

8. Acids and Bases

27 November 2021 23:10

Keyword	Definition
Acid Deposition	Deposition of acids from the atmosphere in solid or liquid form on Earth's surface.
Acid Rain	The deposition of acidic material from the atmosphere
Acid-Base Indicators	Indicators that change colour reversibly according to the concentration of H ⁺ ions in a solution.
Acid-Base Titration	The technique of calculating the unknown concentration of an acid or base using a known concentration and volume of the other chemical.
Amphiprotic	A substance that can act as both a proton donor and a proton acceptor.
Brønsted-Lowry Theory	The theory that all acids are proton donors and all bases are proton acceptors.
Conjugate Acid-Base Pairs	The acid and base in a conjugate acid-base pair differ by just one proton, they are found on opposite sides of a reaction.
Effervescence	When gas is being given off with visible bubbles.
Enthalpy of Neutralisation	The enthalpy change that occurs when an acid and base react together to form one mole of water.
Equivalence Point	The point when an acid and base exactly neutralise each other.
Eutrophication	The process by which lake or pond water becomes rich in mineral and organic nutrients that promote a proliferation of plant life which reduces the dissolved oxygen content and often causes the extinction of other organisms.
Flue-Gas Desulfurisation	A set of technologies used to remove SO ₂ from exhaust flue gases of fossil-fuel power plants and other sulfur oxide emitting processes.
Hydrodesulfurisation	A catalytic chemical process by which sulfur is removed from natural gas and refined petroleum.
Ionic Product Constant of Water	The constant with a fixed value at a specified temperature which gives the amount of ionisation undergone by water.
Leaching	The process of a solute becoming detached or extracted from its carrier substance by way of a solvent.
Litmus	The best known acid-base indicator derived from lichens, which turns pink in the presence of acid and blue in the presence of alkalis.
Neutralisation	A reaction that occurs when an acid and base react together to form a salt and water. They are all exothermic reactions.
Parent Acid	The acid used to make a specific salt.
Parent Base	The base used to make a specific salt.
pH Meter	An accurate way of measuring pH, it uses a special electrode to detect H ⁺ concentration.
Salt	An ionic compound formed when the hydrogen of an acid is replaced by another cation.
Spectator Ions	A species that does not change during the course of a reaction.
Strong Acid	An acid that dissociates fully in water, existing entirely as ions in solution. They are good proton donors and form weak conjugate bases.
Strong Base	A base that dissociates fully in water, existing entirely as ions in solution. They are good proton acceptors and form weak conjugate acids.

Universal Indicator	An indicator formed from the mixture of several different indicators which changes colours several times across a range of different H ⁺ ion concentrations.
Weak Acid	An acid that only partially dissociates in water, with the undissociated form dominating in the solution. They are poor proton donors and form strong conjugate bases.
Weak Base	A base that only partially dissociates in water, with the undissociated form dominating the solution. They are poor proton acceptors and form strong conjugate acids.

HIGHER

Keyword	Definition
Acid Dissociation Constant	See K _a
Base Dissociation Constant	See K _b
Buffer Region	The region on a pH curve where small additions of acid or base result in little or no change in pH.
Buffer Solution	An aqueous solution consisting of a weak base/acid and its conjugate acid/base, which resists a change in pH when small amounts of either hydroxide ions (from a base) or hydrogen ions (from an acid) are added
Buffering Capacity	The ability of a buffer to absorb hydrogen ions or hydroxide ions without a significant change in pH.
Burette	A graduated glass tube with a tap at one end, for delivering known volumes of a liquid.
Change-Point	Where the indicator changes colour suddenly during a titration; at this stage the acidic and basic forms of the indicator are present in equal concentrations.
Coordinate Bond	A covalent bond where both electrons come from one species.
Electrophile	An electron-deficient species that accepts a lone pair of electrons from another reactant to form a new covalent bond. Lewis acid.
End-Point	Where the indicator changes colour suddenly during a titration; at this stage the acidic and basic forms of the indicator are present in equal concentrations.
End-Point Range	A range of ±1 pH units on either side of the value of pK _a at which the eye can definitely notice the colour change occurring
Equivalence Point	The point in an acid-base titration where the acid and base have been added in stoichiometric amounts, so that neither is present in excess; if a suitable indicator is chosen it will correspond to the end-point
Half-Equivalence Point	The stage on a pH curve at which half the amount of weak acid or base has been neutralised in a titration.
K _a	The acid dissociation constant, used to distinguish between strong and weak acids. Strong acids have exceptionally high K _a values, the higher the value, the more an acid dissociates.
K _b	The base dissociation constant, used to measure how completely a base dissociates in water. The higher the value, the more a base dissociates.
Nucleophile	An electron-rich species that donates a lone pair of electrons to form a new

	covalent bond in a reaction. Lewis base
pH Curves	A graphical representation of the pH of a solution during a titration.
Pipette	A tool used to transport a measured volume of liquid between containers
pK _a	The negative base-10 logarithm of the acid dissociation constant of a solution. It is used to determine the strength of an acidic solution.
pK _b	The negative base-10 logarithm of the base dissociation constant of a solution. It is used to determine the strength of a base solution.
pOH Scale	A scale which measures the concentration of hydroxide ions in a solution.
Point of Inflection	The location where a curve changes from sloping up or down to sloping down or up.
Stoichiometric Point	A reaction where amounts of reactants are reacted together so that all are consumed at exactly the same time.