



ABBREVIATIONS AND SYMBOLS

amount of substance	<i>n</i>	Faraday constant	<i>F</i>	molar	<i>M</i>
ampere	<i>A</i>	free energy	<i>G</i>	molar mass	<i>M</i>
atmosphere	atm	frequency	<i>ν</i>	mole	mol
atomic mass unit	<i>u</i>	gas constant	<i>R</i>	Planck's constant	<i>h</i>
atomic molar mass	<i>A</i>	gram	<i>g</i>	pressure	<i>P</i>
Avogadro constant	<i>N_A</i>	hour	<i>h</i>	rate constant	<i>k</i>
Celsius temperature	°C	joule	<i>J</i>	reaction quotient	<i>Q</i>
centi- prefix	<i>c</i>	kelvin	<i>K</i>	second	<i>s</i>
coulomb	<i>C</i>	kilo- prefix	<i>k</i>	speed of light	<i>c</i>
electromotive force	<i>E</i>	liter	<i>L</i>	temperature, K	<i>T</i>
energy of activation	<i>E_a</i>	measure of pressure mmHg		time	<i>t</i>
enthalpy	<i>H</i>	milli- prefix	<i>m</i>	volt	<i>V</i>
entropy	<i>S</i>	molal	<i>m</i>	volume	<i>V</i>
equilibrium constant	<i>K</i>				

CONSTANTS

$$R = 8.314 \text{ J} \cdot \text{mol}^{-1} \cdot \text{K}^{-1}$$

$$R = 0.0821 \text{ L} \cdot \text{atm} \cdot \text{mol}^{-1} \cdot \text{K}^{-1}$$

$$1 F = 96,500 \text{ C} \cdot \text{mol}^{-1}$$

$$1 F = 96,500 \text{ J} \cdot \text{V}^{-1} \cdot \text{mol}^{-1}$$

$$N_A = 6.022 \times 10^{23} \text{ mol}^{-1}$$

$$h = 6.626 \times 10^{-34} \text{ J} \cdot \text{s}$$

$$c = 2.998 \times 10^8 \text{ m} \cdot \text{s}^{-1}$$

$$0^\circ \text{C} = 273.15 \text{ K}$$

PERIODIC TABLE OF THE ELEMENTS

1 1A																	18 8A
1 H 1.008	2 2A											13 3A	14 4A	15 5A	16 6A	17 7A	2 He 4.003
3 Li 6.941	4 Be 9.012											5 B 10.81	6 C 12.01	7 N 14.01	8 O 16.00	9 F 19.00	10 Ne 20.18
11 Na 22.99	12 Mg 24.31	3 3B	4 4B	5 5B	6 6B	7 7B	8 8B	9 8B	10 8B	11 1B	12 2B	13 Al 26.98	14 Si 28.09	15 P 30.97	16 S 32.07	17 Cl 35.45	18 Ar 39.95
19 K 39.10	20 Ca 40.08	21 Sc 44.96	22 Ti 47.88	23 V 50.94	24 Cr 52.00	25 Mn 54.94	26 Fe 55.85	27 Co 58.93	28 Ni 58.69	29 Cu 63.55	30 Zn 65.39	31 Ga 69.72	32 Ge 72.61	33 As 74.92	34 Se 78.96	35 Br 79.90	36 Kr 83.80
37 Rb 85.47	38 Sr 87.62	39 Y 88.91	40 Zr 91.22	41 Nb 92.91	42 Mo 95.94	43 Tc (98)	44 Ru 101.1	45 Rh 102.9	46 Pd 106.4	47 Ag 107.9	48 Cd 112.4	49 In 114.8	50 Sn 118.7	51 Sb 121.8	52 Te 127.6	53 I 126.9	54 Xe 131.3
55 Cs 132.9	56 Ba 137.3	57 La 138.9	72 Hf 178.5	73 Ta 180.9	74 W 183.8	75 Re 186.2	76 Os 190.2	77 Ir 192.2	78 Pt 195.1	79 Au 197.0	80 Hg 200.6	81 Tl 204.4	82 Pb 207.2	83 Bi 209.0	84 Po (209)	85 At (210)	86 Rn (222)
87 Fr (223)	88 Ra (226)	89 Ac (227)	104 Rf (261)	105 Db (262)	106 Sg (263)	107 Bh (262)	108 Hs (265)	109 Mt (266)	110 Ds (269)	111 Rg (272)	112 Cn (277)		114 Fl (277)		116 Lv (277)		
58 Ce 140.1	59 Pr 140.9	60 Nd 144.2	61 Pm (145)	62 Sm 150.4	63 Eu 152.0	64 Gd 157.3	65 Tb 158.9	66 Dy 162.5	67 Ho 164.9	68 Er 167.3	69 Tm 168.9	70 Yb 173.0	71 Lu 175.0				
90 Th 232.0	91 Pa 231.0	92 U 238.0	93 Np (237)	94 Pu (244)	95 Am (243)	96 Cm (247)	97 Bk (247)	98 Cf (251)	99 Es (252)	100 Fm (257)	101 Md (258)	102 No (259)	103 Lr (262)				