

Changes in State

Lesson 2:2

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What happen to the particles of a solid as it melts?



What happens to the particles of a liquid as it vaporizes?



What happens to the particles of a solid as it sublimes?

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What happens to the particles of a solid as it melts

A change from a solid to a liquid involves an increase in thermal energy

particles in a liquids have more thermal energy than a solid

gas particles have more thermal energy than a liquid

to go from a liquid to a solid = decrease in thermal energy

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Melting

The change in state from a solid to a liquid in crystalline solids occurs at a specific temperature

Melting point are characteristics properties

specific to each substance

can be use to identify a substance

ex. pure water- melting point is 0°C at sea level

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What happens to particles

Thermal energy is added to make particles vibrate faster raising the temperature

At melting point, the particles are vibrating fast enough to break free of their fixed position

At the 0°C , the temperature of ice will stop increasing. The added energy will change the arrangement of the water molecules from ice crystals to liquid water

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Freezing

Change in state from liquid to solid

Reverse of melting

At the freezing point, particles move so slowly that they begin to take on a fixed position

freezing water- the molecules move more slowly until the water becomes solid

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What happens to the particles of a liquid as it vaporizes

Evaporation and Boiling

Change in state from a liquid to a gas is called vaporization

Happens when particles in liquid gain enough energy to move independently

2 main types of evaporation and boiling

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Evaporation- is vaporization that takes place only on the surface of the liquid

ex. shrinking puddle in the sun

energy is added to the water molecules on the surface

allows those molecules to escape

Boiling is the vaporization that takes place both on the surface and below

ex. boiling water

when water boils, vaporized water molecules form bubbles

that rise and break free

The temperature at which a liquid boils is its boiling point

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Condensation

The reverse of evaporation

change from gas to a liquid

occurs when particles in a gas lose enough thermal energy to form a liquid

ex. warm breath on a mirror

clouds- water vapor condenses into droplets

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What happens to the particles of a solid as it sublimates

Sublimation occurs when the surface particles of a solid gain enough energy they form a gas

Particles do not pass through the liquid stage

ex. dry ice (solid carbon dioxide)

at ordinary atmospheric pressure CO_2 can't exist

as a liquid

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Lesson 2- Changes in State

At a solid's melting point, its particles so fast they from their

occurs when the particles in a liquid gain enough to move

During sublimation, particles of a do not pass through the as they form a

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