

Do Now

- 1) Elemental analysis showed a Motrin tablet contained ibuprofen made of 156.1 mg of carbon, 18.1 mg of hydrogen and 32.0 mg of oxygen. What is the percent composition

symbol	number	atomic mass	mass	percent comp
C			156.1	75.70%
H			18.1	8.78%
O			32.0	15.5%
			206.2	100.0%

- 2) Find the percent composition for $\text{Ru}_2(\text{SO}_3)_3$

symbol	number	atomic mass	mass	percent comp
Ru	2	101.07	202.14	45.699%
S	3	32.066	96.198	21.748%
O	9	15.999	143.99	32.553%
			442.33	100.000%

0416 - HW

1) What is the percent composition of phosphoric acid, H_3PO_4 ?

symbol	number	atomic mass	mass	percent comp
H	3	1.008	3.024	3.086%
P	1	30.974	30.974	31.61%
O	4	15.999	63.996	65.31%
			97.994	

0416 - HW

2) Find the percent composition of CaCl_2 ?

symbol	number	atomic mass	mass	percent comp
Ca	1	40.078	40.078	36.111
Cl	2	35.453	70.906	63.888
			110.984	

0416 - HW

- 3) What is the difference between an empirical formula and a molecular formula? Provide an example.

The **empirical formula** for a compound is the smallest whole-number mole ratio of the elements.

The **molecular formula** specifies the actual number of atoms of each element in one molecule or formula unit of the substance.

For caffeine

*molecular
formula*



*empirical
formula*



0416 - HW

4) Which of the following formulas - NO, N₂O, NO₂, N₂O₄ and N₂O₅ - represent the empirical and molecular formulas of the same compound?

Molecular	Empirical	Same?
NO	NO	yes
N ₂ O	N ₂ O	yes
NO ₂	NO ₂	yes
N ₂ O ₄	NO ₂	no
N ₂ O ₅	N ₂ O ₅	yes

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5) Determine the empirical formula for each compound

a) ethylene (C_2H_4)



b) ascorbic acid ($C_6H_8O_6$)



c) naphthalene ($C_{10}H_8$)

