

Percent Composition

the percentage by mass of each
element in a compound



Example: Determine the percent composition of magnesium chloride.

Step 1: Determine the compound's formula.



Step 2: Determine the molar mass.

$$\text{Mg} = 24.3 \text{ g/mol}$$

$$\underline{+ \text{Cl} = 35.5 \text{ g/mol} \times 2 = 71.0 \text{ g/mol}}$$

$$\text{MgCl}_2 = 95.3 \text{ g/mol}$$

Step 3: Determine the percent composition.

$$\text{part/whole} \quad \times \quad 100$$

$$\text{Mg: } \frac{24.3}{95.3} \times 100 = 25.5 \%$$

$$\text{Cl: } \frac{71.0}{95.3} \times 100 = 74.5 \%$$



Percent Composition Practice

Determine the percent composition of these:

1. NaCl
2. H₂O
3. (NH₄)₂SO₄
4. C₆H₁₂O₆
5. HC₂H₃O₂ (acetic acid)

Answers!

1. 39.3% Na and 60.7% Cl
2. 88.9% O and 11.1% H
3. 21.2% N, 6.1% H, 24.3% S, and 48.4% O
4. 40.0% C, 6.7% H, and 53.3% O
5. 6.7% H, 40.0% C, and 53.3% O