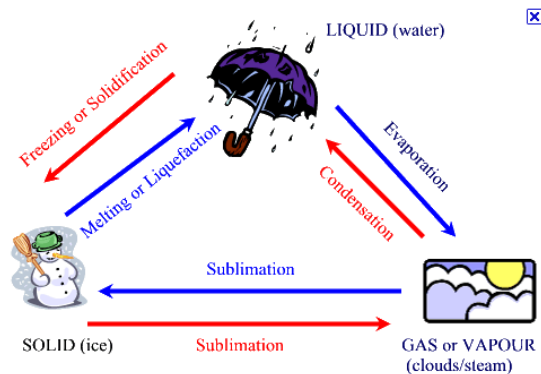


Water and Solutions

Physical Characteristics of Water

- Freezing
- Boiling
- Effects of Impurities

Water undergoes changes in physical states through physical process.



Water Boils at 100°C

- Heat is absorb and molecule
- Water particles move violently
- Water changes to steam

Freezing Point at 0°C

- Heat energy is absorb
- Water molecules move slowly as the molecules come closer to each other
- The particles slowed and arranged themselves into solid and vibrate at the fixed positions

Theory Kinetic of Energy

- Matter consists of tiny particles
- When Energy is absorb, the particles vibrates and move randomly

Other Physical properties of water

- Colourless
- pH value of 7
- Density of water is $1\text{g}/\text{cm}^3$
- Water turns white anhydrous copper II sulphate to blue
- It turns blue cobalt chloride paper to pale pink

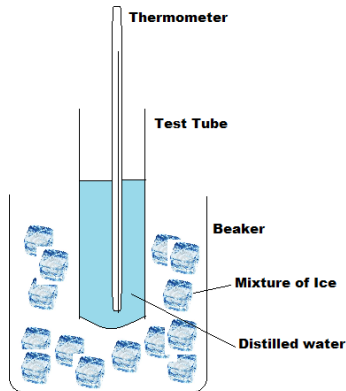
Effects of impurities on the physical characteristics of water

- a) Increase the boiling point of water
- b) Decrease the boiling point of water
- c) Increase the density of water



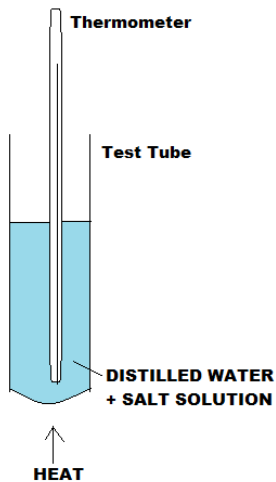
Activity 1

Determine the freezing point of Water and Salt Water.



Based on the experiment when the salt is added to the ice the melting point of the salt water decreases. The salt solution freezes at lower temperature.

Boiling Point of Water and Salt Water



When salt is added to the distilled water, the water solution boils at above 100°C

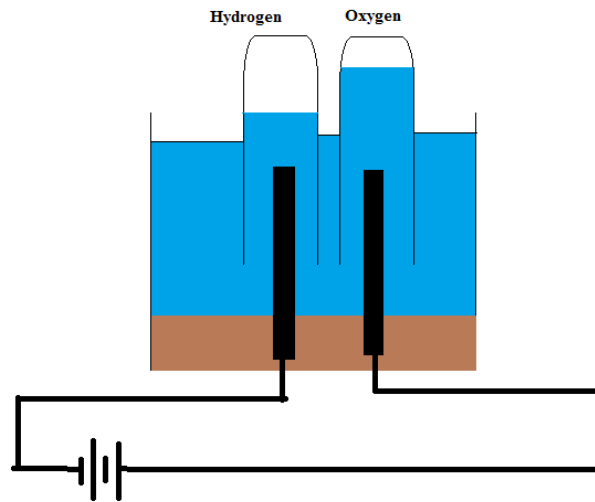
Composition of Water

Water consist of :-

- a) Hydrogen
- b) Oxygen

The ratio of Hydrogen to Oxygen is 2 : 1

To determine the ratio of Hydrogen to Oxygen, can be conducted using Electrolysis process



The diagram above shows simple electrolysis process

Factors Affecting Evaporation of Water

What are the factors affecting the rate of evaporation of water

1. Surrounding temperature
2. Surface area of water
3. Humidity of surrounding air
4. Movement of wind

Solution and Solubility of Water

Before we begin to address what is SOLUTION, lets understand the keywords clearly

Definition of keywords

Solution → When chemicals dissolve in liquid, this is call solution

Solute → These are particles which dissolve

Solvent → The substance that dissolves the solute



Dilute Solution

Concentrated Solution

Saturated Solution

Dilute Solution consist of little of solute in the solution. Concentrated solution consists of a lot of solute in the solutions while saturated solutions consists of maximum amount of solute in the solution

Rate which affects the rate of dissolve

1. Stirring the Solvent when solute is added
2. Heat up the solutions
3. Size of Solute