

Curiosity: A formula is a model, not a photograph

Curiosity Reading | CheAI Research Inc.

Composition measurements can reveal a repeatable atom ratio. That is powerful: a carbon, hydrogen, and oxygen sample may consistently reduce to CH_2O even when the sample is much larger or smaller. The empirical formula is the simplest ratio that fits the data.

It also has a deliberate limit. CH_2O does not say how many atoms are in the actual molecule, and even a molecular formula does not reveal every connection among atoms. Chemists combine composition with molar mass and structural evidence such as spectroscopy to build a more complete model.

Try it: If a ratio table gives 1.00 : 1.50 : 1.00, why is multiplying all three entries by 2 better than rounding 1.50 to 2?