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Empirical
Formula

Definition

Formula that gives smallest
whole # ratio of atoms/ions

Example

CH_3 is an empirical formula

C_2H_6 is not an empirical formula

Detailed instruction

Comp 80% Carbon 20% Hydrogen

Step 1: % \rightarrow mass

80g Carbon

20g Hydrogen

Step 2: mass \rightarrow moles

$$\frac{80\text{g Carbon}}{12\text{g}} \div \frac{1\text{mol C}}{12\text{g}} = 6.67\text{mol C}$$

$$\frac{20\text{g H}}{1\text{g}} \div \frac{1\text{mol H}}{1\text{g}} = 20.0\text{mol H}$$

Step 3: divide by smallest

$$6.67 \div 6.67 = 1\text{mol C}$$

$$20 \div 6.67 = 3\text{mol H}$$

EF: CH_3

notes
 made on 5/10/19
 please write
 in your notebook
 23/11/19
 please
 write in
 your notebook
 23/11/19
 please
 write in
 your notebook
 23/11/19

1 EF: CH₂O
 2 Molecular mass = 90g/mol
 3 molecular formula = ?
 4
 5 CH₂O = 30g/mol $\frac{90}{30} = "3"$
 6
 7 I take each subscript
 8 and multiply by 3.
 9
 10 C₃H₆O₃
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