

a compound is composed of 4.80 grams of carbon and .40grams of hydrogen. the molecular mass is 78.0 g/mol. what is the molecular formula of the compound

1. Collect atomic mass:

a. Carbon (C) has 12.0 a.m.u.

b. Hydrogen (H) has 1.0 a.m.u.

2. Calculate stoichiometric ration:

a. $C \rightarrow \frac{4.80}{12.0} = 0.4;$

b. $H \rightarrow \frac{0.4}{1.0} = 0.4.$

3. Find integer numbers on the basis of ratios:

$$C : H = 0.4 : 0.4 = 1 : 1$$

4. Write empirical formula:



5. The molecular mass of the empirical formula:

$$M_{EF} = 12 + 1 = 13 \text{ (g/mol)}$$

6. Find the scaling factor:

$$\frac{M_{true}}{M_{EF}} = \frac{78 \text{ g/mol}}{13 \text{ g/mol}} = 6$$

7. Write the molecular formula:

