

Calculate the % composition for $\text{Mg}(\text{OH})_2$.

$$24.3 \text{ g} + 2(16.0 \text{ g}) + 2(1.0 \text{ g}) = 58.3 \text{ g}$$

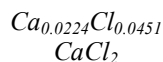
$$\frac{24.3 \text{ g Mg}}{58.3 \text{ g Mg}(\text{OH})_2} \times 100\% = 41.7\% \text{ Mg} \quad \frac{32.0 \text{ g O}}{58.3 \text{ g Mg}(\text{OH})_2} \times 100\% = 54.9\% \text{ O}$$

$$\frac{2.0 \text{ g H}}{58.3 \text{ g Mg}(\text{OH})_2} \times 100\% = 3.4\% \text{ H}$$

What is the empirical formula for a compound if a 2.50 g sample contains 0.900 g of calcium and 1.60 g of chlorine?

$$? \text{ mol Ca} = 0.900 \text{ g Ca} \times \frac{1 \text{ mol Ca}}{40.1 \text{ g Ca}} = 0.0224 \text{ mol Ca}$$

$$? \text{ mol Cl} = 1.60 \text{ g Cl} \times \frac{1 \text{ mol Cl}}{35.5 \text{ g Cl}} = 0.0451 \text{ mol Cl}$$



Calculate the % composition for potassium sulfate.



$$2(39.1 \text{ g}) + 32.1 \text{ g} + 4(16.0 \text{ g}) = 174.3 \text{ g}$$

$$\frac{78.2 \text{ g K}}{174.3 \text{ g K}_2\text{SO}_4} \times 100\% = 44.9\% \text{ K} \quad \frac{32.1 \text{ g S}}{174.3 \text{ g K}_2\text{SO}_4} \times 100\% = 18.4\% \text{ S}$$

$$\frac{64.0 \text{ g O}}{174.3 \text{ g K}_2\text{SO}_4} \times 100\% = 36.7\% \text{ O}$$

A compound is 85.7 % carbon and 14.3 % hydrogen. Calculate the empirical formula.

$$? \text{ mol C} = 85.7 \text{ g C} \times \frac{1 \text{ mol C}}{12.0 \text{ g C}} = 7.14 \text{ mol C} \quad ? \text{ mol H} = 14.3 \text{ g H} \times \frac{1 \text{ mol H}}{1.0 \text{ g H}} = 14.3 \text{ mol H}$$

