

8. What is the volume at STP of 2.66 mol of methane (CH_4) gas?
9. How many moles is 135 L of ammonia (NH_3) gas at STP?

10.3 PERCENT COMPOSITION AND CHEMICAL FORMULAS

1. A sample of a compound analyzed in a chemistry laboratory consists of 5.34 g of carbon, 0.42 g of hydrogen, and 47.08 g of chlorine. What is the percent composition of this compound?
2. Find the percent composition of a compound containing tin and chlorine if 18.35 g of the compound contains 5.74 g of tin.
3. If 3.907 g of carbon combines completely with 0.874 g of hydrogen to form a compound, what is the percent composition of this compound?
4. From the formula for calcium acetate, $\text{Ca}(\text{C}_2\text{H}_3\text{O}_2)_2$, calculate the mass of carbon that can be obtained from 65.3 g of the compound.
5. How many grams of aluminum are in 25.0 g of aluminum oxide (Al_2O_3)?
6. How many grams of iron are in 21.6 g of iron(III) oxide (Fe_2O_3)?
7. Determine the empirical formula of each of the following compounds from the percent composition:
 - a. 7.8% carbon and 92.2% chlorine
 - b. 10.0% C, 0.80% H, 89.1% Cl