**Limiting Reagents Practice Problems**

1. Heating zinc sulfide in the presence of oxygen yields the following: \_\_\_\_\_**ZnS + \_\_\_\_O2 🡪 \_\_\_ ZnO + \_\_\_\_SO2**

If 1.72 mol of ZnS is heated in the presence of 3.04 mol of O2, which reactant will be used up? (Balance the equation first.)

1. Use the folowing equation for the oxidation of aluminum in the following problems. **4Al + 3O2  🡪 2Al2O3**

If 3.17g of Al and 2.55g of O2 are available, which reactant is limiting?

1. In the production of copper from ore containing copper(II) sulfide, the ore is first roasted to change it to the oxide according to the following equation:  **2CuS + 3O2 🡪 2CuO + 2SO2**

What mass of CuO can be formed from the reaction of 18.7g of CuS and 12.0g of O2? Identify the limiting reagent and the excess reagent.

1. In the reaction **BaCO3 + 2HNO3 🡪 Ba(NO3)2 + CO2 + H2O**, what mass of barium nitrate can be formed by combining 55g BaCO3 and 26g HNO3?
2. Bromine replaces iodine in magnesium iodine by the following process:

**MgI2 + Br2 MgBr2 + I2**

Which is the excess reactant when 500g of MgI2 and 369g of Br2 react, and what mass of the excess reagent remains?

1. Nickel replaces silver from silver nitrate in solution according to the following equation:

**2AgNO3 + Ni 2Ag + Ni (NO3)2**

If you have 22.9g of Ni and 112g of AgNO3 available, what mass of nickel (II) nitrate can be produced? Identify the limiting reagent and the excess reagent in this problem.