Elements, compounds and mixtures

Chromatography

Key term	Definition
Chromatogram	the image that shows the results of separating a mixture by chromatography
Chromatography	a method of separation based on how easily each substance in a mixture is carried by a mobile phase (such as a liquid solvent) that is moving through a stationary phase (such as a porous solid, like paper)
Gas chromatography	chromatography using a gas as the mobile phase, which passes through a column lined with a solid or viscous liquid as the stationary phase
Mobile phase	the liquid or gas solvent that moves through the stationary phase, carrying the substances that are being analysed with it
Paper chromatography	chromatography using a liquid solvent as the mobile phase, which soaks through paper as the stationary phase
R_f value	the ratio of the distance moved by a compound to the distance moved by the solvent
Stationary phase	the material (such as the paper in paper chromatography) that does not move, but which the mobile phase flows through
Thin layer chromatography	chromatography using a liquid solvent as the mobile phase, which soaks through a layer of silicon dioxide bonded to a plastic or glass plate as the stationary phase

Mixtures and separation

Key term	Definition
Crystallisation	a method of separation used to get crystals of a solid by very slowly evaporating the solvent from a solution
Evaporation	a method of separation used to form solids by heating to remove the solvent from a solution
Filtration	a method of separation used to remove an insoluble solid from a liquid
Formulation	a mixture that has been designed as a useful product, made by mixing substances in carefully measured quantities, such as paint or medicines
Fractional distillation	a method of separation involving repeated evaporation and condensation used to separate a mixture of liquids with different boiling points
Separating funnel	a container with a tap at the bottom used to separate liquids that are not miscible by running each layer out into different containers below
Simple distillation	a method of separation involving evaporation and condensation that is used to separate the solvent from a solute that does not evaporate

Representing elements and compounds

Key term	Definition
Chemical formula	uses chemical symbols to show the relative number of the atoms (or ions) of each element in a substance, such as H_2O for water or $NaCl$ for sodium chloride
Chemical symbol	a single letter or two letters that is used to represent an element, such as C for carbon, Na for sodium
Empirical formula	Uses chemical symbols to give the simplest ratio of atoms (or ions) of each element in a substance, such as CH_2 for ethene which has molecular formula C_2H_4
Molecular formula	uses chemical symbols to give the number of atoms of each element in one molecule of the substance, such as N_2 for nitrogen or H_2O for water
State symbol	used sometimes with the chemical formula to show the states of substances, where (s) is solid, (l) is liquid, (g) is gas and (aq) is aqueous

Solubility

Key term	Definition
Aqueous	when a substance is dissolved in water; shown by the state symbol (aq)
Concentrated	when there is a lot of solute dissolved in a particular volume of solvent
Dilute	when there is not very much solute dissolved in a particular volume of solvent
Precipitate	an insoluble solid that is formed within a solution during a chemical reaction between two soluble substances
Saturated solution	when no more solute can dissolve in a particular volume of solvent at that temperature
Solubility	the maximum mass of a solute which can be dissolved in 100 grams (g) of solvent at a particular temperature
Solution	the mixture produced when a solute dissolves in a solvent