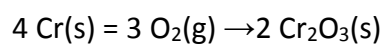


NAME \_\_\_\_\_

CHEM1301 Stoichiometry Homework #11

Show your work!

1. For the reaction shown, find the limiting reactant for each of the initial quantities of reactants.

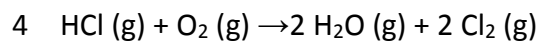


a) 1 mol Cr; 1 mol O<sub>2</sub>

b) 4 mol Cr; 5 mol O<sub>2</sub>

c) 12.4 mol Cr; 10.3 mol O<sub>2</sub>

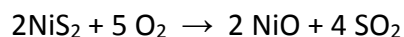
2. Consider the reaction below.



a) If 5.76 g HCl and 4.32g O<sub>2</sub> react, what is the theoretical yield of Cl<sub>2</sub> and which is the limiting reactant?

b) You run the experiment with the masses given in part a). If the percent yield for Cl<sub>2</sub> is 55.4% for the reaction above, how much Cl<sub>2</sub> would you expect to recover in the lab?

3. Consider the reaction below:



When 11.2 g of  $\text{NiS}_2$  react with 5.43 g of  $\text{O}_2$ , 4.86 g of  $\text{NiO}$  are recovered. Determine the limiting reactant, the theoretical yield, and the percent yield for the reaction.

4. Sodium peroxide ( $\text{Na}_2\text{O}_2$ ) reacts with water to form sodium hydroxide and oxygen gas. Write the balanced equation for the reaction. Determine how much oxygen in grams is formed when 32.09 g  $\text{Na}_2\text{O}_2$  are reacted completely.