

TERMINOLOGY IN CHEMISTRY FORM 4

Terms	Definition
Matter	Something that has mass and occupies space
Proton number	Number of protons in the nucleus of an atom
Nucleon number	Total number of protons and neutrons in the nucleus of an atom
Isotopes	Atoms of the same element with the same number of protons but different number of neutrons
Natural abundance	Percentage of isotopes present in a natural sample of element
Relative atomic mass	Average mass of an atom of the element compared to 1/12 of the mass of one carbon-12 atom
Relative molecular mass	Average mass of the molecule compared to 1/12 of the mass of one carbon-12 atom
Relative formula mass	Average mass of the ionic compound compared to 1/12 of the mass of one carbon-12 atom
Avogadro constant	Number of particles contained in one mole of substance, that is $6.02 \times 10^{23} \text{ mol}^{-1}$
Molar mass	Mass of one mole of substance
Molar volume	Volume occupied by 1 mol of a gas
Chemical formula	Representation of a chemical substance using alphabets to represent the atoms and subscript numbers to show the number of each type of atoms found in the elementary entities of the substance
Empirical formula	Chemical formula that shows the simplest whole number ratio of the number of atoms of each element in a compound
Molecular formula	Chemical formula that shows the actual number of atoms of each element found in a molecule of a compound
Modern Periodic Table of Elements	A form of systematic classification of elements in ascending order of proton numbers from left to right and from top to bottom
Groups	Vertical columns in the Periodic Table of Elements
Periods	Horizontal rows in the Periodic Table of Elements
Hydrogen bonds	Attractive forces between hydrogen atom that has bonded with an atom of high electronegativity such as nitrogen, oxygen or fluorine with nitrogen, oxygen or fluorine in another molecule
Dative bond	A type of covalent bond where the electron pair that is shared comes from one atom only
Acids	Chemical substances that ionise in water to produce hydrogen ions
Basicity of acids	Number of hydrogen ions that can be produced by an acid molecule that ionizes in water
Base	Substance that reacts with acids to produce salt and water only
Alkali	Chemical substances that ionise in water to produce hydroxide ions
pH	Logarithmic measure of the concentration of hydrogen ions in an aqueous solution
Strong acid	An acid that ionises completely in water to produce a high concentration of hydrogen ions
Weak acid	An acid that ionises partially in water to produce a low concentration of hydrogen ions
Strong alkali	An alkali that ionises completely in water to produce a high concentration of hydroxide ions
Weak alkali	An alkali that ionises partially in water to produce a low concentration of hydroxide ions
Concentration	A measurement that shows the quantity of solute dissolved in a unit volume of solution
Concentration in g dm^{-3}	Mass of solute found in 1 dm^3 solution

TERMINOLOGY IN CHEMISTRY FORM 4

Terms	Definition
Concentration in mol dm ⁻³	Number of moles of solute found in 1 dm ⁻³ solution
Standard solution	Solution with known concentration
Neutralisation	Reaction between an acid and an alkali(base) to produce salt and water only
Titration	Qualitative analysis method to determine the volume of acid needed to completely neutralize a given volume of alkali and vice versa
End point	Point in titration at which the acid-base indicator changes colour
Salt	Ionic compound formed when the hydrogen ion from the acid is replaced with the metal ion or the ammonium ion
Soluble salts	Salts that dissolve in water at room temperature
Non-soluble salts	Salts that do not dissolve at room temperature
Qualitative analysis of salt	Technique used to identify the cation and anion present in a salt by analysing its physical and chemical properties
Rate of reaction	Changes in quantity of the reactant per unit time or changes in quantity of the product per unit time
Average rate of reaction	Average value for the rate of reaction that occurs in a particular time interval
Instantaneous rate of reaction	Rate of reaction at a particular point of time
Alloy	Mixture of two or more elements where the main element is a metal
Ceramic	Solid made up of inorganic and non-metallic substances
Composite materials	Material made from combining two or more non-homogenous substances, that is matrix substance and strengthening substance

TERMINOLOGY IN CHEMISTRY FORM 5

Terms	Definition
Redox reaction	Chemical reaction where oxidation and reduction occur simultaneously
Electropositivity	Tendency of atoms to release electrons to form cations
Electrochemical series	Series of metal arrangements according to the standard electrode potential in the order of most negative to most positive
Electrode potential	Potential difference produced when an equilibrium is established between metal M and the aqueous solution containing metal M^{n+} ions in a half-cell
Simple chemical cell	Two different metal plates are dipped into an electrolyte and connected with connecting wires
Electrolytes	Substances that can conduct electricity in either the molten state or aqueous solution and undergo chemical changes
Non-electrolytes	Substances that cannot conduct electricity in all states
Conductor	Substances that conduct electricity in solid or molten state, but do not undergo chemical changes
Electrolysis	Process whereby compounds in the molten state, or an aqueous solution decompose into their constituent elements by passing electricity through them
Corrosion of metal	Redox reaction where the metal is oxidized spontaneously when the metal atoms release electrons to form metal ions
Carbon compounds	Compounds that contain carbon as their constituent element
Organic compounds	Compounds originating from living things that contain the carbon element bonded covalently with other elements such as hydrogen, nitrogen, sulphur and phosphorus
Inorganic compounds	Compounds originating from non-living materials such as oxides of carbon, carbonate compounds and cyanide compounds
Hydrocarbon	Organic compounds containing only hydrogen and carbon
Non-hydrocarbon	Organic compounds containing carbon and hydrogen and other elements, such as oxygen, nitrogen, phosphorus or halogens
Saturated hydrocarbon	Hydrocarbons containing only single bonds between carbon atoms
Unsaturated hydrocarbon	Hydrocarbons containing at least one double bond or triple bond between carbon atoms
Cracking	Process of breaking long chain hydrocarbons into smaller hydrocarbons
Molecular formula	Chemical formula that shows the type and actual number of atoms of each element in a molecule
Structural formula	Chemical formula that shows the type of bond and how the atoms in a molecule are bonded to each other
Structural isomerism	Phenomenon where a compound has the same molecular formula but with two or more different structural formulae
Isomer	Molecules that have the same molecular formula but different structural formulae
Chain isomerism	Isomers that have different arrangements of carbon chains; either straight chain or branched chain
Position isomerism	Isomers that have different positions of functional group on the same carbon chain
Exothermic reactions	Chemical reactions that release heat to the surroundings
Endothermic reactions	Chemical reactions that absorb heat from the surroundings

TERMINOLOGY IN CHEMISTRY FORM 5

Terms	Definition
Heat of reaction	Heat change of one mole of reactant that reacts or one mole of product that is formed
Heat of precipitation	Heat change when 1 mole of precipitate is formed from their ions in an aqueous solution
Heat of displacement	Heat change when 1 mole of a metal is displaced from its salt solution by a more electropositive metal
Heat of neutralisation	Heat change when 1 mole of water is formed from the reaction between an acid and an alkali
Heat of combustion	Heat released when 1 mol of a substance is completely burnt in excess oxygen
Fuel	Substances that burn in the air to produce heat energy
Fuel value of a fuel	Amount of heat energy released when one gram of fuel is completely burnt in excess oxygen
Polymer	Long chain molecule that is made from a combination of many repeating basic units
Monomer	Basic unit of a polymer
Natural polymers	Polymers that are naturally available and can be obtained from our surroundings
Synthetic polymers	Polymers that are man-made through chemical reactions in laboratories or factories
Thermoplastic polymers	Polymers that can be repeatedly remoulded upon heating and can be recycled
Thermosetting polymers	Polymers that cannot be remoulded after heating
Elastomer polymers	Polymers that can be stretched and can return to their original shape when released
Vulcanisation	Process of producing rubber that is more elastic and with better quality through the production of cross-links between polymer chains
Synthetic rubber	Synthetic polymer that is elastic in nature or elastomer polymer
Oils and fats	Esters produced through the reaction between fatty acids and glycerol(propan-1,2,3-triol)
Soaps	Sodium or potassium fatty acid salts
Detergents	Sodium salts of sulphonic acids
Food additives	Natural or synthetic ingredients added to food to prevent damage or to improve the appearance, taste or texture
Medicines	Chemicals used to help with the treatment or prevention of diseases
Cosmetics	Materials or products that are used externally to cleanse, protect or enhance one's appearances
Nanoscience	Study on processing of substances at nanoscale that are between 1 nanometre to 100 nanometres
Nanotechnology	Development of substances or gadgets using the properties of nanoparticles
Green Technology	Technology or application developed to minimise the negative effects of harmful human activities
Wastewater	Liquid waste that consists of human waste, food waste, oil and chemicals
Effluent	Waste in the liquid form discharged into the drainage system or water source