**Chemistry Formula Sheet**

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| D = $\frac{m}{V}$% yield = $\frac{Experiment Value }{Theoretical Value}$ × 100% error = $\frac{Experiment Value-Theoretical Value}{Theoretical Value}$ × 100 | 1 mole = “molar mass” (g)1 mole = 6.02 x 1023 particles1 mole = 22.4 LD = densitym = massV = volume |
| **Atomic Structure**E = hνC = λν | E = energy ν = frequency λ = wavelengthh = Planck’s Constant = 6.626 x 10-34 J⋅sc = speed of light = 3.00 x 108 m/s |
| **Gases**K = °C + 273 $\frac{PV}{T}$ = $\frac{PV}{T}$ PV = nRTPtotal = PA + PB + PC + …n = $\frac{m}{MM}$ | n = molesP = pressureV = volumeT = temperaturem = massMM = molar massGas Constant R = 62.4 mmHg⋅L/mol⋅K 1 atm = 760 mmHg= 101.325 kPa STP = 0°C or 273K and 1 atm, 760 mmHg, 101.325 kPa  |
| **Liquids and Solutions**M = $\frac{mol solute}{L solution}$ *m* = $\frac{mol solute}{kg solvent}$ΔTb = Kb*m*i ΔTf = Kf*m*i | M = Molarity*m* = MolalityKb = Boiling Point Elevation Constant Kb(H2O) = 0.512 °C/*m*Kf = Freezing Point Depression Constant Kf (H2O) = 1.86 °C/*m*i = number of particles |
| **Thermochemistry**H = mCΔT | H = heat m = massC = specific heat capacity C H2O(l) = 4.184 J/g°CT = temperature |
| **Acid/Base**Kw = [H+][OH-] = 1.00 x 10-14 at 25°CpH + pOH = 14[H+] = 10-pH[OH-] = 10-pOH | Kw (water) |

Carbonate – CO32- Sulfate – SO42-

Chromate – CrO42- Silicate – SiO32-

Dichromate – Cr2O72- Sulfite – SO32-

Oxalate – C2O42- Thiosulfate – S2O32-

Peroxide – O22-

**Common 2- Ions**

Acetate – C2H3O2-1 Hydroxide – OH-1

Bromate – BrO3-1 Nitrate – NO3-1

Chlorate – ClO3-1 Nitrite – NO2-1

Chlorite – ClO2-1 Permanganate – MnO4-1

Cyanide – CN-1 Thiocyanate – SCN-1

Hydrogen Carbonate – HCO3-1

 (bicarbonate)

**Common 1- Ions**

**Common Positive Ions**

Ammonium – NH41+ Silver – Ag1+

Aluminum - Al3+ Zinc – Zn2+

**Common 3- Ions**

Phosphate – PO43- Phosphite – PO33-