DOWNLOAD PDF ORGANIC COMPOUNDS

Chapter 1 : Examples of Organic Compound

Definitions of organic vs inorganic. For historical reasons discussed below, a few types of carbon-containing compounds, such as carbides, carbonates, simple oxides of carbon (for example, CO and CO 2), and cyanides are considered inorganic.

They are many compounds used as solvents, medicine, catalysts etc. Let us see organic compounds examples in detail. These are the compounds which have just carbon and hydrogen elements in them. The bonds between two carbons can vary as one, two or even three. These compounds are used widely. Like ethene is used in making plastic bags i. While the acetylene gas is used in gas welding for joining of metal parts. As the name indicates, these compounds are similar to the above but form a ring in their structures. They are formed by a single bond between two carbon atoms in the chain. Compounds with functional groups. The same aliphatic compounds can have Oxygen, nitrogen , sulfur, etc. These chemical points in the molecule are called as functional groups. These functional groups impart a distinctive character to the plain aliphatic chain or rings. Functional groups having carbon, hydrogen, and oxygen. These have an OH group linked to a carbon atom in the chain. Examples include formaldehyde, acetaldehyde. Formaldehyde is used to store biological specimens. They are also found in carbohydrate monomers. These are the structures having oxygen linked with a double bond to a carbon atom i. Some examples include acetone, glucose, sucrose, fructose, etc. Acetone is used as a solvent. While Fructose and other sugars are used as food source for carbohydrates. Alcohols are those molecules having -OH moiety linked to carbon atom directly. There are many types of alcohols based on the molecular size. They are used as solvents due to their high polarity. But not all of them can be used due to volatility issues. Ethyl alcohol, methyl alcohol and propane alcohol are widely used due to volatility and solubility properties. Also ethanol is widely used for alcoholic beverages and also as a disinfectant to kill microbes. These are the molecules which form oils and fats. Examples include Arachis oil, sesame oil, mustard oil, etc. They have long chemical structure and susceptible to oxidation when kept open for air for long periods. Some of them are used as cooking oil, for massage, etc. They are the compounds having a profuse odor. Hence named as ethers. They have an oxygen atom linked to two carbon atoms. Diethyl ether used as an anesthetic. When esters break down, they release fatty acids and alcohols. They have -COOH structure in their molecules. These fatty acids are used to make soaps. These are the compounds formed by reaction of acids and amines. Amides form substances like proteins, silk, and even drugs like paracetamol. These are basic in nature and have an ammonia moiety. Examples codeine used for cough treatment. They are used as dyes to impart color to drugs, indicators in titration, etc. These structures have both carboxylic and also amine moiety. There are many amino acids in the body. They help in the maintenance of body through the formation of proteins. These compounds are cyclic in nature but are unsaturated. They have an odor of their own. Benzene used as a solvent. These structures are quite complex as seen in the diagram above. They form cholesterol and other structures. They are derived from fats and lipids. They are used as body boosters, drugs. Perchloric acid $HClO_4$, citric acid, tartaric acid. Unlike inorganic acids which are liquid in nature, these acids are in solid state. They are also not as strong as inorganic acids. These are the ones which have halogens in their chemistry. Carbon tetra chloride CCl_4. These tests help to know the nature of the unknown compound in the lab.

DOWNLOAD PDF ORGANIC COMPOUNDS

Chapter 2 : Organic Compounds List

In general, organic compounds are substances that contain carbon (C), and carbon atoms provide the key structural framework that generates the vast diversity of organic compounds.

Phenyls and benzyls Organic Compounds Present in the Human Body Organic compounds are classified on the basis of their functional groups. There are four major types of compounds found in all living organisms; these are carbohydrates, lipids, proteins, and nucleic acids. These molecules form long chains of similar subunits or polymers. Subunits of polymers are known as monomers. Molecules of these compounds are large in size, therefore, they are known as macromolecules. The number of carbon atoms is not in proportion with the number of either oxygen or hydrogen atoms. Therefore, the chemical formula for carbohydrates is written as Cm H2O n. For example, glucose is a sugar molecule, whose chemical formula is written as C6H12O6. Carbohydrates generally have rings of carbons; alcohol molecules have the -OH group attached to them. Carbohydrates play an important role in the production and storage of energy. They also provide a proper structure to the cells. Lipids The non-polar components of cells are known as lipids. Most of these compounds are composed of hydrocarbons - formed of carbon and hydrogen. Lipid molecules store energy and they also play an important role in the formation of cell membranes. The 4 types of lipids are listed below. Allow storage of energy Phospholipids: Found in cell membranes Waxes: Found in hormones Proteins Proteins are amongst the important types of macromolecules found in skin collagen, nails and hair, and in the form of keratin and crystallin in the eyes. Proteins also form enzymes, which help in carrying out metabolic transformations, building and rearranging compounds, breaking down large organic compounds, etc. Proteins in the form of hemoglobin allow to carry the oxygen in blood to different parts of the body. Proteins are also found in egg yolk, hormones, and immune systems. Amino acids are the subunits of proteins. They are composed of an amino group and an acid group. There are 20 different kinds of amino acids found in proteins. The molecular arrangement of amino acids impart different properties to different kinds of proteins. Nucleic Acids The subunits of nucleic acids are called nucleotides. The genetic information of an organism in cells is stored in nucleic acids. Nucleic acids are of two types: There are 3 components of a typical nucleotide - a sugar group, a phosphate, and a base. What makes these two types of nucleic acids different from each other, is the fact that -OH group in ribose gets replaced by -H in DNA. Adenosine triphosphate ATP molecules supply the required energy to cells. It has 3 phosphate groups attached in a chain. Examples of Organic Compounds.

Chapter 3 : Organic compound - Simple English Wikipedia, the free encyclopedia

The chemical compounds of living things are known as organic compounds because of their association with organisms and because they are carbon-containing compounds. Organic compounds, which are the compounds associated with life processes, are the subject matter of organic chemistry.

Inorganic Compounds Examples Inorganic Compounds An inorganic compound is any compound that lacks a carbon atom, for lack of a more in-depth definition. Those compounds with a carbon atom are called organic compounds, due to their root base in an atom that is vital for life. There are a small number of inorganic compounds that actually do contain carbon, given its propensity for forming molecular bonds; these include carbon monoxide and carbon dioxide, to name a few. Inorganic compounds are often quite simple, as they do not form the complex molecular bonds that carbon makes possible. A common example of a simple inorganic compound would be sodium chloride, known more commonly as household salt. This compound contains only two atoms, sodium Na and chlorine Cl. Examples of Inorganic Compounds: H_2O - Water is a simple inorganic compound, even though it contains hydrogen, a key atom along with carbon in many organic compounds. The atoms in a molecule of water have formed very simple bonds due to this lack of carbon. HCl - Hydrochloride, also known as hydrochloric acid when it is dissolved in water, is a colorless, corrosive acid with a fairly strong pH. It is found in the gastric juices of many animals, helping in digestion by breaking down food. CO_2 - Carbon dioxide, despite the presence of a carbon atom in the formula, is classified as an inorganic compound. This has caused a dispute within the scientific community, with questions being raised as to the validity of our current methods of classifying compounds. Currently, organic compounds contain a carbon or a hydrocarbon, which forms a stronger bond. The bond formed by carbon in CO_2 is not a strong bond. NO_2 - Nitrogen dioxide gas presents a variety of colors at different temperatures. It is often produced in atmospheric nuclear tests, and is responsible for the tell-tale reddish color displayed in mushroom clouds. It is highly toxic, and forms fairly weak bonds between the nitrogen and oxygen atoms. Fe_2O_3 - Iron III oxide is one of the three main oxides of iron, and is an inorganic compound due to the lack of a carbon atom or a hydrocarbon. Iron III oxide occurs naturally as hematite, and is the source of most iron for the steel production industry. It is commonly known as rust, and shares a number of characteristics with its naturally occurring counterpart.

Chapter 4 : Organic compounds | Define Organic compounds at calendrierdelascience.com

Dr. Helmenstine holds a Ph.D. in biomedical sciences and is a science writer, educator, and consultant. She has taught science courses at the high school, college, and graduate levels.

Vitalism For many centuries, Western physicians and chemists believed in vitalism. This was the widespread conception that substances found in organic nature are created from the chemical elements by the action of a "vital force" or "life-force" vis vitalis that only living organisms possess. Vitalism taught that these "organic" compounds were fundamentally different from the "inorganic" compounds that could be obtained from the elements by chemical manipulations. Vitalism survived for a while even after the rise of modern ideas about the atomic theory and chemical elements. Urea had long been considered an "organic" compound, as it was known to occur only in the urine of living organisms. Carbon atoms are in black, hydrogens gray, oxygens red, and nitrogen blue. Even though vitalism has been discredited, scientific nomenclature retains the distinction between organic and inorganic compounds. The modern meaning of organic compound is any compound that contains a significant amount of carbonâ€"even though many of the organic compounds known today have no connection to any substance found in living organisms. The term carbogenic has been proposed by E. Corey as a modern alternative to organic, but this neologism remains relatively obscure. The organic compound L -isoleucine molecule presents some features typical of organic compounds: As described in detail below, any definition of organic compound that uses simple, broadly applicable criteria turns out to be unsatisfactory, to varying degrees. However, the list of substances so excluded varies from author to author. Still, it is generally agreed upon that there are at least a few carbon containing compounds that should not be considered organic. For instance, almost all authorities would require the exclusion of alloys that contain carbon, including steel which contains cementite , Fe_3C , as well as other metal and semimetal carbides including "ionic" carbides, e. B_4C and SiC, and graphite intercalation compounds, e. Halides of carbon without hydrogen e. Nickel carbonyl Ni CO 4 and other metal carbonyls present an interesting case. They are often volatile liquids, like many organic compounds, yet they contain only carbon bonded to a transition metal and to oxygen and are often prepared directly from metal and carbon monoxide. Nickel carbonyl is frequently considered to be organometallic. Although many organometallic chemists employ a broad definition, in which any compound containing a carbon-metal covalent bond is considered organometallic , it is debatable whether organometallic compounds form a subset of organic compounds. Likewise, it is also unclear whether metalorganic compounds should automatically be considered organic. The relatively narrow definition of organic compounds as those containing C-H bonds excludes compounds that are historically and practically considered organic. Neither urea nor oxalic acid is organic by this definition, yet they were two key compounds in the vitalism debate. Mellitic acid , which contains no C-H bonds, is considered a possible organic substance in Martian soil. A slightly broader definition of organic compound includes all compounds bearing C-H or C-C bonds. This would still exclude urea. Moreover, this definition still leads to somewhat arbitrary divisions in sets of carbon-halogen compounds. For example, CF_4 and CCl_4 would be considered by this rule to be "inorganic", whereas CF_3H and $CHCl_3$ would be organic, though these compounds share many physical and chemical properties. One major distinction is between natural and synthetic compounds. Organic compounds can also be classified or subdivided by the presence of heteroatoms , e. Another distinction, based on the size of organic compounds, distinguishes between small molecules and polymers. Natural compounds[edit] Natural compounds refer to those that are produced by plants or animals. Many of these are still extracted from natural sources because they would be more expensive to produce artificially. Examples include most sugars , some alkaloids and terpenoids , certain nutrients such as vitamin B12 , and, in general, those natural products with large or stereoisometrically complicated molecules present in reasonable concentrations in living organisms. Synthetic compounds[edit] Compounds that are prepared by reaction of other compounds are known as "synthetic". They may be either compounds that already are found in plants or animals or those that do not occur naturally. Most polymers a category that includes all plastics and rubbers , are organic synthetic or semi-synthetic compounds. Biotechnology[edit] Many organic compoundsâ€"two examples are ethanol and insulin â€”are manufactured industrially using organisms such as bacteria and yeast. Typically, the DNA of an organism is altered to express compounds not ordinarily produced by the organism. Many such biotechnology -engineered compounds did not previously exist in nature. Databases[edit] The CAS database is the most comprehensive repository for data on organic compounds. The search tool SciFinder is offered. The Beilstein database contains information on 9. Structures and a large diversity of physical and chemical properties is available for each substance, with reference to original literature. A great number of more specialized databases exist for diverse branches of organic chemistry.

Chapter 5 : Volatile Organic Compounds' Impact on Indoor Air Quality | Indoor Air Quality (IAQ) | US EPA

Secondly, organic compounds aren't necessarily produced by living entities. Their sources can be inorganic as well. This revelation can be credited to the synthesis of urea by Wohler from ammonium chloride â€" an inorganic compound.

Top 10 facts about the world Organic compounds are the complex compounds of carbon. Because carbon atoms bond to one another easily, the basis of most organic compounds is comprised of carbon chains that vary in length and shape. Hydrogen , nitrogen , and oxygen atoms are the most common atoms that are generally attached to the carbon atoms. Each carbon atom has 4 as its valence number which increases the complexity of the compounds that are formed. Since carbon atoms are able to create double and triple bonds with other atoms, it further also raises the likelihood for variation in the molecular make-up of organic compounds. All living things are composed of intricate systems of inorganic and organic compounds. For example, there are many kinds of organic compounds that are found in nature, such as hydrocarbons. Hydrocarbons are the molecules that are formed when carbon and hydrogen combine. They are not soluble in water and easily distribute. There are also aldehydes â€" the molecular association of a double-bonded oxygen molecule and a carbon atom. There are many classes of organic compounds. Originally, they were believed to come from living organisms only. However, in the mids, it became clear that they could also be created from simple inorganic proteins. Yet, many of the organic compounds are associated with basic processes of life, such as carbohydrates, proteins, nucleic acids, and lipids. Ad Carbohydrates are hydrates of carbon and include sugars. They are quite numerous and fill a number of roles for living organisms. For example, carbohydrates are responsible for storing and transporting energy, maintaining the structure of plants and animals, and in helping the functioning of the immune system, blood clotting, and fertilization â€" to name just a few. Proteins are a class of organic compounds that are comprised of carbon, hydrogen, nitrogen, and oxygen. Proteins are soluble in water. The protein itself is composed of subunits called amino acids. There are 20 different amino acids found in nature â€" organisms can convert them from one to another for all but eight of the amino acids. Lipids comprise a class of organic compounds that are insoluble in water or other polar solvents; however, they are soluble in organic solvents. Lipids are made of carbon, hydrogen, oxygen, and a variable of other elements. Lipids store energy, protect internal organs, provide insulation in frigid temperatures, among other features. Lipids can be broken down into several groups ranging from triglycerides , steroids, waxes, and phospholipids. Nucleic acids are another group of organic compounds. They are universal in all living organisms. In fact, they are found in cells and viruses. Some people may not consider a virus to be a living thing. Friedrich Miescher discovered nucleic acids in

Chapter 6 : Organic compound - Wikipedia

Organic Compound Notes for 7th grade. Learn with flashcards, games, and more â€” for free.

The carbon atoms can form a single unbranched chain, or the primary chain of carbon atoms can have one or more shorter chains that form branches. For example, butane C4H10 has two possible structures. In contrast, the condensed structural formula for isobutane is CH3 2CHCH3, in which the primary chain of three carbon atoms has a one-carbon chain branching at the central carbon. Three-dimensional representations of both structures are as follows: The systematic names for branched hydrocarbons use the lowest possible number to indicate the position of the branch along the longest straight carbon chain in the structure. Thus the systematic name for isobutane is 2-methylpropane, which indicates that a methyl group a branch consisting of â€"CH3 is attached to the second carbon of a propane molecule. The compound has a chain of five carbon atoms, so it is a derivative of pentane. There are two methyl group branches at one carbon atom and one methyl group at another. Using the lowest possible numbers for the branches gives 2,2,4-trimethylpentane for the systematic name of this compound. The names of alkenes that have more than three carbon atoms use the same stems as the names of the alkanes Table 3. As with alkanes, more than one structure is possible for alkenes with four or more carbon atoms. For example, an alkene with four carbon atoms has three possible structures. All four carbon atoms in 2-butene lie in the same plane, so there are two possible structures part a in Figure 3. These are distinctly different molecules: The positions of the carbon atoms in the chain are indicated by C1 or C2. Just as a number indicates the positions of branches in an alkane, the number in the name of an alkene specifies the position of the first carbon atom of the double bond. The name of a compound does not depend on its orientation. As illustrated for 1-butene, both condensed structural formulas and molecular models show different orientations of the same molecule. Note The positions of groups or multiple bonds are always indicated by the lowest number possible. The names of other alkynes are similar to those of the corresponding alkanes but end in -yne. Note The number of bonds between carbon atoms in a hydrocarbon is indicated in the suffix: Cyclic hydrocarbons are named by attaching the prefix cyclo- to the name of the alkane, the alkene, or the alkyne. The simplest cyclic alkanes are cyclopropane C3H6 a flammable gas that is also a powerful anesthetic, and cyclobutane C4H8 part c in Figure 3. The most common way to draw the structures of cyclic alkanes is to sketch a polygon with the same number of vertices as there are carbon atoms in the ring; each vertex represents a CH2 unit. The structures of the cycloalkanes that contain three to six carbon atoms are shown schematically in Figure 3. In contrast, the first examples of aromatic hydrocarbons, also called arenes, were obtained by the distillation and degradation of highly scented thus aromatic resins from tropical trees. The simplest aromatic hydrocarbon is benzene C6H6 , which was first obtained from a coal distillate. The word aromatic now refers to benzene and structurally similar compounds. As shown in part a in Figure 3. Toluene is similar to benzene, except that one hydrogen atom is replaced by a â€"CH3 group; it has the formula C7H8 part b in Figure 3. The chemical behavior of aromatic compounds differs from the behavior of aliphatic compounds. Benzene and toluene are found in gasoline, and benzene is the starting material for preparing substances as diverse as aspirin and nylon. As shown, compounds with the same molecular formula can have very different structures.

Chapter 7 : Inorganic Compounds Examples

Organic compounds are those compounds which have an element carbon in them.. Their chemistry and reactions are unique to other chemicals.. Some of them are naturally available while others are synthesized by man.

Moreover, the form of list of organic chemicals can be gaseous, liquid or solid form. Commonly, there are two types of organic compounds namely natural organic compound and also synthetic organic compound. In this component, there are one or even more hydrogen atoms that have been replaced by halogen atoms such as fluorine, chlorine, bromine or iodine. The example of alkyl halides is carbon tetra chloride with formula CC14 Organic acids Organic acids are the organic chemical compound with acidic properties. Carboxylic acids are the most common organic acids. The form of those acids is in solid state. This chemical compound is commonly used for oil and gas. It is much less reactive upon metals. The organic aicds are used in some food industry as list of food preservative due to their effects on bacteria. Steroid structures Steroid structure create cholesterol and also other structures which derive from fats and lipids. The example of steroid structure is betamethasone. Aromatic compounds Aromatic compound is also example of organic chemical compound which is also be called as arenes or aromatics. It contains conjugated planar ring system instead of alternating single and double bonds. This aromatic compounds are cyclic in nature but they are unsaturated, and have scent of their own for example Benzede which is used as a solvent. This organic chemical compounds are the monomers which make proteins. In some industries, amino acids are used as additives as animal food. Other major usage of amino acid is glutamic acid that is used as flavor enhancer and aspartame, a low-calorie list artificial sweetener you should avoid. Polymers The next example of organic compound is polymer. This chemical is a large molecule or macromolecule which is composed from some repeated sub-units. Polymers are made through polymerization from many small molecules which are known as monomers. This organic compound has two types namely natural polymeric and synthetic polymers. The examples of natural polymeric are shellac, amber, wool, silk, natural rubber and cellulose. Meanwhile, the examples of synthetic polymers are synthetic rubber, phenol formaldehyde resin, neoprene, nylon, polyvinyl chloride, polystyrene, polyethlene, polypropylene, polyacrylonitrile, PVB, silicone and etc. Sponsors Link Petrochemicals Petrochemicals are other kind of organic chemical compound. This chemical is also called as petrolium distillates which is derived from petroleum. Petrolium is commonly made from fossil fuels, such as coal, natural gas and other renewable resources corn and sugar cane. Monosaccharides Monosaccharides are the most basic unit of carbohydrates which means this is an example of organic chemical compound. It is also called as simple sugar and is colorless, water soluble and crystalline solids. The general formula or monosaccharides is CnH2nOn. The examples of monosaccharides are: This is formed when two simple sugar monosaccharides are joined together by glycosidic linkage. The joined of two simple sugar happen by a condesation reaction, which the reaction involve the elimination of a water molecule from just the functional groups. Then, the breaking double sugar into two simple sugar again is accomplished by hydrolysis and being helped by an enzyme called disaccharidase. The examples of disaccharide are Sucrose, Maltose, Trehalose, Lactose, Melibiose Polysaccharides Polysaccharides are also example of the organic chemical compound. This compounds are plymeric carbohydrate molecules. It is commonly quite heterogeneous. Polysaccharides have enormouse industrial application. It is a natural renewable sources which can be used as aqueous environments which is able to thicken, chelate, emusify, stabilize, encapsulate, flocculate, swell and suspend, to form gels, films and also membranes. The examples of polysaccharides are: The fats and also vitamins that lipd has can give benefits to human body as human need a dietary need for certain essential fatty acids such as omega-3 and omega -6 fatty acids. The consumption of fatty acid is good for infant development, to fight cardiovascular diseases and cancer, and some mental illness such as depression, hyperactivity disorder and also dementia. The examples of lipid are: Protein Protein is macromolecules which consists of one or more chains of residues from amino acid. Protein performs some functions such as catalysing metabolic reaction, DNA replications and transporting molecules from a particluar location into another. The examples of protein are: It is a biopolymer or a large biomolecules which is essential to all forms of life. Nucleic acids are the most important biomolecules which are found in all living things to create and encode then keep all the informations in the nucleus of every living cell of all organism. The example of nucleic acids: Cycloalkanes Cycloalkanes are included into organic compounds which is also known as naphthenes. Cycloalkanes is somehow similar to facts about alkanes but it has higher density, boiling and melting points than alkanes. Furthermore, cycloalkanes can be used as a blowing agent of polyuethanes, and also be used as a building block for other molecules in synthetic type of organic compound. The examples of this organic chemical is Cyclopropane, Cyclobutane, Cyclopentane, Cyclohexane, Cycloheptane and Cyclooctane Straight chain alkanes Straight chain alkanes or simply called alkanes or parafin are also called as the example of organic compound. Here is the straight chain and also branched alkanes and their common names of carbon atom, R means it is redictered to higher alkanes:

Chapter 8 : Organic compound - Crossword Clue Answer | Crossword Heaven

There is a functional group attached at the end of molecules of organic compounds; the functional group helps in classifying them. When these compounds combine with larger molecules, they bind together at a point where the functional group is attached.

Alkenes and Alkynes - unsaturated hydrocarbons Double bonds in hydrocarbons are indicated by replacing the suffix -ane with -ene. If there is more than one double bond, the suffix is expanded to include a prefix that indicates the number of double bonds present -adiene, -atriene, etc. Triple bonds are named in a similar way using the suffix -yne. The position of the multiple bond s within the parent chain is are indicated by placing the number s of the first carbon of the multiple bond s directly in front of the base name. Here is an important list of rules to follow: The parent chain is numbered so that the multiple bonds have the lowest numbers double and triple bonds have priority over alkyl and halo substituents. When both double and triple bonds are present, numbers as low as possible are given to double and triple bonds even though this may at times give "-yne" a lower number than "-ene". When there is a choice in numbering, the double bonds are given the lowest numbers. When both double and triple bonds are present, the -en suffix follows the parent chain directly and the -yne suffix follows the -en suffix notice that the e is left off, -en instead of -ene. The location of the double bond s is are indicated before the parent name as before, and the location of the triple bond s is are indicated between the -en and -yne suffixes. See below for examples. For a branched unsaturated acyclic hydrocarbon, the parent chain is the longest carbon chain that contains the maximum number of double and triple bonds. If there are two or more chains competing for selection as the parent chain chain with the most multiple bonds , the choice goes to 1 the chain with the greatest number of carbon atoms, 2 the of carbon atoms being equal, the chain containing the maximum number of double bonds. If there is a choice in numbering not previously covered, the parent chain is numbered to give the substituents the lowest number at the first point of difference. Here are some examples: Alcohols Alcohols are named by replacing the suffix -ane with -anol. If there is more than one hydroxyl group -OH , the suffix is expanded to include a prefix that indicates the number of hydroxyl groups present -anediol, -anetriol, etc. The position of the hydroxyl group s on the parent chain is are indicated by placing the number s corresponding to the location s on the parent chain directly in front of the base name same as alkenes. The hydroxyl group takes precedence over alkyl groups and halogen substituents, as well as double bonds, in the numbering of the parent chain. When both double bonds and hydroxyl groups are present, the -en suffix follows the parent chain directly and the -ol suffix follows the -en suffix notice that the e is left off, -en instead of -ene. The location of the double bond s is are indicated before the parent name as before, and the location of the hydroxyl group s is are indicated between the -en and -ol suffixes. Again, the hydroxyl gets priority in the numbering of the parent chain. Ethers You are only expected to know how to name ethers by their commmon names. The two alkyl groups attached to the oxygen are put in alphabetical order with spaces between the names and they are followed by the word ether. The prefix di- is used if both alkyl groups are the same. Aldehydes Aldehydes are named by replacing the suffix -ane with -anal. If there is more than one -CHO group, the suffix is expanded to include a prefix that indicates the number of -CHO groups present -anedial - there should not be more than 2 of these groups on the parent chain as they must occur at the ends. It is not necessary to indicate the position of the -CHO group because this group will be at the end of the parent chain and its carbon is automatically assigned as C The carbonyl group takes precedence over alkyl groups and halogen substituents, as well as double bonds, in the numbering of the parent chain. When both double bonds and carbonyl groups are present, the -en suffix follows the parent chain directly and the -al suffix follows the -en suffix notice that the e is left off, -en instead of -ene. The location of the double bond s is are indicated before the parent name as before, and the -al suffix follows the -en suffix directly. Remember it is not necessary to specify the location of the carbonyl group because it will automatically be carbon 1. Again, the carbonyl gets priority in the numbering of the parent chain. They are shown in the examples at the end of this list but at this point these names will not be accepted by the computer. Eventually they will be accepted. Ketones Ketones are named by replacing the suffix -ane with

-anone. The position of the carbonyl group s on the parent chain is are indicated by placing the number s corresponding to the location s on the parent chain directly in front of the base name same as alkenes. When both double bonds and carbonyl groups are present, the -en suffix follows the parent chain directly and the -one suffix follows the -en suffix notice that the e is left off, -en instead of -ene. The location of the double bond s is are indicated before the parent name as before, and the location of the carbonyl group s is are indicated between the -en and -one suffixes. Carboxylic Acids Carboxylic acids are named by counting the number of carbons in the longest continuous chain including the carboxyl group and by replacing the suffix -ane of the corresponding alkane with -anoic acid. If there are two -COOH groups, the suffix is expanded to include a prefix that indicates the number of -COOH groups present -anedioic acid - there should not be more than 2 of these groups on the parent chain as they must occur at the ends. It is not necessary to indicate the position of the -COOH group because this group will be at the end of the parent chain and its carbon is automatically assigned as C The carboxyl group takes precedence over alkyl groups and halogen substituents, as well as double bonds, in the numbering of the parent chain. If the carboxyl group is attached to a ring the parent ring is named and the suffix -carboxylic acid is added. When both double bonds and carboxyl groups are present, the -en suffix follows the parent chain directly and the -oic acid suffix follows the -en suffix notice that the e is left off, -en instead of -ene. The location of the double bond s is are indicated before the parent name as before, and the -oic acid suffix follows the -en suffix directly. Remember it is not necessary to specify the location of the carboxyl group because it will automatically be carbon 1. Again, the carboxyl gets priority in the numbering of the parent chain. Esters Systematic names of esters are based on the name of the corresponding carboxylic acid. Remember esters look like this: The alkyl group is named like a substituent using the -yl ending. This is followed by a space. The acyl portion of the name what is left over is named by replacing the -ic acid suffix of the corresponding carboxylic acid with -ate. Amines You are only expected to know how to name amines by their common names. They are named like ethers, the alkyl R groups attached to the nitrogen are put in alphabetical order with no spaces between the names and these are followed by the word amine. The prefixes di- and tri- are used if two or three of the alkyl groups are the same. Some books put spaces between the parts of the name, but we will not.

DOWNLOAD PDF ORGANIC COMPOUNDS

Chapter 9 : Organic Compounds | BioNinja

Volatile organic compounds (VOCs) are emitted as gases from certain solids or liquids. VOCs include a variety of chemicals, some of which may have short- and long-term adverse health effects.

Increase ventilation when using products that emit VOCs. Meet or exceed any label precautions. Do not store opened containers of unused paints and similar materials within the school. Formaldehyde, one of the best known VOCs, is one of the few indoor air pollutants that can be readily measured. Identify, and if possible, remove the source. If not possible to remove, reduce exposure by using a sealant on all exposed surfaces of paneling and other furnishings. Use integrated pest management techniques to reduce the need for pesticides. Make sure you provide plenty of fresh air when using these products. Throw away unused or little-used containers safely; buy in quantities that you will use soon. Keep out of reach of children and pets. Never mix household care products unless directed on the label. Follow label instructions carefully. Potentially hazardous products often have warnings aimed at reducing exposure of the user. For example, if a label says to use the product in a well-ventilated area, go outdoors or in areas equipped with an exhaust fan to use it. Otherwise, open up windows to provide the maximum amount of outdoor air possible. Throw away partially full containers of old or unneeded chemicals safely. Because gases can leak even from closed containers, this single step could help lower concentrations of organic chemicals in your home. Be sure that materials you decide to keep are stored not only in a well-ventilated area but are also safely out of reach of children. Do not simply toss these unwanted products in the garbage can. Find out if your local government or any organization in your community sponsors special days for the collection of toxic household wastes. If such days are available, use them to dispose of the unwanted containers safely. If no such collection days are available, think about organizing one. If you use products only occasionally or seasonally, such as paints, paint strippers and kerosene for space heaters or gasoline for lawn mowers, buy only as much as you will use right away. Keep exposure to emissions from products containing methylene chloride to a minimum. Consumer products that contain methylene chloride include paint strippers, adhesive removers and aerosol spray paints. Methylene chloride is known to cause cancer in animals. Also, methylene chloride is converted to carbon monoxide in the body and can cause symptoms associated with exposure to carbon monoxide. Carefully read the labels containing health hazard information and cautions on the proper use of these products. Use products that contain methylene chloride outdoors when possible; use indoors only if the area is well ventilated. Keep exposure to benzene to a minimum. Benzene is a known human carcinogen. The main indoor sources of this chemical are: