

1. Stoichiometric Relationships

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Keyword	Definition
Absolute Temperature	Temperature in kelvin.
Amount	The number of particles divided by Avogadro's Number.
Anhydrous Salt	An ionic compound with no water molecules in its crystal structure.
Avogadro's Number	The number of particles in one mole of a substance, the number $6.02214129 \times 10^{23}$
Back Titration	A technique in which a known excess amount of reagent is added to the solution to be estimated. The unreacted amount of the added reagent is then determined by titration, allowing the amount of substance in the original test solution to be calculated.
Balanced Equation	When there are equal numbers of atoms on both sides of an equation, obeying the law of conservation.
Boyle's Law	States that as pressure decreases, a gas' volume will increase.
Burette	A graduated glass tube with a stopcock at one end, used to measure the volume of a liquid or gas.
Carbon-12	An isotope of carbon containing 6 protons and 6 neutrons.
Charles' Law	States that as temperature decreases, a gas' volume will decrease.
Chemical Change	A change in the arrangement of electrons when new products are made from reactants.
Chemical Compounds	A chemical combination of different elements, containing a fixed ratio of atoms, with different chemical and physical properties than those of its component elements.
Chemical Elements	A single pure substance made of only one type of atom.
Chemical Equation	Shows the change from reactants to products.
Chemical Symbol	The symbol assigned to each individual element, seen on the Periodic Table.
Concentration	The amount of solute per volume of the solution. It has units mol/dm^3 or g/dm^3 .
Conical Flask	A piece of equipment with a flat bottom, conical body and a cylindrical neck.
Diffusion	The process by which the particles of a substance become evenly distributed, as a result of their random movement.
Dilution	Adding more solvent to a solution.
Empirical Formula	The simplest whole number ratio of the elements in a compound.
End-Point	The point in a titration when an indicator shows that the amount of reactant necessary for a complete reaction has been added to a solution.
Equivalence Point	The point at which two solutions have reacted completely.

Excess	Reactants in a reaction that are not fully used.
Experimental Yield	The actual quantity of product obtained from a reaction in a lab.
Fluids	Liquids and gases, anything that can flow.
Gas Laws	Laws that relate to the temperature, pressure and volume of a gas.
Heterogeneous Mixture	A mixture with a non-uniform composition, so its properties are not the same throughout.
Homogeneous Mixture	A mixture with uniform composition and properties throughout.
Hydrated Salt	An ionic compound which has attracted water molecules and incorporated them in its crystal structure.
Ideal Gas	A gas that obeys the ideal gas laws.
Ideal Gas Equation	$pV = nRT$
Indicator	A substance that gives a visible sign in the presence or absence of a chemical species.
Inter-particle Forces	The forces found between particles, holding them together.
Isotopes	Atoms of the same element with different number of neutrons in the nucleus.
Kinetic Theory	A theory that recognises that the average energy of particles is directly related to the temperature of the system.
Limiting Reactant	The reactant that determines the quantity of product made.
Mixture	Composed of two or more substances in which no chemical combination has occurred.
Mol	The unit of amount.
Molar Mass	The relative atomic mass expressed in grams. It has the unit g/mol.
Molar Volume	The volume occupied by one mole of any gas.
Mole	The number $6.02214129 \times 10^{23}$
Native	Elements that are found uncombined in nature.
Nucleons	A subatomic particle found in the nucleus; proton or neutron
Percentage Yield	A measure of efficiency of the conversion of reactants to products using both the theoretical and experimental yields.
Pipette	A piece of equipment used to measure out small quantities of liquid.
ppm	Parts per million
Products	The substances at the end of a chemical reaction.
R	See Universal Gas Constant
Reactants	The substances at the beginning of a chemical reaction.
Real Gases	Gases that deviate from ideal behaviour at high pressure and low temperatures.
Relative Atomic Mass	The weighted average of one atom of an element relative to one-twelfth of an atom of carbon-12.
Relative Formula Mass	The sum of the weighted average of the masses of the atoms in a formula unit relative to one twelfth of an atom of carbon-12.
Solute	The substance that has been dissolved.

Solutions	A homogeneous mixture of two or more substances which may be solids, liquids or gases or a combination of these.
Solvent	The component in a solution present in the greatest quantity which has something dissolved in it.
Standard Solutions	A solution with accurately known concentration.
State Symbols	Used to show the state of reactants and products taking part in a reaction.
States of Matter	The different forms that atoms can be arranged in (solid, liquid, gas, plasma)
Stock Solution	A concentrated starting solution which can be diluted down.
Stoichiometric Coefficients	The numbers put into a balanced equation to balance it.
Stoichiometry	Describes the relationship between the amounts of reactants and products during chemical reactions.
STP	A temperature of 273K and a pressure of 100kPa.
Theoretical Yield	The quantity of product that can form from the complete conversion of the limiting reactant.
Titration	A common lab method of quantitative chemical analysis used to determine the concentration of an identified substance.
Universal Gas Constant	$8.31 \text{ J K}^{-1}\text{mol}^{-1}$
Van der Waals Equation	A correction for the Ideal Gas Equation, taking into account volume of particles and interparticle attractions. Specific to different gases. (Not needed for IB)
Volumetric Analysis	Any method of quantitative chemical analysis in which the amount of a substance is determined by measuring the volume.
Water of Crystallisation	The ratio of water molecules to the formula unit of ionic compounds.
Weighted Average	The average atomic mass of a specific element.