

Change of State and Evaporation

Chapter 1: Matter in Our Surroundings · Topic 2

Key Concept

The rate of evaporation is influenced by several factors: it increases with higher temperature (more particles have enough energy to escape), larger surface area (more particles exposed to the surface), higher wind speed (removes vapour particles, maintaining a concentration gradient), and lower humidity (more room for vapour in the surrounding air). Evaporation causes cooling of the remaining liquid, since the particles that escape carry away the most kinetic energy, leaving behind lower-energy (cooler) particles — this is why sweating cools the human body.

Quick Revision Notes

- Evaporation is a surface phenomenon occurring at any temperature; boiling occurs throughout the liquid at a fixed temperature.
- Evaporation rate increases with: higher temperature, larger surface area, more wind, lower humidity.
- Evaporation causes cooling because high-energy particles escape, leaving lower-energy particles behind.
- This cooling effect explains why sweating cools the human body.

Practice Questions

- 1 List two factors that increase the rate of evaporation.
- 2 Explain why sweating helps cool the human body.
- 3 Why does water in an open container evaporate faster on a windy day?