Reynolds number	-
$\mathrm{Re_p}$	Reynolds number, particle	-
r_b	Boilup ratio^d	-
r	Consumption/generation rate, molar	$\mathrm{mol\,s^{-1}}$
$\breve{r}$	Cons./gen. rate, molar, volumetric	$\mathrm{mol\,s^{-1}\,m^{-3}}$
r	Position, 2D space	m
$\vec{r}$	Position vector, 2D space	m
r	Radial coordinate position	m
r	Rate of reaction	varies
$\hat{r}$	Rate of reaction, catalysed, specific	$\mathrm{mol\,g_{cat}^{-1}\,s^{-1}}$
$\breve{r}$	Rate of reaction, catalysed, volumetric	$\mathrm{mol\,L^{-1}\,s^{-1}}$
r	Ratio	-
S	Entropy	$\mathrm{J\,K^{-1}}$
$\bar{S}$	Entropy, partial molar	$\mathrm{J\,mol^{-1}\,K^{-1}}$
S	Moment of area (1^st)^f	$\mathrm{m^3}$
S	Power, apparent complex	V A
$\dot{\mathrm{S}}$	Power, apparent complex, per unit	pu
$\vec{S}$	Poynting vector	$\mathrm{W\,m^{-2}}$
$\underset{\cdot}{S}$	Saturation, absolute	$\mathrm{kg_{(v)}\,kg^{-1}_{dry\ gas}}$
$\underset{\cdot}{S}_\mathrm{M}$	Saturation, molal	$\mathrm{mol_{(v)}\,mol^{-1}_{dry\ gas}}$
$\underset{\cdot}{S}_\mathrm{P}$	Saturation, percentage	-
$\underset{\cdot}{S}_\mathrm{R}$	Saturation, relative	-
$S_{A/B}$	Selectivity of A to B	-
$\bar{S}_{A/B}$	Selectivity of A to B, overall	-
$\vec{S}$	Spin angular momentum	$\mathrm{m^2\,kg\,s^{-1}}$
S	Steam mass flow rate	$\mathrm{kg\,s^{-1}}$
$\langle\vec{S}\rangle$	Time-averaged Poynting vector	$\mathrm{W\,m^{-2}}$
Sc	Schmidt number	-
Sh	Sherwood number	-
$\mathrm{Sh_p}$	Sherwood number, particle	-
SP	Split^d	-
SS	Sum of squares^a	-
St	Stanton number	-
SIL	Surge impedance load^e	W
SSE	Sum of squares residual error^a	-
SST	Sum of squares, total^a	-
s	Complex frequency	complex $\mathrm{Np\,s^{-1}}$
s	Position, 1D space	m
$\vec{s}$	Position vector, 1D space	m

$\underset{\cdot}{s}$	Solubility, gas	$m^3_{solute\ominus}\ m^{-3}_{solid}\ Pa^{-1}$
s	Spin quantum number	-
s	Standard deviation, sample[a]	varies
s^2	Variance, sample[a]	varies
T	Period	s
$T_{1/2}$	Period, half	s
T	Temperature, thermodynamic	K
T_c	Temperature, critical	K
T_D	Temperature, Debye	K
T_r	Temperature, reduced	-
T_Ω	Transmittance, directional	-
T	Tunneling transmission coefficient	-
TLV	Threshold limit value[g]	varies
TWA	Time-weighted average[g]	varies
$t_{1/2}$	Half-life	s
$\vec{t}$	Stress vector	Pa
t	Time	s
t_m	Time, mean residence	s
t_p	Time, peak[b]	s
t_s	Time, solidification[f]	s
U	Energy, internal	J
$\hat{U}$	Energy, internal, specific	$J\,kg^{-1}$
U_E	Energy, potential, electrical	J
U_M	Energy, potential, magnetic	J
U	Overall heat transfer coefficient	$W\,m^{-2}\,K^{-1}$
U	Ullage[g]	m^3
U	Velocity, dimensionless	-
UCL	Upper control limit[c]	varies
UFL	Upper flammability limit[g]	%
USL	Upper specification limit[c]	varies
u_0	Bias[b]	varies
u	Control signal (manipulated variable)[b]	varies
u	Energy density	$J\,m^{-3}$
u_f	Energy density, spectral	$J\,m^{-3}\,Hz^{-1}$
u_∞	Velocity, freestream	$m\,s^{-1}$
V	Causative variable[a]	varies
V	Vapour mass flow rate[d]	$kg\,s^{-1}$
$\bar{V}$	Vapour mass flow rate in reboiler[d]	$kg\,s^{-1}$
V	Voltage	$V, J\,C^{-1}$
$\bar{V}$	Voltage, phasor domain	V
$\dot{V}$	Voltage, per unit	pu
V	Volume	m^3
V_c	Volume, critical	m^3
V_H	Volume, humid	$m^3\,kg^{-1}_{dry\ air}$
$\bar{V}$	Volume, partial molar	$m^3\,mol^{-1}$
$\check{V}_s$	Volume, saturated molar	$m^3\,mol^{-1}$
$\dot{V}$	Volumetric flow rate	$m^3\,s^{-1}$
v	Atomic/structural diffusion vol. increment	-
v	Reaction velocity	$\mu mol\,L^{-1}\,min^{-1}$
$\bar{v}$	Reaction velocity, net	$\mu mol\,L^{-1}\,min^{-1}$
$\vec{v}$	Velocity	$m\,s^{-1}$
$\langle\vec{v}\rangle$	Velocity, average	$m\,s^{-1}$
$\langle\vec{v}_m\rangle$	Velocity, average, mass	$m\,s^{-1}$
$\langle\vec{v}_n\rangle$	Velocity, average, molar	$m\,s^{-1}$
$\vec{v}_d$	Velocity, drift	$m\,s^{-1}$
$\vec{v}_\phi$	Velocity, phase	$m\,s^{-1}$
$\vec{v}_s$	Velocity, superficial	$m\,s^{-1}$
$\vec{v}_t$	Velocity, tangential	$m\,s^{-1}$
$\vec{v}_\infty$	Velocity, terminal	$m\,s^{-1}$
v	Voltage, time dependent	V

W	Work	J
$\dot{W}$	Work rate	W
$\hat{W}$	Work per unit of mass pumped	$J\,kg^{-1}$
w	Mass fraction	-
ω	Width	m
$\vec{w}$	Vorticity	s^{-1}
X	Conversion fraction	-
X_e	Conversion fraction, equilibrium	-
X	Reactance	Ω
$\dot{X}$	Reactance, per unit	pu
$\bar{X}$	Reactance, phasor domain	Ω
X'	Reactance, transient	Ω
x	Coded level variable[a]	-
x	Mole fraction of more dense species (*cf.* y)	-
$\bar{x}$	Centre of mass[f]	m
Y	Admittance	S
Y_{ES}	Fractional occupancy of ligand S on receptor E	-
Y	Geometric factor for toughness[f]	-
Y	Probit variable[a]	-
Y_c	Yield, casting	-
Y_A	Yield of A	-
$\bar{Y}_A$	Yield of A, overall	-
y	Mole fraction of less dense species (*cf.* x)	-
y	Process variable[b]	varies
$\hat{y}$	Regression model, fitted[a]	-
Z	Atomic number	-
Z	Collision frequency	s^{-1}
Z	Compressibility factor	-
Z_c	Comp. factor at critical point	-
Z	Impedance	Ω
Z_0	Impedance, characteristic	Ω
$\dot{Z}$	Impedance, per unit	pu
$\bar{Z}$	Impedance, phasor domain	Ω
Z	Partition function, canonical	-
$\mathcal{Z}$	Partition function, grand canonical	-
z	Fraction in feed[d]	-
z	Partition function, isothermal-isobaric	-
z	Position, z-axis	m
z_e	Scaled distance[g]	$m\,kg^{-1/3}$
z	System zero[b]	-

Greek Alphabet

$\vec{\alpha}$	Acceleration, angular	$rad\,s^{-2}$
α	Arrhenius number	-
α	Attenuation constant	$Np\,m^{-1}$
α	Cooperativity factor	-
α	Dissociation fraction	-
α°	Ideal separation factor[d]	-
α	Kinetic energy velocity correction factor	-
α	Order of reaction	-
$\bar{\alpha}$	Order of reaction, overall	-
α_{AB}	Relative volatility[d] of A to B	-
α	Significance level[a]	-
α	Specific filter cake resistance[d]	$m\,kg^{-1}$
α	Thermal diffusivity	$m^2\,s^{-1}$
α	Thermal expansion coefficient	K^{-1}
β	Bandwidth[b]	s^{-1}
β	Phase constant	$rad\,m^{-1}$
β_0	Regression coefficient, intercept[a]	-
$\hat{\beta}_0$	Regression coefficient, intercept, est.[a]	-
β_1	Regression coefficient, slope[a]	-
$\hat{\beta}_1$	Regression coefficient, slope, est.[a]	-

β	Thermodynamic beta / coldness	J^{-1}
$\boldsymbol{\Gamma}$	Thermodynamic factor	-
γ	Activity coefficient	-
γ	Heat capacity ratio	-
γ	Lorentz factor	-
γ_i	Overshoot of peak i above stdy. state[b]	varies
γ	Propagation constant[e]	m^{-1}
γ_{xy}	Shear strain	-
γ	Specific weight	$N\,m^{-3}$
γ	Surface tension	$N\,m^{-1}$
Δ_{set}	Steady state offest[b]	varies
$\Delta_r C_P$	Heat capacity of reaction	$J\,K^{-1}$
$\Delta_r G$	Gibbs energy of reaction	J
$\Delta_{sln} H$	Enthalpy of solution	$J\,mol^{-1}_{solute}$
$\Delta_c H$	Heat of combustion	J
$\Delta_f H$	Heat of formation	J
$\Delta_{fus} H$	Heat of fusion	J
$\Delta_{mix} H$	Heat of mixing	J
$\Delta_r H$	Heat of reaction	J
$\Delta_{trs} H$	Heat of phase transition	J
$\Delta_{vap} H$	Heat of vapourisation	J
$\Delta_{mix} S$	Entropy of mixing	$J\,K^{-1}$
$\Delta_{trs} S$	Entropy of phase transition	$J\,K^{-1}$
$\Delta_r S$	Entropy of reaction	$J\,K^{-1}$
Δs	Spacetime interval	m
$\Delta_{fus} V$	Volume change of fusion	m^3
$\Delta_{trs} V$	Volume change of phase transition	m^3
$\Delta_{sh}\rho$	Density change at superheat	$g\,cm^{-3}\,°C^{-1}$
$\bar{\delta}$	Distance, geometric mean[e]	m
δ	Power angle[e]	rad
δ	Thickness / distance	m
ε_Ω	Emissivity, directional	-
ϵ	Energy quantum	varies
ϵ	Heat exchanger effectiveness	-
ε_f	Non-ideal filling factor[g]	-
ε_m	Non-ideal mixing factor[g]	-
ε	Random error[a]	-
$\boldsymbol{\varepsilon}$	Rate of strain tensor	s^{-1}
ε_R	Relative permittivity	-
ε_e	Strain, engineering[f]	-
ε	Strain, true[f]	-
ε	Volumetric expansion parameter	-
ζ	Damping ratio[b]	-
η_{int}	Catalyst internal effectiveness factor	-
η	Efficiency	-
η_{dc}	Frac. of $A_{\sigma,col}$ for vapour flow[d]	-
η_{ML}	Murphree liquid efficiency[d]	-
η_{MV}	Murphree vapour efficiency[d]	-
Θ_B	Stoich. ratio of B to lim. reactant	-
θ	Angular position	rad
θ	Argument	rad
θ_c	Critical angle	rad
θ_p	Dead time[b]	s
θ	Fraction of gas feed permeated[d]	-
θ_v	Molar conc. of vacant sites	$mol\,g^{-1}_{cat}$
θ_A	Sfc. conc. of sites occupied by A	$mol\,g^{-1}_{cat}$
θ	Zenith angle	rad
κ	Debye spring constant	-
κ	Isothermal compressibility	Pa^{-1}
κ	Torsion spring constant	$N\,m\,rad^{-1}$
κ	Viscosity, volume	Pa s
Λ	Grand potential	J
λ	Decay constant	s^{-1}
λ	Eigenvalue[b]	-
λ	Flux linkage[e]	Wb–turn
λ	Latent heat of vapourisation	$J\,kg^{-1}$
λ	Mean free path	m
λ	Tip to speed ratio[e]	-
λ	Wavelength	m
μ	Chemical potential	$J\,mol^{-1}$
μ_k	Coefficient of friction, kinetic	-
μ_r	Coefficient of friction, rolling	-
μ_k	Coefficient of friction, static	-
μ_J	Joule coefficient	$K\,m^{-3}$
μ_{JT}	Joule-Thomson coefficient	$K\,Pa^{-1}$
μ	Linear density	$kg\,m^{-1}$
$\vec{\mu}$	Magnetic dipole moment	$J\,T^{-1}$
$\vec{\mu}_S$	Magnetic dipole moment, spin	$J\,T^{-1}$
μ_{AB}	Mass, reduced	kg
μ	Mean, population[a]	varies
μ	Viscosity, dynamic	Pa s
ν	Degrees of freedom	-
ν	Poisson's ratio[f]	-
ν	Stoichiometric coefficient	-
ν	Viscosity, kinematic	$m^2\,s^{-1}$
ξ	Extent of reaction	mol
$\dot{\xi}$	Extent of reaction, continuous	$mol\,s^{-1}$
Π	Osmotic pressure	Pa
π_T	Internal pressure	Pa
ρ_H	Density, humid	$kg\,m^{-3}$
ρ	Density, mass	$kg\,m^{-3}$
ρ_N	Density, numerical	m^{-3}
ρ_R	Density, relative (specific gravity)	-
ρ	Resistivity	$\Omega\,m$
ρ_s	Steric factor	-
σ	Atomic radius, hard elastic sphere	Å
σ_{AB}	Collision diameter (cross section)	Å
σ	Conductivity	$S\,m^{-1}$
σ	Density, surface	$g\,m^{-2}$
σ	Ising spin configuration	-
σ	Neper frequency	$Np\,s^{-1}$
$\sigma_{x,y,z}$	Standard deviation, Gaussian dispersion[a]	m
σ	Standard deviation, population[a]	-
$\hat{\sigma}$	Standard deviation, pop., estimated[a]	-
σ_e	Stress, engineering[f]	Pa
σ	Stress, true[f]	Pa
$\boldsymbol{\sigma}$	Total stress tensor	Pa
σ	Van der Waals radius	Å
σ^2	Variance, population[a]	-
τ	Mean time between collisions	s
τ_n	Natural period[b]	s
τ_D	Rate time[b]	s
τ	Reactor space time	s
τ_I	Reset time[b]	s
τ_{xy}	Shear stress	Pa
$\boldsymbol{\tau}$	Shear stress tensor	Pa
τ	Time constant	s
$\vec{\tau}$	Torque	N m
$\tilde{\tau}$	Tortuosity	-
Φ_Q	Flux density, heat	$W\,m^{-2}$

Φ_E	Flux, electric	V m
Φ_B	Flux, magnetic	Wb
Φ_G	Flux, mass, gas	$kg\,s^{-1}\,m^{-2}$
Φ_L	Flux, mass, liquid	$kg\,s^{-1}\,m^{-2}$
$\mathbf{\Phi}_m$	Flux, mass, relative to stationary coordinates	$kg\,s^{-1}\,m^{-2}$
$\mathbf{\Phi}_n$	Flux, molar, relative to stationary coordinates	$mol\,s^{-1}\,m^{-2}$
Φ_v	Viscous dissipation function	s^{-2}
ϕ	Azimuthal angle	rad
ϕ	Degree of inlet dilution[g]	-
ϕ	Fugacity coefficient	-
φ	Osmotic coefficient	-
ϕ	Phase angle	rad
ϕ	Phase shift	rad
ϕ	Solvent association factor[d]	-
ϕ	Void fraction	-
ϕ	Work function	eV
χ	Free moisture content	$kg_{(l)}\,kg^{-1}_{dry\ solid}$
χ_c	Free moisture content, crit.	$kg_{(l)}\,kg^{-1}_{dry\ solid}$
$\Omega_{D,AB}$	Collision integral, diffusive	-
Ω	Microcanonical number of states	-
$\mathbf{\Omega}$	Vorticity tensor	s^{-1}
ω	Frequency, angular	$rad\,s^{-1}$
ω_c	Frequency, cutoff	s^{-1}
ω_D	Frequency, Debye	s^{-1}
ω_L	Frequency, Larmor	$rad\,s^{-1}$
ω_0	Frequency, natural[b]	s^{-1}
ω	Pitzer acentric factor	-
$\vec{\omega}$	Velocity, angular	$rad\,s^{-1}$

Pseudoelement Symbols

A	Deprotonated acid
B	Brønsted–Lowry base
Et	Ethyl
HA	Brønsted–Lowry acid
M	Metal
Me	Methyl
Nu	Nucleophile
R	Functional group
X	Halogen

Superscripts

dep	Departure
E	Excess
(n)	n-th derivative / Lee-Kesler factor
$\alpha, \beta, \gamma, \ldots$	Phase
$*$	Complex conjugate
‡	Transition state
′	Proper dimension / similar / other / predicted[a]
$\star$	Pure species
$\circ$	Ideal
$\ominus$	Standard / reference conditions
⊜	Steady state

Subscripts

a	Acid
b	Base
b	Basis[e]
bp	Bubble point
C	Cold
c	Critical
cat	Catalyst
comp	Compression
cv	Control volume
D	Bus load[e]
da	Drying agent / dry air
dp	Dew point
e	Equilibrium
eq	Equivalent
exp	Expansion
FL	Full load[e]
f	Final
fl	Flow
fp	Freezing point
G	Bus generator[e]
G	Gas stream
(g)	Gas phase
H	High
H	Hot
HK	Heavy key[d]
I	Inner
i	Index
i	Initial
L	Liquid stream
L	Low
Ld	Load[e]
LK	Light key[d]
Ln	Line[e]
(l)	Liquid phase
lm	Log-mean
max	Maximum / amplitude
min	Minimum
m:f	At interface from m to f
NL	No load[e]
n'	Moles of all other species held constant
O	Outer
P	At constant pressure (isobaric)
P	Permeate gas stream[d]
p	Particle
Q	At constant heat (adiabatic)
R	Receiving end[e]
R	Reject gas stream[d]
ref	Reference
rev	Reversible
rms	Root mean square
S	Sending end[e]
S	Solids
S	Source
S	Steam
s	Shaft
(s)	Solid phase
sat	Saturation
sfc	Surface
sh	Superheat
sp	Spring
T	At constant temperature (isothermal)
T	Total
Th	Thévenin
V	At constant volume (isochoric)
v	Valve
(v)	Vapour phase

W	Waste[d]
w	Water
wb	Wet bulb
μ	At constant chemical potential
ρ	At constant density (isopycnic)
0	Default / initial
♁	Earth

Sets, Symbols, and Diacritics*

$\mathbb{C}$	The set of all complex numbers
$\hat{e}$	Unit vector
$\mathbf{I}$	Identity matrix
$\imath$	Imaginary unit
$\jmath$	Imaginary unit, electrical engineering
$\mathbb{N}$	The set of all natural numbers
$\mathbb{N}^*$	The set of all natural numbers and 0, *i.e.* $\mathbb{N} \cup \{0\}$
$\hat{n}$	Normal vector
$\mathbb{O}^+$	The set of all positive odd integers
$\mathbb{Z}$	The set of all integers
$\varnothing$	Diameter
$\varnothing_\mathrm{h}$	Hydraulic diameter
$*$	Catalyst active site
$\bullet$	Intermediate
$\parallel$	Parallel
$\perp$	Perpendicular
$\leftrightarrow$	Horizontal
$\updownarrow$	Vertical
$\perp$	Bottom
$\top$	Top
$\{\square\}$	Numeric condition / set builder
$\langle\square\rangle$	Mean, population[a] / expected value / vector
$\bar{\square}$	Mean, sample[a] / partial molar / overall / below feed[d] / phasor[e]
$\bar{\bar{\square}}$	Grand average[c]
$\tilde{\square}$	Linear property (per length) / median, sample[a]
$\overset{*}{\square}$	Dimensionless quantity
$\dot{\square}$	Temporal property (per time [*i.e.* rate]) / per unit[e]
$\check{\square}$	Molar property (per mole)
$\hat{\square}$	Specific property (per mass) / estimator[a]
$\widehat{\square}$	Areal property (per area)
$\widecheck{\square}$	Volumetric property (per volume)

Operators, Relations, and Functions

$\frac{\mathrm{D}}{\mathrm{D}t}$	Material derivative
det	Determinant
$E(t)$	Residence time distribution
erf	Error function
$\mathscr{F}$	Fourier transform
$H(s)$	Gain transfer function
$\mathscr{H}$	Hamiltonian
$\Im$	Imaginary part
$\mathscr{L}$	Laplace transform
$\mathbb{P}$	Probability
$R_{n\ell}$	Radial wave function
$\Re$	Real part
$t_{\alpha,\nu}$	t-statistic[a]
u	Unit step function
x_c	Complimentary solution
x_p	Particular solution
$Y_\ell^{m_\ell}$	Spherical harmonic
$y(x,t)$	Travelling wave
Γ	Gamma function
Δ	Difference / change
$\underline{\Delta}$	Relative change
δ	Dirac delta function (unit impulse)
δ	Inexact differantial
δ_{ij}	Kronecker delta
ϵ_{ijk}	Levi-Civita symbol
Ψ	Wave function, time dependent
ψ	Wave function, time independent
φ	Probability density function[a]
$:$	Double dot product
$\nabla\times$	Curl
$\nabla\cdot$	Divergence
∇	Gradient
∇^2	Laplacian
$\square^\intercal$	Transpose
$\prod$	Product
$\sum$	Sum
$\wedge$	Logical AND
$\vee$	Logical OR
$\exists$	Existential quantifier ("there exists")
$\forall$	Universal quantifier ("for all")
$\cap$	Intersection
$\cup$	Union
$\subset$	Is a subset of
$\in$	Is an element of
$\equiv$	Is defined as / defines
$[=]$	Has units of
$\propto$	Is proportional to
$\Rightarrow$	Implies / then
$\rightarrow$	Transform / next / proceed / approaches
$\because$	Because
$\therefore$	Therefore

Constants

a_0	Bohr radius	5.292×10^{-11} m
$\mathscr{A}$	Avogadro's number	6.022×10^{23} mol^{-1}
b	Wien's displacement constant	2.897×10^{-3} m K
c_0	Speed of light in vacuum	299 792 458 m s^{-1}
e	Elementary charge	1.602×10^{-19} C
$\mathscr{F}$	Faraday's constant	96 485.33 C mol^{-1}
G	Gravitational constant	6.674×10^{-11} m^3 kg^{-1} s^{-2}
g	Local accel. of gravity, Earth	9.81 m s^{-2}
h	Planck constant	6.626×10^{-34} m^2 kg s^{-1}
k_B	Boltzmann constant	1.380×10^{-23} J K^{-1}
k_e	Coulomb's constant	8.987×10^{9} N m^2 C^{-2}
m_e	Mass of electron	4.109×10^{-31} kg
m_p	Mass of proton	1.673×10^{-27} kg
R	Gas constant, universal	8.314 J mol^{-1} K^{-1}
R_∞	Rydberg constant	1.097×10^{7} m^{-1}
ε_0	Permittivity of free space	8.854×10^{-12} F m^{-1}
μ_B	Bohr magneton	9.274×10^{-24} J T^{-1}
μ_0	Permeability of free space	$4\pi \times 10^{-7}$ H m^{-1}
σ	Stefan-Boltzmann constant	5.676×10^{-8} J s^{-1} m^{-2} K^{-4}

Notes

a	Linear regression / ANOVA / statistics
b	Process control
c	Statistical process control
d	Distillation / separation
e	Power engineering
f	Mechanical engineering / materials science
g	Process safety
$*$	Specific definitions for symbols with diacritics take precedence