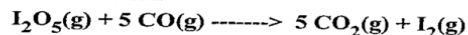


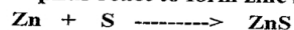
Limiting Reagents and Percentage Yield Worksheet

1. Consider the reaction



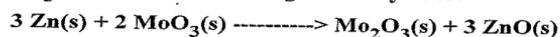
- 80.0 grams of iodine(V) oxide, I_2O_5 , reacts with 28.0 grams of carbon monoxide, CO. Determine the mass of iodine I_2 , which could be produced?
- If, in the above situation, only 0.160 moles, of iodine, I_2 was produced.
 - what mass of iodine was produced?
 - what percentage yield of iodine was produced.

2. Zinc and sulphur react to form zinc sulphide according to the equation.

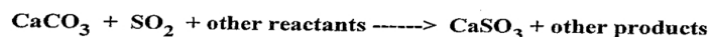


If 25.0 g of zinc and 30.0 g of sulphur are mixed,

- Which chemical is the limiting reactant?
 - How many grams of ZnS will be formed?
 - How many grams of the excess reactant will remain after the reaction is over?
- Which element is in excess when 3.00 grams of Mg is ignited in 2.20 grams of pure oxygen? What mass is in excess? What mass of MgO is formed?
 - How many grams of Al_2S_3 are formed when 5.00 grams of Al is heated with 10.0 grams S?
 - When MoO_3 and Zn are heated together they react

What mass of ZnO is formed when 20.0 grams of MoO_3 is reacted with 10.0 grams of Zn?

- Silver nitrate, AgNO_3 , reacts with ferric chloride, FeCl_3 , to give silver chloride, AgCl, and ferric nitrate, $\text{Fe}(\text{NO}_3)_3$. In a particular experiment, it was planned to mix a solution containing 25.0 g of AgNO_3 with another solution containing 45.0 grams of FeCl_3 .
 - Write the chemical equation for the reaction.
 - Which reactant is the limiting reactant?
 - What is the maximum number of moles of AgCl that could be obtained from this mixture?
 - What is the maximum number of grams of AgCl that could be obtained?
 - How many grams of the reactant in excess will remain after the reaction is over?
- Solid calcium carbonate, CaCO_3 , is able to remove sulphur dioxide from waste gases by the reaction:

In a particular experiment, 255 g of CaCO_3 was exposed to 135 g of SO_2 in the presence of an excess amount of the other chemicals required for the reaction.

- What is the theoretical yield of CaSO_3 ?
 - If only 198 g of CaSO_3 was isolated from the products, what was the percentage yield of CaSO_3 in this experiment?
- A research supervisor told a chemist to make 100 g of chlorobenzene from the reaction of benzene with chlorine and to expect a yield no higher than 65%. What is the minimum quantity of benzene that can give 100 g of chlorobenzene if the yield is 65%? The equation for the reaction is:

