



Solutions and
Crystallisation

Solute: This is the substance which is dissolved e.g. sugar

Solvent: This is the liquid in which the solute dissolves e.g. water

Solution: A solute dissolves in a solvent to form a solution e.g. sugary water

Soluble v Insoluble

Soluble solid is something that will dissolve in a liquid

Insoluble solid is something that can not dissolve in a liquid

Concentrated Solution

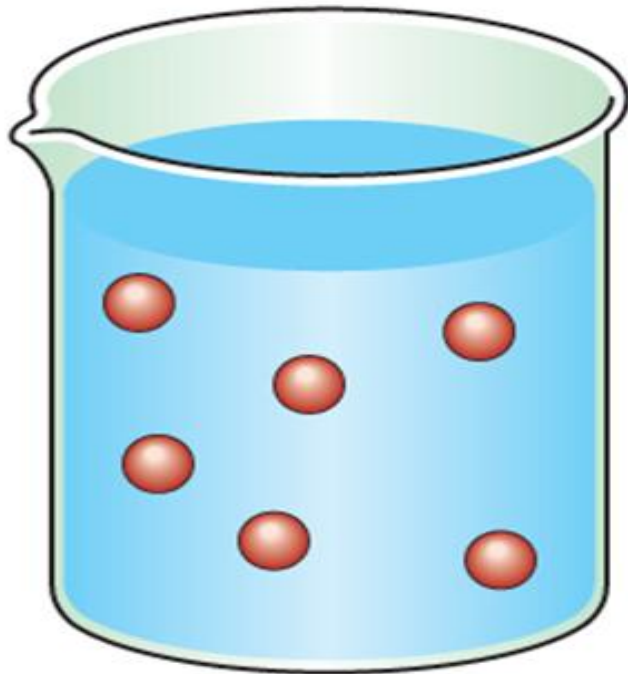
Large amount of solute dissolved in a solvent

Lots of sugar in water

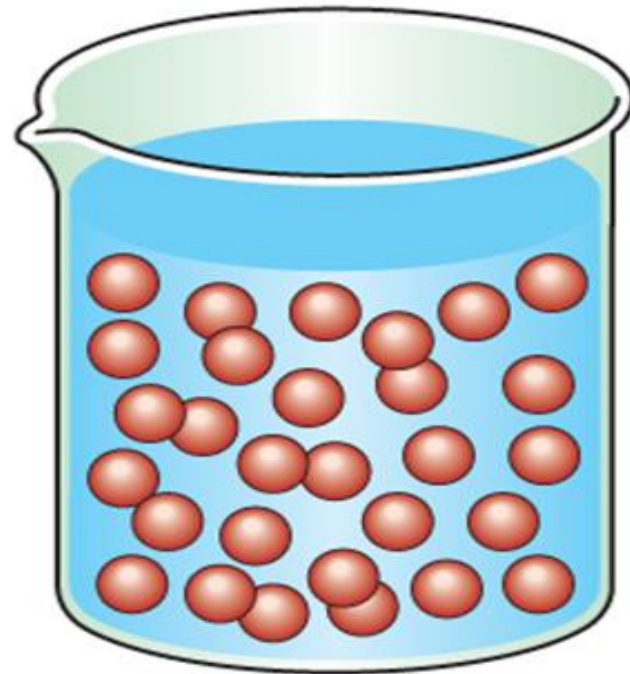
Dilute Solution

Small amount of solute dissolved in solvent

Small amount of sugar in water



Dilute solution



Concentrated solution

▲ Fig 18.1 A solution can be made concentrated by adding more solute

Saturated Solution

A saturated solution is one that contains as much solute as it can dissolve at that temperature

Solubility and Temperature

- The solubility of a solute can change in different temperatures

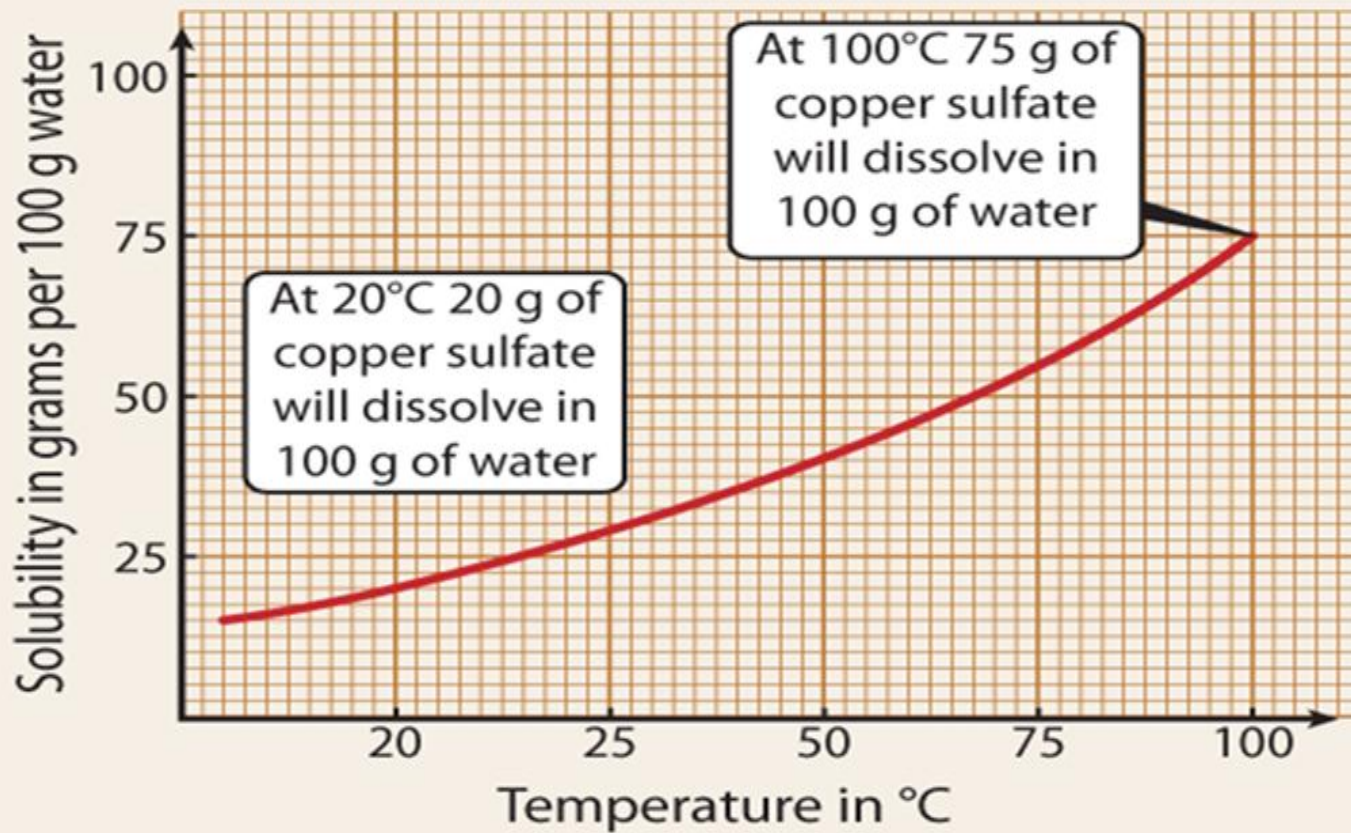


Fig 18.8 Solubility curve for copper sulfate (solute) in water (solvent)

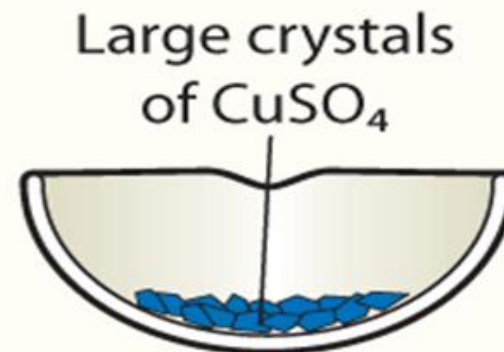
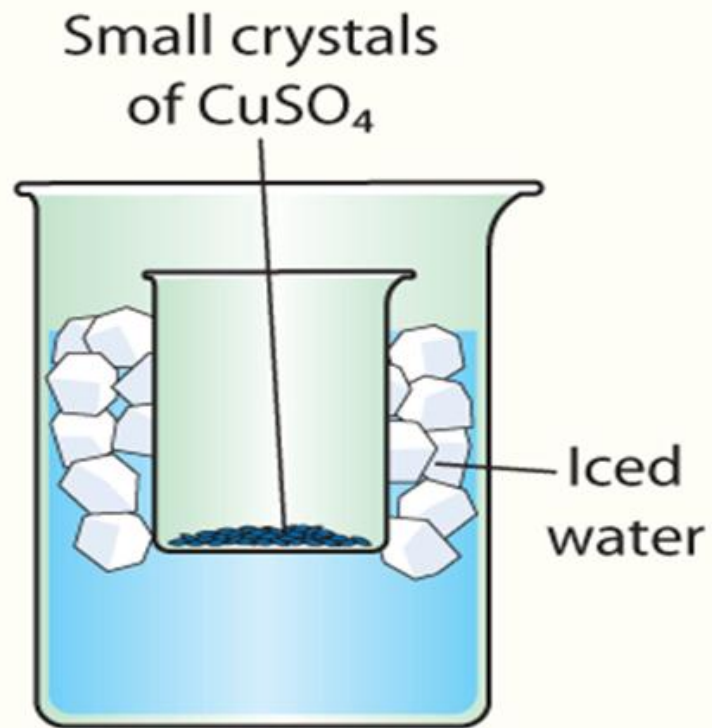
- From the graph estimate the temperature of the water when the solubility of copper sulfate is 25g/100g of water
- From the graph estimate the solubility of copper sulfate when the temperature of the water is 50 °C

Crystallisation

- When a saturated solution cools down, the solute comes back out of solution as crystals as it cools down

An experiment to prepare copper sulfate crystals

- Make a saturated solution of copper sulfate by dissolving copper sulfate in warm water
- Pour into a dish
- Allow to cool
- Crystals of copper sulfate forms



▲ Fig 18.11 Crystallisation