

Y7 C2 – Separating Mixtures

science

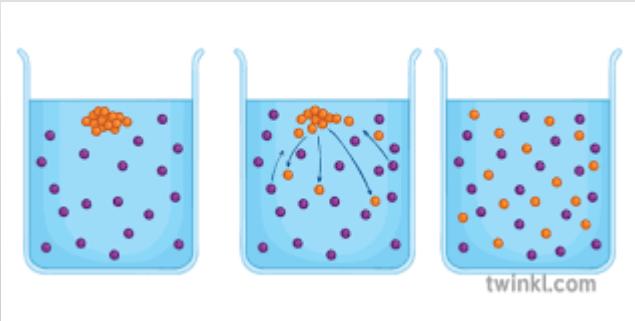


Pure Substances

- Δ Pure substances contain ONLY ONE type of substance
- Δ A compound is made up of 2 or more elements chemically combined and not easily physically separated
- Δ A mixture is an impure substance made of more 2 or more substances that can be separated by a physical method
- Δ A substance's purity can be tested by measuring its melting or boiling point. Impure substances generally melt or boil at lower temperatures.
- Δ Pure water freezes at 0°C and boils at 100°C

Solutions & Dissolving

Solute – the substance you are dissolving e.g. salt
Solvent – the liquid you are dissolving the solute in e.g. water
Solution – the mixture you have made when you dissolve a solute in a solvent e.g. salt water



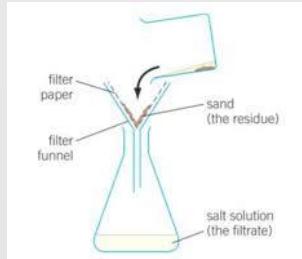
Solubility

Soluble means the substance will dissolve in the solvent e.g. salt is soluble in water
Saturated – the solution can not dissolve any more solute
Increasing the temperature can increase the solubility



Filtration

Filtration is used to separate soluble and insoluble substances e.g. salt and sand



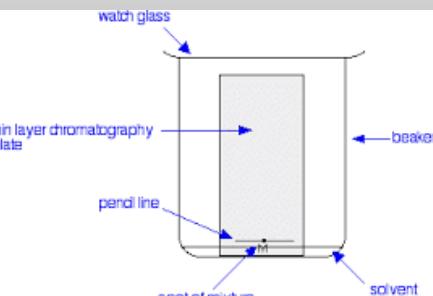
Evaporation

Evaporation is used to separate a solution.
The solvent is evaporated leaving the solute behind
e.g. water is evaporated from salt water leaving salt

Chromatography

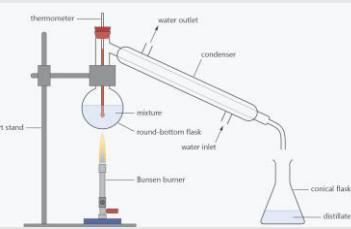
Used to separate substances based on their solubility in the solvent.
Substances with high solubility move further up the paper.
A line is drawn in pencil so it doesn't dissolve in the water.
Ink spots must be above the water (solvent)

$$\text{Rf value} = \frac{\text{distance travelled by spot}}{\text{distance travelled by solvent}}$$



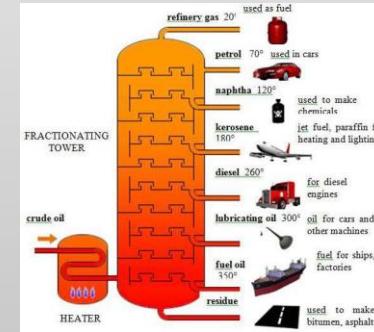
Distillation

Distillation is used to separate the solvent from a solution
e.g. to get water from salt water
The solvent is evaporated then condensed because the boiling points are different



Fractional Distillation

Fractional distillation is used to separate liquids with different boiling points e.g. water and ethanol or fractions of crude oil
Oil is vaporised and put in a fractionating column
The column is hot at the bottom and cool at the top
Substances with high m.pt condense at the bottom
Substances with low m.pt condense at the top



Key Words

Pure, solute, solvent, mixture, solution, solubility, saturated, filtration, evaporation, chromatography, distillation, fractional distillation