

Facts to Memorize for CHE 105

1 1A											13 3A	14 4A	15 5A	16 6A	17 7A	18 8A	
1 H 1.008											5 B 10.81	6 C 12.01	7 N 14.01	8 O 16.00	9 F 19.00	10 Ne 20.18	
3 Li 6.941	4 Be 9.012											13 Al 26.98	14 Si 28.09	15 P 30.97	16 S 32.07	17 Cl 35.45	18 Ar 39.95
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	31 Ga 69.72	32 Ge 75.59	33 As 74.92	34 Se 78.96	35 Br 79.90	36 Kr 83.80
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 75.59	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 183.9	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 (210)	85 At (210)	86 Rn (222)
87 Fr (223)	88 Ra (226)	89 Ac (227)	104 Rf (257)	105 Db (260)	106 Sg (263)	107 Bh (262)	108 Hs (265)	109 Mt (266)	110 Ds (281)	111 Rg (272)	112 Cn (285)	113 Uut (284)	114 Ff (289)	115 Uup (288)	116 Lv (292)	117 Uus (293)	118 Uuo (294)

Lanthanide series	58 Ce 140.1	59 Pr 140.9	60 Nd 144.2	61 Pm (147)	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
Actinide series	90 Th 232.0	91 Pa (231)	92 U 238.0	93 Np (237)	94 Pu (242)	95 Am (243)	96 Cm (247)	97 Bk (247)	98 Cf (249)	99 Es (254)	100 Fm (253)	101 Md (256)	102 No (254)	103 Lr (257)

Periodic table: Abbreviations and names of the shaded elements.

Conversions: Know the following conversions:

1 pound = 453.6 g

1 inch = 2.54 cm

1 gallon = 3.785 L

1 mile = 1.609 km

1 atm = 760 mmHg = 760 torr = 1.013×10^5 Pa

molar volume of gas = 22.4 L/mol at STP (0 °C, 1.00 atm)

Key Terms, Key Concepts, Key Equations and Relationships, and Key Skills at the end of each chapter.

Textbook tables and figures:

Table 1.2 SI Metric Prefix Multipliers (10^{-12} to 10^{12})

Table 3.5 Some Common Polyatomic Ions

Table 4.1 Solubility Rules for Ionic Compounds in Water

Table 4.2 Some Common Acids and Bases

Figure 7.5 Electromagnetic Spectrum (You do **not** need to memorize numerical values from the figure except visible is from 400-750 nm).

Figure 7.24, 7.27, 7.28, 7.29 Orbital Shapes (distinguish among s, p, d, and f)

Figure 8.5 General Energy Ordering of Orbitals for Multielectron Atoms

Figure 8.6 Outer Electron Configurations

Figure 8.8 Elements that Form Ions with Predictable Charges

Table 10.1 Electron and Molecular Geometries

Table 10.3 Hybridization Scheme from Electron Geometry

Figure 10.15 Molecular Orbital Energy Diagrams