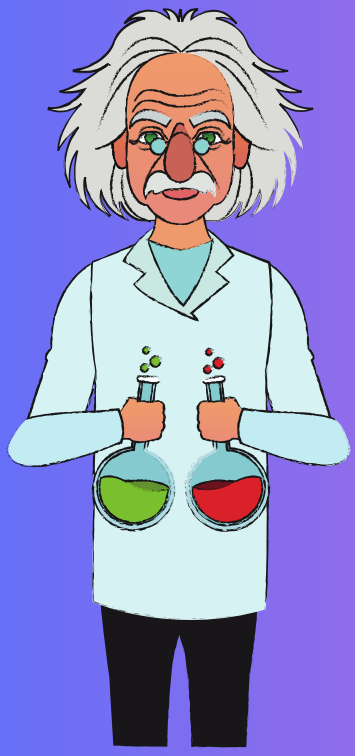
K-Chemistry

SABIS CHEMISTRY

Grade 10



Final Revision Chapter 2

Mr. Hisham Mahmoud

k-chemistry website

Final Revision Chapter 2

Chapter 2

The three states of matter are solid, liquid and gas.

Melting or fusion: is the change of a substance from solid to liquid at a definite temperature.

Freezing (solidification): is the change of a substance from liquid to solid at a definite temperature.

Evaporation: is the change of a substance from liquid to gaseous state at a definite temperature

Condensation: is the change of a substance from gaseous to liquid at a definite temperature.

Sublimation: is the change of a substance from solid to gaseous directly at a definite temperature.

Part 2 SABIS Grade 10 Final Revision

Heating Curve:

A plot of temperature versus time where energy is added at a constant rate versus time.

Sketching and explaining the heating curve of a pure compound

The heating curve consists of 3 stages with +ve, 0, +ve slopes respectively.

The pure compound exist as solid in the first stage and as liquid in the third stage

The 2 nd stage of the heating curve is a plateau which represents a phase change(melting/ fusion)

The 1 st and 3 rd stage should not be sketched parallel to each other as they have different slopes.

The slope of the 3 rd stage is larger than the slope of the 1 st stage.

The heating curve has a flat horizontal part where the solid changes to a liquid and the graph
remains horizontal until all the solid melts.

The larger is the amount of solid heated the longer is the time it needs for the sample to start melting.

The larger is the amount of solid heated the longer is the time it needs for the sample to melt completely.

The position of the horizontal part determines the melting point of the solid which is the same as its freezing point.

In the first and third stages there is a change in temperature (the compound is heating up) therefore the average kinetic energy of the particles is increasing.

In the second stage there is a plateau where the temperature is not changing therefore average kinetic energy is not changing. The added energy is converted to potential energy(or used to change the solid into a liquid).

Part 2 SABIS Grade 10 Final Revision

Cooling Curve:

Sketching and explaining the cooling curve of a pure compound

The cooling curve consists of 3 stages with -ve, 0, -ve slopes respectively.

The pure compound exist as liquid in the first stage and as solid in the third stage

The second stage of the heating curve is a plateau which represents a phase change(freezing/ solidification)

The larger is the amount of solid heated the longer is the time it needs for the sample to start melting.

The larger is the amount of liquid cooled the longer is the time it needs for the sample to freeze completely.

The position of the horizontal part determines the melting point of the solid which is the same as its freezing point.

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Cont. Chapter 2

- **Physical constants**: are physical properties which remain the same under the same conditions
- of temperature and pressure. e.g: melting point(or freezing point), boiling point, density and refractive index.
- **Physical constants** depend on the nature of the substance.
- **Melting point**: is the temperature at which a solid changes to a liquid at the same temperature
- and pressure.
- **A phase:** is a uniform medium
- **Boyle's law:** for a given sample of gas(fixed amount) volume of the gas vary inversely to pressure at constant temperature.
- Know possible mathematical representations of Boyle's law
- Know possible graphical representations of Boyle's law
- Application on Boyle's law P1V1=P2V2

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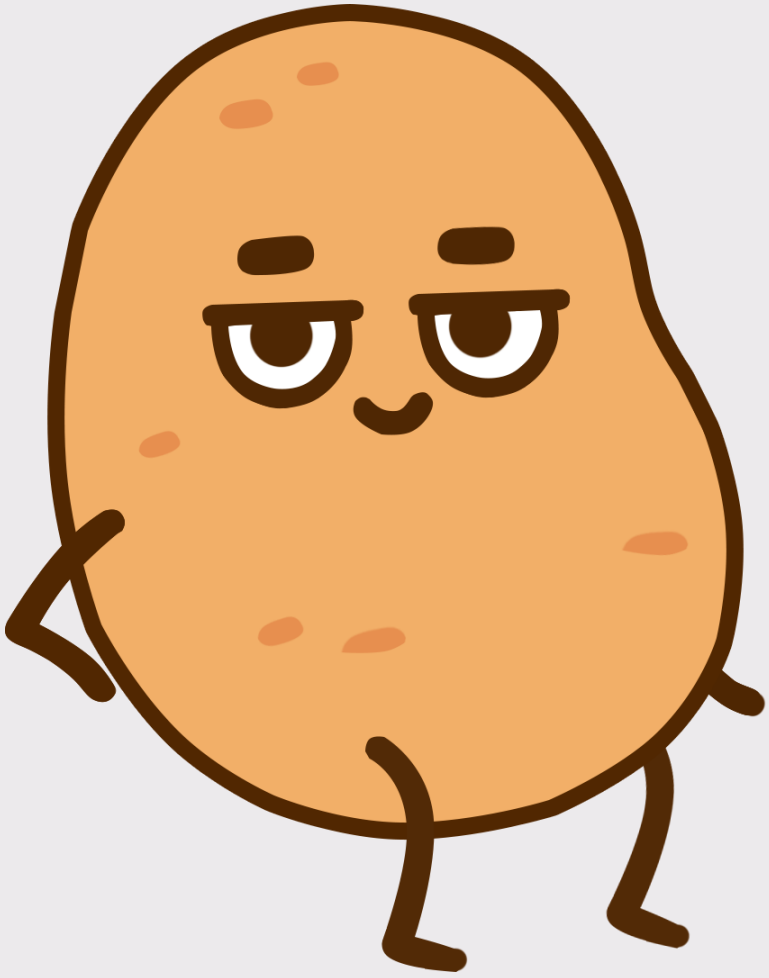

see you next part

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