

$$\% \text{ yield} = \frac{\text{actual yield}}{\text{Theoretical yield}} \times 100$$

- 5) Calculate the percent yields in each of the following cases:
- Theoretical yield 50.0 g of product; actual yield 41.9 g
 - Theoretical yield is 290 kg of product; actual yield is 270 kg
 - Theoretical yield is 64 kg of product; actual yield is 324 g

a.) $\frac{41.9 \text{ g}}{50.0 \text{ g}} \times 100 = \boxed{83.8\%}$

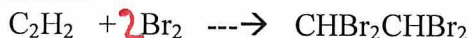
c.) $\frac{324 \text{ g}}{64000 \text{ g}} = \boxed{0.5\%}$

b.) $\frac{270 \text{ kg}}{290 \text{ kg}} \times 100 = \boxed{93.1\%}$

- 6) $\text{HgO} + 2\text{Cl}_2 \rightarrow \text{HgCl}_2 + \text{Cl}_2\text{O}$
 What is the percent yield, if the quantity of reactants is sufficient to produce 0.86 g of Cl_2O but only 0.71 g is obtained?

$$\frac{0.71 \text{ g}}{0.86 \text{ g}} \times 100 = \boxed{82.5\%}$$

- 7) Using the following reaction:



If 72.0 g of C_2H_2 reacts with 23.5 grams of excess bromine and 729 g of the product is recovered, what is the percent yield of the reaction?

mass \rightarrow mass

$$\frac{729 \text{ g}}{957.0 \text{ g}} = \boxed{76.1\%}$$

72.0 g C_2H_2 | 1 mol C_2H_2 | 2 mol C_2HBr_4 | 345.6 g Prod
 26 g C_2H_2 | 1 mol C_2H_2 | 1 mol Prod = $\boxed{957.0 \text{ g Prod}}$

- 8) Using the following equation: $2\text{As}_2\text{O}_3 + 3\text{C} \rightarrow 3\text{CO}_2 + 4\text{As}$

If 8.87 g of As_2O_3 is used in the reaction and 5.33 g of As is produced, what is the percent yield?

$$\frac{5.33 \text{ g}}{6.21 \text{ g}} = \boxed{85.8\%}$$

8.87 g As_2O_3 | 1 mol As_2O_3 | 2 mol As | 74.9 g As
 197 | 8.87 g As_2O_3 | 1 mol As_2O_3 | 1 mol As = $\boxed{6.21 \text{ g As}}$

- 9) Using the following reaction: $\text{CS}_2 + 3\text{Cl}_2 \rightarrow \text{CCl}_4 + \text{S}_2\text{Cl}_2$

If 4.3 moles of CS_2 were to react with 5.6 moles Cl_2 , what is the limiting reactant?

The above reaction produced 211 g CCl_4 , what is the percent yield?

1) 4.3 mol CS_2 | 3 mol Cl_2 | 1 mol CS_2 = $\boxed{12.9 \text{ mol Cl}_2}$
 2) 5.6 mol Cl_2 | 1 mol CCl_4 | 3 mol Cl_2 | 2 mol CCl_4 = $\boxed{286.72 \text{ g CCl}_4}$
 5.6 mol Cl_2 | 1 mol CS_2 | 3 mol Cl_2 = $\boxed{1.86 \text{ mol CS}_2}$