

SENIOR SECTION
DEPARTMENT OF CHEMISTRY
CLASS IX
LAB SHEET- I

MELTING POINT OF ICE AND BOILING POINT OF WATER

Experiment No –

Date:

Objective: To study the boiling point of water and melting point of ice and influence of impurity on MP and BP of substances.

Requirements:

Distilled water, NaCl/sugar, ice (pure water), ice (salt water), $-10^{\circ} - 110^{\circ}\text{C}$ thermometer, 250 ml & 100 ml beakers, glass rod, etc

Procedure:

Step – 1

1. Take 25 ml of distilled water in a clean beaker (100 ml).
2. Insert a thermo meter in such a way that its mercury bulb is fully immersed in the water taken. (Use an iron stand to hold the thermometer)
3. Now heat the beaker containing water on a Bunsen flame. (Use tripod stand & wire gauze)
4. Wait till the water boils. Note the temperature and record in the table given below.

Step – 2

1. Take 25 ml of distilled water in a 100 ml beaker. Add half a spatula of NaCl to it and stir well to dissolve.
2. Find the boiling point of as explained in step – 1. Record the temperature.

Step – 3

1. Take some crushed (ice gratings would be better) ice, made with distilled water, in a 100 ml beaker.
2. Insert a thermometer into the crushed ice.
3. Wait till the thermometer shows a steady reading. Record the temperature in the table given below.
4. Repeat the experiment with ice made with salt water. Record the temperature.

BOILING POINT	MELTING POINT
Distilled water: - 100°C	0°C
Salt water:- $^{\circ}\text{C}$	 $^{\circ}\text{C}$

Conclusion:

1. Boiling point of distilled water is less than that of salt water. (Elevation of boiling point)
2. Melting point of distilled water is more than that of salt water. (Depression in freezing point)

Questions:

1. What do you understand by the terms latent heat of fusion of ice, latent heat of vaporisation of water?
2. Define the following:
 - a. Boiling point
 - b. Melting point
3. What happens to the BP of water when it is impure with dissolved substance?
4. What happens to the MP of ice when it is impure with dissolved substance?

Multiple choice type questions

1	At 273 K ,the physical state of water is a) Solid b) liquid c)vapour d) both solid&liquid
2	A student set up an apparatus for finding the m p of ice .When half the ice is melted,then the temperature shown by the thermometer is a) Less than 0°C b) More than 0°C c) 0°C d) 100°C
3.	In order to find the boiling point of water, one of the precautions is that bulb of the thermometer should not touch the sides of the beaker. This precaution is taken because a) Sides of the beaker are at a slightly lower temperature than 100°C b) Sides of the beaker are at a slightly higher temperature than 100°C c) The bulb of the thermometer is likely to break. d) None of the above
4.	Which contains more energy a) Water at 0°C b) Steam at 100°C c) Water as well as steam at 100°C d) None of these
5.	While determining the boiling point of water the suggested to add some pumice stone pieces to the hard glass tube containing water, this was done to a) Avoid bumping b) Avoid melting of glass tube c) Prevent loss of heat energy d) Spread the heat uniformly
6.	When a thermometer is kept in the ice the reading shows that a) Temperature keeps increasing b) Temperature keeps decreasing c) Temperature increases first and then decreases d) Temperature first decreases and then remains constant at 0°C.
7.	In the determination of boiling point of water, correct reading on the thermometer is noted when a) Water starts boiling b) Whole of the water evaporates c) Temperature starts rising d) Temperature becomes constant
8.	Liquid A boils at 60°C and liquid B boils at 80°C. Which is more volatile? a) Liquid A b) Liquid B c) Both A and B d) Neither A nor B