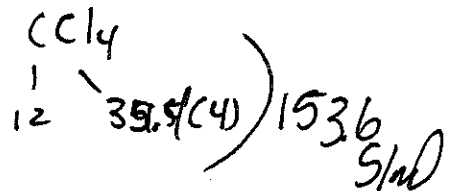


Student Practice A
Chemical Conversions

Calculate the molar mass of the following substances.

1. a. AgNO_3 $\frac{107.14}{16(3)} = 169 \text{ g/mol}$ b. Carbon tetrachloride



Convert the following with factor label and correct significant figures.

2. Convert 25.0 g of silver nitrate to moles.

$$25.0 \text{ g} \left| \frac{1 \text{ mol}}{169 \text{ g}} \right. = 0.148 \text{ mol}$$

3. Convert your answer from #2 to formula units.

$$0.148 \text{ mol} \left| \frac{6.022 \times 10^{23} \text{ formula units}}{1 \text{ mol}} \right. = 8.91 \times 10^{22} \text{ formula units}$$

4. A student weighs out 0.250 moles of carbon tetrachloride

- a. How much mass is required?

$$0.250 \text{ mole} \left| \frac{153.6 \text{ g}}{1 \text{ mole}} \right. = 38.4 \text{ g}$$

- b. How many actual molecules are present?

$$0.250 \text{ mol} \left| \frac{6.022 \times 10^{23} \text{ molecules}}{1 \text{ mol}} \right. = 1.51 \times 10^{23} \text{ molecules}$$

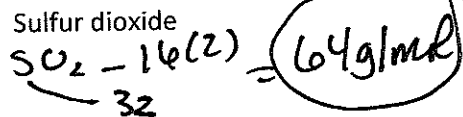
5. Convert 25.00 mm to cm. Make sure use factor label and follow significant figures.

$$25.00 \text{ mm} \left| \frac{1 \text{ cm}}{10 \text{ mm}} \right. = 2.500 \text{ cm}$$

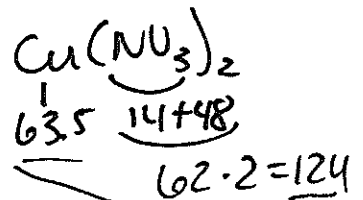
Student Practice B
Chemical Conversions

1. Calculate the molar mass of the following substances.

- a. Sulfur dioxide



- b. Copper (II) nitrate



2. Convert the following with factor label and correct significant figures.

- a. Convert 5.50 moles of sulfur dioxide to grams.

$$5.50 \text{ mol} \left| \frac{64 \text{ g}}{1 \text{ mol}} \right. = 352 \text{ g}$$

187.5 g/mol

- b. Convert 3.30×10^{23} formula units of copper (II) nitrate to moles.

$$3.30 \times 10^{23} \left| \frac{1 \text{ mol}}{6.022 \times 10^{23} \text{ formula units}} \right. = 0.548 \text{ moles}$$

- c. Convert letter "b" to grams.

$$0.548 \text{ moles} \left| \frac{187.5 \text{ g}}{1 \text{ mol}} \right. = 103 \text{ g}$$

3. Convert 1.5 miles to feet using factor label and correct sigfigs.

$$1.5 \text{ miles} \left| \frac{5280 \text{ feet}}{1 \text{ mile}} \right. = 7920 \rightarrow 7900 \text{ ft}$$

Student Practice C
Chemical Conversions

1. Calculate the molar mass of the following substances.

a. H_2O_2 (hydrogen peroxide)

$$\frac{1}{2} \cdot 32 = 34 \text{ g/mol}$$

b. Sulfur Hexafluoride

$$SF_6 \quad 19.6 = 114 \quad 146$$

2. Convert the following with factor label and correct significant figures.

a. Convert 150g of H_2O_2 to moles

$$150 \text{ g} \left| \frac{1 \text{ mol}}{34 \text{ g}} \right. = 4.4 \text{ moles}$$

b. Convert letter "a" to molecules.

$$4.4 \text{ mol} \left| \frac{6.022 \times 10^{23} \text{ molecules}}{1 \text{ mol}} \right. = 2.7 \times 10^{24}$$

c. 3.5 moles of hydrogen peroxide is needed. How many molecules is this?

$$3.5 \text{ moles} \left| \frac{6.022 \times 10^{23}}{1 \text{ mol}} \right. = 2.1 \times 10^{24} \text{ molecules}$$

d. How much mass does letter "c" represent?

$$3.5 \text{ moles} \left| \frac{34 \text{ g}}{1 \text{ mol}} \right. = 119 \text{ g} = 110 \text{ g}$$

3. Convert 250.02 kg to pounds (2.2 lbs = 1 kg) Use factor label and maintain sigfigs.

$$250.02 \text{ kg} \left| \frac{2.2 \text{ lbs}}{1 \text{ kg}} \right. = 550.04 \text{ lbs}$$

Preliminary Quiz
Chemical Conversions

1. Calculate the molar mass of the following substances.

a. Argon 39.95 g/mol

b. ammonium sulfate

2. Convert the following with factor label and correct significant figures.

a. Your reaction needs 100g of argon. Convert to moles.

$$100 \text{ g} \left| \frac{1 \text{ mol}}{40 \text{ g}} \right. = 2.5 \text{ mol}$$

b. Convert letter "a" to atoms.

$$2.5 \text{ mol} \left| \frac{6.022 \times 10^{23}}{1 \text{ mol}} \right. = 1.5 \times 10^{24}$$

c. 3.5×10^{22} formula units of ammonium sulfate, convert to grams.

$$3.5 \times 10^{22} \text{ formula units} \left| \frac{1 \text{ mol}}{6.022 \times 10^{23} \text{ units}} \right| \left| \frac{132 \text{ g}}{1 \text{ mol}} \right. = 7.7 \text{ g}$$

3. Convert 50.0L of Argon gas to moles at STP. (22.4L = 1 mole of gas at STP).

$$50.0 \text{ L} \left| \frac{1 \text{ mol}}{22.4 \text{ L}} \right. = 2.23 \text{ mol}$$

$$\begin{array}{r} (NH_4)_2SO_4 \\ \begin{array}{l} 14 \quad 4 \\ 2 \end{array} \quad \begin{array}{l} 32 \\ 16 \cdot 4 \end{array} \\ \hline 132 \text{ g/mol} \end{array}$$