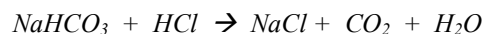


I. Fill in the data table below as you watch the lab on the video.

mass of sodium bicarbonate	0.23 g
mass before reaction	5.98 g
mass after reaction	5.85 g

II. Write a balanced equation for the reaction that took place. (Hint: the narrator on the video will help you with this.)



III. Conclusion Questions: Answer each question completely. SHOW ALL WORK!

- Calculate the mass of carbon dioxide produced in the experiment. (Hint: Think about what bubbled away.)

$$5.98 \text{ g} - 5.85 \text{ g} = 0.13 \text{ g CO}_2 \text{ bubbled away}$$

- Use molar masses to calculate the percent of carbon in carbon dioxide using the following formula.

$$\% \text{ C in CO}_2 = \frac{\text{mass of C}}{\text{mass of CO}_2} \times 100\%$$

$$\% \text{ C in CO}_2 = \frac{12.0 \text{ g C}}{44.0 \text{ g CO}_2} \times 100\% = 27.3\% \text{ C in CO}_2$$

- Calculate the mass of carbon in the sample of carbon dioxide using the same formula and your answers to the previous two calculations.

$$27.3\% = \frac{x \text{ g C}}{0.13 \text{ g CO}_2} \times 100\%$$

$$(0.273)(0.13 \text{ g}) = x \text{ g C} = 0.035 \text{ g C}$$

- Calculate the percentage of carbon that was in the original sample of sodium bicarbonate using the following formula.

$$\% \text{ C in NaHCO}_3 = \frac{\text{mass of C}}{\text{mass of NaHCO}_3} \times 100\%$$

$$\% \text{ C in NaHCO}_3 = \frac{0.035 \text{ g C}}{0.23 \text{ g NaHCO}_3} \times 100\% = 15\% \text{ C in NaHCO}_3$$

#### IV. Practice Problems. SHOW ALL WORK!

- Calculate the percentage sodium in sodium oxide.

$$\% \text{ Na in Na}_2\text{O} = \frac{46.0 \text{ g Na}}{62.0 \text{ g Na}_2\text{O}} \times 100\% = 74.2\% \text{ Na in Na}_2\text{O}$$

- Calculate the percentage aluminum in aluminum phosphate.

$$\% \text{ Al in AlPO}_4 = \frac{27.0 \text{ g Al}}{122.0 \text{ g AlPO}_4} \times 100\% = 22.1\% \text{ Al in AlPO}_4$$

- Calculate the percentage hydrogen in hydrogen peroxide.

$$\% \text{ H in H}_2\text{O}_2 = \frac{2.0 \text{ g H}}{34.0 \text{ g H}_2\text{O}_2} \times 100\% = 5.9\% \text{ H in H}_2\text{O}_2$$

- Calculate the percentage nitrogen in dinitrogen pentoxide.

$$\% \text{ N in N}_2\text{O}_5 = \frac{28.0 \text{ g N}}{108.0 \text{ g N}_2\text{O}_5} \times 100\% = 25.9\% \text{ N in N}_2\text{O}_5$$