

Key definitions

Soluble	A substance can dissolve
Insoluble	A substance cannot dissolve
Solvent	The liquid solute dissolves in
Solute	The substance that dissolves
Solution	Formed when a solute dissolves in a solvent
Pure substance	Consists of one element or compound
Impure substance	Contains more than one element
Relative atomic mass	The mean mass of an atom of an element compared to 1/12 the mass of a carbon-12 atom.
Relative formula mass	The mean mass of a unit of substance compared to 1/12 the mass of a carbon-12 atom.
Empirical formula	Shows the simplest whole-number ratio of the atoms of each element in a compound
Molecular formula	Shows the actual number of atoms of each element in a compound

How to determine purity

Method 1: Use melting point data.

An impure substance melts over a range of temperatures or at a point that is lower than the pure substance.

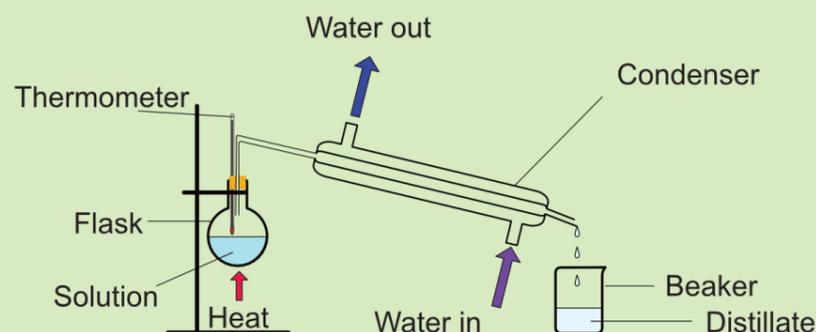
Method 2: Use chromatography data

More than 1 spot or peak shows an impure substance

Separation Techniques

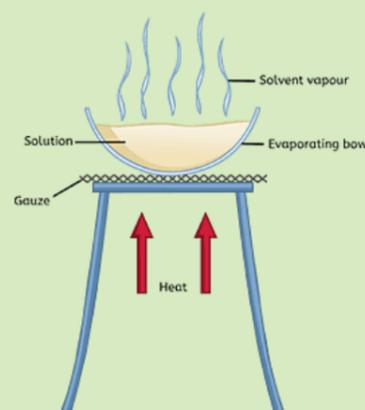
Distillation

Heat the solution to evaporate the solvent. The solvent cools and condenses and is collected. Will collect and separate both substances.



Crystallisation

Separates a soluble substance from a solution. Used when only the salt is required.



Chromatography

Paper Chromatography

The stationary phase is the paper and the mobile phase is the liquid solvent (water)

Thin layer Chromatography

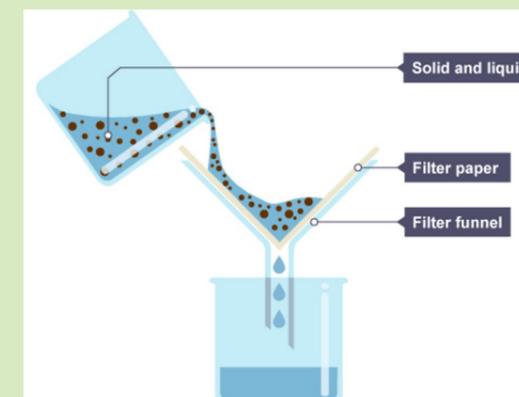
The stationary phase is a thin layer of silica or alumina powder and the mobile phase is the liquid solvent (water or ethanol)

Gas Chromatography

The stationary phase is silica or alumina powder or a dense gel. The mobile phase is an unreactive gas.

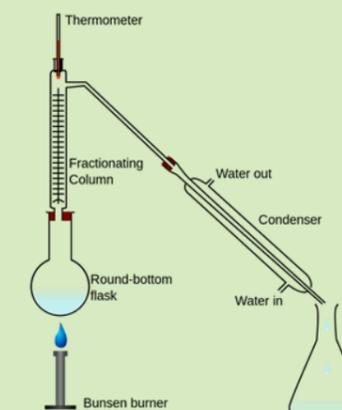
Filtration

Separates an insoluble substance from a liquid.



Fractional Distillation

Separates a mixture of liquids.



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For more help, visit Trinity TV and watch the following videos:

Trinity TV > Year 9 > Science > Elements, Compounds and Mixtures