

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 118.09 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 118.09 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 176.17 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 88.0 g/mol. What is the molecular formula?
11. A white solid is made of carbon, hydrogen, and oxygen. Combustion of such compounds yields CO_2 , H_2O , and H_2 as products. If the combustion of 0.71 g of white yields 0.51 g CO_2 and 1.46 g H_2 , what is its empirical formula?
12. The molar mass of a white solid is 88 g/mol. What is its molecular formula?
13. Calculate the mass percent of carbon, hydrogen, and oxygen in acrylonitrile, $C_3H_3.5N$.
14. 0.1616 g sample of a compound made from glucose and ribitol is decomposed. Analysis of the products shows that 0.131 g of glucose was produced. What is the empirical formula of the compound?
15. When 1.0000 g of an oxide of nitrogen (NO_x) is decomposed into the elements by heating, 0.451 g of nitrogen are produced. What is the empirical formula?
16. The compound contains the following percent composition. What is the empirical formula?
 $C = 50.00\% \text{ H} = 4.29\% \text{ N} = 45.71\%$
17. A compound of general molar mass has an approximate molar mass of 100 g/mol. If the percent composition is as follows, what is the empirical and molecular formula of water?
 $C = 54.08\% \text{ H} = 9.04\% \text{ N} = 36.88\% \text{ O} = 0.00\% \text{ S} = 0.00\%$