

Acyl halides are derived from oxoacids which are usually carboxylic acids

Alkenes are hydrocarbons that contain one or more double bonds, and they can be synthesized using a number of reaction mechanisms

Anhydrides are compounds that have two acyl groups that are connected to the same central, oxygen atom

Aromatic compounds are cyclic compounds that contain conjugated π bonds

Aufbau principle is a set of rules used to fill electron orbitals from the bottom up or lowest energy level

Beilstein test is used for the detection of halogens through the production of a copper halide

Boiling point of an alkene is dependent on its size and structure which can be linear, branched, or cyclic

Borane is used in the presence of tetrahydrofuran to produce alcohols from alkenes

Bromination test is used to identify alkenes

Bronsted-Lowry acid is a proton donor

Burgess reagent is used to convert secondary and tertiary alcohols with an adjacent proton into alkenes

C1 is an sp^2 carbon that is bound to 3 atoms

C-13 NMR or ^{13}C NMR spectra technique is used to determine how many types of carbons are present in a molecule, and what types of carbons they are

C2 is an sp^3 carbon that is bound to 4 atoms

Carbanions are ionic compounds in which a negative formal charge is placed on a carbon atom

Carbocations are ionic compounds in which a positive formal charge is placed on a carbon atom

Carbynes are carbon radicals with one bond and three free electrons

Chiral centers are formed by carbon atoms that are bonded to four different substituents

Chirality occurs when a carbon atom is bonded to four different substituents, and chiral centers allow isomers of the same compound to polarize light differently

Chlorinated carbene is formed from chloroform and then added to the alkene

Chromic acid test is used to detect alcohols by the reduction of chromium (IV), which is orange, to chromium (III), which is green, when the alcohol is oxidized by the reagent

Claisen condensation is when an aromatic aldehyde or ketone reacts with another aldehyde or ketone or ester which has an α -hydrogen. It produces cinnamaldehyde

Clemmensen reduction toluene

Cycloaddition reaction is when two σ bonds are formed between the termini of two independent π -systems, yielding ring formation – or the reverse process

Decarboxylic acid is a carboxylic acid, which is one of the most polar functional groups studied in organic chemistry

Degree of saturation or the index of hydrogen deficiency indicates whether or



not there are π bonds and rings present in a compound

Diels-Alder reaction is when a conjugated diene and a substituted alkene react to form a substituted cyclohexene system

Dihydroxylation is when alkenes are converted to alcohols through a cyclic intermediate

Diols are compounds that contain 2-OH groups

Dipole is an uneven distribution of charge and electrons in a compound

Dipole-dipole interaction are formed between the partial positive end of one compound, and the partial negative end of another

Disiamylborane is an organoborane that is used in organic synthesis to add water to a terminal alkyne

E1 reaction or mechanism is the elimination unimolecular reaction which occurs through two steps to produce substituted products

Electrophilic aromatic substitution is when an atom is bound to an aromatic system is replaced by an electrophile or electron deficient chemical species

Enantiomers are stereoisomers that are non-superimposable mirror images of each other, because they vary at their chiral centers

Fehling solution is an equal – volume of water in solution copper sulphate and a solution of potassium sodium tartrate in NaOH

Friedel-Crafts acylation reaction is when a benzene ring is treated with an acid

chloride (RCOCl) and AlCl_3 to produce a ketone

Fischer esterification is when an ester is produced when a carboxylic acid is treated with an alcohol

Fischer esterification reaction is a classical transformation, in which an ester is formed from two reactants

Free radical halogenation is a three-step mechanism that leads to the addition of a halogen to an alkane

Friedel-Crafts acylation is an acylation reaction in which an acyl chloride is used to attach an acyl group to the benzene ring

Geometric isomers which are also called structural or constitutional isomers, are compounds that share the same molecular formula but have their atoms arranged differently

Gilman (diorganocopper) reagents are used to create new carbon-carbon bonds through coupling reactions with alkyl halides

Grignard reaction can be used to reduce an alkyl halide to produce an alkene. They function as carbanions in reactions, and are composed of R-MgBr

Heat of combustion is the amount of energy that is released as heat, when a compound undergoes complete combustion with oxygen under standard conditions

Heat of hydrogenation is the amount of energy that is released during the reaction

Hemiacetals are intermediate compounds form when acetals are prepared from

ketones and aldehydes

Hoffman Bromamide reaction is when an amide is heated with Br_2 and aqueous alkali to form an amine

Hoffman elimination reaction is when primary, secondary and tertiary amines are obtained by the action of ammonia on alkyl halide

Hofmann mustard oil reaction is when primary amines are treated with CS_2 in presence of HgCl_2 and the product is the hydrolyzed and alkyl isothiocyanate is obtained

Hofmann-Martius rearrangement reaction is when N-alkylated aniline is converted to corresponding to and/or para aryl-alkylated aniline by heating and using an acid catalyst like HCl

Huckel's rule states that planar monocyclic rings that contain $(4n + 2) \pi$ electrons, where n is an integer or zero, should be aromatic

Hydrogenation is usually used to describe the addition of a pair of hydrogen atoms to an alkene

Infrared Spectroscopy (IR) can be used to identify functional groups that are present in a compound, because each type of functional group produces a different magnitude of signal

Ion-dipole interactions are formed between ions that are positively or negatively charged and polar molecules

K_b is the dissociation constant of a base

Keto-enol tautomerization causes the conversion of the hydroxylated alkene into

a carbonyl compound. The major product of the reaction is a ketone

Lewis acid is an electron acceptor

Markovnikov rule is used to predict the products of electrophilic addition to an alkene

Markovnikov's rule states that the H atom will be added to the carbon that has the most H atoms at the beginning of the reaction

Meso compounds are stereoisomers that do not show optical activity

Michael addition is used to produce new carbon-carbon bonds

Nucleophilic acyl substitutions are substitution reactions between nucleophiles and acyl compounds, which are carboxylic acid derivatives

Organolithium reagent is a strong base that can be used as a nucleophile in substitution

Oxidation is the loss of electrons

Oxymercuration/demercuration is when alkenes are converted to alcohol

Perkin reaction produces cinamic acid

pK_b is a logarithmic constant which is equal to $-\log_{10} K_b$

Pyridinium chlorochromate (PCC) is a reagent that is used to oxidize primary alcohols to aldehydes and secondary alcohols to ketones

Radicals are reactive intermediates that have a single free electron or multiple unpaired electrons

Reduction is the gain of electrons



Regiospecificity refers to the addition of two different atoms to a double bond

Resonance is determined by the delocalization of unpaired electrons in a compound

S_N1 reaction is the substitution nucleophilic unimolecular reaction, in which an alkyl halide undergoes substitution of its halide group that is attached to α -carbon

S_N2 reaction is the substitution nucleophilic bimolecular reaction, in which an alkyl halide undergoes substitution of its halide group that is attached to the α -carbon

Sodium borohydride is a metal hydride that is used to reduce carbonyl compounds such as ketones and aldehydes, by adding hydrides to the carbonyl carbon

Stereoisomers are compounds that have the same molecular formula and constitution or bond arrangement, but a different three-dimensional orientation of their atoms

Sulfur Trioxide molecule contains multiple resonance structures because of the unpaired electrons that are found on the atoms

Thin layer chromatography (TLC) is used to separate mixtures of organic compounds.

Williamson Ether Synthesis reaction is used to produce an ether from an alcohol and an organohalide

Wittig reaction is when a carbon nucleophile is used to form alkenes, when the carbon group of the reagent is converted to a carbon-carbon double bond (C=C)

