

**Empirical & Molecular Formula**

Name: \_\_\_\_\_

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1) 2-propanol (also known as isopropyl or rubbing alcohol) is analyzed and found to contain 60.0% carbon, 13.4% hydrogen, and 26.6% oxygen. What is its empirical formula?

2) Chemical analysis of a 5.00 g sample of the compound tetraethyl lead (once a common additive used in gasoline) shows it is made up of 3.20 g Pb, 1.49 g C, and 0.31 g H. What is its empirical formula?

3) Adenine is one of the four amino acids in DNA. The composition of adenine is 44.4% C, 3.7% H and 51.9% N and has a molar mass of 135.2 g/mol. What is the molecular formula?

4) What is the molecular formula of paradichlorobenzene, an ingredient in moth balls that has a molar mass of 147.00 g/mol and an empirical formula of  $C_5ClH_2$ ?

5) A pesticide for snails has an empirical formula of  $C_2H_4O$  and a molar mass of 176.03 g/mol. What is the molecular formula?

6) A compound has the following composition: 76.54% carbon, 12.12% hydrogen, 11.33% oxygen. If its molar mass is 282.54 g, what is its molecular formula?

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1) A compound is found to contain 23.3 % magnesium, 30.7 % sulfur and 45.0% oxygen. What is the empirical formula?

2) Chemical analysis of an ionic compound determined it to have 68.4% barium, 10.3% phosphorous and 21.3% O. What is the empirical formula?

3) A 15 gram sample of nicotine is found to contains 11.11 g carbon, 1.30 g hydrogen, 2.59 g nitrogen and has a molar mass of 162.23 g/mol. What is the molecular formula of nicotine?

4) Another moth ball ingredient, naphthalene, has an empirical formula of  $C_5H_4$  and a molar mass of 128.00 g/mol. What is the molecular formula for naphthalene?

5) A yellow dye has an empirical formula of  $C_5H_5N$  and a molar mass of 240.1 g/mol. What is the molecular formula?

6) A compound is 75.46% carbon, 4.43% hydrogen, and 20.10% oxygen by mass. It has a molecular weight of 318.31 g/mol. What is the molecular formula for this compound?