

Molecular (True) Formula

Practice Problems (Level 1)

1. A compound has the following percentage composition: 26.7% carbon; 2.2% hydrogen; 71.1% oxygen. The molecular weight of this compound is 90. What is the compound's true formula?
2. A certain compound was analyzed and found to have the following composition: 54.6% carbon; 9.0% hydrogen; 36.4% oxygen. The true molecular weight for the compound is 176. What is the molecular formula of the compound?
3. The percentage composition of ethane gas is 80.0% carbon and 20.0% hydrogen. The molecular weight for ethane is 30. What is the correct formula for this compound?
4. Analysis of a compound shows that it consists of 24.3% carbon, 4.1% hydrogen, and 71.6% chlorine. The molecular weight of the compound is determined to be 89.8. What molecular formula corresponds to these data?
5. An unknown compound is analyzed and found to consist of 49.0% carbon, 2.7% hydrogen, and 48.2% chlorine. Boiling point data suggest that the molecular weight of the compound is about 150. What molecular formula would you predict for this compound?
6. A gaseous compound is found to have the following composition: 30.5% nitrogen and 69.5% oxygen. The molecular weight of the gas is found to be 91.8. What molecular formula corresponds to these data?