

$$\begin{array}{r}
 \text{Na} \quad 23.0\text{g} \times 1 = 23.0\text{g} \\
 \text{H} \quad 1.0\text{g} \times 1 = 1.0\text{g} \\
 \text{C} \quad 12.0\text{g} \times 1 = 12.0\text{g} \\
 \text{O} \quad 16.0\text{g} \times 3 = 48.0\text{g} \\
 \hline
 84.0\text{g NaHCO}_3
 \end{array}$$

$$\frac{23.0\text{g Na}}{84.0\text{g NaHCO}_3} \times 100\% = \boxed{27.4\% \text{ Na}}$$

$$\frac{1.0\text{g H}}{84.0\text{g NaHCO}_3} \times 100\% = \boxed{1.2\% \text{ H}}$$

$$\frac{12.0\text{g C}}{84.0\text{g NaHCO}_3} \times 100\% = \boxed{14.3\% \text{ C}}$$

$$\frac{48.0\text{g O}}{84.0\text{g NaHCO}_3} \times 100\% = \boxed{57.1\% \text{ O}}$$

2) A) $\text{Ca}(\text{NO}_3)_2$

$$\begin{array}{l}
 1 \text{ mole} = 164.1\text{g Ca}(\text{NO}_3)_2 \\
 \frac{28.0\text{g N}}{164.1\text{g Ca}(\text{NO}_3)_2} \times 100\% = 17.1\% \text{ N}
 \end{array}$$

B) AgNO_3
1 mole = 169.9g AgNO_3

$$\frac{14.0\text{g N}}{169.9\text{g AgNO}_3} \times 100\% = 8.24\% \text{ N}$$

C) $(\text{NH}_4)_2\text{SO}_4$

$$1 \text{ mole} = 132.1\text{g } (\text{NH}_4)_2\text{SO}_4$$

$$\frac{28.0\text{g N}}{132.1\text{g } (\text{NH}_4)_2\text{SO}_4} \times 100\% = \boxed{21.2\% \text{ N}}$$

3) ? % CaO in CaCO_3
1 mole $\text{CaCO}_3 = 100.1\text{g CaCO}_3$

$$\frac{56.1\text{g CaO}}{100.1\text{g CaCO}_3} \times 100\% = 56.0\% \text{ CaO}$$

4) ?% composition of $C_{11}H_{12}N_2O_5Cl_2$

$$C \quad 12.0g \times 11 = 132.0g \quad C$$

$$H \quad 1.0g \times 12 = 12.0g \quad H$$

$$N \quad 14.0g \times 2 = 28.0g \quad N$$

$$O \quad 16.0g \times 5 = 80.0g \quad O$$

$$Cl \quad 35.5g \times 2 = 71.0g \quad Cl$$

$$\underline{323.0g \quad C_{11}H_{12}N_2O_5Cl_2}$$

$$\frac{132.0g \quad C}{323.0g \quad C_{11}H_{12}N_2O_5Cl_2} \times 100\% = \boxed{40.87\% \quad C}$$

$$\frac{12.0g \quad H}{323.0g \quad C_{11}H_{12}N_2O_5Cl_2} \times 100\% = \boxed{3.72\% \quad H}$$

$$\frac{28.0g \quad N}{323.0g \quad C_{11}H_{12}N_2O_5Cl_2} \times 100\% = \boxed{8.67\% \quad N}$$

$$\frac{80.0g \quad O}{323.0g \quad C_{11}H_{12}N_2O_5Cl_2} \times 100\% = \boxed{24.8\% \quad O}$$

$$\frac{71.0g \quad Cl}{323.0g \quad C_{11}H_{12}N_2O_5Cl_2} \times 100\% = \boxed{22.0\% \quad Cl}$$

5) ?% H_2O in $CuSO_4 \cdot 5H_2O$

$$Cu \quad 63.5g \times 1 = 63.5g \quad Cu$$

$$S \quad 32.1g \times 1 = 32.1g \quad S$$

$$O \quad 16.0g \times 4 = 64.0g \quad O$$

$$H \quad 1.0g \times 10 = 10.0g \quad H$$

$$O \quad 16.0g \times 5 = 80.0g \quad O$$

$$\underline{249.6g \quad CuSO_4 \cdot 5H_2O}$$

$$\frac{90.0g \quad H_2O}{249.6g \quad CuSO_4 \cdot 5H_2O} \times 100\% = \boxed{36.1\% \quad H_2O}$$

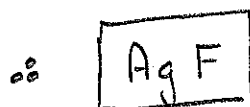
6) ? Empirical formula Silver Fluoride

$$\left(\frac{85.0g \quad Ag}{1} \right) \left(\frac{1 \text{ mole } Ag}{107.9g \quad Ag} \right) = .787 \text{ mole } Ag$$

$$\frac{.787}{.787} = 1 \quad Ag$$

$$\left(\frac{15.0g \quad F}{1} \right) \left(\frac{1 \text{ mole } F}{19.0g \quad F} \right) = .789 \text{ mole } F$$

$$\frac{.789}{.787} = 1 \quad F$$

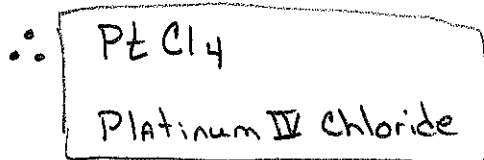


7) ? Empirical formula's for Platinum Chloride Chem Ch 10 WKst 70K

A) 42.1% Cl

$$\left(\frac{42.1\text{g Cl}}{1}\right)\left(\frac{1\text{mole Cl}}{35.5\text{g Cl}}\right) = 1.19\text{ mole Cl} \quad \frac{1.19}{.297} = 4.01\text{ Cl}$$

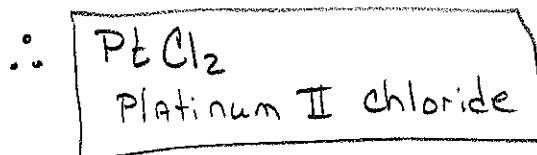
$$\left(\frac{57.9\text{g Pt}}{1}\right)\left(\frac{1\text{mole Pt}}{195.1\text{g Pt}}\right) = .297\text{ mole Pt} \quad \frac{.297}{.297} = 1.00\text{ Pt}$$



B) 26.7% Cl

$$\left(\frac{26.7\text{g Cl}}{1}\right)\left(\frac{1\text{mole Cl}}{35.5\text{g Cl}}\right) = .752\text{ mole Cl} \quad \frac{.752}{.376} = 2.00\text{ Cl}$$

$$\left(\frac{73.3\text{g Pt}}{1}\right)\left(\frac{1\text{mole Pt}}{195.1\text{g Pt}}\right) = .376\text{ mole Pt} \quad \frac{.376}{.376} = 1.00\text{ Pt}$$

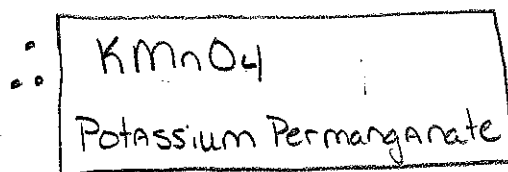


8) ? empirical formula + name

$$\left(\frac{24.58\text{g K}}{1}\right)\left(\frac{1\text{mole K}}{39.1\text{g K}}\right) = .629\text{ mole K} \quad \frac{.629}{.629} = 1.00\text{ K}$$

$$\left(\frac{34.81\text{g Mn}}{1}\right)\left(\frac{1\text{mole Mn}}{54.9\text{g Mn}}\right) = .634\text{ mole Mn} \quad \frac{.634}{.629} = 1.01\text{ Mn}$$

$$\left(\frac{40.52\text{g O}}{1}\right)\left(\frac{1\text{mole O}}{16.0\text{g O}}\right) = 2.53\text{ mole O} \quad \frac{2.53}{.629} = 4.02\text{ O}$$

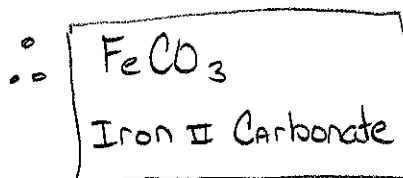


9) ? Empirical formula + Name

$$\left(\frac{48.2\text{g Fe}}{1}\right)\left(\frac{1\text{mole Fe}}{55.8\text{g Fe}}\right) = 0.864\text{ mole Fe} \quad \frac{0.864}{0.864} = 1.00\text{ Fe}$$

$$\left(\frac{10.4\text{g C}}{1}\right)\left(\frac{1\text{mole C}}{12.0\text{g C}}\right) = 0.867\text{ mole C} \quad \frac{0.867}{0.864} = 1.00\text{ C}$$

$$\left(\frac{41.4\text{g O}}{1}\right)\left(\frac{1\text{mole O}}{16.0\text{g O}}\right) = 2.59\text{ mole O} \quad \frac{2.59}{0.864} = 3.00\text{ O}$$



10) ? Empirical formula + NAME

$$\left(\frac{15.8\text{g Al}}{1}\right)\left(\frac{1\text{mole Al}}{27.0\text{g Al}}\right) = 0.585\text{ mole Al} \quad \frac{0.585}{0.585} = 1.00\text{ Al}$$

$$\left(\frac{28.1\text{g S}}{1}\right)\left(\frac{1\text{mole S}}{32.1\text{g S}}\right) = 0.875\text{ mole S} \quad \frac{0.875}{0.585} = 1.50\text{ S}$$

$$\left(\frac{56.1\text{g O}}{1}\right)\left(\frac{1\text{mole O}}{16.0\text{g O}}\right) = 3.51\text{ mole O} \quad \frac{3.51}{0.585} = 6.00\text{ O}$$

