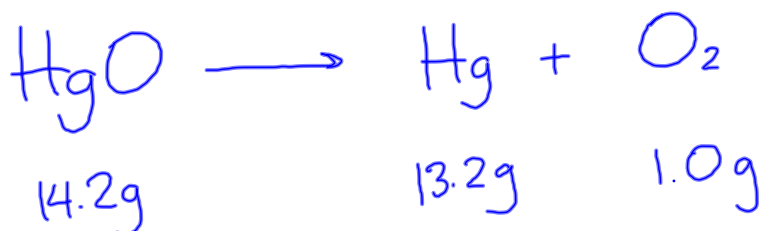


Homework

p. 306 #32, 33

p. 307 #34, 35



$$\% \text{Hg} = \frac{\text{mass Hg}}{\text{mass HgO}} \times 100\%$$

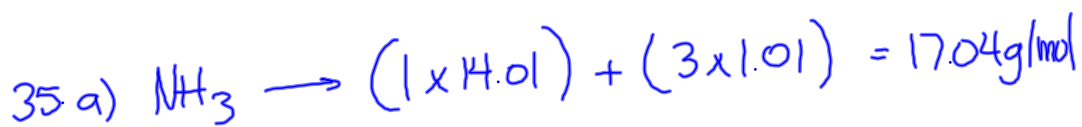
$$\% \text{O} = \frac{\text{mass O}}{\text{mass HgO}} \times 100\%$$

$$\% \text{Hg} = \frac{13.2\text{g}}{14.2\text{g}} \times 100\%$$

$$\% \text{O} = \frac{1.0\text{g}}{14.2\text{g}} \times 100\%$$

$$\% \text{Hg} = 93.0\%$$

$$\% \text{O} = 7.0\%$$



$$\% \text{N} = \frac{14.01 \text{ g/mol}}{17.04 \text{ g/mol}} \times 100\%$$

$$\% \text{N} = 82.2\%$$

Empirical Formulas

The empirical formula of a compound is the smallest whole-number ratio of the atoms in a compound.

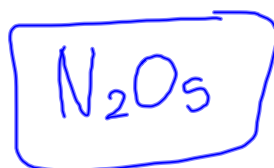
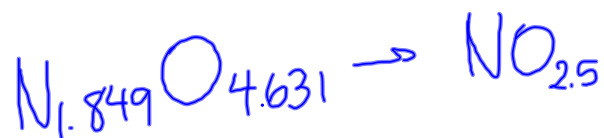


Determining the Empirical Formula of a Compound

Ex. A compound is analyzed and found to contain 25.9% nitrogen and 74.1% oxygen. What is the empirical formula of the compound?

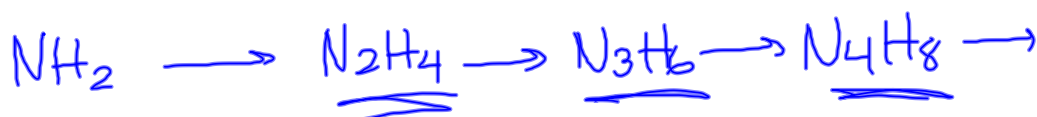
$$25.9 \text{ g N} \times \frac{1 \text{ mol N}}{14.01 \text{ g N}} = \frac{1.849 \text{ mol N}}{1.849 \text{ mol}} = 1$$

$$74.1 \text{ g O} \times \frac{1 \text{ mol O}}{16.00 \text{ g O}} = \frac{4.631 \text{ mol O}}{1.849 \text{ mol}} = 2.5$$



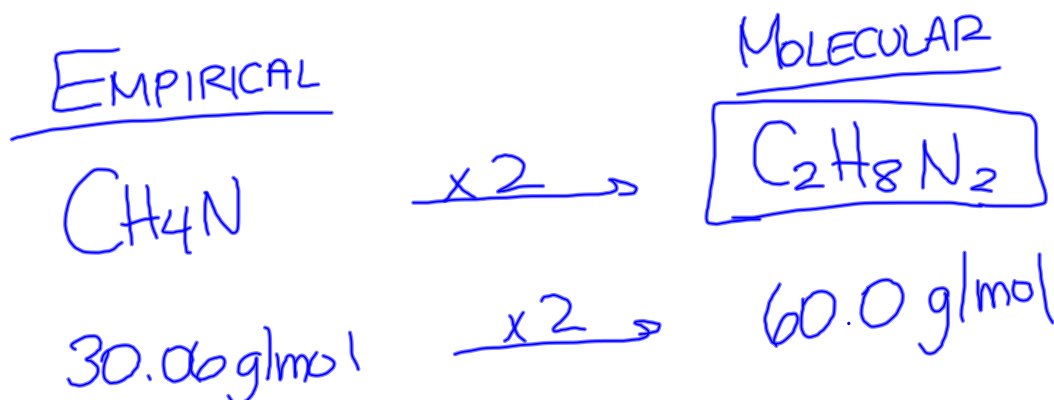
Molecular Formulas

The molecular is the same as the empirical formula of a compound or is a simple whole-number multiple of the empirical formula.



Determining the Molecular Formula of a Compound

Ex. Calculate the molecular formula of a compound whose molar mass is 60.0 g/mol and empirical formula is CH_4N .



$$\begin{aligned}\text{CH}_4\text{N} &\rightarrow (1 \times 12.01) + (4 \times 1.01) + (1 \times 14.01) \\ &= 30.06 \text{ g/mol}\end{aligned}$$

$$\frac{60.0 \text{ g/mol}}{30.06 \text{ g/mol}} = 2$$

Homework

p. 310 #36, 37

p. 312 #38-46