

Section 9.3 Complete the following assignment in your class notebook with the heading: Limiting Reactants

1.) Given the balanced chemical equation

a. Copy this balanced chemical equation: $\text{CH}_4 + 2\text{O}_2 \rightarrow 2\text{H}_2\text{O} + \text{CO}_2$

b. How many grams of water can be produced when 50.0 grams of methane is mixed with 50.0 grams of oxygen?

c. Which is the limiting reactant?

d. Which reactant is in excess and by how much?

2.) A single replacement reaction occurs between silver iodide and bromine.

a. Write a balanced chemical equation for this reaction (phases not needed).

b. How many grams of silver bromide will be formed when 50.0 grams of silver iodide reacts with 50.0 grams of liquid bromine?

c. Which is the limiting reactant?

d. Which reactant is in excess and by how much?

3.) Iron(III) oxide and hydrogen gas are formed from the reaction between iron and water.

a. Write a balanced chemical equation for this reaction (phases not needed).

b. How many grams of iron (III) oxide can be produced by reacting 16.8 grams of iron with 10.0 grams of water?

c. Which is the limiting reactant?

d. Which reactant is in excess and by how much?

4.) Methanol (CH_3OH) can be synthesized by reacting carbon monoxide with hydrogen gas.

a. Write a balanced chemical equation for this reaction (phases not needed).

b. How many grams of methanol will be produced by reacting 40.0 grams of CO with 10.0 grams of H_2 ?

c. Which is the limiting reactant?

d. Which reactant is in excess and by how much?