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Named Reactions in Organic Chemistry for NEET 2025 consist of reactions like Etard’s Reaction, Tischenko reaction, Wolf Kishner Reduction etc. Know more here!  Table of Contents Named Reactions in Organic Chemistry for NEET 2025 consist of important reactions like Clemmensen Reduction, Claisen condensation, Etard’s Reaction etc. It is one of the most important chapters in the NEET 2025 Syllabus . The Named Reactions in Organic Chemistry chapter carries a weightage of 35.6 per cent. There are 15 to 20 questions asked in the NEET exam from Named Reactions in Organic Chemistry chapter. Students must understand the chemical reactions in this chapter rather than mugging the formulas during NEET Exam Preparations . They must mind map the important reactions of chemicals and make short notes of changes while they study. This learning process will help students to recall their learnings and learning the important topics in the chapters will not be a daunting task. In this article, know in detail about the important reactions to the Named Reactions in Organic Chemistry for NEET 2025, understanding approach, tips to score good marks and more. List of Important  Named Reactions in Organic Chemistry for NEET 2025 There are numerous reactions in class 11 and 12 that students will have to study for the NEET examination . Students can find the list of named reactions in Organic Chemistry for NEET 2025 given below. Clemmensen Reduction Claisen condensation Etard’s Reaction Friedel-Crafts alkylation Friedel Crafts Acylation Fries Rearrangement Gattermann-Koch Reaction Grignard Reagent Hell-Volhard-Zelinsky Reaction Hunsdieker reaction Hoffmann Bromamide Degradation Jones reagent Kolbes Reaction Knoevenagel Reaction Meerwein-Ponndorf-Verley Reduction Perkin Condensation Pinacol-Pinacolone Rearrangement Reformatsky Reaction Reimer-Tiemann Reaction Schmidt Reaction Schotten Baumann Reaction Stephen’s Reduction Tischenko reaction Williamson's synthesis Wittig Reaction Wolf Kishner Reduction Wurtz Reaction Aldol condensation Baeyer-villiger-oxidation Beckmann Reaction Arndt Reaction Benzoin Condensation Cannizaro Reaction Acyloin Condensation Birch Reduction Diels-Alder Reaction Dieckmann Reaction Curtius Reactions Dienone Phenol Rearrangements Correct Understanding Approach for Named Reactions Mechanism Students have to learn certain approaches to become pros in NEET UG organic chemistry topics. There are certain rules and laws that students must know to understand organic chemistry. In the NEET Chemistry Question Paper , organic chemistry has the maximum score weightage. In the NEET exam, there are 30 to 40 questions from organic chemistry in the chemistry section. Students are not required to mug formulas but rather understand the mechanisms of the reactions. They must very carefully study the rules and read the theory. Students must understand the basics of Organic Chemistry and then study reactions in organic chemistry so they will be able to understand better. The most common mistake while studying organic chemistry chapters students make is that they try to memorise the formulas. They should avoid it rather than work on understanding the theory. They then must understand the process of reaction and the ways reaction is proceeding in the process rather than thinking “why” or “How” they occur. Students must read the theory to understand the concept of cause and effect in a particular reaction. Once students understand the cause of the reaction then they will also be able to comprehend the effect that is occurring in the reaction. The effect of the chemical reaction is directly proportional to the cause of the reaction. Students must practice NEET 2024 Chemistry Revision Notes to better understand the reactions and the causes behind them. These revision notes consist of the well-explained theory behind a reaction and the effect of the cause for the reaction. Studying named reaction chapters in organic chemistry is not an impossible task with a strategic approach and realistic study roadmap. Students can find the tips to master the Named Reactions chapter in Organic Chemistry for NEET 2025 given below. Students must build a very good understanding of chemical bonding and general organic chemistry. Students must learn the basics of E-1, E-2, SN-1 and SN-2 reactions that place and proceed. Students must study the theory behind it as it will help them to understand the concepts behind named reactions. In the beginning, students must start studying Adol condensation. Then, they must master the concepts & theory, then practice NCERT class 12 reactions. Students must understand the phenomena behind a chemical reaction to remember topics from the named reactions more effectively. Students must understand the use of elements and compounds to better comprehend the reaction during revisions. Significance of Named Reactions in Organic Chemistry for NEET 2025 The named reaction chapter is one of the most essential chapters in organic chemistry as it mostly teaches about the reactions of several elements and compounds. It tells about the formation of pie and sigma bonds with the help of different elements and compounds that further form new molecules. Named Reactions chapters teach students about breaking and making covalent bonds. It consists of several steps that students must understand to get a hold of the phenomena in the reaction process of chemicals. Named reaction also highlights basic reaction concepts that help in predicting future steps in any occurring reaction . Further, students can go through a strategic roadmap to study reactions more effectively. Students must study the kinetics of the reaction with the help the of rate-determining step method. Students must learn the Isolation of the intermediates. They must master topics like stable carbocation or carbon free radicals etc. Students must study reactions in the presence of various similar substrates with different catalysts that work during the reaction. Students must study isotopically labelled atoms in the reactants as it is very essential to know the mechanism of Name reactions. Students must learn the method of trapping free radicals with the help of a few reagents while studying named reactions. Students must also study crossover experiments and stereochemical aspects while studying named reactions. Preparation Strategy to Score Good Marks in Organic Chemistry There are numerous preparation techniques and strategies that students can apply to score good marks in the organic chemistry section. Students can find the tips and strategies mentioned below. Students must start reading and understanding the preparation of GOC chapters to understand the chemical reaction effects. It will also help them understand the reaction effects applications. For example, inducing effect resonance & hyperconjugation and their application in the organic reaction mechanism. Students after mastering GOC must study isotherm and then hydrocarbon. Students while studying named reactions, must be able to understand elimination and substitution reaction mechanisms and several other mechanisms. Students must have clarity regarding the concepts and must have a good memory regarding the formulas. This can be attained with proper practice of theory and understanding of the cause and effect of a chemical reaction. Students can practice the 3R method where they read, revise, and repeat reaction theories. For the chemical reaction observe cause & effect keenly in visual format to capture the incident along with the causes and effect. It will help them to learn the chemical reaction more effectively. Therefore, these were the list of named reaction topics along with tips and strategies that they must study. Further, in case of doubts regarding the  Named Reactions in Organic Chemistry for NEET 2025 log on to our CollegeDekho QnA Zone . Students can even contact the toll-free helpline number 18005729877. Say goodbye to confusion and hello to a bright future!How can the Named Reactions in Organic Chemistry for the NEET be studied effectively?Named Reactions in Organic Chemistry for NEET cannot be studied by mugging the formulas. Students must understand the phenomenon, the cause of a chemical reaction, and the effect of the chemical reaction. It will help students to recall the formulas, the reactions and the theory behind it more effectively.What is taught in the Named Reactions chapter in Organic Chemistry?In Organic Chemistry, Named Reactions teaches students about the phenomenon of chemical reactions. The chapter teaches aboutthe  pie and sigma bonding phenomenon, its causes, its effects and the theory behind its occurrence. What are the topics in the Named Reactions in Organic Chemistry for NEET 2025?The topics in the Named Reactions in Organic Chemistry for NEET 2025 are Hoffmann Bromamide Degradation, Jones reagent, Kolbes Reaction etc. Students must study all the topics effectively to understand the reactions, concepts behind them and the final product after it.Was this article helpful? NEET 2023 is approaching, and it is time to do thorough revisions and give your best for the entrance exam. There are often some important Name Reactions in Organic Chemistry that we tend to overlook while reading the theory. This One-Shot series has provided all the important Name Reactions in Organic Chemistry for NEET 2023. Table of Contents In organic chemistry, name reactions are named after their discoverers or inventors. The name reaction is a type of simplification that avoids having to give a more detailed description of the properties of a specific transformation of interest. The Grignard reaction, the Frankland reaction, the Wittig reaction, the Cannizzaro reaction, the Friedel-Crafts acylation, and the Diels-Alder reaction are all well-known examples in organic chemistry. Many significant name reactions have been studied and well-established in organic chemistry over many years. Aldol condensation is a reaction that occurs when an α-hydrogen aldehyde reacts with a dilute base to produce β-hydroxy aldehydes termed aldols. The condensation of two different aldehydes and ketones is known as crossed aldol condensation. It provides a mixture of four products when both of them include α-hydrogen atoms. Balz-Schiemann Reaction The Balz Schiemann Reaction Mechanism describes the synthesis and subsequent thermal degradation of an aromatic fluoroborate to yield the corresponding aryl fluoride. Günther Schiemann and Günther Balz, two German scientists, are credited with coining the term the reaction. Aromatic amines, nitrous acid, and fluoroboric acid are the primary reactants. Aromatic amines perform diazotization under the impact of nitrous acid. Now, fluoroboric acid is added to produce the appropriate aryl diazonium salt. Now, the heat-sensitive aryl diazonium salt is thermally decomposed, yielding aryl fluoride, nitrogen, and boron trifluoride. An example of a Balz-Schiemann reaction would be the following: the conversion of a phenyl amine into a phenyl fluoride using fluoroboric acid, nitrous acid, and the addition of heat: Carbylamine Reaction Hofmann isocyanide synthesis is another name for the Carbylamine reaction. Isocyanides are produced by combining a primary amine, chloroform, and base. The addition of an amine to the intermediate formed by the dehydrohalogenation of chloroform is part of the Carbylamine reaction mechanism. Dichlorocarbene refers to this intermediate. The carbylamine reaction can be written as: R-NH2 + CHCl3 + 3KOH → RNC (Carbylamine) + 3KCl + 3H2O Cannizzaro Reaction The Cannizzaro reaction, named after Stanislao Cannizzaro, is a chemical reaction in which two molecules of a non-enolizable aldehyde are disproportionated by a base to produce a carboxylic acid and a primary alcohol. The Cannizzaro Reaction Mechanism explains how two molecules of an aldehyde are converted into one molecule of alcohol and one molecule of carboxylic acid. A nucleophilic acyl substitution on an aldehyde is followed by the leaving group attacking another aldehyde, completing the reaction. Clemmensen Reduction Aldehydes or ketones can be converted to alkanes via the Clemmensen reaction, which involves zinc amalgam and hydrochloric acid. The Clemmensen reduction is given the name after a Danish chemist, Erik Christian Clemmensen. This reaction is particularly efficient in aryl-alkyl ketones reduction produced in Friedel-Crafts acylation. The reduction of cyclic ketones or aliphatic compounds with zinc metal provides optimal results from the reaction. Etard Reaction The Etard Reaction is named after Alexandre Léon Étard, a French chemist. The Etard Reaction is a chemical reaction that uses chromyl chloride to directly oxidise a heterocyclic bound or aromatic methyl group to an aldehyde. Toluene, for example, can be converted to Benzaldehyde by the Etard reaction, as shown below: Finkelstein Reaction In the Finkelstein reaction, halogen atoms are exchanged in a Substitution Nucleophilic Bimolecular reaction (SN2 Reaction). It is named after Hans Finkelstein, a German chemist. It is an organic reaction in which the metal halide salt is used to exchange one alkyl halide for another alkyl halide. By taking advantage of the poor solubility of acetone in newly formed metal halide salt, this reaction takes place in an equilibrium phase. The Finkelstein reaction has a single-step SN2 reaction with stereochemistry inversion as its mechanism. Friedel-Crafts Reaction Friedel Crafts reaction is another electrophilic substitution reaction. Alkylation and acylation reactions are the two main categories of Friedel-Crafts reactions. The American chemist James Crafts and the French chemist Charles Friedel developed these reactions in the year 1877. Gabriel Phthalimide Synthesis The Gabriel synthesis converts primary alkyl halides to primary amines through a chemical reaction. Traditionally, potassium phthalimide is used in the reaction. There are three steps in the Gabriel Phthalimide Synthesis Mechanism. The synthesis is named after German chemist Siegmund Gabriel and is used to make primary amines from primary alkyl halides. The Gabriel Phthalimide synthesis has the major advantage of avoiding excessive alkylation. The reaction of potassium hydroxide with phthalimide also produces a suitable nucleophile in the form of an imide ion. The imide ion performs a nucleophilic substitution reaction on the alkyl halide, yielding N-alkyl phthalimide as an intermediary. Gattermann Reaction A process of formylation of compounds with aromatic rings is known as the Gattermann reaction, after German scientist Ludwig Gattermann. Gattermann formylation and Gattermann salicylaldehyde synthesis are other names for the same reaction. The Friedel-Crafts reaction and the Gattermann reaction are similar. By treating it with Cu/HCl or Cu/HBr, respectively, the Gattermann reaction is used to produce chlorobenzene or bromobenzene from benzenediazonium chloride. Gattermann-Koch Reaction The first step in the Gattermann-Koch reaction mechanism is the formation of reactive species with the help of acid. The main objective of the reaction is to attach a formyl group (-CHO group) to an aromatic system. The Gattermann-Koch reaction is illustrated in the example below. Substrates made of phenol and phenol ether cannot be used in the Gattermann-Koch reaction. Traces of copper(I) chloride are usually needed when zinc chloride is used as a catalyst in the Gattermann-Koch reaction because it functions as a co-catalyst. Grignard Synthesis The addition of alkyl/vinyl/aryl magnesium halides to any carbonyl group in an aldehyde or ketone is explained by the Grignard reaction mechanism. The reaction is considered a significant technique for forming carbon-carbon bonds. The alkyl, vinyl, or aryl magnesium halides are known as Grignard reagents. The Grignard reactions and reagents are named after the French scientist Francois Auguste Victor Grignard, who made the discovery and was honoured with the 1912 Nobel Prize in Chemistry. Grignard reagents resemble organolithium reagents in that they are strong nucleophiles and capable of forming carbon-carbon bonds. The nucleophilicity of the reagent is further increased when an amido group substituent (amido magnesium halides are known as Hauser Bases) is used in place of the alkyl group substituent. Kolbe’s Electrolysis Reaction The Kolbe reaction, also known as the Kolbe Schmitt reaction, is a type of addition reaction that was named after Hermann Kolbe and Rudolf Schmitt. Phenoxide ion is produced when phenol is reacted with sodium hydroxide. When it comes to electrophilic aromatic substitution reactions, the phenoxide ion is more reactive than the phenol. As a result, it conducts a weak electrophilic substitution reaction with carbon dioxide. The primary result is ortho-hydroxybenzoic acid (salicylic acid). This reaction is commonly known as Kolbe’s reaction. The Kolbe reaction is initiated by the nucleophilic addition of phenoxide to carbon dioxide, which results in the formation of salicylate. Ozonolysis The process of using ozone to break the unsaturated bonds in alkenes, alkynes, and azo compounds (compounds with the functional diazenyl functional group)is known as ozonolysis. This is an organic redox reaction. Alkenes can be oxidised by ozone to produce alcohols, aldehydes, ketones, or carboxylic acids. Alkynes are subjected to ozonolysis to produce acid anhydrides or diketones. The acid anhydride undergoes hydrolysis to produce two carboxylic acids if water is present in the reaction. Elastomer ozonolysis is also referred to as ozone cracking. The double bonds in elastomers are broken by a trace amount of ozone gas in the atmosphere. The ozonolysis of azo compounds produces nitrosamines. Reimer-Tiemann Reaction A type of substitution reaction called the Reimer-Tiemann reaction is named for the chemists Karl Reimer and Ferdinand Tiemann. The process involves ortho-formylation of C6H5OH (phenols). An aldehyde group (-CHO) is added at the ortho position of the benzene ring when phenols, or C6H5OH, are treated with CHCl3 (chloroform) in the presence of NaOH (sodium hydroxide), resulting in the formation of o-hydroxybenzaldehyde. The Reimer Tiemann reaction is the common name for the reaction. The conversion of phenol to salicylaldehyde (2-hydroxy benzaldehyde) is a notable example of the Reimer-Tiemann reaction. Rosenmund Reduction Rosenmund Reduction Mechanism describes the way acyl chlorides are preferentially reduced into aldehydes. The reaction was named after Karl Wilhelm Rosenmund since he initially described it in 1918. In the Rosenmund reaction, molecular hydrogen reacts with the acyl chloride in the presence of a palladium on the barium sulfate-based catalyst. Due to its small surface area, barium sulphate reduces the palladium’s activity and prevents over-reduction. A poison can be added to completely deactivate the palladium catalyst should the necessity for additional palladium activity reduction arise (as in the case of highly reactive acyl chlorides). By using hydrogen gas over palladium that has been poisoned by barium sulphate, the Rosenmund reduction converts acid chlorides into aldehydes. Below is an illustration of this catalytic hydrogenation of acyl chlorides to aldehydes. Due to the strong reactivity of hydrogen gas, it easily initiates a substitution in the acyl chloride, producing HCl and the desired aldehyde. Sandmeyer Reaction Sandmeyer reaction is a form of substitution reaction which is widely used in the formation of aryl halides from aryl diazonium salts. Catalysts for this process include copper salts like chloride, bromide, or iodide ions. It is noted that unique transformations of benzene can be performed via the Sandmeyer reaction. The modifications comprise hydroxylation, trifluoromethylation, cyanation, and halogenation. A good example of a radical-nucleophilic aromatic substitution is considered to be a Sandmeyer reaction. This reaction is a helpful method for substituting various amino groups on aromatic rings. The amino group that is joined to an aromatic ring is turned into a diazonium salt during the Sandmeyer reaction, which can then be converted into different functional groups. Stephen Reduction Reaction The addition of gaseous hydrogen chloride to the provided nitrile initiates the Stephen Reaction Mechanism. The reaction is called Stephen aldehyde synthesis after its inventor Henry Stephen. The reaction involves the formation of aldehydes from nitriles using tin(II) chloride and hydrochloric acid, followed by the quenching of the iminium salt with water. Another useful byproduct of this process is ammonium chloride. The Stephan reaction is used to produce acetaldehyde from methyl cyanide, as shown in the diagram below. As indicated above, when nitrile is reduced with stannous chloride and hydrogen chloride gas (in ethyl acetate solvent), an imine intermediate is generated. The equivalent aldehyde is obtained by hydrolysis of this imine intermediate. Swarts Reaction Alkyl fluorides are often produced from alkyl chlorides or alkyl bromides using the Swarts reaction. This is performed by heating the alkyl chloride/bromide in the presence of the fluoride of heavy metals (silver fluoride or mercurous fluoride). If potassium fluoride or sodium fluoride are used, the reaction will still proceed, but the yield will be much lower. This reaction was first confirmed by Frederic Jean Edmond Swarts in 1892. The Swarts reaction mechanism is very straightforward: a new bond between fluorine and carbon is formed once the metal fluorine bond is broken. The displaced chlorine or bromine atoms now combine with the metal. The term “Swarts reagent” refers to the antimony trifluoride and chlorine combination. According to Swarts’ rule, the fluoride that is produced after fluorination will always have a lower boiling point than the corresponding chloride. Williamson Ether Synthesis The Williamson ether synthesis, which is the standard procedure for producing ether, involves the nucleophilic displacement of a halide ion or other suitable leaving group by an alkoxide ion. The name of the reaction was popularised after Alexander William Williamson created it in 1850. Deprotonated alcohol and an organohalide are combined in the Williamson Ether Synthesis reaction to produce ether. Williamson Ether Synthesis usually occurs as an SN2 reaction of a primary alkyl halide with an alkoxide ion. This chemical reaction demonstrated how ethers are structured. This reaction can only be effective if the alkyl halide is primary or secondary, requiring the SN2 pathway for synthesis. The ethers produced in this method are more complex structures and include more carbon atoms than either of the initial materials. Wolff Kishner Reduction A hydrazone anion is first created in the Wolff Kishner reduction mechanism, which subsequently releases the nitrogen atom to produce a carbanion. This carbanion then produces a hydrocarbon when it interacts with the water in the system. The solvent used for this process is diethylene glycol. Aldehydes and ketones are converted to alkanes in this organic reduction mechanism. Some carbonyl compounds can be easily reduced to alkanes because they are stable under strongly basic conditions (The carbon-oxygen double bond becomes two carbon-hydrogen single bonds). Step 1: The aldehyde or ketone undergoes hydrazine treatment. The hydrazone for the reaction is produced. The reaction is seen below. Step 2: Step 3: Step 4: Step 5: Although the method generally begins with the condensation of hydrazine to produce hydrazone, using a pre-formed hydrazone can offer benefits including a shorter reaction time, reactions that happen at room temperature, or extremely mild reaction conditions. Different solvents and reaction temperatures are also required for the preformed hydrazone substrates that can be used in this reaction. Wurtz Reaction In Wurtz’s reaction, an example of an organic chemical coupling reaction, sodium metal reacts with two alkyl halides in the presence of a dry ether solution to produce a higher alkane and a compound that contains both sodium and the halogen. This reaction has the name of the French chemist Charles Adolphe Wurtz, who also discovered the aldol reaction. For the synthesis of alkanes in organic and organometallic chemistry, the Wurtz reaction is a highly efficient process. With the use of sodium and dry ether solution, two distinct alkyl halides are coupled in this reaction to produce a longer alkane chain. Wurtz Fittig Reaction The Wurtz-Fittig reaction mechanism can be understood either through the organo-alkali mechanism or the radical mechanism. The Wurtz-Fittig reaction is named after the chemists Charles Adolphe Wurtz and Wilhelm Rudolph Fittig and refers to the chemical reaction that occurs when aryl halides, alkyl halides, sodium metal, and dry ether are combined to produce substituted aromatic compounds. If the alkyl halide is chemically more reactive than the aryl halide, the alkyl halide will first form the carbon sodium bond and then act as an aryl halide’s nucleophile, which will aid in the formation of asymmetrical products in the reaction. If the reactants are created with halogens of different periods, the deviation in reactivity between the alkyl halide and aryl halide can be obtained conveniently. Fischer Esterification Fischer esterification is an organic reaction used to convert carboxylic acids in the presence of excess alcohol and a potent acid catalyst, producing an ester as the end product. This ester is produced along with water. Below are a few examples of Fischer esterification reactions. Azeotropic distillation or adsorption using molecular sieves are two methods used for removing water from the system during this esterification process. It serves as an explanation of a nucleophilic acyl substitution reaction. The substitution is focused on the nucleophilicity of the alcohol and the electron affinity of the carbonyl carbon. Haloform Reaction The Haloform reaction is a chemical reaction that produces haloforms by halogenating methyl aldehyde or methyl ketone in the presence of a base. As shown above, when the methyl ketone is treated with the bromine halogen in an aqueous sodium hydroxide solution, polyhalogenation occurs, followed by the cleavage of the methyl group. The carboxylate and tribromomethane, which is the necessary haloform, are the end products of the reaction. Hell–Volhard–Zelinsky Reaction Hell Volhard Zelinsky Reaction Mechanism is distinctive among halogenation reactions in that it occurs without the use of a halogen carrier. At the alpha carbon, the reaction is used to halogenate carboxylic acids. Carl Magnus Von Hell, Jacob Volhard, and Nikolay Zelinsky are the chemists who gave their names to this reaction. The reaction is initiated by adding one molar equivalent of diatomic bromine and one molar equivalent of phosphorus tribromide (catalytic quantity). The fluorination and iodination of carboxylic acids are not possible with the HVZ reaction. If the Hell Volhard Zelinsky reaction is carried out at extremely high temperatures, hydrogen halide may be eliminated from the product, resulting in the formation of beta-unsaturated carboxylic acids. Hoffmann Bromamide Reaction The standard Hoffmann Bromamide reaction process involves attacking the amide with a strong base such as an alkali, resulting in deprotonation and the subsequent formation of an anion. A primary amide is converted into a primary amine with one less carbon atom using this reaction process. This is done by heating the primary amide with a solution of water, a strong base, and a halogen (chlorine or bromine). The following is an example of the reaction. This method produces primary amines that are not affected by secondary or tertiary amines. The Hoffmann degradation of amide is another name for the reaction. The primary amide is converted into an isocyanate intermediate when bromine reacts with sodium hydroxide to produce sodium hypobromite (NaOBr). Water now attacks this isocyanate intermediate, beginning a sequence of proton transfer steps. The ammonium cation, which was created when water attacked the isocyanate intermediate, is quenched by the heat conditions to produce the necessary amine product. This results in the explosion of carbon dioxide gas. Fischer Indole Synthesis Walden Inversion Perkin Reaction Mechanism Diels-Alder Reaction Mechanism Michael Addition Mechanism Heck Reaction Mannich Reaction Mechanism Hydroboration oxidation reaction Claisen condensation Lindlar Catalyst Maillard Reaction Robinson Annulation Woodward Reaction Oppenauer Oxidation Related Links: Related Video: Covalent bonds exist between halogens, nitrogen, and sulphur in organic compounds. If they are in the ionic state, they can be detected using Lassaigne’s test. The organic compound and sodium metal can be fused to accomplish this. These chemical reactions include the use of organic compounds to provide the C, N, S, and halogen. Na + C + N → NaCN Na + S + C + N → NaSCN 2Na + S → Na2S Na + X → NaX (X = Cl, Br, I) The organic compounds are classified as: (i) Acyclic or open chain compounds (ii) Alicyclic or closed chain or ring compounds (iii) Aromatic compounds A carbocation is a species that has a carbon atom with a sextet of electrons and a positive charge. Download the Testbook APP & Get Pass Pro Max FREE for 7 Days10,000+ Study NotesRealtime Doubt Support71000+ Mock TestsRankers Test Series+ more benefitsDownload App Now Be the master of organic name reactions class 12. Learn mechanisms, solve problems, and prepare for board exams and NEET/IIT-JEE. In this article we provides the most important name reactions for class 12 borad exams, NEET, IIT-JEE and other exams.Finkelstein Reaction, Swarts Reaction, Wurtz Reaction, Fittig Reaction, Wurtz-Fittig Reaction, Ullmann Reaction (Ullmann Coupling), Dows Process, Friedel-Crafts Alkylation, Friedel-Crafts Acylation, Kolbe's Reaction (Kolbe-Schmitt Reaction), Reimer-Tiemann Reaction, Williamson Synthesis, Cumene Process, Rosenmund Reduction, Stephen Reaction, Etard Reaction, Gattermann-Koch Reaction, Clemmensen Reduction, Wolff-Kishner Reduction, Aldol Condensation, Cross Aldol Condensation, Cannizzaro Reaction, Benzoin Condensation, Haloform Reaction, Hell-Volhard-Zelinsky (HVZ) Reaction, Decarboxylation Reaction, Hunsdiecker Reaction, Hofmann Bromamide Degradation Reaction, Amides are treated with bromine in an aqueous or ethanolic solution of sodium hydroxide to produce primary amines with one carbon atom less than the parent amide, Gabriel Phthalimide Synthesis, Carbylamine Reaction (Isocyanide Test), Hinsberg's Test, Liebermann's Nitroso Reaction, Mendius Reaction, Diazotization Reaction, Sandmeyer Reaction, Gattermann Reaction, Balz-Schiemann Reaction, Coupling Reaction. Alkyl iodide is prepared from alkyl chlorides or bromides using sodium iodide in dry acetone. Swarts Reaction: Fluoroalkanes can be preapared by heating alkyl chlorides or bromides with metallic fluorides (e.g., AgF, $Hg_2F_2$, $CoF_2$). Wurtz Reaction: Alkyl halides react with metallic sodium in dry ether to form alkanes containing double the number of carbon atoms. Methane cannot be prepared by this method. Fittig Reaction: Aryl halides react with metallic sodium in dry ether to form biphenyl. Wurtz-Fittig Reaction: A mixture of an alkyl halide and an aryl halide reacts with sodium in dry ether to form an alkyl arene. Ullmann Reaction (Ullmann Coupling): Chlorobenzene is heated with finely divided copper powder (or copper bronze) at temperatures above 200°C, two molecules of chlorobenzene couple to form biphenyl. Dows Process: When chlorobenzene is heated with an aqueous solution of NaOH at 300°C and 200 atm gives sodium phenoxide which on acidification gives phenol. Friedel-Crafts Alkylation: Benzene or its derivatives react with alkyl halides in the presence of anhydrous $AlCl_3$ to form alkylbenzenes. Friedel-Crafts Acylation: Benzene or its derivatives react with acyl chlorides or acid anhydrides in the presence of anhydrous $AlCl_3$ to form aromatic ketones. Alcohols, Phenols, and Ethers Kolbe's Reaction (Kolbe-Schmitt Reaction): Sodium phenoxide reacts with carbon dioxide under pressure and heat, followed by acidification, to yield salicylic acid. Reimer-Tiemann Reaction: Phenol reacts with chloroform in the presence of an alkali (NaOH) to introduce a $-CHO$ group at the ortho position, forming salicylaldehyde. (If carbon tetrachloride is used, salicylic acid is formed). Williamson Synthesis: Used for the preparation of symmetrical and unsymmetrical ethers by reacting an alkoxide with an alkyl halide. Cumene Process: Oxidation of cumene (isopropylbenzene) forms cumene hydroperoxide, which on acid hydrolysis gives phenol and acetone. Aldehydes, Ketones and Carboxylic Acids Rosenmund Reduction: Acyl chlorides are catalytically hydrogenated in the presence of palladium on barium sulfate (poisoned with sulfur or quinoline) to yield aldehydes. Stephen Reaction: Nitriles are reduced to corresponding imines with $SnCl_2$ and HCl, which on hydrolysis give aldehydes. Etard Reaction: Toluene is oxidized by chromyl chloride to a chromium complex, which on hydrolysis gives benzaldehyde. Gattermann-Koch Reaction: Benzene or its derivatives react with carbon monoxide and hydrogen chloride in the presence of anhydrous $AlCl_3$ or CuCl to give benzaldehyde or substituted benzaldehydes. Clemmensen Reduction: The carbonyl group of aldehydes and ketones is reduced to a $-CH_2$ group on treatment with zinc amalgam and concentrated hydrochloric acid. Wolff-Kishner Reduction: The carbonyl group of aldehydes and ketones is reduced to a $-CH_2$ group on treatment with hydrazine, followed by heating with potassium or sodium hydroxide in a high-boiling solvent like ethylene glycol. Aldol Condensation: Aldehydes and ketones containing at least one α-hydrogen atom undergo condensation in the presence of dilute alkali to form β-hydroxy aldehydes (aldols) or β-hydroxy ketones (ketols). Cross Aldol Condensation: Aldol condensation carried out between two different aldehydes and/or ketones. Cannizzaro Reaction: Aldehydes that do not have an α-hydrogen atom undergo self-oxidation and reduction (disproportionation) on treatment with concentrated alkali. One molecule is oxidized to a carboxylic acid salt, and another is reduced to an alcohol. Benzoin Condensation: Two aromatic aldehydes (e.g. benzaldehyde) combine to form an α-hydroxyketone (specially, benzoin) in the presence of cyanide ions ($CN^-$). Perkin's (Condensation) Reaction: Condensation of an aromatic aldehyde with an acid anhydride in the presence of sodium or potassium salt of the same acid to produce α,β-unsaturated acid. Haloform Reaction: Compounds containing a $-CH_3CO-$ group (or $-CH_3CH(OH)-$ group) react with halogen and a base to form a haloform (e.g., iodoform, $CHI_3$) and a carboxylic acid salt. Hell-Volhard-Zelinsky (HVZ) Reaction: Carboxylic acids having an α-hydrogen are halogenated at the α-position on treatment with chlorine or bromine in the presence of red phosphorus to give α-halocarboxylic acids. Decarboxylation Reaction: Sodium salts of carboxylic acids, when heated with soda lime (NaOH + CaO), lose a carbon dioxide molecule to form alkanes. Hunsdiecker Reaction: Silver salts of carboxylic acid reacts with halogens to form an unstable intermediate which further undergoes thermal decarboxylation leading to the formation of a final product known as alkyl halides. Amines Hofmann Bromamide Degradation Reaction: Amides are treated with bromine in an aqueous or ethanolic solution of sodium hydroxide to produce primary amines with one carbon atom less than the parent amide. Gabriel Phthalimide Synthesis: Primary amines can be prepared from phthalimide by this synthesis. Phthalimide reacts with ethanolic KOH to form potassium phthalimide, which then reacts with an alkyl halide to form N-alkylphthalimide which on hydrolysis yields the primary amine. Carbylamine Reaction (Isocyanide Test): Primary amines, when heated with chloroform and ethanolic potassium hydroxide, form isocyanides (carbylamines), which have a foul odor. (This reaction is a test for primary amines). Hinsberg's Test: This test is used to distinguish primary, secondary, and tertiary amines using benzene sulfonyl chloride (Hinsberg's reagent). Liebermann's Nitroso Reaction: This reaction is used to identify the presence of both aliphatic and aromatic secondary amines. It involves the formation of a nitrosoamine, which then reacts with phenol in the presence of sulfuric acid, producing a characteristic blue or green color. $NaNO2 + HCl \rightarrow HONO + NaCl$ $(C2H5)2NH + HONO \rightarrow (C2H5)2N-N=O + H2O$ Mendius Reaction: Nitriles (R-CN) are reduced to primary amines (R-CH2-NH2) using sodium and ethanol. $R-CN + Na + EtOH \rightarrow R-CH2-NH2$. Benzene Diazonium Chloride Diazotization Reaction: Aromatic primary amines react with nitrous acid (prepared in situ from $NaNO_2$ and a mineral acid like HCl) at low temperatures (0-5∘ C) to form diazonium salts. Sandmeyer Reaction: Benzene diazonium chloride reacts with CuCl/HCl, CuBr/HBr, or CuCN/KCN to substitute the diazonium group with $-Cl$, $-Br$, or $-CN$ respectively. Gattermann Reaction: Similar to Sandmeyer reaction, but uses copper powder and the corresponding halogen acid (HCl or HBr) to introduce $-Cl$ or $-Br$. Balz-Schiemann Reaction: Benzene diazonium fluoroborate, upon heating, decomposes to yield fluorobenzene, nitrogen, and boron trifluoride. Coupling Reaction: Benzene diazonium chloride reacts with electron-rich aromatic compounds like phenols or anilines to form brightly colored azo dyes. 0 ratings0% found this document useful (0 votes)65 views21 pagesThe document provides a comprehensive overview of important named reactions in organic chemistry relevant for the NEET 2023 exam. It includes detailed descriptions of various reactions such ...SaveSave All_Named_Reactions_in_Organic_Chemistry_for_NEET_... For Later0%0% found this document useful, undefined0 ratings0% found this document useful (0 votes)65 views21 pagesThe document provides a comprehensive overview of important named reactions in organic chemistry relevant for the NEET 2023 exam. It includes detailed descriptions of various reactions such as Aldol Condensation, Cannizzaro Reaction, and Grignard Synthesis, along with their mechanisms and examples. The content is structured to assist students in revising key concepts and strategies for the chemistry portion of the exam.0 ratings0% found this document useful (0 votes)65 views21 pagesThe document provides a comprehensive overview of important named reactions in organic chemistry relevant for the NEET 2023 exam. It includes detailed descriptions of various reactions such ... Name reactions are those chemical reactions that are named after the scientists who discovered or developed them. This trend started in 1822 with scientist Lieben. He studied the reaction of many carbonyl compounds with iodine and alkali and postulated rules that formed the basis of the iodoform test. This is the reason the reaction was named after Lieben and was called LIeben Haloform Reaction. Presently, hundreds of well-known organic reactions have been named after scientists. All these name reactions are very important for board examinations and competitive exams such as IIT JEE, NEET etc.Importance of Name ReactionsIf you are in class 12, then all name reactions are very important to score well in the board exam and clear JEE or NEET exams. Here we are providing you with a list of important named reactions in organic chemistry, which will be handy for you during revision. We have linked listed named reactions with separate pages as well in which named reactions are given with detailed descriptions, mechanisms and applications.List of Important Name Reactions in Organic ChemistryFriedel Crafts Alkylation ReactionBy this reaction, alkyl benzene is formed by the reaction of the aromatic compound and alkyl halide in the presence of Friedel craft catalyst (AlCl3). For more details, visit the following pages on Vedantu– Friedel Crafts Reaction.Friedel Crafts Acylation ReactionBy this reaction, a monoacyl aromatic compound is formed by the reaction of an acylating agent and aromatic compound in the presence of Friedel craft catalyst. For more details, visit the following pages on Vedantu– Friedel Crafts Reaction.In this reaction, 1° or 2° amine/ ammonia reacts with non-enolizable aldehyde and enolizable carbonyl compounds to form a Mannich base. For more details on mannich reaction, visit the following page on Vedantu–Mannich Reaction.Hoffmann Bromamide Degradation ReactionIn Hoffmann bromamide degradation reaction, an amide reacts with bromine and an aqueous solution of sodium hydroxide which produces primary amine. For more details, visit the following pages on Vedantu– Hoffmann Bromamide Reaction Mechanism.Rosenmund Reduction ReactionIn the Rosenmund Reaction, acyl chloride is hydrogenated to get reduced into aldehyde, and palladium-barium sulphate is used as a catalyst. For more details, visit the following pages on Vedantu– Rosenmund Reduction Mechanism.Hofmann Elimination ReactionTertiary amines and alkenes are formed by Hofmann elimination reaction. For more details, visit the Hofmann Elimination article page on Vedantu. In this reaction, one molecule of aldehyde is oxidized to carboxylic acid, and another molecule of aldehyde is reduced to an alcohol. For more details, visit the following pages on Vedantu– Cannizzaro Reaction Mechanism.It is a coupling reaction in which two alkyl halides react with sodium to form a new alkane. For more details, visit Wurtz Reaction and Important Chemical Reactions for Class 12 Chemistry pages on Vedantu.It is a halogen exchange reaction in which alkyl halide is used as one of the reactants. For more details, visit Swartz Reaction and Important Chemical Reactions for Class 12 Chemistry pages on Vedantu.It is used to make cinnamic acids. It gives α,β-unsaturated aromatic acid by aldol condensation. For more details, visit the Perkin Reaction Mechanism page on Vedantu.In the Sandmeyer reaction, a product of diazotization reaction, which is diazonium salt, is used to synthesize aryl halides.It is used in the synthesis of aromatic ring compounds such as aromatic halides and aromatic aldehydes.This reaction is used in the formation of fluorobenzene.The reaction in which alkyl iodides are prepared by the reaction of alkyl chloride or alkyl bromide with sodium iodide in dry acetone is called Finkelstein Reaction.When aryl halides react with metallic sodium in the presence of dry ether, it forms biphenyl as a major product. Then this reaction is known as the Fittig Reaction.Reimer – Tiemann ReactionIn the Reimer – Tiemann reaction, phenol reacts with chloroform in the presence of sodium hydroxide, as a result of which an aldehyde group gets attached to the ortho position of the ring.This reaction gives 2-hydroxybenzoic acid or salicylic acid by using phenol, sodium hydroxide and carbon dioxide.In Stephen Reaction, nitrile reacts with SnCl2 in the presence of HCl and gives imine hydrochloride, which on hydrolysis gives aldehyde.Gattermann – Koch ReactionIn the