

Empirical and Molecular Formulas

Name: _____

1. Acetylene gas is used for welding (blow-torch). Acetylene contains 92.3% carbon and 7.7% hydrogen by mass. What is the empirical formula of acetylene?
2. A compound was found to contain 29.5% carbon, 28.7 % nitrogen, 39.3% oxygen, and 2.5% hydrogen by mass. What is the empirical formula of this compound?
3. Find the empirical formula of a compound that is 79.9% Cu and 20.1% S by mass.
4. A compound is composed of 82.7% carbon and 17.3% hydrogen by mass. The molar mass of the compound is 58.0 g. Determine the molecular formula of this compound.
5. A gas was found to contain 30.4% nitrogen and 69.6% oxygen by mass. If 1.0 L of this gas has a mass of 4.11 g, what would the molecular formula be?
6. A gas has an empirical formula of CH_4O . If 0.500 L of this gas possesses a mass of 1.43 g, what is its molecular formula?
7. Ethanol, the alcohol contained in alcoholic beverages, is composed of 52.2% carbon, 13.0% hydrogen, and 34.8% oxygen by mass. Its molar mass is 46.0 g/mol. What is its empirical formula and what is its molecular formula?