Absorbed Dose

The amount of a chemical entering the body of an exposed organism.

Absorption

1. The passing of a substance into the circulatory system of the body. Also explicitly used to refer to the entry of toxicants through the skin.
2. The uptake of water or dissolved chemicals by a cell or an organism (as tree roots absorb dissolved nutrients in the soil.)
3. The penetration of atoms, ions, or molecules into the bulk mass of a substance.

Accident Site

The location of an unexpected occurrence, failure or loss, either at a plant or along a transportation route, resulting in a release of hazardous materials.

Acclimatization

The physiological and behavioral adjustments of an organism to changes in its environment.

ACGIH

American Conference of Governmental Industrial Hygienists is an organization of professional personnel in governmental agencies or educational institutions employed in occupational safety and health programs.

Acid

Any chemical which undergoes dissociation in water with the formation of hydrogen ions. Acids turn litmus paper red and have pH values of 0 to 6. They may cause severe skin burns.

Acid Deposition

A complex chemical and atmospheric phenomenon occurring when emissions of sulfur and nitrogen compounds and other substances are transformed by chemical processes in the atmosphere, often far from the sources, and deposited on Earth in either wet or dry form. The wet forms, popularly called "acid rain," can fall as rain, snow, or fog. The dry forms are acidic gases or particulates.

Acidic

The condition of water or soil with a sufficient amount of acid substances to lower the pH is below 7.0

Activated Carbon

A highly adsorbent form of carbon used to remove odors and toxic substances from liquid or gaseous emissions. In waste treatment, it is used to remove dissolved organic matter from wastewater. It is also used in motor vehicle evaporative control systems.

Activator

A chemical added to a pesticide to increase its activity.

Active Ingredient

In any pesticide product, the component that kills, or otherwise controls, target pests. Pesticides are regulated primarily based on active ingredients.

Acute Effect

The adverse effect on a human or animal with severe symptoms is developing rapidly and coming quickly to a crisis. Also, see the chronic effect.

Acute Exposure

1. Exposure to a toxic substance which occurs in a short or single time period.
2. A single exposure to a toxic substance that results in severe biological harm or death. Acute exposures are usually characterized as lasting no longer than a day, as compared to longer, continuing exposure over a period of time.

Acute Toxicity

Any poisonous effect produced by a single short-term exposure. The LDW of a substance (the lethal dose at which 50 percent of test animals succumb to the toxicity of the chemicals) is typically used to measure its acute toxicity.

Adaptation

Changes in an organism's structure or habits that help it adjust to its surroundings.

Additive Effect

A biological response to exposure to multiple chemicals is equal to the ***sum*** of the effects of the individual agents.

Administrative Order

A legal document signed by EPA directing an individual, business, or other entity to take corrective action or refrain from an activity. It describes the violations and actions to be taken and can be enforced in court. Such orders may be issued, for example, as an administrative complaint whereby the respondent is ordered to pay the penalty for violations of a statute.

Adsorption

The bonding of chemicals to soil particles or other surfaces.

Aerosol

A solid particle or liquid droplet suspended in the air. An aerosol is more significant than a molecule and can be filtered from the air (for example, smoke or fog).

Affected Public

The people who live or work near a hazardous waste site.

Airborne Particulates

Total suspended particulate matter found in the atmosphere as solid particles or liquid droplets. Chemical composition of particulates varies widely, depending on location and time of year. Airborne particulates include windblown dust, emissions from industrial processes, smoke from the burning of wood and coal, and motor vehicle or non-road engine exhausts—exhaust of motor vehicles.

Alkali

The hydroxides and carbonates of the alkali metals and alkaline earth metals. They neutralize acids, impart a soapy feel to aqueous solutions, and are the most frequent cause of occupational dermatitis.

Alkaline

The condition of water or soil with a sufficient amount of alkali substance to raise the pH above 7.0.

Alkalinity

The capacity of water to neutralize acids.

Anaerobic

1. A life or process that occurs in, or is not destroyed by, the absence of oxygen.
2. Able to live, grow, or take place where free oxygen is not present.

Anoxic

Total deprivation of oxygen.

Antagonism

The situation in which two chemicals interfere with each other's actions or one chemical interferes with each other's activities.

Aqueous

Something made up of, similar to, or containing water; watery.

Arsenicals

Pesticides containing arsenic.

Asbestos

A mineral fiber that can pollute air or water and cause cancer or asbestosis when inhaled. EPA has banned or severely restricted its use in manufacturing and construction.

Asbestosis

A disease associated with inhalation of asbestos fibers. The disease makes breathing progressively more difficult and can be fatal.

Assay

A test for a particular chemical or effect.

Bacteria

1. (Singular -- bacterium) Microscopic living organisms can aid in pollution control by metabolizing organic matter in sewage, oil spills, or other pollutants. However, bacteria in soil, water, or air can also cause human, animal, and plant health problems.
2. Unicellular microorganisms exist either as free-living organisms or as parasites and have a broad range of biochemical and often pathogenic properties. Bacteria can be grouped by form into five general categories -- cocci (spherical), bacilli (rod-shaped), vibrio (curved rod-shaped), spirilla (spiral), and filamentous (thread-like).

Base

A water-soluble compound capable of reacting with an acid to form a salt by releasing an unshared pair of electrons to the acid or by receiving a proton from the acid.

Benign

Not recurrent or not tending to progress.

Beryllium

An airborne metal hazardous to human health when inhaled. It is discharged by machine shops, ceramic and propellant plants, and foundries.

Bioassay

1. A method used to determine the toxicity of specific chemical contaminants. A number of individuals of a sensitive species are placed in water containing specific concentrations of the contaminant for a specified period of time.
2. Study of living organisms to measure the effect of a substance, factor, or condition by comparing before-and-after exposure or other data.

Bioassay.

A concentration of a substance in a human body is determined by an analysis of urine, feces, blood, bone, or tissue.

Biodegradable

1. Capable of being broken down into individual components by the action of living things.
2. Capable of decomposing rapidly under natural conditions.

Biodiversity

This refers to the variety and variability among living organisms and the ecological complexes in which they occur. Diversity can be defined as the number of different items and their relative frequencies. For biological diversity, these items are organized at many levels, ranging from complete ecosystems to the biochemical structures that are the molecular basis of heredity. Thus, the term encompasses a different ecosystem, species, and genes.

Biologicals

Vaccines, cultures, and other preparations made from living organisms and their products, intended for use in diagnosing, immunizing, or treating humans or animals, or in related research.

Biopsy

Removal and examination of tissue from the living body.

Biotechnology

Techniques using living organisms or parts of organisms to produce a variety of products (from medicines to industrial enzymes) to improve plants or animals or to develop microorganisms to remove toxins from bodies of water, or act as pesticides.

Blood Products

Any product derived from human blood, including but not limited to blood plasma, platelets, red or white corpuscles, and derived licensed products such as interferon.

Boiling Point

The temperature at which a liquid changes to a vapor state at a given pressure. The boiling point usually expressed in degrees Fahrenheit at sea level pressure (760mm Hg, or one atmosphere). For mixtures, the initial boiling point or the boiling range may be given. Flammable materials with low boiling points generally present special fire hazards. Some approximate boiling points:

- Propane: -44 F
- Anhydrous Ammonia: -28 F
- Butane: 31 F
- Gasoline: 100 F
- Allyl Chloride: 113 F
- Ethylene Glyco: l387 F

The boiling point is the temperature at which a component's vapor pressure equals atmospheric pressure. It is a relative indicator of volatility and generally increases with increasing molecular weight.

Brackish

Mixed fresh and saltwater.

Bulky Waste

Large items of waste materials, such as appliances, furniture, large auto parts, trees, stumps.

Byproduct

Material, other than the principal product, generated as a consequence of an industrial process.

C

Centigrade, a unit of temperature.

C or Ceiling

The maximum allowable human exposure limit for an airborne substance which is not to be exceeded even momentarily. Also, see PEL and TLV.

Cadmium (Cd)

A heavy metal element that accumulates in the environment.

Carbon Monoxide (CO)

A colorless, odorless, poisonous gas produced by incomplete fossil fuel combustion.

Carcinogenicity

The ability to produce cancer.

Carcinogen

A substance or agent capable of causing or producing cancer in mammals, including humans. A chemical is considered to be a carcinogen if:

1. It has been evaluated by the International Agency for Research on Cancer (IARC) and found to be a carcinogen or potential carcinogen; or
2. It is listed as a carcinogen or potential carcinogen in the Annual Report on Carcinogens published by the National Toxicology Program (NTP) (latest edition); or
3. OSHA regulates it as a carcinogen.

Carcinoma

A malignant tumor. A form of cancer.

Carrier

The inert liquid or solid material added to an active ingredient in a pesticide.

Catalyst

A substance that changes the speed or yield of a chemical reaction without being consumed or chemically modified by the chemical reaction.

Caustic

See alkali.

Cells

1. In solid waste disposal, holes where waste is dumped, compacted, and covered with layers of dirt daily.
2. The smallest structural part of living matter capable of functioning as an independent unit.

Central Nervous System

The brain and spinal cord. These organs supervise and coordinate the activity of the entire nervous system. Sensory impulses are transmitted into the central nervous system, and motor impulses are transmitted out.

Central Nervous System Depressants

Toxicants that deaden the central nervous system (CNS), diminishing sensation.

CFR

Code of Federal Regulations. A collection of the regulations that have been promulgated under United States law.

Chemical

Any element, chemical compound, or a mixture of elements or compounds where chemical(s) are or distributed.

Chemical Oxygen Demand (COD)

A measure of the oxygen required to oxidize all compounds, both organic and inorganic, in water.

Chlorination

The application of chlorine to drinking water, sewage, or industrial waste to disinfect or to oxidize undesirable compounds.

Chronic Effect

An adverse effect on a human or animal is that symptoms recur frequently or develop slowly over a long time.

Chronic Exposure

The process by which small amounts of toxic substances are taken into the body over an extended period.

Chronic Toxicity

The capacity of a substance to cause long-term poisonous human health effects. (See -- acute toxicity.)

Clean Fuels

Blends or substitutes for gasoline fuels include compressed natural gas, methanol, ethanol, and liquified petroleum gas.

Cleanup

Actions were taken to deal with a release or threat of release of a hazardous substance that could affect humans or the environment. The term "cleanup" is sometimes used interchangeably with the terms remedial action, removal action, response action, or corrective action.

Coagulation

Clumping of particles in wastewater to settle out impurities, often induced by chemicals such as lime, alum, and iron salts.

Combustion

1. Burning, or rapid oxidation, accompanied by the release of energy in the form of heat and light. A basic cause of air pollution.
2. Refers to controlled burning of waste, in which heat chemically alters organic compounds, converting into stable inorganics such as carbon dioxide and water.

Commercial Waste

All solid waste emanating from business establishments such as stores, markets, office buildings, restaurants, shopping centers, and theaters.

Conductivity

1. A coefficient of proportionality describing the rate at which a fluid (e.g., water or gas) can move through a permeable medium. Conductivity is a function of both the intrinsic permeability of the porous medium and the kinematic viscosity of the fluid which flows through it.
2. A measure of the ability of a solution to carry an electrical current.

Conservation

Preserving and renewing, when possible, human and natural resources. According to principles, the use, protection, and improvement of natural resources assuring their highest economic or social benefits.

Constituent

An essential part or component of a system or group (e.g., an ingredient of a chemical mixture). For instance, benzene is one constituent of gasoline.

Contaminant

Any physical, chemical, biological, or radiological substance or matter has an adverse effect on air, water, or soil.

Contamination

Introduction into water, air, and soil of microorganisms, chemicals, toxic substances, wastes, or wastewater in a concentration that makes the medium unfit for its next intended use. Also applies to surfaces of objects and buildings, and various household and agricultural use products.

Contingency Plan

A document setting out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or other accident that releases toxic chemicals, hazardous waste, or radioactive materials that threaten human health or the environment. (See -- National Oil and Hazardous Substances Contingency Plan.)

Core

The uranium-containing heart of a nuclear reactor, where energy is released.

Corrosion

The dissolution and wearing away of metal are caused by a chemical reaction between water and the pipes, chemicals touching a metal surface or contact between two metals.

Corrosive

1. A chemical that destroys or irreversibly alters living tissue by direct chemical action at the site of contact.
2. A chemical agent that reacts with the surface of a material causing it to deteriorate or wear away.

Criteria

Descriptive factors are taken into account by EPA in setting standards for various pollutants. These factors are used to determine limits on allowable concentration levels and to limit the number of violations per year. When issued by EPA, the criteria provide guidance to the states on how to establish their standards.

Decay Products

Degraded radioactive materials, often referred to as "daughters" or "progeny"; radon decay products of most concern from a public health standpoint are polonium-214 and polonium-218.

Dechlorination

Removal of chlorine from a substance by chemically replacing it with hydrogen or hydroxide ions to detoxify substances.

Decomposition

The breakdown of matter by bacteria and fungi, changing the chemical makeup and physical appearance of materials.

Decontamination

1. The process of removing or neutralizing contaminants that have accumulated on personnel and equipment. This process is critical to health and safety at hazardous waste incidents.
2. Removal of harmful substances such as noxious chemicals, harmful bacteria or other organisms, or radioactive material from exposed individuals, rooms, furnishings, buildings, or the exterior environment.

Density

A measure of how heavy a solid, liquid, or gas is for its size—the amount of mass per unit volume.

Dermal Toxicity

The ability of a pesticide or toxic chemical to poison people or animals by contact with the skin. (See -- contact pesticide.)

Detergent

Synthetic washing agent that helps to remove dirt and oil. Some contain compounds that kill useful bacteria and encourage algae growth when they are in wastewater that reaches receiving waters.

Development Effects

Adverse effects include altered growth, structural abnormality, functional deficiency, or death observed in a developing organism.

Diffusion

1. The movement of suspended or dissolved particles from a more concentrated to a less concentrated area. The process tends to distribute the particles more uniformly.
2. The process by which molecules in a single-phase equilibrates to a zero concentration gradient by random molecular motion (Brownian motion). The flux of molecules is from regions of high concentration to low concentration and is governed by Fick's Second Law.

Digestion

The biochemical decomposition of organic matter, resulting in partial gasification, liquefaction, and mineralization of pollutants.

Diluent

Any liquid or solid material used to dilute or carry an active ingredient.

Dioxin

Any of a family of compounds known chemically as dibenzo-p-dioxins. Concern about them arises from their potential toxicity and contaminants in commercial products. Tests on laboratory animals indicate that it is one of the more toxic human-made compounds.

Discharge

The flow of surface water in a stream or canal or the outflow of groundwater from a flowing artesian well, ditch, or spring. It can also apply to the discharge of liquid effluent from a facility or of chemical emissions into the air through designated venting mechanisms.

Disinfectant

A chemical or physical process that kills pathogenic organisms in the water. Chlorine is often used to disinfect sewage treatment effluent, water supplies, wells, and swimming pools.

Dispersion

The process by which a substance or chemical spreads and dilutes in flowing groundwater or soil gas.

Disposal

Final placement or destruction of toxic, radioactive, or other wastes; surplus or banned pesticides or other chemicals; polluted soils; and drums containing hazardous materials from removal actions or accidental releases. Disposal may be accomplished using approved secure landfills, surface impoundments, land farming, deep-well injection, ocean dumping, or incineration.

Distillation

The act of purifying liquids through boiling makes the steam condenses to a pure liquid, and the pollutants remain in a concentrated residue.

Dosage/Dose

The actual quantity of a chemical administered to an organism or to which it is exposed.

Dose Equivalent

The product of the absorbed dose from ionizing radiation and such factors as account for biological differences due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements.

Dose-Response

A biological organism's response to a toxic substance predominantly shifts as its overall exposure to the substance changes (e.g., a small dose of carbon monoxide may cause drowsiness; a large dose can be fatal.)

Ecology

The relationship of living things to one another and their environment, or the study of such relationships.

Ecosystem

The interacting system of a biological community and its non-living environmental surroundings.

Emission

Pollution discharged into the atmosphere from smokestacks, other vents, and surface areas of commercial or industrial facilities, from residential chimneys; and from a motor vehicle, locomotive, or aircraft exhausts.

Empirical

Relying upon or gained from experiment or observation.

Encapsulation

The treatment of asbestos-containing material with a liquid that covers the surface with a protective coating or embeds fibers in an adhesive matrix to prevent their release into the air.

Environment

The sum of all external conditions affecting the life, development, and survival of an organism.

Environmental Exposure

Human exposure to pollutants originating from facility emissions. Threshold levels are not necessarily surpassed, but low-level chronic pollutant exposure is one of the most common forms of environmental exposure. (See -- Threshold Level.)

Enzyme

1. Any of the numerous proteins or conjugated proteins produced by living organisms and functioning as biochemical catalysts.
2. A protein that a living organism uses in the process of degrading a specific compound. The protein catalyzes the compound's biochemical transformation.

Epidemiology

Study of the distribution of disease or other health-related states and events in human populations, as related to age, sex, occupation, ethnic, and economic status, to identify and alleviate health problems and promote better health.

Equilibrium

In relation to radiation, the state at which the radioactivity of consecutive elements within a radioactive series is neither increasing nor decreasing.

Erosion

The wearing away of land surface by wind or water, intensified by land-clearing practices related to farming, residential or industrial development, road building, or logging.

Ethanol

An alternative automotive fuel derived from grain and corn; usually blended with gasoline to form gasohol.

Evaporation

The process by which a liquid enters the vapor (gas) phase.

Evaporation Rate

The rate at which chemical changes into a vapor. A chemical that evaporates quickly can be a more dangerous fire or health hazard.

Exposure

The amount of radiation or pollutant present in a given environment that represents a potential health threat to living organisms.

Exposure Level

The amount (concentration) of a chemical at the absorptive surfaces of an organism.

Extremely Hazardous Substance (EHS)

Anyone of over 300 hazardous chemicals on a list compiled by EPA to provide a focus for State and local emergency planning activities.

Extremely Hazardous Substances

Any of 406 chemicals identified by EPA as toxic and listed under SARA Title III. The list is subject to periodic revision.

Filtration

A treatment process, under the control of qualified operators, for removing solid (particulate) matter from water using porous media such as sand or a human-made filter; often used to remove particles that containing pathogens.

Floor Sweep

The capture of heavier-than-air gases that collect at floor level.

Flow Rate

The rate, expressed in gallons-or liters-per-hour, at which a fluid escapes from a hole or fissure in a tank. Such measurements are also made of liquid waste, effluent, and surface water movement.

Fluoridation

The addition of a chemical to increase the concentration of fluoride ions drinking water to reduce the incidence of tooth decay in children.

Fluorides

Gaseous, solid, or dissolved compounds containing fluorine that result from industrial processes. Excessive amounts in food can lead to fluorosis.

Fluorocarbons (FCs)

Any of a number of organic compounds analogous to hydrocarbons in which one or more hydrogen atoms are replaced by fluorine. Once used in the United States as a propellant for domestic aerosols, they are now found mainly in coolants and some industrial processes. FCs containing chlorine are called chlorofluorocarbons (CFCs). They are believed to be modifying the ozone layer in the stratosphere, thereby allowing more harmful solar radiation to reach the Earth's surface.

Food Chain

A sequence of organisms uses the next, lower member of the sequence as a food source.

Formaldehyde

A colorless, pungent, and irritating gas, CH20, used chiefly as a disinfectant and preservative and in synthesizing other compounds like resins.

Fume

Tiny particles trapped in vapor in a gas stream.

Fungi

(Singular -- Fungus) Molds, mildews, yeasts, mushrooms, and puffballs, group organisms are lacking in chlorophyll (i.e., are not photosynthetic) and which are usually non-mobile, filamentous, and multicellular. Some grow in soil; others attach themselves to decaying trees and other plants whence they obtain nutrients. Some are pathogens; others stabilize sewage and digest composted waste. Along with bacteria, fungi are the principal organisms responsible for the decomposition of carbon in the biosphere. Fungi have two ecological advantages over bacteria -- (1) they can grow in low moisture areas, and (2) they can grow in low pH environments.

Garbage

Animal and vegetable waste resulting from the handling, storage, sale, preparation, cooking, and serving of foods.

Germicide

Any compound that kills disease-causing microorganisms.

Gray Water

Domestic wastewater composed of wash water from kitchen, bathroom, and laundry sinks, tubs, and washers.

Greenhouse Effect

The warming of the Earth's atmosphere is attributed to a build-up of carbon dioxide or other gasses; some scientists think that this build-up allows the sun's rays to heat the Earth, while infra-red radiation makes the atmosphere opaque to a counterbalancing loss of heat.

Ground Water

The supply of freshwater found beneath the Earth's surface, usually in aquifers, which supply wells and springs. Because groundwater is a significant source of drinking water, there is growing concern over contamination from leaching agricultural or industrial pollutants or leaking underground storage tanks.

Groundwater

The water contained in the pore spaces of saturated geologic media.

Half-Life

1. The time required for a pollutant to lose half its effect on the environment. For example, the biochemical half-life of DDT in the environment is 15 years of Radium. 1,580 years.
2. The time required for half of the atoms of a radioactive element to undergo self-transmutation or decay.
3. The time required for the elimination of one half a total dose from the body.

Halon

Bromine-containing compounds with long atmospheric lifetimes whose breakdown in the stratosphere causes depletion of ozone. Halons are used in fire-fighting.

Hard Water

Alkaline water containing dissolved salts that interfere with some industrial processes and prevent soap from sudsing.

Hazard Class

As designated by the Department of Transportation, a group of materials shares a common significant hazardous property, such as radioactivity or flammability.

Hazard Communication Standard

An OSHA regulation requires chemical manufacturers, suppliers, and importers to assess the hazards of the chemicals that they make, supply, or import, and inform employers, customers, and workers of these hazards through MSDS sheets.

Hazard Evaluation

A component of risk evaluation involves gathering and evaluating data on the types of health injury or disease that may be produced by a chemical and the conditions of exposure under which such health effects are produced.

Hazard Identification

Determining if a chemical can cause adverse health effects in humans and what those effects might be.

Hazardous Chemical

An EPA designation for any hazardous material requiring an MSDS under OSHA's Hazard Communication Standard. Such substances are capable of producing fires and explosions or adverse health effects like cancer and dermatitis. Hazardous chemicals are distinct from hazardous waste. (See -- Hazardous Waste.)

Hazardous Ranking System

The first screening tool used by EPA is to evaluate risks to public health and the environment associated with abandoned or uncontrolled hazardous waste sites. The HRS calculates a score based on the potential of hazardous substances spreading from the site through the air, surface water, or groundwater, and on other factors such as density and proximity of human population. This score is the primary factor in deciding if the site should be on the National Priorities List and, if so, what ranking it should have compared to other sites on the list.

Hazardous Substance

1. Any material that poses a threat to human health and- /or the environment. Typical hazardous substances are toxic, corrosive, ignitable, explosive, or chemically reactive.
2. Any substance designated by EPA to be reported if a selected quantity of the substance is spilled in the waters of the United States or if otherwise released into the environment.

Hazardous Waste

Byproducts of society can pose a substantial or potential hazard to human health or the environment when improperly managed. Possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity), or appears on special EPA lists.

Hazards Analysis

Procedures used to (1) identify potential sources of release of hazardous materials from fixed facilities or transportation accidents; (2) determine the vulnerability of a geographical area to a release of hazardous materials; and (3) compare hazards to determine which present greater or lesser risks to a community.

Hazards Identification

Information on which facilities have extremely hazardous substances, what those chemicals are, how much there is at each facility, how the chemicals are stored, and whether they are used at high temperatures.

Health Education

A program of activities to promote health and provide information and training about hazardous substances in the environment that will result in the reduction of exposure, illness, or disease. This program--both national and site-specific in focus--includes diagnosis and treatment information for health care providers and activities in communities to enable them to prevent or mitigate the health effects from exposure to hazardous substances at hazardous waste sites.

Health Outcome Data

A major source of data for public health assessments. The identification, review, and evaluation of health outcome parameters are interactive processes involving the health assessors, data source generators, and the local community. Health outcome data are community-specific and may be derived from databases at the local, state, and national levels, as well as from data collected by private health care organizations and professional institutions and associations. Databases to be considered include morbidity and mortality data, birth statistics, medical records, tumor and disease registries, surveillance data, and previously conducted health studies.

Heat Capacity

The quantity of energy that must be supplied to raise the temperature of a substance. For contaminated soil heat capacity is the amount of energy that must be added to the soil to volatilize organic components. The typical range of heat capacity of soils is relatively narrow; therefore, variations are not likely to have a major impact on the application of a thermal desorption process.

Heavy Metals

Metallic elements with high atomic weights, e.g., mercury, chromium, cadmium, arsenic, and lead, can damage living things at low concentrations and tend to accumulate in the food chain.

Herbicide

A chemical pesticide designed to control or destroy plants, weeds, or grasses.

Herbivore

An animal that feeds on plants.

Heterogeneous

Varying in structure or composition at different locations in space.

Homogeneous

Uniform in structure or composition at all locations in space.

Host

1. In genetics, the organism, typically a bacterium, into which a gene from another organism is transplanted.
2. In medicine, an animal infected or parasitized by another organism.

Household Waste (Domestic Waste)

Solid waste, composed of garbage and rubbish, which generally originated in a private home or apartment house. Domestic waste may contain a significant amount of toxic or hazardous waste.

Human Equivalent Dose

A dose which, when administered to humans, produces an effect equal to that produced by a dose in animals.

Human Health Risk

The likelihood that a given exposure or series of exposures may have or will damage individuals' health.

Hydrocarbon

Chemical compounds composed only of carbon and hydrogen.

Hydrogen Peroxide

H_2O_2. Hydrogen peroxide increases the dissolved oxygen content of groundwater to stimulate aerobic biodegradation of organic contaminants. Hydrogen peroxide is infinitely soluble in water but rapidly dissociates to form a molecule of water [H_2O] and one-half molecule of oxygen [O]. Dissolved oxygen concentrations of greater than 1,000 mg/L are possible using hydrogen peroxide, but high levels of dissolved oxygen (D.O.) can be toxic to microorganisms.

Hydrophilic

Having an affinity for water, or capable of dissolving in water; soluble or miscible in water.

Hydrophobic

1. Tending not to combine with water, or incapable of dissolving in water; insoluble or immiscible in water. A property exhibited by non-polar organic compounds, including the petroleum hydrocarbons.
2. Having a strong aversion for water.

Hypoxic

A condition of low oxygen concentration, below that considered aerobic.

Ignitable

Capable of burning or causing a fire.

Incident Command Post

A facility located at a safe distance from an emergency site, where the incident commander, key staff, and technical representatives can make decisions and deploy emergency manpower and equipment.

Incident Command System (ICS)

The organizational arrangement wherein one person, usually the Fire Chief of the impacted district, is in charge of an integrated, comprehensive emergency response organization and the emergency incident site, backed by an Emergency Operations Center staff with resources, information, and advice.

Incident Commander

The person in charge of on-scene coordination of a response to an incident, usually a senior officer in a fire department.

Incineration

A treatment technology involving destruction of waste by controlled burning at high temperatures, e.g., burning sludge to remove the water and reduce the remaining residues to safe, non-burnable ash that can be disposed of safely on land, in some waters, or underground locations.

Incinerator

A furnace for burning waste under controlled conditions.

Incompatible Waste

A waste unsuitable for mixing with another waste or material because it may react to form a hazard.

Indicator

1. In biology, an organism, species, or community whose characteristics show the presence of specific environmental conditions.
2. In chemistry, a substance that shows a visible change, usually of color, at the desired point in a chemical reaction.
3. A device that indicates the result of a measurement, e.g., a pressure gauge or a moveable scale.

Indigenous

Living or occurring naturally in a specific area or environment; native.

Infectious Waste

Hazardous waste with infectious characteristics, including --contaminated animal waste; human blood and blood products; isolation and pathological waste; and discarded sharps (needles, scalpels, or broken medical instruments.)

Infiltration Rate

The quantity of water than can enter the soil in a specified time interval.

Insecticide

A pesticide compound specifically used to kill or prevent the growth of insects.

Ion

An electrically charged atom that can be drawn from wastewater during electrodialysis.

Ionizing Radiation

Radiation can strip electrons from atoms, i.e., alpha, beta, and gamma radiation.

Irradiation

Exposure to radiation of wavelengths shorter than those of visible light (gamma, x-ray, or ultraviolet), for medical purposes, sterilizing milk or other foodstuffs, or to induce polymerization of monomers or vulcanization of rubber.

Irritant

1. A substance that can irritate the skin, eyes, or respiratory system. Effects may be acute from a single high-level exposure, or chronic from repeated low-level exposures to such compounds as chlorine, nitrogen dioxide, and nitric acid.
2. Chemicals that inflame living tissue by chemical action at the site of contact, causing pain or swelling.

Isotope

A variation of an element that has the same atomic number of protons but a different weight because of the number of neutrons. Various isotopes of the same element may have different radioactive behaviors, and some are highly unstable.

Kinetic Energy

The energy possessed by a moving body of water as a result of its motion.

Landfills

1. Sanitary landfills are disposal sites for non-hazardous solid wastes spread in layers, compacted to the smallest practical volume, and covered by material applied at the end of each operating day.
2. Secure chemical landfills are disposal sites for hazardous waste, selected and designed to minimize the chance of release of hazardous substances into the environment.

Lead (Pb)

A heavy metal that is hazardous to health if breathed or swallowed. Its use in gasoline, paints, and plumbing compounds has been sharply restricted or eliminated by federal laws and regulations. (See -- heavy metals.)

Listed Waste

Wastes are listed as hazardous under RCRA but have not been subjected to the Toxic Characteristics Listing Process because the dangers they present are considered self-evident.

Management Plan

Under the Asbestos Hazard Emergency Response Act (AHERA), a document that each Local Education Agency is required to prepare, describing all activities planned and undertaken by a school to comply with AHERA regulations, including building inspections to identify asbestos-containing materials, response actions, and operations and maintenance programs to minimize the risk of exposure.

Material Safety Data Sheet (MSDS)

Under the OSHA Communication Standard, a compilation of information on the identity of hazardous chemicals, health, and physical hazards, exposure limits, and precautions is required. Section 311 of SARA requires facilities to submit MSDSs under certain circumstances.

Medical Waste

Any solid waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining to that, or in the production or testing of biologicals, excluding hazardous waste identified or listed under 40 CFR Part 261 or any household waste as defined in 40 CFR Sub-section 261.4 (b)(1)).

Melting Point

The temperature at which a solid material changes to a liquid. Solid materials with low melting points should not be stored in hot areas.

Meniscus

The curved top of a column of liquid in a small tube.

Mercury

A heavy metal that can accumulate in the environment and is highly toxic if breathed or swallowed. (See -- heavy metals.)

Metabolism

A term that encompasses all of the diverse reactions by which a cell processes food material to obtain energy and the compounds from which new cell components are made.

Methane

A colorless, nonpoisonous, flammable gas created by anaerobic decomposition of organic compounds.

Methanol

Alcohol can be used as an alternative fuel or as a gasoline additive. It is less volatile than gasoline; when blended with gasoline, it lowers the carbon monoxide emissions but increases hydrocarbon emissions. Used as pure fuel, its emissions are less ozone-forming that those from gasoline.

Microbial Growth

The activity and growth of microorganisms such as bacteria, algae, diatoms, plankton, and fungi.

Microorganisms

Microscopic organisms, including bacteria, protozoans, yeast, fungi, mold, viruses, and algae.

Minimal Risk Level (MRL)

An MRL is defined as an estimate of daily human exposure to a substance that is likely to be without considerable risk of adverse effects (noncancer) over a specified duration of exposure. MRLs are derived when reliable and sufficient data exist to identify the target organ(s) of effect or the most sensitive health effect(s) for a specific duration via a given route of exposure. MRLs are based on noncancer health effects only. MRLs can be derived from the inhalation and oral routes for acute, intermediate, and chronic duration exposures.

Molecular Weight

The amount of mass in one mole of molecules of a substance as determined by summing the masses of the individual atoms which make up the molecule.

Molecule

The smallest division of a compound that still retains or exhibits all the properties of the substance.

Mutagen/ Mutagenicity

An agent causes a permanent genetic change in a cell other than that which occurs during normal genetic recombination. Mutagenicity is the capacity of a chemical or physical agent to cause such permanent alternation.

Necrosis

Death of plant or animal cells or tissues. In plants, necrosis can discolor stems or leaves or kill a plant entirely.

Nitrate

Plant nutrient and inorganic fertilizer that enters water supply sources from septic systems, animal feedlots, agricultural fertilizers, manure, industrial wastewaters, sanitary landfills, and garbage dumps.

Nitric Oxide (NO)

A gas formed by combustion under high temperature and high pressure in an internal combustion engine; changes into nitrogen dioxide in the ambient air and contributes to photochemical smog.

Nitrite

1. An intermediate in the process of nitrification.
2. Nitrous oxide salts used in food preservation

Nitrogen Dioxide (NO2)

The result of nitric oxide combining with oxygen in the atmosphere; a significant component of photochemical smog.

Nitrogen Oxide (NOx)

Product of combustion from transportation and stationary sources and a major contributor to the formation of ozone in the troposphere and acid deposition.

Non-potable

Water that is unsafe or unpalatable to drink because it contains objectionable pollution, contamination, minerals, or infective agents.

Nutrient

1. Any substance assimilated by living things that promote growth. The term is generally applied to nitrogen and phosphorus in wastewater but is also applied to other essential and trace elements.
2. Major elements (e.g., nitrogen and phosphorus) and trace elements (including sulfur, potassium, calcium, and magnesium) are essential for the growth of organisms.

Oil Spill

An accidental or intentional discharge of oil which reaches bodies of water. It can be controlled by chemical dispersion, combustion, mechanical containment, or adsorption. Spills from tanks and pipelines can also occur away from water bodies, contaminating the soil, getting into sewer systems, and threatening underground water sources.

Opacity

The amount of light obscured by particulate pollution in the air; clear window glass has zero opacity, a brick wall is 100 percent opaque. Opacity is an indicator of changes in the performance of particulate control systems.

Operation And Maintenance

1. Activities conducted after a Superfund site action is completed to ensure that the action is effective.
2. Actions are taken after construction to assure that facilities constructed to treat wastewater will be properly operated and maintained to achieve normative efficiency levels and prescribed effluent limitations in an optimum manner.
3. On-going asbestos management plan in a school or other public building, including regular inspections, various methods of maintaining asbestos in place, and removal when necessary.

Organic

1. Referring to or derived from living organisms.
2. In chemistry, any compound containing carbon.
3. Animal or plant-produced substances containing mainly carbon, hydrogen, nitrogen, and oxygen.

Organic Compound

Chemicals that contain carbon. Volatile organic compounds vaporize at room temperature and pressure. They are found in many indoor sources, including many common household products and building materials.

Organic Matter

The carbonaceous waste contained in plant or animal matter and originating from domestic or industrial sources.

Organism

Any form of animal or plant life.

OSHA

The Occupational Safety and Health Administration, part of the Department of Labor.

Osmosis

The passage of a liquid from a weak solution to a more concentrated solution across a semipermeable membrane that allows passage of the solvent (water) but not the dissolved solids.

Oxidant

A substance containing oxygen reacts chemically in the air to produce a new substance, the primary ingredient of photochemical smog.

Oxidation

The addition of oxygen that breaks down organic waste or chemicals such as cyanides, phenols, and organic sulfur compounds in sewage by bacterial and chemical means.

Ozone (O_3)

Found in two layers of the atmosphere, the stratosphere, and the troposphere. In the stratosphere (the atmospheric layer 7 to 10 miles or more above the Earth's surface), ozone is a natural form of oxygen that provides a protective layer shielding the Earth from ultraviolet radiation. In the troposphere (the layer extending up 7 to 10 miles from the Earth's surface), ozone is a chemical oxidant and major component of photochemical smog. It can seriously impair the respiratory system and is one of the most widespread of all the criteria pollutants for which the Clean Air Act required EPA to set standards. Ozone in the troposphere is produced through complex chemical reactions of nitrogen oxides, which are among the primary pollutants emitted by combustion sources, hydrocarbons, released into the atmosphere through the combustion, handling, and processing of petroleum products; and sunlight.

Packaging

The assembly of one or more containers and any other components necessary to assure minimum compliance with a program's storage and shipment packaging requirements. Also, the containers, etc., involved.

Pandemic

Widespread throughout an area, nation or the world.

Particle Count

A microscopic examination of treated water with a special "particle counter" classifies suspended particles by number and size.

Particulates

1. Fine liquid or solid particles such as dust, smoke, mist, fumes, or smog found in air or emissions.
2. Very small solid suspended in water. They vary in size, shape, density, and electrical charge can be gathered together by coagulation and flocculation.

Pathogens

Microorganisms that can cause disease in other organisms or humans, animals, and plants (e.g., bacteria, viruses, or parasites) found in sewage, in runoff from farms or rural areas populated with domestic and wild animals, and in water used for swimming. Fish and shellfish contaminated by pathogens, or the contaminated water itself, can cause serious illness.

PEL

Permissible Exposure Limits set by OSHA as a guide to acceptable levels of chemical exposure.

Permeability

1. A qualitative description of the relative ease with which rock, soil, or sediment will transmit a fluid (liquid or gas). Often used as a synonym for hydraulic conductivity or coefficient of permeability.
2. The rate at which liquids pass through soil or other materials in a specified direction.

Permissible Dose

An individual may receive the dose of a chemical without expecting a significantly harmful result.

Permit

An authorization, license, or equivalent control document is issued by EPA or an approved state agency to implement environmental regulation; e.g., a permit to operate a wastewater treatment plant or operate a facility that may generate harmful emissions.

Pesticide

Substances or mixture thereof intended for preventing, destroying, repelling, or mitigating any pest. Also, any substance or mixture intended for use as a plant regulator, defoliant, or desiccant.

pH

The pH is a measure of how acidic or caustic a chemical is, based on a scale of 1 to 14. A pH of 1 means the chemical is very acidic. Pure water has a pH of 7. A pH of 14 means the chemical is very caustic. Both acidic and caustic substances are dangerous to skin and other valuable surfaces.

Phenols

Organic compounds are byproducts of petroleum refining, tanning, and textile, dye, and resin manufacturing. Low concentrations cause taste and odor problems in water; higher concentrations can kill aquatic life and humans.

Phosphates

Certain chemical compounds containing phosphorus.

Phosphorus

An essential chemical food element that can contribute to the eutrophication of lakes and other water bodies. Increased phosphorus levels result from the discharge of phosphorus-containing materials into surface waters.

Photosynthesis

The manufacture by plants of carbohydrates and oxygen from carbon dioxide mediated by chlorophyll in the presence of sunlight.

Physical and Chemical Treatment

Processes generally used in large-scale wastewater treatment facilities. Physical processes may include air-stripping or filtration. Chemical treatment includes coagulation, chlorination, or ozonation. The term can refer to the treatment of toxic materials in surface and ground waters, oil spills, and some methods of dealing with hazardous materials on or off the ground.

Phytotoxic

Harmful to plants.

Pilot Test

1. operation of a small-scale version of a more extensive system to gain information relating to the anticipated performance of the more extensive system. Pilot test results are typically used to design and optimize the more extensive system.
2. Testing a cleanup technology under actual site conditions to identify potential problems before full-scale implementation.

Plastics

Non-metallic chemoreactive compounds molded into rigid or pliable construction materials, fabrics, etc.

Plutonium

A radioactive metallic element chemically similar to uranium.

Poison

A chemical that, in relatively small amounts, can produce injury by chemical action when it comes in contact with a susceptible tissue.

Pollen

The fertilizing element of flowering plants; background air pollutant.

Pollutant

Generally, any substance introduced into the environment that adversely affects the usefulness of a resource.

Pollution

Generally, the presence of matter or energy whose nature, location, or quantity produces undesired environmental effects. Under the Clean Water Act, the term is defined as the human-made or man-induced alteration of the physical, biological, chemical, and radiological integrity of water.

Polonium

A radioactive element that occurs in pitchblende and other uranium-containing ores.

Polymer

Basic molecular ingredients in plastic.

Population at Risk

A population subgroup is more likely to be exposed to a chemical or more sensitive to the chemical than the general population.

Potable Water

Water that is safe for drinking and cooking.

Precipitation

Removal of hazardous solids from liquid waste to permit safe disposal; removal of particles from airborne emissions.

Propellant

The liquid in a self-pressurized pesticide product that expels the active ingredient from its container.

Proposed Plan

A plan for a site cleanup that is available to the public for comment.

Protocol

A series of formal steps for conducting a test.

Protozoa

Single-celled, eucaryotic microorganisms without cell walls. Most protozoa are free-living, although many are parasitic. The majority of protozoa are aerobic or facultatively anaerobic heterotrophs.

Public Health Advisory

A statement by ATSDR containing a finding that a release of hazardous substances poses a significant risk to human health and recommending measures to be taken to reduce exposure and eliminate or substantially mitigate the considerable risk to human health.

Public Health Hazard

Sites that pose a public health hazard as the result of long-term exposures to hazardous substances.

Radiation

Transmission of energy through space or any medium. Also known as radiant energy.

Radioisotopes

Chemical variants of an element with potentially oncogenic, teratogenic, and mutagenic effects on the human body.

Radon

A colorless naturally occurring, radioactive, inert gas formed by radioactive decay of radium atoms in soil or rocks.

RCRA

The Resource Conservation and Recovery Act (of 1976). A Federal statute that establishes a framework for proper management and disposal of all wastes. The Generation, transportation, storage, treatment, and disposal of hazardous wastes are all regulated under this act.

Reagent

A substance or solution used in a chemical reaction, especially those used in laboratory work to detect, measure, or produce other substances.

Reasonable Maximum Exposure

The maximum exposure reasonably expected to occur in a population.

Recycle/Reuse

Minimizing waste generation by recovering and reprocessing usable products might otherwise become waste (.i.e. recycling of aluminum cans, paper, and bottles, etc.).

Regulated Medical Waste

Under the Medical Waste Tracking Act of 1988, any solid waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals. Included are cultures and stocks of infectious agents; human blood and blood products; human pathological body wastes from surgery and autopsy; contaminated animal carcasses from medical research; waste from patients with communicable diseases; and all used sharp implements, such as needles and scalpels, etc., and certain unused sharps. (See; treated medical waste; untreated medical waste; destroyed medical waste.)

Remediation

1. Cleanup or other methods used to remove or contain a toxic spill or hazardous materials from a Superfund site;
2. for the Asbestos Hazard Emergency Response program, abatement methods including evaluation, repair, enclosure, encapsulation, or removal of greater than three linear feet or square feet of asbestos-containing materials from a building.

Residue

The dry solids remaining after the evaporation of a sample of water or sludge.

Risk

A measure of the probability that damage to life, health, property, or the environment will occur as a result of a given hazard.

Risk Assessment

Broadly defined as the scientific activity of evaluating the toxic properties of a chemical and the conditions of human exposure to it, to determine the probability that exposed humans will be adversely affected. Its four main components are:

1. ***Hazard Identification*** -- Does the agent cause the effect?
2. ***Dose-Response Assessment*** -- What is the relationship between the dose and its incidence in human beings?
3. ***Exposure Assessment*** -- What exposures are experienced or anticipated, and under what conditions?
4. ***Risk Characterization*** - The total analysis producing an estimate of the incidence of the adverse effect in a given population.

Risk Factor

Characteristics (e.g., race, sex, age, obesity) or variable (e.g., smoking, occupational exposure level) are associated with an increased probability of a toxic effect.

Risk Management

The process of evaluating and selecting alternative regulatory and non-regulatory responses to risk. The selection process necessarily requires the consideration of legal, economic, and behavioral factors.

Route of Exposure

The avenue by which a chemical comes into contact with an organism (e.g., inhalation, ingestion, dermal contact, injection.)

Salts

Minerals that water picks up as it passes through the air, over and under the ground, or from households and industry.

Septic System

An on-site system designed to treat and dispose of domestic sewage. A typical septic system consists of a tank that receives waste from a residence or business and a system of tile lines or a pit for disposal of the liquid effluent (sludge) that remains after decomposition of the solids by bacteria in the tank and must be pumped out periodically.

Sharps

Hypodermic needles, syringes (with or without the attached needle) Pasteur pipettes, scalpel blades, blood vials, needles with attached tubing, and culture dishes used in animal or human patient care or treatment, or medical, research or industrial laboratories. Also included are other types of broken or unbroken glassware that were in contact with infectious agents, such as used slides and coverslips, and unused hypodermic and suture needles, syringes, and scalpel blades.

Signal Words

The words used on a pesticide label-Danger, Warning, Caution-to indicate the level of toxicity.

Solid Waste

Non-liquid, non-soluble materials ranging from municipal garbage to industrial wastes that contain complex and sometimes hazardous substances. Solid wastes also include sewage sludge, agricultural refuse, demolition wastes, and mining residues. Technically, solid waste also refers to liquids and gases in containers.

Solubility

The amount of mass of a compound that will dissolve in a unit volume of solution.

Specific Gravity

A comparison of the weight of the chemical to the weight of an equal volume of water. Chemicals with a specific gravity of less than 1 are lighter than water, while a specific gravity of more than 1 means the chemical is heavier than water. Most flammable liquids are lighter than water.

Sterilization

The removal or destruction of all microorganisms, including pathogenic and other bacteria, vegetative forms, and spores.

Sulfur Dioxide (SO2)

A pungent, colorless, gaseous pollutant formed primarily by the combustion of fossil fuels.

Synergism

An interaction of two or more chemicals which results in an effect that is greater than the sum of their effects taken independently.

Teratogen

A material that produces a physical defect in a developing embryo.

Threshold

The lowest dose of a chemical at which a specific, measurable effect is observed. Below this dose, the effect is not observed.

Threshold Level

Time-weighted average pollutant concentration values, exposure beyond which is likely to affect human health adversely. (See - environmental exposure.)

Threshold Limit Value (TLV)

The concentration of an airborne substance that an average person can be repeatedly exposed to without adverse effects. TLVs may be expressed in three ways –

- TLV-TWA-Time-weighted average, based on an allowable exposure averaged over a normal 8-hour workday or 40-hour workweek;
- TLV-STEL-Short-term exposure limit or maximum concentration for a brief specified period of time, depending on a specific chemical (TWA must still be met); and
- TLV-C- Ceiling Exposure Limit or maximum exposure concentration not to be exceeded under any circumstances. (TWA must still be met.)

TLV

Threshold Limit Values are the calculated airborne concentrations of a substance to which all workers could be repeatedly exposed eight hours a day without adverse effects.

Toxic Chemical

Any chemical listed in EPA rules as "Toxic Chemicals Subject to Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986."

Toxic Substance

A chemical or mixture that may present an unreasonable risk of injury to health or the environment.

Toxic Waste

A waste that can produce injury if inhaled, swallowed, or absorbed through the skin.

Toxicity

The degree of danger posed by a substance to animal or plant life.

Toxicology

The study of the adverse effects of chemicals on biological systems and the probability of their occurrence are assessed.

Treatment

1. Any method, technique, or process designed to remove solids or pollutants from solid waste, waste streams, effluents, and air emissions.
2. Methods used to change the biological character or composition of any regulated medical waste to reduce or eliminate its potential for causing disease substantially.

Ultraviolet Rays

Radiation from the sun that can be useful or potentially harmful. UV rays from one part of the spectrum (UV-A) enhance plant life and are useful in some medical and dental procedures; UV rays from other parts of the spectrum (UV-B) can cause skin cancer or other tissue damage. The ozone layer in the atmosphere partly shields us from ultraviolet rays reaching the Earth's surface.

Unsaturated

A carbon atom is characteristic of a hydrocarbon molecule that shares a double bond with another carbon atom.

Vapor Density

The measure of the heaviness of a chemical's vapor as compared to the weight of a similar amount of air. A vapor density of 1.0 is equal to air. Vapors that are heavier than air may build up in low-lying areas, such as along floors, in sewers, or elevator shafts. Vapors that are lighter than air rise and may collect near the ceiling.

Ventilation/ Suction

The act of admitting fresh air into space to replace stale or contaminated air; achieved by blowing air into space. Similarly, suction represents the admission of fresh air into an interior space by lowering the pressure outside of the space, thereby drawing the contaminated air outward.

Viscosity

A measure of the internal friction of a fluid that provides resistance to shear within the fluid. The greater the forces of internal friction (i.e., the greater the viscosity), the less easily the fluid will flow.

Volatile

Any substance that evaporates readily.

Volatile Liquids

Liquids that easily vaporize or evaporate at room temperature.

Waste

1. Unwanted materials left over from a manufacturing process.
2. Refuse from places of human or animal habitation.