



Percentage Composition Calculation

$$\% \text{ by mass} = \frac{A_r \times \text{number of atoms in a compound}}{M_r \text{ of the compound}} \times 100$$

Answer the questions below.

1. Calculate the percentage by mass of carbon in carbon monoxide, CO. **42.86%**
2. Calculate the percentage by mass of hydrogen in HCl. **2.7%**
3. Calculate the percentage composition of sodium in sodium chloride, NaCl. **39.3%**
4. Calculate the percentage composition of sodium in sodium hydrogen carbonate, NaHCO₃. **27.3%**
5. Calculate the percentage of oxygen in sodium hydrogen carbonate, NaHCO₃. **57.1%**
6. Calculate the percentage by mass of lithium in lithium hydroxide, LiOH. **29.1%**
7. Calculate the percentage by mass of hydrogen in lithium hydroxide, LiOH. **4.1%**
8. Which makes up the greater percentage by mass in lithium hydroxide (LiOH), oxygen or lithium? Show your working. **Oxygen (66.7%)**
9. Calculate the percentage by mass of carbon in calcium carbonate, CaCO₃. **12%**
10. Calculate the percentage by mass of oxygen in potassium permanganate, KMnO₄. **40.5%**

Stretch:

11. In a sample of water with a mass of 10 g, what percentage of that mass is made of hydrogen atoms? **11.1%**
12. The percentage by mass of oxygen in a compound is 66.7%. The compound has the formula XO, where X is a metal and O is oxygen. What is the compound? **MgO**

