

# Dissociation Meaning In Chemistry

Their importance becomes apparent in analyzing acid–base reactions for gaseous or liquid species, or when acid or base character may be somewhat less apparent. The first of these concepts was provided by the French chemist Antoine Lavoisier, around 1776. eb119234ca

Carbon–hydrogen bond Yu-Ran Luo and Jin-Pei Cheng &quot;Bond Dissociation Energies&quot; in CRC In chemistry, the carbon–hydrogen bond (C–H bond) is a chemical bond between carbon and hydrogen atoms that can be found in many organic compounds. Archived from the original on 29 August 2016. This bond is a covalent, single bond, meaning that carbon shares its outer valence electrons with up to four hydrogens. This completes both of their outer shells, making them stable. Organic Chemistry, Michigan State University eb119234ca

== A == eb119234ca The energy involved in this process is called bond dissociation energy (BDE). BDE is defined as the "enthalpy (per mole) required to break a given bond of some specific molecular entity by homolysis," symbolized as D. BDE is dependent on the strength of the bond, which is determined by factors relating to the stability of the resulting radical species.

eb119234ca Note: All periodic table references refer to the IUPAC Style of the Periodic Table. eb119234ca

Acid–base reaction Several theoretical frameworks provide alternative conceptions of the reaction mechanisms and their application in solving related problems; these are called the acid–base theories, for example, Brønsted–Lowry acid–base theory. In chemistry, an acid–base reaction is a chemical reaction that occurs between an acid and a base. It can be used to determine pH via titration. Several In chemistry, an acid–base reaction is a chemical reaction that occurs between an acid and a base. It can be used to determine pH via titration eb119234ca

The net charge of an ion is indicated as a superscript on the right. To indicate a +1 or –1 charge, only a + or – is written respectively, as seen in Na<sup>+</sup> (sodium ion) and F<sup>–</sup> (fluoride ion). To indicate a more severe charge, the number of additional or missing electrons is supplied... eb119234ca In water, by altering the autoionization equilibrium, bases yield solutions in which the hydrogen ion activity is lower than it is in pure water, i.e., the water has a pH higher than 7.0 at standard conditions. A soluble base is called an alkali if it contains and releases OH<sup>–</sup> ions quantitatively. Metal oxides, hydroxides, and especially alkoxides are basic, and conjugate bases of weak acids... eb119234ca A dissociative adsorption process may be homolytic or heterolytic, depending on how the electrons participating in the molecular bond are divided in the dissociation process. In homolytic dissociative adsorption, electrons are divided evenly between the fragments, while in heterolytic... eb119234ca When hemoglobin has no bound oxygen, nor bound carbon dioxide, it has the unbound conformation (shape). The binding of the first oxygen molecule induces a change in the shape of the hemoglobin that increases its ability to bind to the other three oxygen molecules.This... eb119234ca Because of the relatively high energy required to break bonds in this manner, homolysis occurs primarily under certain circumstances: eb119234ca

Ion Solvent molecules An ion ( ) is an atom or molecule with a net electrical charge. ions creation by dissociation. The net charge of an ion is not zero because its total number of electrons is unequal to its total number of protons. The charge of an electron is considered to be negative by convention and this charge is equal and opposite to the charge of a proton, which is considered to be positive by convention. The most peculiar feature is formation of solvation layer around ions almost immediately after dissociation eb119234ca

The Arrhenius theory describes an acid as a substance that increases the concentration of hydrogen ions (H3O<sup>+</sup> or H<sup>+</sup>) in a solution. eb119234ca

Glossary of chemistry terms ions in a fully saturated solution, with respect to the solute's particular dissociation equilibria and the particular ions present. For a dissociation equilibrium This glossary of chemistry terms is a list of terms and definitions relevant to chemistry, including chemical laws, diagrams and formulae, laboratory tools, glassware, and equipment. Chemistry is a physical science concerned with the composition, structure, and properties of matter, as well as the changes it undergoes during chemical reactions; it features an extensive vocabulary and a significant amount of jargon eb119234ca

Breaking the atomic bonds of the dissociating molecule requires a large amount of energy, thus dissociative adsorption is an example of chemisorption, where strong adsorbate–substrate bonds are created. These bonds can be atomic, ionic or metallic in nature. In contrast to dissociative adsorption, in molecular adsorption the adsorbate stays intact as it bonds with the surface. Often, a molecular adsorption state can act as a precursor in the adsorption process, after which the molecule can dissociate only after sufficient additional energy is available. eb119234ca It is important to think of the acid–base reaction models as theories that complement each other. For example, the current Lewis model has the broadest definition of what an acid and base are, with the Brønsted–Lowry theory being a subset of what acids and bases are, and the Arrhenius theory being the most restrictive. eb119234ca

**Homolysis (chemistry)** In chemistry, homolysis (from Greek ὁμοιος (homoios) 'equal' and λύσις (lusis) 'loosening') or homolytic fission is the dissociation of a molecular bond In chemistry, homolysis (from Greek ὁμοιος (homoios) 'equal' and λύσις (lusis) 'loosening') or homolytic fission is the dissociation of a molecular bond by a process where each of the fragments (an atom or molecule) retains one of the originally bonded electrons. That is, the two electrons involved in the original bond are distributed between the two fragment species. During homolytic fission of a neutral molecule with an even number of electrons, two radicals will be generated. Bond cleavage is also possible by a process called heterolysis eb119234ca

**Dissociative adsorption** This process is the basis of many applications, particularly in heterogeneous catalysis reactions. In homolytic dissociative adsorption, electrons are divided Dissociative adsorption is a process in which a molecule adsorbs onto a surface and simultaneously dissociates into two or more fragments. how the electrons participating in the molecular bond are divided in the dissociation process. The dissociation involves cleaving of the molecular bonds in the adsorbate, and formation of new bonds with the substrate eb119234ca

**Carbon-hydrogen bonds** have a bond length of about 1.09 Å (1.09 × 10<sup>−10</sup> m) and a bond energy of about 413 kJ/mol (see table below). Using Pauling's scale—C (2.55) and H (2.2)—the electronegativity difference between these two atoms is 0.35. Because of this small difference in electronegativities, the C–H bond is generally regarded as being non-polar. In structural formulas of molecules, the hydrogen atoms are often omitted. Compound classes consisting solely of C–H bonds and C–C bonds are alkanes, alkenes, alkynes, and aromatic hydrocarbons. Collectively they are known as hydrocarbons. eb119234ca **A base** is a substance that increases the concentration of hydroxide ions (OH<sup>−</sup>) in a solution. However, Arrhenius's definition... eb119234ca In the context of a chemical reaction the term neutralization is used for a reaction between an acid and a base or alkali. Historically, this reaction was represented as eb119234ca In 1884, Svante Arrhenius proposed that a base is a substance which dissociates in aqueous solution to form hydroxide ions OH<sup>−</sup>. These ions can react with hydrogen ions (H<sup>+</sup> according to Arrhenius) from the dissociation of acids to form water in an acid-base reaction. A base was therefore a metal hydroxide such as NaOH or Ca(OH)<sub>2</sub>. Such aqueous hydroxide solutions were also described by certain characteristic properties. They are slippery to the touch, can taste bitter, and change the color of pH indicators (e.g., turn red litmus paper blue). eb119234ca == Meaning of "neutralization" == eb119234ca In October 2016, astronomers reported that the very basic chemical ingredients of life—the carbon-hydrogen molecule (CH, or methylidyne radical), the carbon-hydrogen positive ion (CH<sup>+</sup>) and the carbon ion (C<sup>+</sup>)—are created, in large part, using energy from the ultraviolet light... eb119234ca **Hemoglobin (Hb)** is the primary vehicle for transporting oxygen in the blood. Each hemoglobin molecule can carry four oxygen molecules. These molecules of oxygen bind to the globin chain of the heme prosthetic group. eb119234ca == Organic radicals == eb119234ca == Background == eb119234ca

**Radical (chemistry)** In chemistry, a radical, also known as a free radical, is an atom, molecule, or ion that has at least one unpaired valence electron. With some exceptions, these unpaired electrons make radicals highly chemically reactive. With some exceptions In chemistry, a radical, also known as a free radical, is an atom, molecule, or ion that has at least one unpaired valence electron eb119234ca

Radicals are important in combustion, atmospheric chemistry, polymerization, plasma chemistry, biochemistry, and many other chemical processes. eb119234ca

**Neutralization (chemistry)** The pH of the neutralized solution depends on the acid strength of the reactants. In a reaction in water, neutralization results in there being no excess of hydrogen or hydroxide ions present in the solution. following two acid dissociation reactions  $HA \rightleftharpoons H^+ + A^-$ ;  $K_{a,A} = \frac{[A^-][H^+]}{[HA]}$   $BH^+ \rightleftharpoons B + H^+$ ;  $K_{a,B} = \frac{[B][H^+]}{[BH^+]}$  with the dissociation constants  $K_{a,A}$  In chemistry, neutralization or neutralisation (see spelling differences) is a chemical reaction in which acid and a base react with an equivalent quantity of each other eb119234ca

**Base (chemistry)** A base was therefore a metal hydroxide In chemistry, there are three definitions in common use of the word "base": Arrhenius bases, Brønsted bases, and Lewis bases. All definitions agree that bases are substances that react with acids, as originally proposed by G. -F. Rouelle in the mid-18th century. with hydrogen ions (H<sup>+</sup> according to Arrhenius) from the dissociation of acids to form water in an acid-base reaction eb119234ca

A cation is a positively charged ion with fewer electrons than protons (e.g. K<sup>+</sup> (potassium ion)) while an anion is a negatively charged ion with more electrons than protons (e.g. Cl<sup>−</sup> (chloride ion) and OH<sup>−</sup> (hydroxide ion)). Opposite electric charges are pulled towards one another by electrostatic force, so cations and anions attract each other and readily form ionic compounds. Ions consisting of only a single atom are termed monatomic ions, atomic ions or simple ions, while ions consisting of two or more atoms are termed polyatomic ions or molecular ions. eb119234ca

**Oxygen-hemoglobin dissociation curve** Specifically, the oxyhemoglobin dissociation curve relates oxygen saturation (SO<sub>2</sub>) and partial pressure of oxygen in the blood (PO<sub>2</sub>), and is determined by what is called "hemoglobin affinity for oxygen"; that is, how readily hemoglobin acquires and releases oxygen molecules into the fluid that surrounds it. This curve is an important tool for understanding how our blood carries and releases oxygen. The oxygen-hemoglobin dissociation curve, also called the oxyhemoglobin dissociation curve or oxygen dissociation curve (ODC), is a curve that plots the The oxygen-hemoglobin dissociation curve, also called the oxyhemoglobin dissociation curve or oxygen dissociation curve (ODC), is a curve that plots the proportion of hemoglobin in its saturated (oxygen-laden) form on the vertical axis against the prevailing oxygen tension on the horizontal axis eb119234ca

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