Chemistry 20

Lesson 8 – Decomposition of Malachite

Lab Activity

Problem: When malachite ($Cu(OH)_2 \cdot CuCO_{3\,(s)}$) is heated to around 200°C it decomposes into solid copper (II) oxide, carbon dioxide, and water vapour. The solid turns from green to black. In this investigation you are asked to compare the predicted (i.e. theoretical) amount with the actual or experimental amount of copper (II) oxide formed, and then calculate the percent error.

Materials:

between 3 and 5 grams of malachite	mass scale
clean porcelain bowl	hot plate
glass stirring rod	tongs

To complete the activity, do the following:

1. Write a **purpose** for the activity.

2. Write a **procedure**.

3. **Observations** (table of data).

4. **Conclusion**.

   A. Analysis.
      a. Provide a stoichiometric calculation of the theoretical or predicted yield.
      b. Report the experimental yield.

   B. Evaluation
      a. Calculate the percent error using:

$$\%\text{error} = \frac{\text{experimental} - \text{theoretical}}{\text{theoretical}} \times 100\%$$

      b. Give at least 2 possible reasons for the experimental error.

Write-up:

- **One write-up per group.**
- **Maximum of 2 people per group.**