

The book was found

Organic Chemistry Fundamentals (Quick Study Academic)

ORGANIC CHEMISTRY FUNDAMENTALS

Types of Organic Compounds

Organic chemistry is the study of natural and synthetic materials that have carbon atoms as the key chemical feature. There are more than one million known organic compounds.

ALIPHATIC

- Alkanes: C_nH_{2n+2}
- Alkenes: C_nH_{2n}
- Alkynes: C_nH_{2n-2}

ADDED

- Alcohol: $R-OH$
- Ether: $R-O-R$
- SPOXY: $C_nH_{2n}O_2$ (carboxylic acids)
- PEROXIDE: $R-O-O-R$

HYDROCARBON

ALKANE

- Ethane: C_2H_6
- Propane: C_3H_8
- Butane: C_4H_{10}
- Alkyl: $-C_nH_{2n+1}$

ALKENE

- Ethene: C_2H_4
- Diene: Two $C=C$
- Alkene: Three $C=C$

ALKYNE

- Ethyne: C_2H_2

AROMATIC

- Benzene: C_6H_6
- Nitrobenzene: $C_6H_5NO_2$

-C-O ADDED ALDEHYDE

- Methanal: $HCHO$ (formaldehyde)
- Acetaldehyde: CH_3CHO

ALDEHYDE

- Formal: $HCHO$
- Benzaldehyde: C_6H_5CHO
- Glyoxal: $O=CCHO$

ESTER

- Ethyl Acetate: $CH_3COOC_2H_5$
- Other derivatives: Phenylacetate, $C_6H_5COOCH_3$; Acetyl Acetate, $CH_3COCH=CHCOCH_3$

AMINE

- Methyl Amine: CH_3NH_2
- Aniline: $C_6H_5NH_2$
- Nitrobenzene: $C_6H_5NO_2$
- Diaz: $R-N=N-R'$
- Nitrile: $R-CN$

DIAMINE

- Ethylenediamine: $H_2NCH_2CH_2NH_2$
- Diphenylamine: $(C_6H_5)_2NH$
- Triphenylamine: $(C_6H_5)_3N$

DIAMINE

- Ethylenediamine: $H_2NCH_2CH_2NH_2$
- Diphenylamine: $(C_6H_5)_2NH$
- Triphenylamine: $(C_6H_5)_3N$

DIAMINE

- Ethylenediamine: $H_2NCH_2CH_2NH_2$
- Diphenylamine: $(C_6H_5)_2NH$
- Triphenylamine: $(C_6H_5)_3N$

Formulas & Isomers

Molecular Formula: Chemical symbols with subscripts denote the composition of a compound.

Empirical Formula: Subscripts denote the relative chemical composition.

Graphical depiction:

- Ball-and-stick:** Diagram of atoms, shown inside molecules.
- Stick Line Formula:** Half H, carbon atoms are depicted as lines, but other atoms are shown explicitly.

Newman Projection: 2-d depiction

3-dimensional: Wedges of carbon denote structure

SUBDIVISIONS OF ISOMERS

Isomers: Different compounds with same molecular formula.

Constitutional isomers: Atoms have a different connectivity.

Structural isomers: Same connectivity but differ in the arrangement of their substituents.

Enantiomers: Mirror images that are non-superimposable.

Diastereomers: Not mirror images, but are not superimposable.

Conformational isomers: Differ in the rotation around single bonds.

Configurational isomers: Differ in the arrangement of substituents around a double bond or a ring.

Chiral isomers: Molecules that are non-superimposable on their mirror images.

Racemic: 50:50 mixture of enantiomers (no net optical activity).

Meso: 2 chiral centers, 2 stereocenters, 1 achiral (mirror plane).

Chiral: Not identical with its mirror image.

Achiral: Has a plane of symmetry (i.e., superimposable on its mirror image).

Enantiomers: Pair of diastereomers which differ only in the configuration of one atom.

Meso: 2 chiral centers, 2 stereocenters, 1 achiral (mirror plane).

R,S Notation: The 4 different atoms or groups attached to a central atom are ranked (1, 2, 3, 4), and seen by mirror eyes. The lowest (4) is directed away from the viewer and the sequence of a line produces clockwise (R) or counter-clockwise (S) configuration.

C-Hand (Absolute Configuration): In the rotation of plane polarized light, R,S opposite effects.

Newman Diagram: Depict rotation about a C-C bond; up/down (high energy), and (low energy), and gauche (intermediate energy).

Common Terms

Aliphatic: Non aromatic.

Aromatic: Benzene ring.

Conjugation: Sequence of alternating double (or triple) and single bonds.

Dipole Moment: Polar solvents substitute ion formation.

Empirical Formula: Chemical formula that shows the simplest whole number ratio of atoms in a compound.

Enthalpy: Heat energy during the process of the reaction.

Enthalpy of Formation: Heat energy when one mole of a compound is formed from its elements in their standard states.

Enthalpy of Combustion: Heat energy when one mole of a compound is completely oxidized to carbon dioxide and water.

Enthalpy of Vaporization: Heat energy when one mole of a liquid is converted to one mole of gas.

Enthalpy of Fusion: Heat energy when one mole of a solid is converted to one mole of liquid.

Enthalpy of Sublimation: Heat energy when one mole of a solid is converted to one mole of gas.

Enthalpy of Atomization: Heat energy when one mole of an element is converted to one mole of atoms.

Enthalpy of Bond Dissociation: Heat energy when one mole of a bond is broken.

Enthalpy of Formation: Heat energy when one mole of a compound is formed from its elements in their standard states.

Enthalpy of Combustion: Heat energy when one mole of a compound is completely oxidized to carbon dioxide and water.

Enthalpy of Vaporization: Heat energy when one mole of a liquid is converted to one mole of gas.

Enthalpy of Fusion: Heat energy when one mole of a solid is converted to one mole of liquid.

Enthalpy of Sublimation: Heat energy when one mole of a solid is converted to one mole of gas.

Enthalpy of Atomization: Heat energy when one mole of an element is converted to one mole of atoms.

Enthalpy of Bond Dissociation: Heat energy when one mole of a bond is broken.

Enthalpy of Formation: Heat energy when one mole of a compound is formed from its elements in their standard states.

Enthalpy of Combustion: Heat energy when one mole of a compound is completely oxidized to carbon dioxide and water.

Enthalpy of Vaporization: Heat energy when one mole of a liquid is converted to one mole of gas.

Enthalpy of Fusion: Heat energy when one mole of a solid is converted to one mole of liquid.

Enthalpy of Sublimation: Heat energy when one mole of a solid is converted to one mole of gas.

Enthalpy of Atomization: Heat energy when one mole of an element is converted to one mole of atoms.

Enthalpy of Bond Dissociation: Heat energy when one mole of a bond is broken.



Synopsis

Quick Reference for the core essentials of a subject and class that is challenging at best and that many students struggle with. In 6 laminated pages our experienced chemistry author and professor gathered key elements organized and designed to use along with your text and lectures, as a review before testing, or as a memory companion that keeps key answers always at your fingertips. As many students have said "it's a must have" • study tool. Suggested uses: o Quick Reference " instead of digging into the textbook to find a core answer you need while studying, use the guide to reinforce quickly and repeatedly o Memory " refreshing your memory repeatedly is a foundation of studying, have the core answers handy so you can focus on understanding the concepts o Test Prep " no student should be cramming, but if you are, there is no better tool for that final review

Book Information

Series: Quick Study Academic

Paperback: 6 pages

Publisher: QuickStudy; Lam Rfc Cr edition (December 1, 2015)

Language: English

ISBN-10: 1423228170

ISBN-13: 978-1423228172

Product Dimensions: 8.5 x 11 x 0.1 inches

Shipping Weight: 0.3 ounces (View shipping rates and policies)

Average Customer Review: 4.7 out of 5 stars " See all reviews" (58 customer reviews)

Best Sellers Rank: #21,067 in Books (See Top 100 in Books) #27 in " Books > Science & Math > Chemistry > Organic #66 in " Books > Science & Math > Chemistry > General & Reference #74 in " Books > Textbooks > Science & Mathematics > Chemistry

Customer Reviews

My wife loves this thing for studying in her chemistry class. She has several of the other BarCharts and likes them all. Sure, you're paying a few bucks for a laminated piece of cardstock with some stuff printed on it, but it is very intelligently laid out.

I used this with the "Organic Chemistry Reactions" Quickstudy to study for the PCAT. It has been over 7 years since I took organic chemistry, and these were my primary resource to brush up on the subject. I love how portable it is and that all the information you need is in one place.

This is good for Orgo 1 topics. It has very few of what is newly encountered in Orgo 2. However, we all know that we need Orgo 1s knowledge so even if you're in Orgo 2, this little quick reference guide is helpful.

This resource sheet is so helpful when studying for organic chemistry. I purchased it before I began the class and it helped to show what I would be doing and using it as a reference when studying further material saves me time from having to look back in the text book. I will definitely hold on to it when starting Organic 2.

This is a great reference tool for my Chemistry class. Having the necessary formulas and notes in one place is very helpful. I will have a good 2 years of Chemistry and Organic Chemistry to get through to complete my degree. Tools like these are a Godsend.

I purchased this product at my school's bookstore and later returned it because it only contained basic information on the first page. The remaining three were dedicated to reactions, which are also on a separate Quick Study folder. So, if you are looking for basic essentials such as definitions and examples, this is not for you.

Organic chemistry is not easy. It never will be. However this really useful study guide will definitely make your time studying for your exams much more bearable and less frustrating. I used it daily as a reference when I was taking Ochem at my uni.

When it arrived, and I saw it was simply a laminated trifold, I felt ripped off. \$7 for a trifold laminate? The text is almost too small (but if you have 10/10 vision like most college students, it might be readable without glasses..). As far as the content goes, it's decent, but far from profound. Maybe I expect too much these days....

[Download to continue reading...](#)

Ace Organic Chemistry I: The EASY Guide to Ace Organic Chemistry I: (Organic Chemistry Study Guide, Organic Chemistry Review, Concepts, Reaction Mechanisms and Summaries) Organic Chemistry Fundamentals (Quick Study Academic) Organic Chemistry Reactions (Quick Study Academic) Ace General Chemistry I and II (The EASY Guide to Ace General Chemistry I and II): General Chemistry Study Guide, General Chemistry Review Ace General Chemistry I: The EASY Guide to Ace General Chemistry I: (General Chemistry Study Guide, General Chemistry Review)

Organic Body Care Recipes Box Set: Organic Body Scrubs, Organic Lip Balms, Organic Body Butter, And Natural Skin Care Recipes Nclex-Rn Study Guide (Quick Study Academic) Organic Chemistry Eighth Edition (Solutions Manual to Accompany Organic Chemistry Eighth Edition Portland State University) Organic High Pressure Chemistry (Studies in Organic Chemistry) Experimental Organic Chemistry: A Miniscale & Microscale Approach (Cengage Learning Laboratory Series for Organic Chemistry) The Organic Chemistry of Drug Synthesis, Volume 3 (Organic Chemistry Series of Drug Synthesis) Tietz Fundamentals of Clinical Chemistry and Molecular Diagnostics, 7e (Fundamentals of Clinical Chemistry (Tietz)) Ekg's / Ecgs (Quick Study: Academic) Endocrine System (Quick Study Academic) Circulatory System Advanced (Quick Study: Academic) Medical Coding: Icd-10-Pcs (Quick Study Academic) The Foot (Quick Study Academic) Anatomy Test (Quick Study Guides-Academic) Spanish Grammar (Quick Study: Academic) Nursing Pharmacology (Quick Study: Academic)

[Dmca](#)