

Percent Composition and Molecular Formula Worksheet

1. What's the empirical formula of a molecule consisting 55.7% carbon, 5.7% hydrogen, and 38.6% oxygen?
2. If the molar mass of the compound is 108.1 g/mol, what's the molecular formula?
3. What's the empirical formula of a molecule consisting 55.7% carbon, 5.7% hydrogen, and 38.6% oxygen?
4. If the molar mass of the compound is 108.1 g/mol, what's the molecular formula?

Write the molecular formula of the following compounds:

5. A compound with an empirical formula of C_2H_4O and a molar mass of 88 g/mol.
6. A compound with an empirical formula of C_2H_4O and a molar mass of 176 g/mol.
7. A compound with an empirical formula of C_2H_4O and a molar mass of 176.1 g/mol.
8. A compound with an empirical formula of C_2H_4O and a molar mass of 88 g/mol.

Answer the following questions:

9. The percentage composition of a white solid is found to be 50.7% C, 4.7% H, and 44.6% O. Determine the empirical formula of the white solid.
10. The molar mass of a general CH_2O was determined by experiment to be 60.0 g/mol. What is the molecular formula?
11. A white solid is found to contain 40.0% carbon, 6.7% hydrogen, and 53.3% oxygen. On combustion, 1.00 g of the white solid yields 1.33 g of CO_2 , 0.33 g of H_2O , and 0.67 g of CO . What is the empirical formula?
12. The molar mass of a white solid is 60.0 g/mol. What is its molecular formula?
13. Calculate the mass percent of carbon, hydrogen, and oxygen in acetic acid, $C_2H_4O_2$.
14. A 0.500 g sample of a compound made from glucose and water is decomposed. Analysis of the products shows that 0.100 g of glucose was produced. What is the empirical formula of the compound?
15. When 1.000 g of an oxide of nitrogen (NO_x) is decomposed into the elements by heating, 0.400 g of nitrogen are produced. What is the empirical formula?
16. The compound contains the following percent composition. What is the empirical formula?
 $C = 50.0\% \quad H = 4.7\% \quad O = 45.3\% \quad N = 9.0\% \quad S = 0.0\%$
17. A compound of a white solid contains the approximate molar mass of 60 g/mol. If the percent composition is as follows, what is the empirical and molecular formula of water?
 $C = 54.0\% \quad H = 9.0\% \quad O = 37.0\% \quad N = 0.0\% \quad S = 0.0\%$