

Melting and Boiling Point Curves

Chemistry

Introduction

Melting point and boiling point are dependent on the purity of the substance studied. In general, melting point depression refers to the trend that melting point tends to decrease as impurities are added to a liquid, forming a solution. This is the reason that adding salt to ice water in an ice chest at a party will cool drinks faster than ice-water alone. Similarly, boiling point elevation refers to boiling point increasing as more solute is added to a liquid. Thus, soup actually boils at a higher temperature than pure water.

In this lab, we will track melting point and boiling point on a table, then translate to a graph.

Materials

- Ice
- Balance
- Hot plate
- Weighing plates
- Salt
- Graduated cylinder
- 250ml Beaker (2)

Melting Point Depression

1. Add ice up to about halfway into the beaker.
2. Measure 100ml of water and add to the beaker.
3. Measure the temperature of the ice-water solution.
4. Measure 10g of salt, and add to the solution. Stir to mix. Record the amount of salt added to the table, and the temperature.
5. Repeat this step until no temperature change is noted.

Boiling Point Curve.

1. Measure 100ml of water and add to beaker.
2. Place the beaker on a hot plate and boil this water. *Boiling water should be handled with caution. Be sure all members are wearing goggles.*
3. Measure 10g of salt, and add to the solution. Stir to mix. Record the amount of salt added to the table, and the temperature.
4. Repeat this step until no temperature change is noted.

Prelab Questions:

1 Define the following.

Melting point depression:

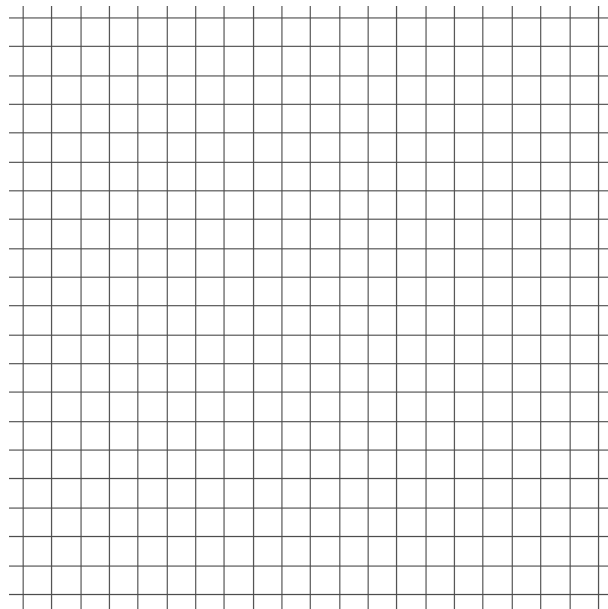
Boiling Point elevation:

Molality:

Melting Point Curve

Fill in the table with values throughout the lab. Graph the points. Do not start the temperature graph at 0°C.

NaCl added (g)	NaCl total (g)	T(°C)



Boiling Point Curve

Fill in the table with values throughout the lab. Graph the points. Do not start the temperature graph at 0°C.

NaCl added (g)	NaCl total (g)	T(°C)

