

Percent Composition

↳ $\frac{\text{Part}}{\text{Whole}}$

↳ chemical formula

→ How much of a compound is made up of each element in the compound by weight.

$$\frac{\text{mass of element}}{\text{mass of compound}}$$

Find the percent composition of each element in 1 mole of H_2O .

$$\text{FM} = 18.015 \text{g H}_2\text{O} \quad \frac{1.008 \times 2}{+15.999}$$

$$18.015 \text{g H}_2\text{O}$$

$$\text{H} \quad \frac{2.016}{18.015} = 11.19\%$$

$$\text{O} \quad \frac{15.999}{18.015} = 88.81\%$$

Calcium phosphate

Find the % comp of element in 1 mole of $\text{Ca}_3(\text{PO}_4)_2$.

$$\text{FM} = \begin{array}{r} 40.078 \times 3 \\ 30.974 \times 2 \\ + 15.999 \times 8 \\ \hline 310.174 \text{g Ca}_3(\text{PO}_4)_2 \end{array}$$

% comp

$$\text{Ca} \quad \frac{120.234 \text{g Ca}}{310.174 \text{g Ca}_3(\text{PO}_4)_2} \times 100 = 38.76\% \text{ Ca}$$

$$\text{P} \quad \frac{61.948 \text{g P}}{310.174 \text{g Ca}_3(\text{PO}_4)_2} = 19.97\% \text{ P}$$

$$\text{O} \quad \frac{127.992 \text{g O}}{310.174 \text{g Ca}_3(\text{PO}_4)_2} = 41.26\% \text{ O}$$

Given a sample (82g) of ^{NaCl} Sodium Chloride, how much is sodium and how much is chlorine?

$$\begin{array}{r} 22.990 \\ + 35.45 \\ \hline 58.44 \text{g NaCl} \end{array}$$

$$\text{Na } \frac{22.99}{58.44} \times 100 = 39.34\% \text{ Na}$$

$$\text{Cl } \frac{35.45}{58.44} \times 100 = 60.66\% \text{ Cl}$$

$$82\text{g NaCl} \times .3934 \text{ Na} = \boxed{32.26\text{g Na}}$$

$$82\text{g NaCl} \times .6066 \text{ Cl} = \boxed{49.74\text{g Cl}}$$

Given a 103g sample of Krypton dihydrogen trisulfide
how much is sulfur and hydrogen?

$$\text{FM} = 181.99 \quad \text{H } 1.10 \quad \approx 1.14\text{g H}$$