

## Appendix E Glossary

### A

**acute** in animal testing, pertains to administration of an agent in a single dose; not to be confused with the clinical term for a disease having a short and relatively severe course

**acute hepatitis** newly acquired symptomatic hepatitis virus infection, usually less than six months of duration

**adduct** covalent compound formed between a carcinogen or its metabolites and a protein or nucleic acid (either DNA or RNA)

**adenocanthoma** an adenocarcinoma in which some or the majority of the cells exhibit squamous (scaly or plate-like) differentiation

**adenocarcinoma** tumors of the linings of organs

**adenofibrosis** fibroid change in a gland

**adenoma** a benign neoplasm of glandular epithelial tissue

**adenomatoid** resembling an adenoma

**adenomatous** pertaining to adenoma or to nodular hyperplasia of a gland

**adenosis** any disease of the glands [Adenosis of the breast = fibrocystic disease]

**adipose tissue** fatty tissue

**adjuvant therapy** therapy involving both a primary therapeutic agent and an additional material that enhances the action of the primary agent

**adrenal cortical steroids** steroid hormones produced in the cortex of the adrenal gland

**adrenal gland** a hormone-secreting organ located above each kidney

**aerobic conditions** in the presence of oxygen

**aerosol** a dispersed suspension of fine particles in gas

**alanine transaminase** a liver protein (ALT)

**albino** an organism exhibiting deficient pigmentation in skin, eyes, and/or hair

**alkaline** basic (as opposed to acidic); a material whose index of acidity (pH) is above 7

**alkylating agent** a substance that causes the incorporation of single-bonded carbon atoms into another molecule

**alveoli** usually referring to small, sac-like pouches in the portion of the lungs where gas exchange with the blood occurs; also, sac-like structures in the jaws where the teeth arise or in certain glands

**ambient air concentration** the concentration of a material in air outside of buildings, that is, air to which the general public is exposed

**amenorrhea** the absence or abnormal cessation of menstruation

**amine** an organic compound that may be derived from ammonia (NH<sub>3</sub>) by the replacement of one or more hydrogen atoms (H) by hydrocarbon groups or other chemical moieties; replacing one, two, or three hydrogen atoms gives primary, secondary, or tertiary amines, respectively; if a fourth group is added to a tertiary amine (R<sub>3</sub>N), the compound formed is called a quaternary amine (R<sub>4</sub>N<sup>+</sup>) and the nitrogen carries a positive charge

**amyloidosis** the accumulation of amyloid, an abnormal complex material probably composed of protein and a carbohydrate, in body tissues

**anabolic steroid** a synthetic derivative of testosterone, a male sex hormone; used principally to promote growth and repair of body tissues in senility, debilitating illness, and convalescence

**anaerobic conditions** in the absence of oxygen

**analgesic** a pain-relieving agent that does not cause loss of consciousness

**analogue** 1. one of two organs or parts in different species of animals or plants that differ in structure or development but are similar in function. 2. a compound that resembles another in structure; may be an isomer, but not necessarily

**analytical grade** the highest available purity of a chemical

**androgen** a substance that enhances masculine characteristics

**anemia** a condition in which the number of red blood cells or the amount of hemoglobin in a given volume of blood is less than normal

**anesthetic** a substance used to prevent the sensation of pain

**aneuploidy** extra or missing chromosomes

**angiosarcoma** a type of malignant tumor containing many fine blood vessels

**anion** an ion that carries a negative charge, e.g., chloride (Cl<sup>-</sup>), sulfate (SO<sub>4</sub><sup>2-</sup>), and acetate (CH<sub>3</sub>CO<sub>2</sub><sup>-</sup>); anions form salts with cations other than H<sup>+</sup>; the corresponding acids are formed when combined with H<sup>+</sup> ions

**ankylosing spondylitis** inflammation of the vertebrae, accompanied by inflammation and degeneration of connective tissue

**antibiotic** a chemical substance, produced by an organism, which is capable of killing or inhibiting the growth of other organisms

**anticonvulsant** a substance that lessens the severity of convulsions

**antiepileptic** a substance that lessens the severity of epileptic seizures

**anti-inflammatory** counteracting or suppressing inflammation, which is characterized by heat, redness, edema, and pain in the involved part of the body

**antimicrobial** a substance that kills microorganisms or arrests their multiplication or growth or otherwise prevents their pathogenic action; microbes include bacteria, fungi, and protozoa

**antineoplastic** inhibiting the survival and proliferation of malignant tumors

**antioxidant** a substance that inhibits chemical oxidation of another material

**antipyretic** a substance that relieves or reduces fever

**antiseptic** a substance that inhibits the growth of microorganisms on living tissue

**aorta** the major artery that carries blood from the heart to be distributed by branch arteries throughout the body

**aplastic anemia** a severe form of anemia that is characterized by decreased maturation of stem cells and is generally unresponsive to therapy

**apoptosis** genetically regulated programmed cell death, which results in deletion of a cell by fragmentation into membrane-bound fragments that are phagocytosed by other cells

**aquaculture** the production of food by growing plants or animals in water

**aqueous** containing water as one component

**aromatic hydrocarbon** an organic chemical compound formed primarily from carbon (C) and hydrogen (H) atoms with a structure based on benzene rings AND resembling benzene in chemical behavior; substituents on the rings(s) may contain atoms other than C or H

**arsenical** a compound containing arsenic

**arterial** relating to one or more arteries or to the entire system of arteries

**arylamine** an organic compound formed from an aromatic hydrocarbon that has at least one amine group joined to it

**auditory sebaceous gland** a gland that secretes an oily substance and that is located in the inner layer of the ear's skin

**autoimmune disease** a condition in which one's own body or its components are subject to deleterious effects of its immune system

**autoimmune hemolytic anemia** anemia that occurs in some autoimmune diseases

**azeotrope** a mixture of two liquids that boils without change in proportion of the two liquids, either in the liquid or the vapor phase

**azide** a compound that contains the monovalent -N<sub>3</sub> group

**azo-** a prefix denoting the presence in a molecule of the group -N≡N- (see also diazo-)

## B

**bactericide** an agent (e.g., heat, light, or osmotic pressure) or a chemical that kills bacteria or inhibits their growth

**bacteriophage** a virus with specific affinity for bacteria

**bacteriostat** an agent that inhibits the growth of bacteria

**barbiturate** a drug used as a sedative or hypnotic

**basal epithelial cells** the youngest, least differentiated cells, in the lower layers of the epithelium

**base-pairing site** site at which two bases bind to form the DNA double helix

**benign tumor** an abnormal mass of tissue that does not spread and that is not life-threatening

**bile** a fluid produced in the liver that helps digest fat

**bile duct** a tube through which bile passes from the liver to the small intestine

**bioaccumulation** the process by which a material in an organism's environment progressively concentrates within the organism

**bioassay** the determination of the potency or concentration of a compound by its effect upon animals, isolated tissues, or microorganisms, as compared with a chemical or physical assay

**bioavailability** the extent to which an organism will metabolize material, as opposed to allowing it to pass through unchanged without altering the organism's physiology

**biodegradation** biotransformation; the conversion within an organism of molecules from one form to another, a change often associated with change in pharmacologic activity

**biosolids** sewage sludge

**blastocyst** an early stage of embryonic development consisting of a ball of developing cells surrounding a central cavity

**blood dyscrasia** any abnormal condition of the blood

**blood-producing tissue** tissues in which blood elements are formed include the red bone marrow, spleen, liver, and thymus

**bowel** the intestine, or the part of the digestive tract extending from the stomach to the anus

**breakdown product** a chemical derived from a parent compound that has been altered, usually by heat, light, or enzymes

**bronchiole** a small division of a bronchus (lung airway)

**bronchoalveolar** bronchovesicular; relating to the bronchial tubes and alveoli in the lungs

**bronchogenic** originating in one of the larger air passages in the lung

**buffer** a mixture of an acid and its conjugate base that, when present in a solution, reduces any changes in pH that would otherwise occur in the solution when acid or alkali is added to it

## C

**cancer** a general term used to indicate any of various types of malignant neoplasms

**capsid** the outer protein protective shell of a virus, which protects the viral nucleic acid

**captive consumption** produced for in-house use

**carbonization** the process of converting an organic compound to carbon or to a carbonic residue

**carcinogen** any cancer-producing substance

**carcinogenesis** the process by which normal tissue becomes cancerous

**carcinogenicity** the power, ability, or tendency to produce cancerous tissue from normal tissue

**carcinoma** a malignant neoplasm of the epithelium

**carcinoma *in situ*** noninvasive cancer

**carcinostatic** checking the growth of a carcinoma

**cardiovascular** of, relating to, or involving the heart and blood vessels

**catalyze** to induce a modification in the rate of a chemical reaction using material that usually remains unchanged at the end of the reaction

**case-control study** an investigation in which select cases with a specific diagnosis (usually cancer) are compared to individuals from the same or related population(s) without the diagnosis

**cation** an ion that carries a positive charge, e.g., sodium ( $N^+$ ), (calcium  $Ca^{2+}$ ), and ammonium ( $NH_4^+$ ); the corresponding hydroxide is formed when combined with hydroxyl ( $OH^-$ ) ions

**CBI Aggregate** a quantitative range used to identify relative production of chemicals; though the exact amounts have been disclosed to the Environmental Protection Agency, these are considered confidential business information and cannot be precisely disclosed

**ceiling limit** the concentration of a substance that should not be exceeded, even for an instant

**cell cycle** the sequence of events by which a cell replicates

**cellular polarity** the property of cells' having a "top" and "bottom"

**centistoke** a unit of viscosity equal to the viscosity of a fluid having a viscosity of 1 centipoise and a density of 1 gram per cubic centimeter

**central nervous system (CNS)** the part of the nervous system consisting of the brain and spinal cord

**centromere** the point of attachment of the two chromatids of a chromosome

**centrosomes** structures that play a key role in mitotic division

**cervix** a necklike structure or constriction; most often used to refer to the neck of the uterus

**characteristic toxic hazardous waste** under the Resource Conservation and Recovery Act (RCRA), specific wastes that exhibit properties above a certain threshold for ignitability, corrosivity, reactivity, or toxicity are considered characteristic hazardous wastes; characteristic toxicity is determined by the Toxicity Characteristic Leaching Procedure (TCLP)

**chelation** a complex formation involving a metal ion and two or more polar groupings of a single molecule; chelation can be used to remove an ion from participation in biological reactions, as in the chelation of  $Ca^{2+}$  in blood by EDTA

**chemical intermediate** a chemical formed or used during the process of producing another chemical

**chemosterilant** a chemical compound that causes an organism to become sterile after exposure to it

**chemotherapy** the treatment of disease with chemical agents

**chirality** the property of nonidentity of an object with its mirror image; used in chemistry with respect to stereochemical isomers; a chiral object has a mirror image that is different from the original object

**cholangiocarcinoma** a carcinoma of the bile duct

**cholangiocellular** of or pertaining to the gallbladder or bile duct

**chromatid** each of the two strands formed by the duplication of a chromosome during mitosis or meiosis

**chromatin** the genetic material of the nucleus, consisting of DNA and nuclear proteins found in chromosomes

**chromophores** segments of molecules that react with light

**chromosomal aberrations** changes in chromosome structure or number

**chromosomal imbalances at specific regions** extra copies of the region in one member of a pair of chromosomes

**chronic** continuing for a long time

**chronic hepatitis** any of several types of hepatitis persisting for  $\geq 6$  months, often progressing to cirrhosis; this condition is characterized by abnormal levels of liver enzymes and inflammatory changes on liver biopsy.

**circulatory system** the system consisting of the blood, blood vessels, lymph vessels, and heart; involved in circulating blood and lymph throughout the body

**cirrhosis** replacement of normal liver tissue with bands of fibrous tissue surrounding nodules of regenerating liver tissue

**cis-activation** activation of other genes on the same chromosome

**clades** groups of genotypes that share a common ancestor

**clastogen** an agent capable of causing breakage of chromosomes

**clearance** removal of a substance, such as viral particles, from the blood (e.g., by renal excretion).

**climacteric** the syndrome of physiological and psychological changes occurring at menopause

**clitoral gland** a small, elongated, erectile body situated at the front of the vulva (external parts of female sexual organs)

**clone** a colony or group of organisms, or a colony of cells derived from a single organism or cell by asexual reproduction, all having identical characteristics

**coagulant** an agent that causes, stimulates, or accelerates coagulation, especially with reference to blood

**coagulate** to convert a fluid or a substance in solution into a solid or gel

**coagulative** coagulant; causing coagulation

**coal distillation** the separation of the components of coal by gradually increased heating and removal of the components as they gasify at different boiling points

**cocarcinogenic** an agent that is not carcinogenic itself, but enhances the activity of another agent that is carcinogenic

**codon** a sequence of three nucleotides in a strand of DNA or RNA that provides genetic code information for a specific amino acid

**cohort studies** a study of a group of people matched against a second group similar to it except for one factor (usually the suspected cause of a disease)

**colon** the part of the large intestine extending from the cecum (pouch in which the large intestine begins) to the rectum (terminal portion of the digestive tube)

**colorectal** relating to the colon and rectum, or to the entire large bowel

**commercial grade** less than the purest available form of a chemical; the purity normally produced for and adequate for commercial uses

**compounding** creating specialized drug products to fill an individual's prescription when an approved drug isn't acceptable

**comprehensive standards (OSHA)** regulations set by OSHA that include a variety of methods to reduce worker exposure, including use of respirators and protective garments, labeling of substance containers and worker areas in which the substance is used, and medical surveillance programs

**confounders** other factors that could increase the risk of cancer, including lifestyle factors and concurrent occupational exposure to other carcinogens

**congenital** existing from birth

**conjugated** bound together; in organic chemistry, conjugated refers to a molecular structure or substructure containing alternating double and single bonds between pairs of adjacent atoms

**conjunctiva** the membrane that lines the eyelid and covers part of the eyeball

**connective tissue** a tissue that connects, supports, or surrounds other tissues or organs

**contaminant** an impurity; in the environment, a chemical that is not ordinarily present and that may have deleterious effects

**copolymer** a chemical (polymer) made up of repetitive subunits (monomers) that are not all alike

**corpus uteri** the main part of the uterus

**corticosteroids** adrenal cortex hormones

**cross-linking** the extension of chemical bonds in more than one direction (not just linearly); serves to strengthen polymers

**cystitis** an inflammation of the urinary bladder

**cytochrome** a class of hemoprotein whose principal biological function is electron and/or hydrogen transport

**cytokines** a type of growth factor

**cytology** the study of cells, their origin, structure, function, and abnormalities

**cytomegalic** denoting or characterized by markedly enlarged cells

**cytometry** the counting of cells, especially blood cells, using a cytometer or hemocytometer

**cytotoxic** having a poisonous effect on cells

## D

**DL-** used separately, prefixes of D- for dextrorotary (rotated to the right) and L- for levorotary (rotated to the left) before the same chemical name refer to designations for optically active isomers that are chemically identical but that rotate plane polarized light in opposite directions; the isomers are mirror images of each other; when used together, DL-designates a racemic mixture of the two isomers, whose optical activities cancel each other

**defoliant** a chemical spray or dust that causes leaves to drop off plants prematurely

**dermal penetration** the act of entering the body by penetrating the layers of the skin

**dermatitis** an inflammation of the skin

**dermatomycosis** a superficial infection of the skin by fungi

**dermatomyositis** an inflammation of the skin, subcutaneous tissue, and muscles, involving death of muscle fibers

**dermis** the sensitive inner layer of the skin

**desiccator** in the laboratory, a heavy glass container from which moisture is removed by vacuum or chemicals

**diabetes** a disease in which the body's ability to use sugar is impaired and which usually involves the abnormal appearance of sugar in the urine; characterized by excessive urination

**diamine** an organic compound containing two amine groups, e.g., ethylenediamine,  $\text{H}_2\text{NCH}_2\text{CH}_2\text{NH}_2$

**diazo-** a prefix denoting a compound containing the  $-\text{N}=\text{N}-$  or  $-\text{N}\equiv\text{N}^+$  group (see also azo-)

**differentiation** the process by which cells mature and become specialized

**dimmer** a compound or unit produced by the combination of two like molecules

**distant tumor** a tumor located far from the point at which abnormal growth originated

**distillation** the separation or purification of the components of a material by gradually increased heating and removal of the components that gasify at different boiling points

**dose-response relationship** a relationship between several doses or concentrations of a chemical, biological, or physical agent to which an organism is exposed and the degree of the desired or other monitored effect

**duodenum** the first division of the small intestine; about 25 cm in length

**dysfunctional uterine bleeding** abnormal bleeding of the uterus

**dysplasia** abnormal tissue development

## E

**eczema** an inflammation of the outer layer of skin, characterized by redness, itching, crusting, and scaling

**edema** an accumulation of an excessive amount of watery fluid in cells, tissues, or serous cavities

**effluent** wastewater discharged from a treatment plant, sewer, or industrial outfall into the environment, usually to surface waters

**effluent guidelines (listed as a toxic pollutant)** under the Clean Water Act, pollutants that are subject to technology-based standards (application of best available technology) developed for selected groups of industries

**electrolyte** a substance, such as sodium chloride (NaCl), that dissociates into ions when fused (melted) or in solution, thereby becoming capable of conducting an electric current

**electrophile** the electron-attracting atom or agent in an organic reaction

**electrophilic** relating to an electrophile

**emulsifier** an agent that causes the dispersion of one insoluble fluid within another

**endogenous** originating within an organism

**endometrium** the mucous membrane lining of the uterus

**end use** the final intended purpose for a chemical or an item

***Entamoeba histolytica*** a microorganism that causes disease, particularly of the digestive tract

**enteritis** a chronic inflammatory disease involving any part of the gastrointestinal tract, especially the small intestine

**environmental fate** the distribution and transformation of a chemical from its first release until its ultimate removal from or recycling through the environment

**enzyme** a protein produced in organisms capable of accelerating a particular biochemical reaction; a biological catalyst

**ependymoblastoma** a malignant tumor composed of primitive ependymal cells; tumor classified as a malignant ependymoma by some pathologists; the ependyma membrane lines the ventricles of the brain and the central canal of the spinal cord

**epidemiology** a science concerned with the occurrence and distribution of disease in populations

**epidermis** the outer layer of skin

**epigenetic mechanisms** factors other than the primary DNA sequence that affect the action of genes

**epilepsy** a neurological disease usually characterized by seizures involving convulsions and loss of consciousness

**epineuroendothelioma** a tumor originating from the endothelium and situated upon a neural arch

**epithelial** relating to or consisting of epithelium

**epithelium** the tissue that covers internal and external surfaces of the body

**erythroblast** a term denoting all forms of human red blood cells containing a nucleus

**erythroblastemia** the presence of nucleated red cells in the peripheral blood

**erythroblastopenia** a primary deficiency of erythroblasts in bone marrow; seen in aplastic anemia

**erythroblastosis** the presence of many erythroblasts in blood

**erythrocyte** red blood cell or corpuscule; a mature red blood cell

**esophagus** the passage through which food travels from the throat to the stomach

**estrogen** a substance that can induce estrus; any of a group of female sex hormones

**estrogen-responsive tissues** those tissues affected by the presence of estrogens

**estrus** the cycle of changes in the genital tract; produced as a result of ovarian hormonal activity

**ethyleneimines** saturated azacyclopropane compounds

**eukaryote** an organism whose cells contain a limiting membrane around the nuclear material and which undergoes mitosis

**eukaryotic** pertaining to a eukaryote

**Ewing's sarcoma** a malignant tumor of the bone marrow, accompanied by pain and fever

**exogenous** originating outside the organism

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## F

**feedstock** the raw material supplied to a processing plant for use as the beginning chemicals for reactions that eventually create an end product

**fibroadenoma** a benign neoplasm that contains fibrous tissue

**fibrocarcinoma** a carcinoma with a hard structure due to the formation of dense connective tissue

**fibroma** a benign neoplasm composed mainly of fibrous or connective tissue

**fibrosarcoma** a malignant neoplasm derived from fibrous connective tissue

**fibrosis** growth of fibrous connective tissue in excess of that naturally present

**fibrous tissue** fibers formed by fibroblasts (spindle-shaped cells capable of forming collagen fibers)

**flammable** that which will burn readily or continuously

**Flaviviridae** a family of enveloped single-stranded positive sense RNA viruses formerly classified as the "group B" arboviruses

**flocculation** precipitation from solution in the form of fleecy masses; the process of becoming flocculent

**follicular cell** a modified epithelial cell that secretes fluid

**forestomach** a nonglandular section of the stomach in certain mammals (e.g., rats and mice); not found in humans

**fumigant** a pesticide in vapor or gaseous form used to kill pests or disinfect materials

**fungicide** a pesticide used to control, prevent, or kill fungi

**fungistatic** inhibiting the growth of fungi

**fungus** a lower plant that feeds on other organic matter and lacks the chlorophyll and tissue differentiation of higher plants

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## G

**gallbladder** a reservoir for bile; located near the liver

**gastric (stomach) intubation** in research, the insertion of a tube through the mouth into the stomach of test animals to administer a substance under study; also called gavage and oral intubation; in larger animals and human medical patients, a gastric tube can also be inserted through a nasal passage to administer or withdraw substances from the stomach

**gastrointestinal tract** the part of the digestive system composed of the stomach and intestine

**gavage** in animal experiments, the introduction of material through a tube passed through the mouth into the stomach

**gene** a unit of hereditary information; the portion of a DNA molecule which contains, coded in its nucleotide sequence, the information required to determine the amino acid sequence of a single polypeptide chain

**genitourinary** pertaining to the genital and urinary organs

**genotoxic** causing genetic damage

**genotype** genetic constitution of an individual

**geothermal** of or relating to the heat of the earth's interior surface

**germ cells** cells which give rise to the male and female gametes (the sperm and ova)

**gestation** pregnancy; in mammals, the period during which the young develops between the egg's fertilization and birth

***Giardia lamblia*** a microorganism causing gastrointestinal infection in humans

**gland** an aggregation of cells, specialized to secrete or excrete certain biologically important materials

**glandular stomach** the portion of the stomach in which the gastric juices are secreted

**glioma** any neoplasm derived from one of the various types of cells that form the interstitial tissue of the brain, spinal cord, pineal gland, posterior pituitary gland, and retina; e.g., astroblastoma, astrocytoma, glioblastoma multiforme, ganglioglioma, spongioblastoma polare, medulloblastoma, ependymoma, oligodendroglioma, etc.

**gliosarcoma** a glioma consisting of immature, undifferentiated, pleomorphic, spindle-shaped cells with relatively large, hyperchromatic, frequently bizarre nuclei and poorly formed fibrillary processes; sometimes used as a term for a malignant neoplasm derived from connective tissue in which there are proliferating glial cells

**glomerulonephritis** a disease characterized by inflammation of blood vessels in the kidneys

**gonadal dysgenesis** impaired development of the gonads

**grand mal epilepsy** an extreme form of epilepsy, with seizures involving loss of consciousness and generalized convulsions

**granulocyte** a mature granular leukocyte

## H

**half-life** the time required for a substance to be reduced to one-half its present value through degradation or through elimination from an organism

**hamartoma** a focal malformation that resembles a neoplasm, grossly and even microscopically, but results from faulty development in an organ; it is composed of an abnormal mixture of tissue elements, or an abnormal proportion of a single element, normally present in that site, which develop and grow at virtually the same rate as normal components, and are not likely to result in compression of adjacent tissue (in contrast to neoplastic tissue)

**hard palate** the bony front portion of the partition separating the mouth from the nasal cavity

**harderian glands** in some animals, accessory tear glands excreting a fluid that facilitates movement of the third eyelid, an extra fold of skin in the eye

**hazardous constituent of waste** a list of chemicals which is referenced under certain Conservation and Recovery Act (RCRA) provisions to determine if a solid waste is a hazardous waste

**hazardous waste code** the number assigned to every hazardous waste listed under the Resource Conservation and Recovery Act (RCRA); the code is used for notification, recordkeeping, and reporting requirements

**HBeAg** protein secreted by infected cells, similar to the nucleocapsid subunit but lacking carboxy terminal amino acids of the core gene product.

**HBsAg** Hepatitis B virus (HBV) surface antigen particles, 22-nm rods and spheres secreted by cells infected with HBV and made up of the viral envelope proteins, but lacking viral nucleic acids.

**HBx** HBV X gene protein.

**Heinz-body formation** a sign of hemoglobin damage

**hemangioendothelioma** a hemangioma principally composed of endothelial cells

**hemangioendotheliosarcoma** a hemangiosarcoma—a malignant tumor formed by proliferation of endothelial and fibroblastic tissue

**hemangioma** a benign tumor made up of newly-formed blood vessels

**hemangiosarcoma** a rare malignant neoplasm composed of cells from connective tissue and endothelial cells from blood vessels

**hematopoiesis** development of blood cells

**hematopoietic cells** progenitors of blood cells

**hematopoietic system** organs and tissues involved in production of blood

**heme** the prosthetic, oxygen-carrying, color-furnishing constituent of hemoglobin

**hemoglobin** the red, respiratory protein of erythrocytes; transports oxygen from the lungs to the tissues

**hepatic** pertaining to the liver

**hepatitis** an inflammation of the liver

**hepatocellular** pertaining to cells of the liver

**hepatocellular carcinoma** primary liver-cell cancer

**hepatocytes** liver cells

**hepatoma** a tumor of the liver

**Hepadnaviridae** family of DNA viruses in which the major site of viral reproduction and pathogenesis is the liver cell

**herbicide** an agent that is destructive to plants

**heteroplasia** the development of cytologic and histologic elements that are not normal for the organ or part in question, as the growth of bone in a site where there is normally fibrous connective tissue; see also metaplasia

**histology** the branch of anatomy that deals with microscopic structure, composition, and function of tissues

**histoma** histioma; a benign neoplasm in which the cytologic and histologic elements are closely similar to those of normal tissue from which the neoplastic cells are derived

**histopathogenesis** abnormal embryonic development or growth of tissue

**Hodgkin's disease** a lymph system cancer characterized by painless, progressive enlargement of the lymph nodes, spleen, and general lymphoid tissues

**hormone** any of various chemical substances that are produced by the endocrine glands and that have specific regulatory effects on the activity of certain organs

**hydrolysis** a chemical process whereby a compound is cleaved into two or more simpler compounds with the uptake of the H and OH parts of a water molecule on either side of the chemical bond cleaved

**hydrolyze** to subject to hydrolysis

**hydroxyl** the atom group or radical, OH

**hydroxylation** the placing of a hydroxyl group on a compound in a position where one did not exist before

**hygroscopic** describes a substance that readily absorbing moisture, as from the atmosphere

**hyperplasia** an increase in the size of a tissue or organ due to an increased number of cells

**hyperthyroidism** excessive activity of the thyroid gland and the resultant pathological condition characterized by increased metabolism, enlargement of the thyroid gland, rapid heart rate, and high blood pressure

**hypnotic** sleep-inducing; also, a drug that induces sleep

**hypogonadism (hypogenitalism)** a condition resulting from or characterized by abnormally decreased functional activity of the gonads, with retardation of growth and sexual development

**hypotensive** causing a decrease in blood pressure

## I

**ignitable** capable of causing a fire or of burning; hazardous wastes in this RCRA category (D001) include liquids with flash points less than 60°C (140°F) (closed cup method); solids capable of causing fire through friction, absorption of moisture, or spontaneous chemical changes and which burn vigorously and persistently; chemical oxidizers; or ignitable compressed gases as defined in 49 CFR 173.300

**ileum** the third portion of the small intestine, about 12 feet long, extending from the junction with the jejunum to the ileocecal opening

**immediately dangerous to life and health (IDLH)** an exposure level that is likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment, as recommended by the National Institute for Occupational Safety and Health (NIOSH)

**immunodominant component** site to which the immune system responds

**immunomodulators** drugs that affect the immune system

**immunosuppression** artificial prevention or diminution of the [natural] immune response, e.g., by irradiation or by administration of substances such as pharmaceutical antimetabolites or specific antibodies to prevent sensitization; immunosuppression or immunodeficiency may also be used to describe the condition of acquired or congenital lowered immune response

**implantation** the insertion of a mass of material into an organism at a fixed site from which the mass does not move except by dissolving in the body fluids

**incidence** rate at which new cases or infections occur

**inhalation** the drawing of air or other substances into the lungs

**initiator** a chemical that permanently alters a cell or group of cells and, in the case of carcinogens, is tumor-producing

**injection site** the site, usually in the skin, at which an agent is injected into an organism; this site may exhibit effects resulting from exposure to the agent combined with tissue injury from the injection syringe

**inorganic** pertaining to materials or chemicals that do not contain carbon (for instance, glass or table salt)

**insoluble** incapable of being dissolved in a particular solvent

**integument** the rind, capsule, or covering of any body or part

**integumentary system** an enveloping layer (as a skin or membrane) of an organism or of one of its parts

**intra-abdominal** within the abdomen (the portion of the body between the chest cavity and the pelvis)

**intra-bronchial** situated or occurring within a bronchus (a division of the respiratory tract that leads into the lung)

**intra-gastric** within the stomach

**intra-medullary** the innermost part of an organ or structure, for instance, the inner portion of the spinal cord, the medulla oblongata of the brain, or the marrow of a bone

**intra-medullary injection** injection into the central cavity of a bone

**intramuscular injection (i.m.)** an injection into muscle tissue

**intra-peritoneal injection (i.p.)** an injection into the abdominal cavity, which is lined with the peritoneal membrane

**intra-pleural** within the pleura, a membrane that secretes fluid, envelops the lungs, and lines the walls of the cavity containing them

**intra-tracheal** within the trachea (windpipe)

**intravenous injection (i.v.)** an injection into a vein

**intra-vesicular** within membranes or fluid-filled pouches (such as the urinary bladder or the alveoli)

**in utero** within the uterus

**invasive** spreading beyond specific body tissues

**iron deficiency anemia** anemia that is characterized by low or non-existent iron stores and low concentrations of iron in the blood and that has such symptoms as pallor, mouth sores, digestive difficulties, and thin, brittle nails

**isochromosome** a chromosomal aberration, occurring during meiosis, in which two daughter chromosomes are formed, each lacking one chromosome arm but with the other doubled

**isoenzyme** see isozyme

**isomer** one of two or more variations of a chemical, each of which has the same chemical formula but a different structural arrangement

**isozyme** one of a group of enzymes that are very similar in catalytic properties, but may be differentiated by variations in physical properties

## J

**jaundice** a yellowish staining of the integument, sclerae (whites of the eyes), and deeper tissues and the excretions with bile pigments, which are increased in the serum

**jejunum** the portion of small intestine, about 8 feet in length, between the duodenum and ileum

## K

**Kaposi's sarcoma** a multifocal malignant or benign neoplasm of primitive vasoformative (relating to the formation of blood or lymphatic vessels) tissue, occurring in the skin and sometimes in lymph nodes or viscera

**keratinocytes** skin cells

**kinetochore-negative micronuclei** a sign of chromosome breakage

**kinetochore-positive micronuclei** a sign of chromosome loss

## L

**labile** refers to the ability of a particular complex ion to participate rapidly in reactions that result in replacing one or more ligands in its coordination sphere; opposite is inert; "inert" and "labile" are not to be confused with "stable" and "unstable" which refer to the thermodynamic tendency of chemical species to exist under equilibrium conditions

**lactation** the secretion of milk

**laminating** separating or arranging in layers

**large intestine** the lower portion of the intestine; a membranous tube extending from the small intestine to the anus

**laryngeal cancer** cancer of the larynx

**larynx** the upper end of the trachea (windpipe); the "voicebox"

**laser ablation** micro-machining

**latency period** a seemingly inactive period, as that between the exposure of tissue to an injurious agent and a manifest response; often used to identify the period between exposure to a carcinogen and development of a tumor

**leiomyoma** a benign tumor derived from smooth muscle, most commonly of the uterus

**leiomyosarcoma** a malignant tumor containing cells of smooth muscle, most commonly of the uterus or retroperitoneal region

**leukemia** a cancer of the blood-forming tissues that is characterized by a marked increase in the number of abnormal white blood cells (leukocytes)

**leukemogenic** causing leukemia, an acute or chronic disease characterized by an abnormal number of leukocytes or the presence of abnormal leukocytes

**ligand** any molecule or ion that binds to the surface of a protein by non-covalent bonds

**linear dose response** a consistent increase in biological response as increasing quantities of a test substance are administered

**lipid** any of various fats or waxes, which, along with proteins, carbohydrates, and nucleic acids, form the principal constituents of living cells

**listed hazardous waste** under the Resource Conservation and Recovery Act (RCRA), wastes from generic industrial processes, wastes from certain sectors of industry, and unused pure chemical products that have been shown to generally contain toxic chemicals that could pose a threat to human health and the environment, or that generally exhibit one of the characteristics of ignitability, corrosivity, reactivity, or toxicity are considered hazardous and must adhere to RCRA provisions

**lupus erythematosus** a chronic inflammation of the skin, characterized by scales that leave scars

**lymph** a clear liquid that is collected from the tissues throughout the body and that flows in lymphatic vessels

**lymphatic** a small sac or node in which lymph is stored; pertaining to the lymph, lymph nodes, or vascular channels that transport lymph to the lymph nodes

**lymphoblastoid cells** immature white blood cells

**lymphocytes** white blood cells

**lymphocytic leukemia** a leukemia associated with overactivity of the lymphoid tissue

**lymphoid** resembling lymph or lymphatic tissue

**lymphoid tissue** tissue involved in production of white blood cells  
**lymphoma** a neoplasm of the lymphatic tissue  
**lymphopoietic** relating to the formation of lymph  
**lymphoreticular** pertaining to the proliferation of the reticuloendothelial cells of the lymph glands  
**lymphosarcoma** any of various malignant neoplastic disorders of lymphoid tissue, excluding Hodgkin's disease

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## M

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**malignant** tending to become progressively worse; life-threatening  
**mammary** pertaining to the breast  
**marmoset** a soft-furred, clawed monkey found in South and Central America  
**mastodynia** a pain in the breast  
**mastomys** a small rodent used in certain laboratory experiments  
**MCL** the maximum contaminant level; the maximum allowable of a contaminant in public drinking water supplies under the Safe Drinking Water Act  
**mechanism of action** mechanism by which a substance causes cancer  
**mechanistic studies** studies of the mechanisms of carcinogenicity  
**mediastinum** the mass of tissues and organs separating the two lungs, the heart and its large blood vessels, the trachea, esophagus, thymus, lymph nodes, and other structures  
**meiosis** process of cell division that results in the formation of gametes, consisting of two nuclear divisions in rapid succession that result in the formation of four gametocytes each containing half the number of chromosomes found in somatic cells  
**melanocyte** pigment cell of the skin  
**melanocytoma** a neoplasm or hamartoma composed of melanocytes  
**melanoma** a neoplasm derived from cells that are capable of forming the pigment melanin  
**meningioma** tumors of the membranes covering the central nervous system  
**menopause** the cessation of menstruation  
**mesenchymoma** a mixed mesenchymal tumor composed of  $\geq 2$  cellular elements not commonly associated, not counting fibrous tissue as one of the elements  
**mesentery** in the lining of the abdominal cavity, a fold that attaches the small intestine to the posterior abdominal wall by which the viscera are supported  
**mesothelioma** a neoplasm derived from cells lining the chest or abdominal cavities  
**meta-** in chemistry, a prefix denoting that a compound is formed by two substitutions in the benzene ring separated by one carbon atom, i.e., linked to the first and third, second and fourth, etc., carbon atoms of the ring; usually abbreviated *m-*  
**meta-analysis** statistical overview  
**metabolic activation** addition of rodent liver microsomes to simulate mammalian metabolism (in bacterial test systems)  
**metabolism** the process in which absorbed foods are broken down to release energy or in which absorbed nutrients are used to construct different compounds to be used structurally or in chemical reactions  
**metabolite** a substance produced by metabolism  
**metaplasia** the abnormal transformation of an adult, fully differentiated tissue of one kind into a differentiated tissue of another kind; metaplasia is an acquired condition, in contrast to heteroplasia  
**metastasis** the appearance of a neoplasm in a part of the body remote from the site of its origin  
**methemoglobinemia** a form of anemia; conversion of hemoglobin to methemoglobin, resulting in anemia

**microbe** a microorganism; microbes include bacteria, fungi, and protozoa  
**microglioma** an intracranial neoplasm of microglial cell origin that is structurally similar to reticulum cell sarcoma  
**micronuclei** a sign of chromosome damage or loss  
**micronucleus formation** a sign of chromosome damage or loss  
**microsome** one of the small spherical vesicles derived from the endoplasmic reticulum after disruption of cells by centrifugation  
**microtubule** a cylindrical cytoplasmic element 200 to 270 Å in diameter and variable in length; microtubules increase in number during mitosis and meiosis, and occur widely in plant and animal cells, where they may be related to movement of the chromosomes or chromatids on the nuclear spindle during nuclear division  
**minisatellite mutations** changes in numbers of tandem repeats of DNA sequences  
**miscible** capable of being mixed without separation into distinct components  
**mitosis** process whereby the cell's nucleus divides into two new nuclei, each with one copy of the chromosomes  
**mitotic figures** the appearance of chromosomes in dividing cells  
**mitotic index** the proportion of cells undergoing division  
**mobile source air toxics** under the Clean Air Act, regulations are to be developed to limit the concentrations of these substances emitted from mobile sources (cars, trucks, and other vehicles)  
**monoclonal** in immunochemistry, pertaining to a protein from a single clone of cells, all molecules of which are the same  
**monogenic** relating to a hereditary disease or syndrome, or to an inherited characteristic, controlled by alleles at a single genetic locus  
**monomer** a chemical subunit that is joined to other similar subunits so as to produce a polymer  
**mucosa** mucous membranes  
**multiple myeloma** cancer of white blood cells in the bone marrow; bone-marrow cancer  
**multiple sclerosis** a disease characterized by loss of the sheaths surrounding the nerves throughout the central nervous system; symptoms include weakness, lack of coordination, and speech problems  
**mutagen** any agent that causes the production of a mutation  
**mutagenic** causing mutations  
**mutagenicity** the capability to induce mutation, or permanent change, in genetic material  
**myasthenia gravis** a neurological disorder causing muscular weakness and fatigue, especially in the face, eyes, lips, tongue, throat, and neck  
**mycosis fungoides** a rare, chronic, malignant, lymphoreticular neoplasm, first of the skin and in later stages of the lymph nodes and internal organs  
**myelocytic leukemia** a leukemia arising from cells in the bone marrow  
**myeloid** pertaining to, derived from, or manifesting certain features of the bone marrow; sometimes used with reference to the spinal cord  
**myeloma** a tumor composed of cells normally found in the bone marrow

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## N

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**NAAQS (national ambient air quality standards)** under the Clean Air Act, regulations set for the most common air pollutants  
**nasal turbinates** the convoluting supportive structure of the nose  
**necropsy** the examination of the dead body of an animal by dissection so as to detail the effects of the disease  
**necrosis** the pathologic death of one or more cells, or of a portion of tissue or organ, resulting from irreversible damage  
**neonatal** relating to or affecting the first four weeks after birth  
**neoplasia** the process that results in the formation and growth of a tumor

**neoplasm** any new and abnormal growth; neoplasms may be either benign or malignant

**nephroblastoma** see Wilms' tumor

**nephropathy** kidney disease

**nephrotic syndrome** a kidney disorder

**neoplastic** pertaining to or like any new or abnormal growth

**NESHAP (national emission standards for hazardous air pollutants)** under the Clean Air Act, regulations set for industries that emit one of more of the listed hazardous air pollutants in significant quantities

**nucleocapsid** a unit of viral structure, consisting of a capsid (protein coat) with the enclosed nucleic acid.

**neural** pertaining to the nerves

**neuroblastoma** childhood nerve-cell cancer

**neuroepithelioma** a rare type of glioma (usually of the retina); the neoplastic cells resemble primitive forms that develop into specialized sensory epithelium or the cerebrospinal axis; histologically is similar to a medulloepithelioma

**neurogenic** originating in the nervous tissue; forming nervous tissue

**neurosarcoma** an old, general term for a malignant neoplasm derived from cells of the nervous system

**nitrogen mustard** a substituted mustard gas in which sulfur is replaced by an amino nitrogen

**nitroparaffin** an organic compound in which one or more hydrogen molecules of an alkane are replaced by a nitro group

**nitrosamine** a class of organic compounds that contain a  $-NH_2$  and a  $-NO$  radical

**nodule** a swelling or protuberance

**nonneoplastic lesions** lesions other than tumors

**NSPS (new source performance standards)** under the Clean Air Act, regulations set for a variety of air pollutants from over 70 industrial sources

**nuclease** general term for enzymes that catalyze the hydrolysis of nucleic acid into nucleotides or oligonucleotides by cleaving phosphodiester linkages

**nucleic acid** a polymer of nucleotides in which the phosphate of one of the repeating nucleotide subunits is linked to the sugar of the adjacent one; functions in the storage and transmission of genetic information; found in chromosomes, nucleoli, mitochondria, and cytoplasm of all cells and in viruses

**nucleocapsid** a unit of viral structure, consisting of a capsid (protein coat) with the enclosed nucleic acid.

**nucleolus** a small, rounded mass within the cell nucleus where ribonucleoprotein is produced

**nucleotide** the molecular subunit of nucleic acids; consists of a purine or pyrimidine base, a sugar, and phosphoric acid

**nucleus** a large spherical or oval, membrane-bound cell organelle present in most cells; contains most of the cell's DNA and some of its RNA

## O

**oat cell carcinoma** a type of lung cancer

**off-gassing** the release of gaseous chemicals from a solid material

**olfactory nerves** the nerves associated with the sense of smell

**oncogenes** genes associated with cancer; malignant transformation of tissue appears to be associated with either the turning-on of these genes or an increase in the rate at which they form their specific proteins

**oncogenicity** the capacity to induce tumors

**oncotherapy** treatment of tumors

**oocyte** the immature ovum

**open vessel operations** industrial processes in which reacting materials are mixed in containers that are not closed

**oral administration** administration of a drug or test substance via the mouth

**oral cavity** the space which includes the mouth, cheek, palate, teeth, and tongue

**organic** in chemistry, relates to the chemistry of the compounds of carbon

**oropharynx** soft palate, tonsils, and back of the tongue and throat

**ortho-** in chemistry, denoting that a compound has two substitutions on adjacent carbon atoms in a benzene ring; usually abbreviated *o*-

**osteogenesis** the formation or development of bones

**osteogenic sarcoma** childhood bone cancer

**osteoporosis** an abnormal loss of bone substance

**ovariectomy** surgical removal of one or both ovaries

**ovary** one of the two female reproductive organs in which eggs are formed

**ovulation** the discharge of an egg from an ovary

**ovum** the female sex cell

**oxidant** the substance that is reduced and that, therefore, oxidizes the other component of an oxidation-reduction system

**oxidase** one of a group of enzymes now termed oxidoreductases that bring about oxidation by the addition of oxygen to a metabolite or by the removal of hydrogen or of one or more electrons

**oxidation** the act of combining or causing to combine with oxygen or to lose electrons

**oxidize** oxygenize; to combine or cause an element or radical to combine with oxygen or to lose electrons

## P

**palate** the partition separating the nasal and oral cavities

**pancreas** a large gland behind the stomach that secretes both hormones and enzymes involved in digestion and metabolism

**papilloma** a benign tumor derived from epithelial tissue

**Papillomaviridae** family of DNA viruses that infect the epithelia of the skin and mucous membranes and induce a variety of benign and malignant tumors in humans and other species

**para-** in chemistry, a prefix designating two substitutions in the benzene ring arranged symmetrically, i.e., linked to opposite carbon atoms in the ring; usually abbreviated *p*-

**paranasal** alongside the nose

**parathyroid gland** any one of four small glands situated beside the thyroid gland

**parenchyma** the distinguishing or specific cells of a gland or organ, contained in and supported by the connective tissue, framework, or stroma

**parenteral** not through the alimentary (food) canal, but any subcutaneous, intramuscular, or intravenous injection

**Parkinson's syndrome** a neurological disease characterized by muscular rigidity, tremor, and salivation

**particulate** fine liquid or solid particles such as dust, smoke, mist, fumes, or smog suspended in air or atmospheric emissions

**pathologist** an expert in pathology

**pathology** the study of the nature of diseases, especially of the structural and functional changes in body tissues, organs, or fluids caused by disease, physical and biological agents, and toxic substances

**peliosis** a disorder characterized by purplish or brownish red discoloration that can be seen through the skin and is caused by hemorrhage

**pelvis** the lower portion of the trunk of the body, bounded anteriorly and laterally by the two hipbones and posteriorly by the sacrum and coccyx. Also, the funnel-shaped part of the kidney leading into the ureter

**percutaneous absorption** absorption through the skin

- pericardium** the sac surrounding the heart and large blood vessels leading to and from it
- perinatal** of, involving, or occurring during the period closely surrounding the time of birth
- perinatal transmission** transmission from mother to infant at birth
- peripheral blood** circulating blood
- peripheral lymphocytes** circulating white blood cells
- perithecium** in fungi, a flask-shaped ascocarp, one of the many shapes that bear asci and ascospores, and that are used as an aid in identifying a fungus; plural perithecia
- peritoneal mesothelioma** tumors of the membranes lining the abdominal cavity and surrounding the internal organs
- peritoneum** the lining surrounding the abdominal cavity and containing the viscera (internal organs in the body's trunk)
- permissible exposure limit (PEL)** time-weighted average (TWA) air concentrations that must not be exceeded during any 8-hour work shift of a 40-hour work week as defined by OSHA regulations
- peroxidases** enzymes in animal and plant tissues that catalyze the dehydrogenation (oxidation) of various substances in the presence of hydrogen peroxide, which acts as a hydrogen acceptor, being converted to water in the process
- peroxide** that oxide of any series that contains the greatest number of oxygen atoms; applied most correctly to compounds containing an -O-O-link, as in hydrogen peroxide (H-O-O-H)
- peroxy-** prefix denoting the presence of an extra O atom, as in peroxides, peroxy acids (e.g., hydrogen peroxide, peroxyformic acid)
- pesticide** as defined by the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), a pesticide includes "any substance or mixture of substances intended for preventing, killing, repelling, or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant"
- petroleum distillate** a material produced by a combination of vaporization and condensation of petroleum
- pH** a numeric scale of acidity and alkalinity, ranging from 0 to 14, that expresses the negative logarithm of the hydrogen ion concentration
- phagocyte** carrier or scavenger cell; a cell possessing the property of ingesting bacteria, foreign particles, and other cells
- phagocytosis** the process of ingestion and digestion by cells of solid substances, such as other cells, bacteria, bits of necrosed tissue, or foreign particles
- pharmacokinetics** movements of drugs within biological systems, as affected by uptake, distribution, elimination, and biotransformation
- pharmacology** the science concerned with drugs, their sources, appearance, chemistry, actions, and uses
- pharynx** the passage between the mouth and nose and the esophagus
- phase I enzymes** enzymes that mediate metabolic activation or inactivation
- phase II enzymes** enzymes that mediate conjugation of metabolites
- phenotype** in genetics, a category or group to which an individual may be assigned on the basis of one or more characteristics observable clinically or by laboratory means that reflect genetic variation or gene-environment interaction. A phenotype may include more than one genotype
- pheochromocytoma** pheochromoblastoma; a neoplasm, usually benign, derived from cells in the adrenal medullary tissue
- phlebotomy** the incision of a vein for the letting of blood
- photodecomposition** chemical breaking down by means of light
- photoreactive molecules** molecules that absorb UVR and visible light
- photosensitizers** substances that sensitize an organism, cell, or tissue to light
- physiological saline** a salt solution in water with properties similar to those of body fluid
- pituitary gland** a small gland at the base of the brain that secretes several important hormones
- pKa** a measurement of acid strength; the pKa is the negative logarithm (to the base 10) of the acid dissociation constant (Ka); the lower the pKa, the stronger the acid
- placenta** the organ in most mammals that connects the fetus with the mother's uterus
- plant extract** material recovered from a plant usually by subjecting the plant to treatment(s) with a solvent such as water, alcohol, or ether
- plasma** the fluid part of blood or lymph, as distinguished from suspended material
- plasmid** extrachromosomal element
- plasmocytoma** cancer of the white blood cells in the bone marrow
- platelet** an irregularly shaped disk found in blood, containing granules in the central part and, peripherally, clear protoplasm, but no definite nucleus; it is about one-third to one-half the size of an erythrocyte, and contains no hemoglobin
- pleomorphism** variation in the sizes and shapes of cells and nuclei
- pleura** pertaining to the membrane surrounding the lungs and lining the chest cavity
- pleural mesothelioma** tumors of the membranes lining the chest cavity and surrounding the lungs
- ploidy changes** changes in the number of sets of chromosomes
- polyclonal** in immunochemistry, pertaining to proteins from more than a single clone of cells
- polycyclic** containing more than one benzene ring in a condensed form
- polycythemia vera** a disease characterized by an absolute increase in red cell mass and total blood volume
- polymer** a chemical formed by the joining together of similar chemical subunits
- polyp** a protruding growth, from mucous membrane
- porphyria** a disorder of pigment (porphyrin) metabolism characterized by increased excretion of porphyrins, and occasionally sensitivity to sunlight
- porphyrins** pigments widely distributed throughout nature (e.g., heme, bile pigments, cytochromes)
- positive control** in an experiment, an agent known to have a positive effect and used as a standard for measuring a tested substance's effect
- postmenopausal osteoporosis** the development after menopause of enlarged spaces in the bones
- postpartum** occurring after childbirth
- potential occupational carcinogen** the Occupational Safety and Health Administration (OSHA) has identified 13 chemicals as potential occupational carcinogens and requires that potential exposure be controlled through the use of engineering controls, work practices, and personal protective equipment, including respirators.
- prenatal** existing or occurring before birth
- prepuberty** the period prior to first being capable of sexual reproduction
- prevalence** percentage of infected individuals
- primary cancer** the original cancer developed in an organism
- primate** any of an order of mammals including man, the apes, monkeys, and related forms
- productive infection of cells** leading to viral replication
- progesterone (progesterin)** a substance that can induce cyclic changes in the uterus and maintain the uterus during pregnancy
- prokaryote** a microorganismal cell that lacks mitochondria; its genome seems to consist of a single large molecule of DNA not enclosed within a membrane, and it does not undergo mitosis during replication

**promoter** a chemical that, though not carcinogenic itself, serves to dramatically potentiate the effect of a low dose of a carcinogen

**promyelocytic** the developmental stage of a granular leukocyte between the myeloblast and myelocyte

**prostate** a gland in males that surrounds the neck of the urinary bladder and the urethra and secretes a milky fluid that is discharged at the time of emission of semen

**prostatitis** an inflammation of the prostate gland

**proto-oncogene** gene potentially associated with cancer

**psoriasis** a chronic, hereditary, recurrent skin disease characterized by bright red elevations covered with silvery scales

**pulmonary** pertaining to the lungs

**pyelonephritis** inflammation of the kidneys and their pelvis

**pyrolysis** decomposition of a substance by heat in the absence of air

## Q

**quaternary** in chemistry, the term describes a substance with four chemical groups attached to a central atom; when the central atom is a trivalent nitrogen atom (N), adding the fourth group places a positive charge on N; compounds thus formed are called quaternary ammonium compounds

## R

**racemate** a mixture of equal parts of isomers of opposite rotation

**racemic** denoting a mixture that is optically inactive, being composed of an equal number of dextro- and levorotary substances (see DL-), which are separable

**radioactive** having the property of emitting radiation (such as alpha, beta, or gamma rays) from an atomic nucleus

**radiotherapy** the treatment of disease by means of radioactive emissions or materials

**radon progeny** short-lived decay products of radon

**rapid acetylator** individual who produces an efficient version of the enzyme *N*-acetyltransferase (NAT)

**reciprocal translocation** exchange of DNA between two chromosomes

**recommended exposure limit (REL)** a 10-hour average exposure limit during a 40-hour workweek recommended by the National Institute for Occupational Safety and Health (NIOSH) for occupational exposures

**refractories** materials used to line high-temperature industrial furnaces (e.g., refractory brick)

**relative density** the ratio of the density of a material to the density of a standard material, such as water at a specified temperature

**remission** a diminution or abatement of the signs or symptoms of a disease

**renal** pertaining to the kidney

**reportable quantity (RQ)** under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the quantity of a hazardous substance released to the environment that triggers mandatory immediate reports to the National Response Center

**respiratory tract** the structures and organs involved in breathing; includes the nose, larynx, trachea, bronchi, bronchioli, and lungs

**respiratory tract filters** those anatomical structures that remove particles from inhaled air

**reticulum cell** a cell in the reticuloendothelial system that has endothelial and reticular attributes; system includes spleen and lymph nodes, cells in the liver, part of the bone marrow, and macrophages

**retinoblastoma** childhood cancer of the retina

**retrospective study** an epidemiological study that collects information about past events that may be related to the present distribution of disease

**revertant** in microbial genetics, a mutant that has reverted to its former genotype or to the original phenotype

**rheumatoid arthritis** a chronic disease of the joints, marked by inflammatory changes of joint structures

**rodenticide** any substance or mixture of substances used to kill rodents or to prevent them from damaging food, crops, etc.

## S

**salivary gland** any of several exocrine glands in the mouth that secrete saliva, a fluid that keeps the mouth moist and aids in digestion

**sarcoma** a malignant neoplasm derived from connective tissue

**schwannoma** a peripheral glioma

**scleroderma** a chronic hardening and shrinking of connective tissue; affects such parts of the body as the skin, heart, esophagus, kidneys, and lungs

**scleromyxedema** a rare skin disease

**scrotum** the pouch that contains the testes and their accessory organs

**secondary cancer** a cancer arising through metastasis of primary cancer

**sedative** an agent that relieves excitement or anxiety and induces sleep

**sensitizer** a substance that causes dermatitis only after alteration (sensitization) of the skin by previous exposure to that substance

**short-term exposure limit (STEL)** a 15-minute time-weighted-average exposure limit that should not be exceeded at any time during a workday, recommended by the National Institute for Occupational Safety and Health or a concentration that it is believed a worker can be exposed to continuously for a short period of time without suffering from irritation, chronic or irreversible tissue damage, or narcosis of sufficient degree to increase the likelihood of accidental injury, impair self-rescue, or materially reduce work efficiency, recommended by the American Conference of Governmental Industrial Hygienists

**site limitation** a chemical consumption at the original location of production (use is limited to that site)

**slow acetylator** individual who produces a less efficient version of the enzyme *N*-acetyltransferase (NAT)

**small intestine** the small tube of the intestine, about 20 feet long, extending from the opening of the stomach to the large intestine

**smelter** an establishment used to separate or refine a metal from its ore, often with accompanying chemical change

**soap** any metallic salt of an acid derived from a fat

**soluble** capable of being dissolved; able to pass into solution in a particular solvent such as water, alcohol, or oil, and form a clear mixture

**somatic** pertaining to the body; related to the framework of outer walls of the body, including skin, skeletal muscle, tendons, and joints; somatic chromosomes include the nonsex chromosomes

**specific gravity** the ratio of the density of a material to the density of a standard material, such as water at a specified temperature; when two temperatures are specified, the first is the temperature of the material and the second is the temperature of water

**spleen** a large, vascular, lymphatic organ in the upper abdominal cavity that stores blood cells and produces lymphocytes

**squamous cell** a thin, flat epithelial cell

**squamous epithelial cells** the oldest, most differentiated cells, in the upper layers of the epithelium

**stereoisomer** a molecule containing the same number and kind of atom groupings as another but in a different arrangement in space, by virtue of which it exhibits different properties

**steroid hormone** any of the various hormones secreted by the adrenal cortex, testes, ovaries, and placenta

**subcutaneous injection (s.c.)** an injection under the skin

**synergism** the aspect of two agents interacting to produce an effect greater than the sum of the agents' individual effects

## T

**target organ** the organ affected by a specific chemical in a specific species

**TCLP (toxicity characteristics leaching procedure)** under the Resource Conservation and Recovery Act (RCRA), wastes are subject to this laboratory procedure to determine if they can be disposed of in Subtitle D landfills or if they require Subtitle C disposal (i.e., considered a hazardous waste)

**technical grade** a purity standard applied to a chemical that may contain multiple impurities

**teratogen** a drug or other agent that causes abnormal development

**teratology** the study of malformation, monstrosities, or serious deviations from the normal type in organisms

**testes** the male gonads; they are situated in the scrotum and they produce sperm

**tetrasomy** the presence of two extra chromosomes of one type

**thorax** the part of the body that lies between the neck and the respiratory diaphragm and that is encased by ribs; the chest

**threshold limit value–time-weighted average limit (TLV-TWA)** an 8-hour average exposure limit during a 40 hour workweek recommended by the American Conference of Governmental Industrial Hygienists (ACGIH) for occupational exposures

**threshold planning quantity (TPQ)** under the Emergency Planning and Community Right-to-Know-Act, the presence of a chemical at or above this level requires certain emergency planning activities to be conducted

**thrombocytopenic purpura** a disorder characterized by purplish or brownish red discoloration that is visible through the skin; caused by hemorrhage into the tissues and involving a decrease in blood platelets (factors necessary for clotting)

**thrombophlebitis** an inflammation of a vein, possibly leading to the formation of a blood clot

**thymus** a lymphoid gland located in the upper chest or the base of the neck and serving to help in developing the autoimmune system of most young vertebrates

**thyroid gland** a large gland situated at the base of the neck and producing hormones that are involved in regulating the rate of metabolism

**time-weighted average (TWA)** the average exposure concentration of a chemical measured over a period of time (not an instantaneous concentration)

**tolerance** under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the amount of pesticide residues allowed to remain in or on each treated food commodity

**topical** designed for direct application to a specific part of the body

**toxemia** the condition resulting from the spread of bacterial products (toxins) by the blood stream

**toxic** of or pertaining to a poison

**toxics release inventory (TRI) (listed substance subject to reporting requirements)** under the Emergency Planning and Community Right-to-Know Act, certain industries are required on an annual basis to complete a Toxic Chemical Release Inventory Form for these chemicals

**trachea** the main trunk of the system of tubes to and from the lungs in vertebrates; runs between the pharynx and bronchi

**trans-activation** activation of genes on other chromosomes

**transcription** the first step in protein synthesis

**transfection** infection of a bacterium or cell with nucleic acid (DNA or RNA) that has been isolated from bacteriophage or animal or plant virus, and that results in replication of complete virus

**transform (a cell)** to change a cell to a type that can proliferate to form tumors

**transformation (cell)** a step in tumor formation

**translation** the process by which messenger RNA effects the production of protein from amino acids

**translocation** transfer of DNA from one chromosome to another

**transplacental** through the placenta

**treatment technique** under the Safe Drinking Water Act, a required process intended to reduce the level of a contaminant in drinking water

**tuberculosis** a communicable disease caused by bacteria and principally affecting the lungs

**tubular cell** a cell which has a tubule or small tube-like structure

**tumor** a neoplasm; a mass of new tissue that persists and grows independently of its surrounding structures and that has no physiological use; it may be benign or malignant

**tumorigenic** causing or producing tumors

**tumorigenic phenotype** cell type that can proliferate to form tumors

## U

**ulcerative colitis** the chronic, recurrent breaking of tissue in the colon, with such symptoms as abdominal pain and rectal bleeding

**unscheduled DNA synthesis** a DNA repair response

**urinary bladder** the sac, situated in the front pelvic area, that serves as a reservoir for urine

**urinary tract** the organs and ducts involved in producing and eliminating urine

**uterus** in female animals, the hollow muscular organ in which the developing embryo and fetus lives and is nourished

**urban air toxics** under the Clean Air Act, the 33 air toxics that have been identified as posing the greatest potential health threat in urban areas

## V

**vagina** the passage leading from the uterus to the outside of the female body

**vaginal trichomoniasis** an infection of the vagina caused by a microorganism and involving vaginal discharge that is difficult to treat

**valence** a numerical measure of combining capacity of an atom/ion with other atoms/ions to form chemical bonds; valence is the relative combining capacity with respect to that of the standard hydrogen atom (valence = 1) and depends on the electronic configuration of the atoms

**vapor density** the ratio of the weight of a given volume of one gas to the weight of an equal volume of another gas, typically hydrogen, at the same temperature and pressure

**vascular** pertaining to vessels or ducts that convey fluids such as blood, lymph, or sap; in human or veterinary medicine, vascular pertains to blood vessels

**vector control** the control of insects and other organisms that are able to transmit infectious agents of disease

**vehicle** the substance in which a compound is dissolved or mixed prior to an animal's being dosed with that compound

**vesicant** causing blisters

**virion** mature, infectious virus particle

**viscera** organs of the digestive, respiratory, urogenital, and endocrine systems, as well as the spleen, the heart, and great vessels

**viscosity** the quality of resistance to flow

**vitaligo** a skin disorder in which smooth white spots appear on various parts of the body

**volatile** quality of a solid or liquid allowing it to pass into the vapor state at a given temperature

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**W**


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**water quality criteria: based on fish/shellfish and water consumption** under the Clean Water Act, levels of pollutants in water which, if not exceeded, will generally ensure adequate water quality for human health based on an individual consuming a specified amount of fish, shellfish, and drinking water per day

**water quality criteria: based on fish/shellfish consumption only** under the Clean Water Act, levels of pollutants in water which, if not exceeded, will generally ensure adequate water quality for human health based on an individual consuming a specified amount of fish and shellfish per day

**Wegener's granulomatosis** a progressive disease characterized by tumor-like lesions of the respiratory tract, inflammation of the minute branches of the arteries, and, in the later stages, inflammation of all the organs of the body

**Wilms' tumor** a rapidly developing malignant tumor of the kidneys, usually affecting children under age five

**working level month (WLM)** a working level month is the product of the radon progeny concentration at WL and the exposure duration in months. For example, if a miner is exposed at a concentration of 0.083 WL for 1 month, then the cumulative exposure for the month is 0.083 WLM

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**X**


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**xenobiotic** a pharmacologically, endocrinologically, or toxicologically active substance not endogenously produced and therefore foreign to an organism

**X-irradiation** exposure to X-rays

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**Z**


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**Zymbal gland** any of several sebaceous glands surrounding the external ear canal in rodents