Lab 1.3: Melting Point of C₆H₄Cl₂ (para-dichlorobenzene)

**Purpose:** to determine the melting point of C₆H₄Cl₂ (para-dichlorobenzene)

**Procedure:**

1. Melt the C₆H₄Cl₂ (para-dichlorobenzene) as shown in the diagram. Use a low flame so that the chemical will melt without igniting or spattering.
2. When the material is fully melted, clamp it in a water bath at about 35 °C, as shown in the diagram below. This will permit it to cool down slowly and allow us to study the freezing process.
3. Place a thermometer in the C₆H₄Cl₂ and leave it in the test-tube throughout the experiment, allowing it to freeze in place. Do not allow the thermometer to touch the glass sides or the bottom of the test-tube.
4. Record the para-dichlorobenzene temperature every 30 seconds until its temperature reaches 40 °C.
5. Re-melt the C₆H₄Cl₂ to remove the thermometer. Wipe the thermometer clean and put it away. Put the other equipment away as well.

**Graph:** produce a scientific graph of Temperature vs. Time.

**Questions:**

1. What is the melting point of C₆H₄Cl₂?
2. What is the freezing point of C₆H₄Cl₂?
3. Why does your graph curve have a plateau?
4. What would your curve look like if more C₆H₄Cl₂ had been in the test-tube you used?

**Discussion:**

Discuss the sources of error and compare your value of the melting point to the true/accepted value for the melting point of para-dichlorobenzene.