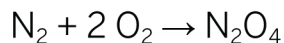


MASS MOLE

STOICHIOMETRY WORKSHEET

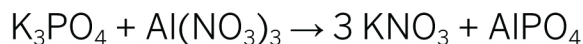
1. Consider the following reaction:



a. If 15 g of N_2O_4 was produced, how many moles of O_2 were required?

b. If 4×10^{-3} moles of oxygen reacted, how many grams of N_2 were needed?

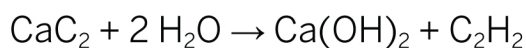
2. Consider the following reaction:



a. What is the mass of potassium nitrate produced when 2.04 moles of potassium phosphate react?

b. If 5.8 g of aluminum phosphate are formed, how many moles of aluminum nitrate reacted?

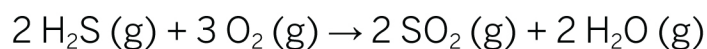
3. Consider the following reaction:



a. If you have 5.5 mol of CaC_2 , how much C_2H_2 do you get?

b. How many moles of water are needed when 65 g of CaC_2 have reacted?

4. Hydrogen sulfide gas burns in oxygen to produce sulfur dioxide and water vapor:



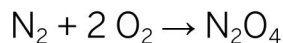
What mass of oxygen gas is consumed in a reaction that produces 4.6 mol SO_2 ?

MASS MOLE

STOICHIOMETRY WORKSHEET

Answers

1. Consider the following reaction:



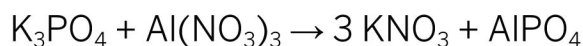
a. If 15 g of N_2O_4 was produced, how many moles of O_2 were required?

$$15 \text{ g N}_2\text{O}_4 \times (1 \text{ mol N}_2\text{O}_4/92 \text{ g N}_2\text{O}_4) \times (2 \text{ mol O}_2/1 \text{ mol N}_2\text{O}_4) = 0.326 \text{ mol O}_2$$

b. If 4×10^{-3} moles of oxygen reacted, how many grams of N_2 were needed?

$$4 \times 10^{-3} \text{ mol O}_2 \times (1 \text{ mol N}_2/2 \text{ mol O}_2) \times (28 \text{ g N}_2/1 \text{ mol N}_2) = 0.056 \text{ g N}_2$$

2. Consider the following reaction:



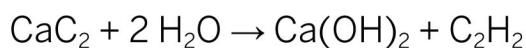
a. What is the mass of potassium nitrate produced when 2.04 moles of potassium phosphate react?

$$2.04 \text{ mol K}_3\text{PO}_4 \times (3 \text{ KNO}_3 \text{ mol}/1 \text{ mol K}_3\text{PO}_4) \times (101.1 \text{ g KNO}_3/1 \text{ mol KNO}_3) = 619 \text{ g KNO}_3$$

b. If 5.8 g of aluminum phosphate are formed, how many moles of aluminum nitrate reacted?

$$5.8 \text{ g AlPO}_4 \times (1 \text{ mol AlPO}_4/122 \text{ g AlPO}_4) \times (1 \text{ mol Al}(\text{NO}_3)_3/1 \text{ mol AlPO}_4) = 0.0475 \text{ mol Al}(\text{NO}_3)_3$$

3. Consider the following reaction:



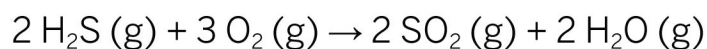
a. If you have 5.5 mol of CaC_2 , how much C_2H_2 do you get?

$$5.5 \text{ mol CaC}_2 \times (1 \text{ mol C}_2\text{H}_2/1 \text{ mol CaC}_2) \times (26 \text{ g C}_2\text{H}_2/1 \text{ mol C}_2\text{H}_2) = 143 \text{ g C}_2\text{H}_2$$

b. How many moles of water are needed when 65 g of CaC_2 have reacted?

$$65 \text{ g CaC}_2 \times (1 \text{ mol CaC}_2/64.1 \text{ g CaC}_2) \times (2 \text{ mol H}_2\text{O}/1 \text{ mol C}_2\text{H}_2) = 2.03 \text{ mol H}_2\text{O}$$

4. Hydrogen sulfide gas burns in oxygen to produce sulfur dioxide and water vapor:



What mass of oxygen gas is consumed in a reaction that produces 4.6 mol SO_2 ?

$$4.6 \text{ mol SO}_2 \times (3 \text{ mol O}_2/2 \text{ mol SO}_2) \times (32 \text{ g O}_2/1 \text{ mol O}_2) = 220.8 \text{ g O}_2$$