

Mass percentages of NaHCO_3

Bicarbonate of soda (NaHCO_3) is a useful compound for neutralizing acids. Find the mass percentages of (mass %) of Na, H, C and O in sodium hydrogen carbonate.

Mass percentages of NaHCO_3

In this type of problem we need to determine the ratio of each species molar mass to the total molar mass of the compound.

Solution: Step 1 Determine the molar mass of NaHCO_3 .

$$M_{m,\text{NaHCO}_3} = 23 + 1 + 12 + 3(16) = 84 \text{ amu}$$

Step 2. Determine the ratios

$$\%Na = \frac{M_{m,\text{Na}}}{M_{m,\text{NaHCO}_3}} = \frac{23}{84} 100\% = 27.3\%$$

$$\%H = \frac{M_{m,\text{H}}}{M_{m,\text{NaHCO}_3}} = \frac{1}{84} 100\% = 1.2\%$$

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$$\%C = \frac{M_{m,\text{C}}}{M_{m,\text{NaHCO}_3}} = \frac{12}{84} 100\% = 14.3\%$$

$$\%O = \frac{3 M_{m,\text{O}}}{M_{m,\text{NaHCO}_3}} = \frac{48}{84} 100\% = 57.1\%$$