

NAME:

HONORS CHEMISTRY

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SECTION:

Calculating Percent Composition

The percent by mass of an element in a compound is the number of grams of the element divided by the grams of the compound, multiplied by 100%:

$$\% \text{ mass of element E} = \frac{\text{grams of element E}}{\text{grams of compound}} \times 100\%$$

The percent composition of a compound has as many percent values as there are elements in the compound. These percentages must add up to 100%.

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Problems For You To Try

1. Determine the percent composition by mass of ethyne,  $\text{C}_2\text{H}_2$ . Ethyne, commonly known as acetylene, is used as a fuel and in welding torches.

Now let's try one from experimental data.

2. Analysis of a sample of an unknown is found to contain 5.41 grams of sodium, 3.79 g of nitrogen, and 11.29 grams of oxygen. What is the percent composition of the unknown?

3. Determine the percentage of water by mass in sodium carbonate decahydrate,  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ .

4. Calculate the percent composition of copper (I) sulfide, a copper ore called chalcocite.

