DIFFUSION

Definition

Diffusion is the movement of particles from a region of **high concentration** to a region of **low concentration**.

Diffusion in Liquids

Particles in liquids are free to move, which allows diffusion to occur. However, diffusion in liquids is slower than in gases because the forces of attraction between particles are stronger.

Diffusion in Water (Potassium Manganate VII Demonstration)

When potassium manganate (VII) crystals are placed in water, the crystals dissolve and the purple colour spreads throughout the water. This demonstrates the movement of particles from a region of high concentration to a region of low concentration until they are evenly distributed.

Observation

1. Potassium manganate (VII) crystals dissolve in water.
2. The purple colour spreads gradually through the water.

Explanation

Potassium manganate (VII) crystals consist of tiny particles. When the crystals are placed in water, the particles move from an area of high concentration near the crystal to areas of lower concentration. This movement continues until the particles are evenly distributed throughout the water. This process is known as diffusion.

Examples of Diffusion

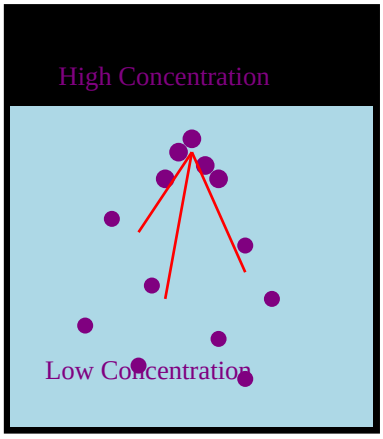
1. The smell of perfume spreading through air.
2. Ink or food colouring spreading in water.
3. Oxygen diffusing from the lungs into the blood.
4. Carbon dioxide diffusing into leaves.
5. Copper sulphate spreading in water.

Key Points

• Diffusion does not require energy.
• Diffusion occurs due to the constant random motion of particles.
• Diffusion continues until particles are evenly distributed.

Diagram: Diffusion of Potassium Manganate (VII) in Water

Beaker



Diffusion: High → Low Concentration