

# Edexcel Chemistry IGCSE

## 1.7C - States of Matter

Investigate the solubility of a solid in water at a specific temperature

**(chemistry only)**

Flashcards

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# What does the term solubility mean?



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Solubility is a measure of how much of a substance will dissolve in a particular volume of solvent

(Units - g per 100g of solvent)



Solid A dissolves in water but solid B does not. Which solid is more soluble?



Solid A dissolves in water but solid B does not.  
Which solid is more soluble?

Solid A



How could you investigate the solubility of solids in water at different temperatures?



# How could you investigate the solubility of solids in water at different temperatures?

- Place a beaker containing  $100\text{cm}^3$  of water in a water bath
- Add known masses of solid to the beaker until the solution is saturated
- Filter the solution to remove undissolved solid
- Record the mass of an evaporating basin then pour solution into this evaporating basin and evaporate the water
- Record the mass of solid and evaporating basin and calculate the mass of solute that dissolved
- Repeat at different temperatures



Why should the beaker be kept in the water bath when carrying out an experiment at a specific temperature?





Why should the beaker be kept in the water bath when carrying out an experiment at a specific temperature?

To ensure the temperature of the water in the beaker is constant throughout the experiment.

Removing the beaker would cause heat to be lost to the surroundings.



How can you check that the temperature of the water is constant throughout the experiment?



How can you check that the temperature of the water is constant throughout the experiment?

Keep a thermometer in the beaker and check regularly



When investigating solubility of a solid in water, what would you expect when the temperature of the water increases?  
Why?



When investigating how long it takes for a solid to dissolve in water, what would you expect when the temperature of the water increases? Why?

As the temperature of the water increases, the time taken for a given mass of solid to dissolve decreases - solubility increases.

Warmer water means water molecules have more kinetic energy. This helps to overcome the attraction between the solid particles, causing the particles to break apart.



When comparing the solubility of a solid in different temperatures of water, what variables must be controlled?



When comparing the solubility of a solid in different temperatures of water, what variables must be controlled?

- Mass of the solid
- Surface area of the solid
- Water temperature of each solution must be constant
- Same volume of water



How is the solubility of a gas affected by temperature?





How is the solubility of a gas affected by temperature?

As temperature increases, gases become less soluble

