

Name _____ **answer key** _____ Date _____

Stoichiometry Worksheet

Calculate the molar masses of the following chemicals:

- 1) Cl₂ **71 g/mol**
- 3) KOH **56.1 g/mol**
- 4) FeCl₃ **162.3 g/mol**
- 5) BF₃ **67.8 g/mol**
- 6) CCl₂F₂ **121 g/mol**
- 7) Mg(OH)₂ **58.3 g/mol**
- 8) UF₆ **352 g/mol**

1. N₂ + 2O₂ → N₂O₄
 If 15.0g of N₂O₄ was produced, how many moles of O₂ were required?

$$\frac{15.0\text{g N}_2\text{O}_4}{92.0\text{g N}_2\text{O}_4} \left| \frac{1\text{ mol N}_2\text{O}_4}{1\text{ mol N}_2\text{O}_4} \right| \frac{2\text{ mol O}_2}{1\text{ mol N}_2\text{O}_4} = 0.326\text{ mol O}_2$$

2. K₃PO₄ + Al(NO₃)₃ → 3KNO₃ + AlPO₄
 What is the mass of potassium nitrate that is produced when 2.04 moles of potassium phosphate react?

$$\frac{2.04\text{ mol K}_3\text{PO}_4}{1\text{ mol K}_3\text{PO}_4} \left| \frac{3\text{ mol KNO}_3}{1\text{ mol K}_3\text{PO}_4} \right| \frac{101.1\text{ g KNO}_3}{1\text{ mol KNO}_3} = 619\text{g KNO}_3$$

3. CaC₂ + 2H₂O → Ca(OH)₂ + C₂H₂
 If you have 5.50 mol of CaC₂, how much C₂H₂ do you get?

$$\frac{5.50\text{ mol CaC}_2}{1\text{ mol CaC}_2} \left| \frac{1\text{ mol C}_2\text{H}_2}{1\text{ mol CaC}_2} \right| \frac{26.0\text{g C}_2\text{H}_2}{1\text{ mol C}_2\text{H}_2} = 143\text{g C}_2\text{H}_2$$

4. In photosynthesis, water reacts with carbon dioxide to give oxygen and glucose (C₆H₁₂O₆).
 Write and balance the chemical equation. How many moles of CO₂ are required to make 120.0g of glucose?



$$\frac{120.0\text{g C}_6\text{H}_{12}\text{O}_6}{180.0\text{ g C}_6\text{H}_{12}\text{O}_6} \left| \frac{1\text{ mol C}_6\text{H}_{12}\text{O}_6}{1\text{ mol C}_6\text{H}_{12}\text{O}_6} \right| \frac{6\text{ mol CO}_2}{1\text{ mol C}_6\text{H}_{12}\text{O}_6} = 4.000\text{ mol Co}_2$$