

Common Polyatomic Ions

| -1 Charge | | -2 Charge | | -3 Charge | |
|------------------------------|--------------|------------------------------|--------------------|---------------------|-------------|
| Formula | Name | Formula | Name | Formula | Name |
| $\text{H}_2\text{PO}_4^{-1}$ | biphosphate | HPO_4^{2-} | hydrogen phosphate | PO_3^{-3} | phosphite |
| $\text{CH}_3\text{COO}^{-1}$ | acetate | SO_3^{2-} | sulfite | PO_4^{-3} | phosphate |
| HSO_3^{-1} | bisulfite | SO_4^{2-} | sulfate | AsO_4^{-3} | arsenate |
| HSO_4^{-1} | bisulfate | CO_3^{2-} | carbonate | | |
| HCO_3^{-1} | bicarbonate | CrO_4^{2-} | chromate | +1 Charge | |
| NO_2^{-1} | nitrite | $\text{Cr}_2\text{O}_7^{2-}$ | dichromate | Formula | Name |
| NO_3^{-1} | nitrate | SiO_3^{2-} | silicate | NH_4^{+1} | Ammonium |
| CN^{-1} | cyanide | $\text{C}_2\text{O}_4^{2-}$ | oxalate | | |
| OH^{-1} | hydroxide | O_2^{2-} | peroxide | | |
| MnO_4^{-1} | permanganate | | | | |
| ClO^{-1} | hypochlorite | | | | |
| ClO_2^{-1} | chlorite | | | | |
| ClO_3^{-1} | chlorate | | | | |
| ClO_4^{-1} | perchlorate | | | | |
| SCN^{-1} | thiocyanate | | | | |
| BrO_3^{-1} | bromate | | | | |
| IO_3^{-} | iodate | | | | |
| IO_4^{-} | periodate | | | | |

Equations

$$Q = mC\Delta T$$

$$Q = m\Delta H$$

$$P_1V_1 = P_2V_2$$

$$\frac{V_1}{T_1} = \frac{V_2}{T_2} \quad \frac{P_1}{T_1} = \frac{P_2}{T_2} \quad \frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$$

$$PV = nRT$$

$$M = \frac{\text{mol}}{L}$$

$$M_1V_1 = M_2V_2$$

$$\text{pH} = -\log[\text{H}^+]$$

$$[\text{H}^+] = 10^{-\text{pH}}$$

Knowns and Constants

| Water | |
|-------------------------|------------|
| C_{solid} | 2.09 J/g°C |
| C_{liquid} | 4.18 J/g°C |
| C_{gas} | 1.84 J/g°C |
| ΔH_{fus} | 334 J/g |
| ΔH_{vap} | 2257 J/g |

Ideal gas constant: $R = 0.0821 \text{ L}\cdot\text{atm}/\text{K}\cdot\text{mol}$