

APPENDIX B

Glossary of NICEATM-Defined Chemical Classes

[This Page Intentionally Left Blank]

**Glossary of NICEATM-Defined Chemical Classes,
Based on the National Library of Medicine Medical Subject Headings**

Chemical Class	Definition
Inorganic Chemicals	
Acids	Chemical compounds which yield hydrogen ions or protons when dissolved in water, whose hydrogen can be replaced by metals or basic radicals, or which react with bases to form salts and water (neutralization).
Alkalis	Usually a hydroxide of lithium, sodium, potassium, rubidium or cesium, but also the carbonates of these metals, ammonia, and the amines.
Aluminum Compounds	Inorganic compounds that contain aluminum as an integral part of the molecule.
Arsenicals	Inorganic or organic compounds that contain arsenic.
Barium Compounds	Inorganic compounds that contain barium as an integral part of the molecule.
Boron Compounds	Inorganic or organic compounds that contain boron as an integral part of the molecule.
Bromine Compounds	Inorganic compounds that contain bromine as an integral part of the molecule.
Cadmium Compounds	Inorganic compounds that contain cadmium as an integral part of the molecule.
Calcium Compounds	Inorganic compounds that contain calcium as an integral part of the molecule.
Carbon Compounds, Inorganic	Inorganic compounds that contain carbon as an integral part of the molecule but are not derived from hydrocarbons.
Chlorine Compounds	Inorganic compounds that contain chlorine as an integral part of the molecule.
Chromium Compounds	Inorganic compounds that contain chromium as an integral part of the molecule.
Electrolytes	Substances that dissociate into two or more ions, to some extent, in water. Solutions of electrolytes thus conduct an electric current and can be decomposed by it (electrolysis).
Elements	Substances that comprise all matter. Each element is made up of atoms that are identical in number of electrons and protons and in nuclear charge, but may differ in mass or number of neutrons.
Fluorine Compounds	Inorganic compounds that contain fluorine as an integral part of the molecule.
Free Radicals	Highly reactive molecules with an unsatisfied electron valence pair.
Gases	The vapor state of matter; nonelastic fluids in which the molecules are in free movement and their mean positions far apart.

Chemical Class	Definition
Gold Compounds	Inorganic compounds that contain gold as an integral part of the molecule.
Hydrogen	Hydrogen. The first chemical element in the periodic table. It has the atomic symbol H, atomic number 1, and atomic weight 1. It exists, under normal conditions, as a colorless, odorless, tasteless, diatomic gas.
Hydroxides	Inorganic compounds that contain the -OH group.
Iodine Compounds	Inorganic compounds that contain iodine as an integral part of the molecule.
Iron Compounds	Inorganic compounds that contain iron as an integral part of the molecule.
Isotopes	Atomic species differing in mass number but having the same atomic number.
Lithium Compounds	Inorganic compounds that contain lithium as an integral part of the molecule.
Magnesium Compounds	Inorganic compounds that contain magnesium as an integral part of the molecule.
Manganese Compounds	Inorganic chemicals that contain manganese as an integral part of the molecule.
Mercury Compounds	Inorganic compounds that contain mercury as an integral part of the molecule.
Metals	Electropositive chemical elements characterized by ductility, malleability, luster, and conductance of heat and electricity. They can replace the hydrogen of an acid and form bases with hydroxyl radicals.
Minerals	Native, inorganic or fossilized organic substances having a definite chemical composition and formed by inorganic reactions. They may occur as individual crystals or may be disseminated in some other mineral or rock.
Nitrogen Compounds	Inorganic compounds that contain nitrogen as an integral part of the molecule.
Osmium Compounds	Inorganic compounds that contain osmium as an integral part of the molecule.
Oxygen Compounds	Inorganic compounds that contain oxygen as an integral part of the molecule.
Phosphorus Compounds	Inorganic compounds that contain phosphorus as an integral part of the molecule.
Platinum Compounds	Inorganic compounds which contain platinum as the central atom.
Potassium Compounds	Inorganic compounds that contain potassium as an integral part of the molecule.
Ruthenium Compounds	Inorganic compounds that contain ruthenium as an integral part of the molecule.
Salts	Substances produced from the reaction between acids and bases; compounds consisting of a metal (positive) and nonmetal (negative) radical.

Chemical Class	Definition
Selenium Compounds	Inorganic compounds that contain selenium as an integral part of the molecule.
Silicon Compounds	Inorganic compounds that contain silicon as an integral part of the molecule.
Silver Compounds	Inorganic compounds that contain silver as an integral part of the molecule.
Sodium Compounds	Inorganic compounds that contain sodium as an integral part of the molecule.
Sulfur Compounds	Inorganic compounds that contain sulfur as an integral part of the molecule.
Technetium Compounds	Inorganic compounds that contain technetium as an integral part of the molecule.
Thorium Compounds	Inorganic compounds that contain thorium as an integral part of the molecule.
Tin Compounds	Inorganic compounds that contain tin as an integral part of the molecule.
Tungsten Compounds	Inorganic compounds that contain tungsten as an integral part of the molecule.
Uranium Compounds	Inorganic compounds that contain uranium as an integral part of the molecule.
Vanadium Compounds	Inorganic compounds that contain vanadium as an integral part of the molecule.
Zinc Compounds	Inorganic compounds that contain zinc as an integral part of the molecule.
Organic Chemicals	
Alcohols	Alkyl compounds containing a hydroxyl group. They are classified according to relation of the carbon atom: primary alcohols, R-CH ₂ OH; secondary alcohols, R ₂ -CHOH; tertiary alcohols, R ₃ -COH.
Aldehydes	Organic compounds containing a carbonyl group in the form -CHO.
Amides	Organic compounds containing the -CO-NH ₂ radical. Amides are derived from acids by replacement of -OH by -NH ₂ or from ammonia by the replacement of H by an acyl group.
Amidines	Monovalent radical having the formula —C(NH)-NH ₂
Amines	A group of compounds derived from ammonia by substituting organic radicals for the hydrogens.
Amino Acids, Peptides, and Proteins	Amino acids and chains of amino acids connected by peptide linkages.
Anhydrides	Chemical compounds derived from acids by the elimination of a molecule of water.
Aza Compounds	Structurally modified purine/pyrimidine bases and nucleosides/nucleotides.
Azides	Organic or inorganic compounds that contain the -N ₃ group.

Chemical Class	Definition
Azo Compounds	Generally, organic or inorganic compounds that contain the -N=N group.
Boron Compounds	Inorganic or organic compounds that contain boron as an integral part of the molecule.
Carbohydrates	Carbohydrates are composed of carbon, hydrogen, and oxygen in a ratio of $C_n(H_2O)_n$.
Carboxylic Acids	Organic compounds containing the carboxy group (-COOH). This group of compounds includes amino acids and fatty acids. Carboxylic acids can be saturated, unsaturated, or aromatic.
Catenanes	Complex compounds where two cyclic molecules are interlaced together as links in a chain.
Cyanates	Organic salts of cyanic acid containing the -OCN radical.
Esters	Organic compound formed by reaction between an acid and an alcohol with elimination of water.
Ethers	Organic compounds characterized by an oxygen atom attached to two carbon atoms.
Free Radicals	Highly reactive molecules with an unsatisfied electron valence pair. Free radicals are produced in both normal and pathological processes.
Glycosylation End Products, Advanced	Products derived from the nonenzymatic reaction of glucose and proteins in vivo that exhibit a yellow-brown pigmentation and an ability to participate in protein-protein cross-linking.
Heterocyclic Compounds	Ring compounds having atoms other than carbon in their nuclei.
Hormones, Hormone Substitutes, and Hormone Antagonists	Chemical substances having a specific regulatory effect on the activity of a certain organ or organs.
Hydrazines	Organic molecules containing a diamine group: H_2N-NH_2 .
Hydrocarbons	Molecules essentially derived from carbon and hydrogen
Hydrocarbons, Acyclic	Organic compounds composed exclusively of carbon and hydrogen where no carbon atoms join to form a ring structure.
Hydrocarbons, Cyclic	Organic compounds composed exclusively of carbon and hydrogen forming a closed ring that may be either alicyclic or aromatic.
Hydrocarbons, Halogenated	Organic compounds composed of carbon, hydrogen, and at least one halogen (e.g., Cl, Br, F)
Hydrocarbons, Other	Organic compound composed of carbon and halogen which does not fit into the groups of (a) Hydrocarbon, acyclic; (b) Hydrocarbon, cyclic; and (c) Hydrocarbon, halogenated.
Imides	Organic compounds that contain the divalent radical -C(O)NHCO-.
Imines	Organic or inorganic compound containing the -NH group or its substituted form -NR that is derived from ammonia by replacement of two hydrogen atoms by a hydrocarbon group or other nonacid organic group.
Isocyanates	Organic compounds that contain the -NCO radical.

Chemical Class	Definition
Ketones	Organic compounds having a carbonyl group linked to a carbon atom in each of two hydrocarbon radicals.
Lactones	Organic compounds, regarded as anhydrides of certain hydroxy acids
Lipids	Fats that are insoluble in water and include many natural oils, waxes, and steroids.
Nitrates	Inorganic or organic salts and esters of nitric acid. These compounds contain the NO ₃ ⁻ radical.
Nitriles	Organic compounds containing the -CN radical (not inorganic cyanides with -CN).
Nitrites	Salts of nitrous acid or compounds containing the group NO ₂ ⁻ . The inorganic nitrites of the type MNO ₂ (where M=metal) are all insoluble, except the alkali nitrites. The organic nitrites may be isomeric, but not identical with the corresponding nitro compounds.
Nitro Compounds	Organic compounds containing a nitro group.
Nitroso Compounds	Generally, organic compounds containing the -NO radical.
Nucleic Acids, Nucleotides, and Nucleosides	High molecular weight polymers containing a mixture of purine and pyrimidine nucleotides chained together by ribose or deoxyribose linkages.
Onium Compounds	Ions with the suffix -onium, indicating cations with coordination number 4 of the type R _x A ⁺ which are analogous to ammonium compounds (H ₄ N ⁺). Ions include phosphonium R ₄ P ⁺ , oxonium R ₃ O ⁺ , sulfonium R ₃ S ⁺ , chloronium R ₂ Cl ⁺ .
Organometallic Compounds	A class of compounds of the type R-M, where a C atom is joined directly to any other element except H, C, N, O, F, Cl, Br, I, or At.
Organophosphorus Compounds	Organic compounds that contain phosphorus as an integral part of the molecule.
Organoselenium Compounds	Organic compounds which contain selenium as an integral part of the molecule.
Organosilicon Compounds	Organic compounds that contain silicon as an integral part of the molecule.
Peroxides	A group of compounds that contain a bivalent O-O group, i.e., the oxygen atoms are univalent. They can either be inorganic or organic in nature. Such compounds release atomic (nascent) oxygen readily. Thus they are strong oxidizing agents and fire hazards when in contact with combustible materials, especially under high-temperature conditions.
Phenols	Weakly acidic organic compounds; molecule contains one or more hydroxyl groups.
Polycyclic Compounds	Compounds consisting of two or more fused ring structures.
Quinones	Hydrocarbon rings that contain two ketone moieties in any position. They can be substituted in any position except at the ketone groups.

Chemical Class	Definition
Rotaxanes	Complex compounds in which a dumbbell shaped molecule is encircled by a macrocycle. They are named after rota (wheel) and axis (axle). Notation with a prefix is used to indicate the number of interlocked components.
Semicarbazides ²	Organic compounds in which the amide group of urea is replaced by a single rather than double hydrazine residue as in carbazide.
Sulfur Compounds	Organic compounds that contain sulfur as an integral part of the molecule.
Triazenes	Compounds with three contiguous nitrogen atoms in linear format, H ₂ N-N=NH, and hydrocarbyl derivatives.
Urea	A compound formed in the liver from ammonia produced by the deamination of amino acids.
Macromolecular Substances	Compounds and molecular complexes that consist of very large numbers of atoms and are generally over 500 kD in size.