

AP Chemistry – Stoichiometry – 18

Name _____ Per ____

1. Write a balanced chemical equation for the reaction that occurs when:

a) aluminum metal combines with liquid bromine

b) strontium carbonate decomposes into strontium oxide and carbon dioxide

c) heptane, C_7H_{16} burns in air

d) dimethylether, CH_3OCH_3 is combusted in oxygen

2. What is the mass in grams of a mole of ^{12}C ?

3. How many carbon atoms are present in a mole of ^{12}C ?

4. What is the mass, in grams, of 0.0714 moles of iron(III) phosphate?

5. How many moles of ammonium ions are in 4.97 g of ammonium carbonate?

6. What is the mass, in grams, of 6.52×10^{21} molecules of aspirin, $\text{C}_9\text{H}_8\text{O}_4$?
7. What is the molar mass of Valium if 0.04470 moles has a mass of 15.86 g?
8. What is the molecular formula of the compound with an empirical formula HCO_2 and a molar mass of 90.0 g/mole?
9. What is the molecular formula of the compound with an empirical formula $\text{C}_2\text{H}_4\text{O}$ and a molar mass of 88 g/mole?
10. Calcium hydride reacts with water to form calcium hydroxide and hydrogen gas. (a) Write a balance chemical equation for the reaction. (b) How many grams of calcium hydride are needed to form 5.0 g of hydrogen?
11. A bottling plant has 115,350 bottles with a capacity of 355 mL each. They have 122,500 caps and 39,375 L of beverage. (a) How many bottles can be filled and capped? (b) How much of each item is left over? (c) Which item limits the production?