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Acid · Acute Effects · Air-Purifying Respirator · Allergic Reaction · ANSI · Asphyxiant · Biodegradable · Carcinogen · Ceiling Limit · Chemical Cartridge Respirator · CHEMTREC · Clean Air Act · Compressed Gas · Decomposition · Density · EPA · FDA · Flammability Range · Flashback ·

Material Safety Data Sheet Glossary of Terms

Flashpoint · Generic Name · Irritant · Lacrimation · Lethal Concentration · Melting Point · Metabolism · Mutagen · Narcosis · NFPA · Neutralize · NIOSH · Non-Sparking Tools · Organic Peroxide · OSHA · Pathology · Polymerization · Routes of Entry · Solubility in Water · Spontaneously Combustible · Target Organ Toxin · Teratogen · TLV · Vapor Density · Vermiculite · Viscosity · Acid · Acute Effects · Air-Purifying Respirator · Allergic Reaction · ANSI · Asphyxiant · Biodegradable · Carcinogen · Ceiling Limit · CERCLA · Chemical Cartridge Respirator · CHEMTREC · Clean Air Act · Compressed Gas · Decomposition · Density · EPA · FDA · Flammability Range · Flashback · Flashpoint · Generic Name · Irritant · Lacrimation · Lethal Concentration · Melting Point · Metabolism · Mutagen · Narcosis · NFPA · Neutralize · NIOSH · Non-Sparking Tools · Organic Peroxide · OSHA · Pathology · Polymerization · Routes of Entry · Solubility in Water · Spontaneously Combustible · Target Organ Toxin · Teratogen · TLV · Vapor Density · Vermiculite · Viscosity · Acid · Acute



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MSDS Glossary of Terms

The following glossary presents brief explanations of common terms frequently used by chemical manufacturers in their Material Safety Data Sheets (MSDS).

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<http://www.utexas.edu/business/oehs>

ACGIH

American Conference of Governmental Industrial Hygienists. An organization of professionals in governmental agencies or educational institutions engaged in occupational safety and health programs. ACGIH develops and publishes recommended occupational exposure limits for chemical substances and physical agents. See TLV.

Acid

A substance that produces hydrogen ions (H⁺) in aqueous solutions. An acid will destroy human tissue on contact. The pH values of acids are between 0 and 6. Strong acids have a lower pH and are more corrosive than weak acids. Examples of strong acids include hydrochloric acid, nitric acid, and phosphoric acid. See also pH, Bases, Corrosive.

Acute Effects

Adverse symptoms that occur immediately or shortly after an exposure to a chemical. Common symptoms of acute exposure include headache, dizziness, or nausea.

Acute Toxicity

Acute effects resulting from a single dose of, or exposure to, a substance.

Aerosol

A fine suspension in the air of small particles (e.g., smoke or fog).

Air-Purifying Respirator

A respirator that uses chemicals to remove specific gases and vapors from the air or that uses a mechanical filter to remove particulate matter. An air-purifying respirator must only be used when there is sufficient oxygen to sustain life and the air contaminant level is below the concentration limits of the device. See also Chemical Cartridge Respirator.

Alkali

See Base.

Allergic Reaction

An abnormal response by the body to chemical or physical stimuli (e.g., hives, sneezing).

Anesthetic

A chemical that causes a total or partial loss of sensation. Overexposure to anesthetics can cause impaired judgment, dizziness, drowsiness, headache, unconsciousness, and even death. Examples include alcohol, paint remover, and degreasers.

ANSI

American National Standards Institute is a privately funded, voluntary membership organization that identifies industrial and public needs for national consensus standards and coordinates development of such standards.

Antidote

A remedy to relieve, prevent, or counteract the effects of a poison.

Appearance

A description of a substance at normal room temperature and normal atmospheric conditions. Appearance includes the color, size, and consistency of a material.

Aquatic Toxicity

The adverse effects to marine life that result from being exposed to a toxic substance.

Asphyxiant

A vapor or gas that can cause unconsciousness or death by suffocation due to lack of oxygen. Most simple asphyxiants are harmful to the body only when they become so concentrated that they reduce oxygen in the air to dangerous levels of 18 percent or lower. The normal level of oxygen in the air is about 21 percent. Asphyxiation is one of the principal potential hazards of working in confined and enclosed spaces.

Asymptomatic

Showing no symptoms.

Atm

Atmosphere, a unit of pressure equal to 760 mmHg (mercury) at sea level.

Auto-Ignition Temperature

The minimum temperature at which a substance can ignite without a spark or a flame. Some examples: acetone 538°C (1000°F), ethyl ether 180°C (356°F), phenol 715°C (1319°F).

Base

A substance that produces hydroxide ions (OH⁻) in aqueous solution. The pH values of bases are between 8 and 14. Strong bases have a higher pH and

are more corrosive than weak bases. Examples of strong bases include sodium hydroxide, and ammonium hydroxide. See also pH, Acid, Corrosive.

Biodegradable

Capable of being broken down into non harmful products by the action of living things.

Boiling Points—BP

The temperature at which a liquid changes to a vapor state at a given pressure. The boiling point is usually expressed in degrees Fahrenheit at sea level pressure (760 mmHg, or one atmosphere).

Some examples of boiling points:

Propane	-42°C	-44°F
Butane	-0.5°C	31°F
Gasoline	38°C	100°F
Water	100°C	212°F
Ethylene Glycol (Antifreeze)	197°C	387°F

Bonding

The interconnecting of two objects by means of a clamp and bare wire. Its purpose is to equalize the electrical potential between the objects to prevent a static discharge when transferring a flammable liquid from one container to another. The conductive path is provided by clamps that make contact with the charged object and a low resistance flexible cable which allows the charge to equalize.

CAA

Clean Air Act was enacted to regulate/reduce air pollution. CAA is administered by the U.S. Environmental Protection Agency (EPA).

Carcinogen

A substance or agent that has been demonstrated to cause or produce cancer in mammals, including humans. Carcinogens are regulated by OSHA and are listed in the National Toxicology Program Annual Report of Carcinogens.

CAS

Chemical Abstracts Service is an organization under the American Chemical Society. CAS abstracts and indexes chemical literature from all over the world in "Chemical Abstracts." "CAS Numbers" are used to identify specific chemicals or mixtures.

Caustic

See Base.

cc

Cubic centimeter is a volume measurement in the metric system that is equal in capacity to one milliliter (ml). One quart is about 946 cubic centimeters (0.946L).

Ceiling Limit (PEL or TLV)

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

Centigrade

Centigrade, a unit of temperature. To convert from centigrade to Fahrenheit, multiply the temperature given in centigrade degrees by 9, divide that number by 5, then add 32.

Central Nervous System

The brain and spinal cord. These organs supervise and coordinate the activity of the entire nervous system.

CERCLA

Comprehensive Environmental Response, Compensation, and Liability Act of 1980. The Act requires that the Coast Guard National Response Center be notified in the event of a hazardous substance release. The Act also provides for a fund (the Superfund) to be used for the cleanup of abandoned hazardous waste disposal sites.

CFR

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

Chemical Cartridge Respirator

A respirator that uses various chemical substances to purify inhaled air of certain gases and vapors. This type respirator is effective for concentrations ten times or more times (depending on the type of respirator) the TLV of the contaminant, if the contaminant has warning properties (odor or irritation) below the TLV. See also Air-Purifying Respirator.

Chemical Family

A group of single elements or compounds with a common general name. Example: acetone, methyl ethyl ketone (MEK), and methyl isobutyl ketone (MIBK) are of the "Ketone" family; acrolein, furfural, and acetaldehyde are of the "aldehyde" family.

Chemical Pneumonitis

Inflammation of the lungs caused by accumulation of fluids due to chemical irritation.

CHEMTREC

Chemical Transportation Emergency Center is a national center established by the Chemical Manufacturers Association (CMA) to relay pertinent emergency information concerning specific chemicals on requests from individuals. CHEMTREC has a 24-hour toll-free telephone number (800-424-9300) to help respond to chemical transportation emergencies.

Chronic Effect

Adverse symptoms of chemical exposure that develop slowly over a long period of time (weeks, months or years) due to repeated long-term exposure to a substance. Examples include cancer or damage to certain internal organs. Also see Acute Effect.

Chronic Exposure

Repeated long-term contact with a substance.

Chronic Toxicity

Adverse effects resulting from repeated doses of or exposures to a substance over a long period of time.

Clean Air Act

Clean Air Act was enacted to regulate/reduce air pollution. CAA is administered by U.S. Environmental Protection Agency.

Clean Water Act

Federal law enacted to regulate/reduce water pollution. CWA is administered by U.S. Environmental Protection Agency.

Combustible

For liquids, a liquid with a flash point above 100°F (37.8°C) but below 200°F (93.3°C). Non-liquid substances such as wood and paper are classified as "ordinary combustibles" by NFPA. Also see Flammable Liquid.

Common Name

A name used to identify a chemical other than its chemical name (e.g., code name, code number, trade name, brand name, or generic name). See Generic.

Compressed Gas:

a. A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 pounds per square inch (psi) at 70°F (21.1°C); or

b. A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130°F (54.4°C) regardless of the pressure at 70°F (21.1°C); or

c. A liquid having a vapor pressure exceeding 40 psi at 100°F (37.8°C) as determined by ASTM D-323-72.

Conc

Concentration.

Concentration

The relative amount of a substance when combined or mixed with other substances. Examples: 2 ppm hydrogen sulfide in air, or a 50 percent caustic solution.

Conditions to Avoid

Conditions encountered during handling or storage that could cause a substance to become unstable.

Corrosive Material

Any solid, liquid, or gas that burns, irritates, or destroys organic tissues such as the skin, lungs, and stomach. Corrosives can also destroy metal and other building materials. The term corrosive includes both acids and bases.

CWA

Clean Water Act was enacted to regulate/reduce water pollution. It is administered by the Environmental Protection Agency (EPA).

Decomposition

Breakdown of a material or substance by heat, chemical reaction, electrolysis, decay, or other processes into parts, elements, or simpler compounds.

Density

The mass (weight) per unit volume of a substance. Usually given in pounds per gallon or grams per milliliter. See also Specific Gravity.

Depressant

A substance that reduces a bodily functional activity or an instinctive desire, such as appetite.

Dermal

Relating to skin.

Dermal Toxicity

Adverse effects resulting from skin exposure to a substance.

Dike

A barrier constructed to control or confine hazardous substances and prevent them from entering sewers, ditches, streams, or other flowing waters.

DOT

U.S. Department of Transportation regulates transportation of chemicals and other substances.

Dry Chemical

A powdered fire-extinguishing agent usually composed of sodium bicarbonate, potassium bicarbonate, etc.

Environmental Toxicity

Information obtained as a result of conducting environmental testing designed to study the effects on aquatic and plant life.

EPA

U.S. Environmental Protection Agency.

Evaporation Rate

The rate at which a material will vaporize (evaporate) when compared to the known rate of vaporization of a standard material. The evaporation rate can be useful in evaluating the health and fire hazards of a material. The designated standard material is usually normal butyl acetate (NBUAC or n-BuAc), with a vaporization rate designated as 1.0. Vaporization rates of other solvents or materials are then classified as:

FAST evaporating if greater than 3.0.

Examples: Methyl Ethyl Ketone = 3.8
Acetone = 5.6
Hexane = 8.3

MEDIUM evaporating if 0.8 to 3.0.

Examples: 190 proof (95%) Ethyl Alcohol = 1.4
VM&P Naphtha = 1.4
MIBK = 1.6

SLOW evaporating if less than 0.8.

Examples: Xylene = 0.6
Isobutyl Alcohol = 0.6
Normal Butyl Alcohol = 0.4
Water = 0.3
Mineral Spirits = 0.1

Explosive

A chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

Exposure or Exposed

Exposure to a chemical occurs when the chemical is taken into the body through inhalation, ingestion, skin absorption, or any other means.

Exposure Limits

The concentration in workplace air of a chemical deemed the maximum acceptable. This means that most workers can be exposed at given levels or lower without harmful effects.

Exposure limits in common use are:

1. TLV-TWA: Threshold limit value—time-weighted average.
2. STEL: Short-term exposure limit.
3. C: Ceiling value.

Extinguishing Media

The firefighting substance to be used to control a material in the event of a fire. It is usually identified by its generic name, such as fog, foam, water, etc.

Eye Protection

Recommended safety glasses, chemical splash goggles, or face shields to be used when handling a hazardous material.

F Fahrenheit

is a scale for measuring temperature. On the Fahrenheit scale, water boils at 212°F and freezes at 32°F. To convert a temperature from degrees Fahrenheit to degrees Centigrade, subtract 32 from the temperature, multiply that number by five, then divide by 9.

FDA

U.S. Food and Drug Administration.

Fetus

The developing young in the uterus from the seventh week of gestation until birth.

FIFRA

Federal Insecticide, Fungicide, and Rodenticide Act requires that certain useful poisons, such as chemical pesticides, sold to the public contain labels that carry health hazard warnings to protect users. It is administered by EPA.

First Aid

Emergency measures to be taken when a person is suffering from overexposure to a hazardous material, before regular medical help can be obtained.

Flammable

A chemical that falls into one of the following categories:

- a. Liquid—A liquid with a flashpoint below 100°F (37.8°C).
- b. Solid—A solid, other than a blasting agent or explosive, that is able to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a hazard.
- c. Gas—A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of 13 percent by volume or less.
- d. Aerosol—A chemical substance or mixture dispensed from its container as a spray or mist by a propellant under pressure that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flashback at any degree of valve opening.

Flammability Range

The lower and upper concentrations of a chemical vapor in air that will ignite if an ignition source is present. The lower concentration range is called the lower explosive limit (LEL), and the upper concentration range is called the upper explosive limit (UEL).

Some examples of the LEL and UEL for some common chemicals:

acetylene	2.5-80%
acetone	2.6-12.8%
propane	2.4-9.5%
toluene	1.27-7%
diesel fuel	1-5%

Flashback

A flashback occurs when flame from a torch burns back into the tip, the torch, or the hose. It is often accompanied by a hissing or squealing sound with a smoky or sharp-pointed flame.

Flashpoint

The minimum temperature at which a liquid gives off vapor in sufficient concentration to ignite. Used to determine how flammable a liquid is.

Foreseeable Emergency

Any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the workplace.

Formula

The scientific expression of the chemical composition of a material (e.g., water is H₂O, sulfuric acid is H₂SO₄, sulfur dioxide is SO₂).

Fume

The particulate, smoke-like emanation from the surface of heated metals.

g

Gram is a metric unit of weight. One U.S. ounce is about 28.4 grams.

General Exhaust

A system for exhausting air containing contaminants from a general work area. Also see Local Exhaust.

Generic Name

A designation or identification used to identify a chemical by other than its chemical name (e.g., code name, code number, trade name, brand name).

Gestation

The development of the fetus in the uterus from conception to birth; pregnancy.

g/kg

Grams per kilogram is an expression of dose used in oral and dermal toxicology testing to denote grams of a substance dosed per kilogram of animal body weight. Also see “kg” (kilogram).

Grounding

The procedure used to carry an electrical charge to ground through a conductive path. A typical ground may be connected directly to a conductive water pipe or to a grounding bus and ground rod. See Bonding.

Hand Protection

Specific type of gloves or other hand protection required to prevent harmful exposure to hazardous materials.

Hazardous Chemical

Any chemical whose presence or use is a physical hazard or health hazard.

Hazardous Warning

Words, pictures, or symbols, presented on a label to inform of the dangers of a chemical.

HCS

Hazard Communication Standard is an OSHA regulation issued under 29 CFR Part 1910.1200. Also known as HazCom or Right-to-Know.

Health Hazard

A chemical for which there is significant evidence, based on at least one study conducted in accordance with established scientific principles, that acute or chronic health effects may occur in exposed employees. The term “health hazard” includes chemicals that are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents that act on the hematopoietic system, and agents that damage the lungs, skin, eyes, or mucous membranes.

Highly Toxic

A chemical in any of the following categories:

- A chemical with a median lethal dose (LD₅₀) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each. (ORL-RAT LD₅₀)
- A chemical with a median lethal dose (LD₅₀) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between 2 and 3 kilograms each. (SKN-RBT LD₅₀)
- A chemical that has a median lethal concentration (LC₅₀) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust, when administered by continuous inhalation for 1 hour (or less if death occurs within 1 hour) to albino rats weighing between 200 and 300 grams each. (IHL-RAT LC₅₀)

Hormones

Act as chemical messengers to body organs.

IARC

International Agency for Research on Cancer.

Ignitable

Capable of being set on fire.

Impervious

A material that does not allow another substance to pass through or penetrate it.

Incompatible

Materials that could cause dangerous reactions by direct contact with one another. Reactions between incompatible chemicals can cause an explosion, a fire, or the release of a toxic gas.

Ingestion

Taking in by the mouth.

Inhalation

Breathing in of a substance in the form of a gas, vapor, fume, mist, or dust.

Inhibitor

A chemical added to another substance to prevent an unwanted chemical change.

Insol

See Insoluble.

Insoluble

Not capable of being dissolved in a liquid.

Irritant

A chemical, which is not corrosive, that causes a reversible inflammatory effect on living tissue by chemical action at the site of contact (skin, eyes or mucous membranes).

kg

Kilogram is a metric unit of weight. One kilogram is about 2.2 U.S. pounds. Also see “g/kg,” “g,” and “mg.”

L

Liter is a metric unit of capacity. A U.S. quart is about 9/10 of a liter.

Lacrimation

Secretion and discharge of tears.

Label

Notice attached to a container, bearing information concerning its contents.

LC

Lethal concentration is the concentration of a substance being tested that will kill.

LCL

Lethal concentration, low, lowest concentration of a gas or vapor capable of killing a specified species over a specified time.

LC₅₀

The concentration of a material in air that will kill 50 percent of a group of test animals with a single exposure (usually 1 to 4 hours). The LC₅₀ is expressed as parts of material per million parts of air, by volume (ppm) for gases and vapors, or as micrograms of material per liter of air ($\mu\text{g}/\text{l}$) or milligrams of material per cubic meter of air (mg/m^3) for dusts and mists, as well as for gases and vapors. See also Highly Toxic and Toxic.

LD

Lethal dose is the quantity of a substance being tested that will kill.

LDL

Lethal dose low, lowest administered dose of a material capable of killing a specified test species.

LD₅₀

A single dose of a material expected to kill 50 percent of a group of test animals. The LD₅₀ dose is usually expressed as milligrams or grams of material per kilogram of animal body weight (mg/kg or g/kg). The material may be administered by mouth or applied to the skin. See also Highly Toxic and Toxic.

LEL, or LFL

Lower explosive limit, or lower flammable limit, of a vapor or gas; the lowest concentration (lowest percentage of the substance in air) that will produce a flash of fire when an ignition source is present. At concentrations lower than the LEL, the mixture is too “lean” to burn. Also see UEL and Flammability Range.

Lethal Concentration

See LC₅₀.

Lethal Dose

See LD₅₀.

Local Exhaust

A system for capturing and exhausting contaminants from the air at the point where the contaminants are produced (welding, grinding, sanding, or other processes or operations). Also see General Exhaust.

m

Meter is a unit of length in the metric system. One meter is about 39 inches.

m³

Cubic meter is a metric measure of volume, approximately 35.3 cubic feet or 1.3 cubic yards.

Malaise

A feeling of general discomfort, distress, or uneasiness, an out-of-sorts feeling.

Mechanical Exhaust

A powered device, such as a motor-driven fan or air stream venturi tube, for exhausting contaminants from a workplace, vessel, or enclosure.

Mechanical Filter Respirator

A respirator used to protect against airborne particulate matter like dusts, mists, metal fume, and smoke. Mechanical filter respirators do not provide protection against gases, vapors, or oxygen deficient atmospheres.

Melting Point

The temperature at which a solid substance changes to a liquid state.

Metabolism

Physical and chemical processes taking place among the ions, atoms, and molecules of the body.

Meter

A unit of length, equivalent to 39.37 inches.

mg

Milligram is a metric unit of weight that is one-thousandth of a gram, i.e. 1000 milligrams equals one gram.

mg/kg

Milligrams of substance per kilogram of body weight is an expression of toxicological dose.

mg/m³

Milligrams per cubic meter is a unit for expressing concentrations of dusts, gases, or mists in air.

Micron (Micrometer)

A unit of length equal to one-millionth of a meter; approximately 0.000039 of an inch.

Mist

Suspended liquid droplets generated by condensation from the gaseous to the liquid state, or by breaking up a liquid into a dispersed state, such as splashing, foaming, or atomizing. Mist is formed when a finely divided liquid is suspended in air.

Mixture

Any combination of two or more chemicals.

ml

Milliliter is a metric unit of capacity, equal in volume to 1 cubic centimeter (cc), or approximately one-sixteenth of a cubic inch. One-thousandth of a liter.

mmHg

Millimeters (mm) of mercury (Hg) is a unit of measurement for low pressures or partial vacuums.

Molecular Weight

Weight (mass) of a molecule based on the sum of the atomic weights of the atoms that make up the molecule.

MSDS

Material Safety Data Sheet, a document containing information and instructions on the chemical and physical characteristics of a substance, its hazards and risks, safe handling requirements and the actions to be taken in the event of fire, spill or exposure.

Mutagen

A substance or agent capable of altering the genetic material in a living cell. See also Reproductive Toxin.

MW

See Molecular Weight.

Narcosis

A state of stupor, unconsciousness, or arrested activity produced by the influence of narcotics or other chemicals.

Nausea

Tendency to vomit, feeling of sickness at the stomach.

NFPA

National Fire Protection Association is an international membership organi-

zation which promotes and improves fire protection and prevention and establishes safeguards against loss of life and property by fire. Best known on the industrial scene for the National Fire Codes—16 volumes of codes, standards, recommended practices and manuals developed and periodically updated by NFPA technical committees. Among these is NFPA 704M, the code for showing hazards of materials as they might be encountered under fire or related emergency conditions, using the familiar diamond-shaped label or placard with appropriate numbers or symbols.

Neurotoxin

A material that affects the nerve cells and may produce emotional or behavioral abnormalities.

Neutralize

In acid-base chemistry, the process of bringing the pH to between 5 and 8, either by adding an acid to a base or by adding a base to an acid.

NIOSH

National Institute for Occupational Safety and Health, U.S. Public Health Service, U.S. Department of Health and Human Services (DHHS), among other activities, tests and certifies respiratory protective devices and air sampling detector tubes, recommends occupational exposure limits for various substances, and assists OSHA and MSHA in occupational safety and health investigations and research.

Nonflammable

Not easily ignited, or if ignited, not burning rapidly.

Non-Sparking Tools

Tools made from beryllium-copper or aluminum-bronze that greatly reduce the possibility of igniting dusts, gases, or flammable vapors. Although these tools may emit some sparks when striking metal, the sparks have a low heat content and are not likely to ignite most flammable liquids.

NTP

National Toxicology Program. The NTP publishes an Annual Report on Carcinogens.

Odor

A description of the smell of the substance.

Odor Threshold

The lowest concentration of a substance's vapor, in air, that can be smelled.

Olfactory

Relating to the sense of smell.

Oral

Used in or taken into the body through the mouth.

Oral Toxicity

Adverse effects resulting from taking a substance into the body by mouth.

Organic Peroxide

An organic compound that is an oxidizer and contains the bivalent -O-O- structure and may be considered a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

OSHA

Occupational Safety and Health Administration, U.S. Department of Labor.

Overexposure

Exposure to a hazardous material beyond the allowable exposure limits.

Oxidizer

A substance that readily yields oxygen to or accepts electrons from another substance. By yielding oxygen or accepting electrons, an oxidizer can easily cause or enhance the combustion of other materials. Examples of oxidizers include bleach, which contains sodium hypochlorite, concentrated hydrogen peroxide (greater than 30%), and ammonium nitrate.

Pathologic

Pertaining to or caused by disease.

Pathology

Scientific study of alterations produced by disease.

PEL

Permissible Exposure Limit is an occupational exposure limit established by OSHA's regulatory authority. It may be a time-weighted average (TWA) limit or a maximum concentration exposure limit.

Percent Volatile

Percent volatile by volume is the percentage of a liquid or solid (by volume) that will evaporate at a temperature of 70°F. Examples: butane, gasoline, and paint thinner (mineral spirits) are 100 percent volatile; their individual evaporation rates vary, but in time, each will evaporate completely.

pH

The symbol relating the hydrogen ion (H⁺) concentration to that of a given standard solution. A pH of 7 is neutral. Numbers increasing from 7 to 14 indicate greater alkalinity. Numbers decreasing from 7 to 0 indicate greater acidity.

Physical Hazard

Used to describe a chemical that is explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable, or water reactive.

Placenta

A structure attached to the wall of the uterus to nourish the fetus during pregnancy.

Polymerization

A chemical reaction in which one or more small molecules combine to form larger molecules. A hazardous polymerization is such a reaction that takes place at a rate that releases large amounts of energy. If hazardous polymerization can occur with a given material, the MSDS usually will list conditions that could start the reaction and, if the material contains a polymerization inhibitor, the length of time during which the inhibitor will be effective.

ppb

Parts per billion. The concentration of a particular chemical in solution. For every one part of the chemical, there are a billion parts of solution. Used to express very low concentrations.

ppm

Parts per million. The concentration of a particular chemical in solution. For every one part of the chemical, there are a million parts of solution. Used to express very low concentrations. One inch in sixteen miles is a common example of the magnitude of parts per million.

Prenatal

Preceding birth.

psi

Pounds per square inch is the pressure a material exerts on the walls of a confining vessel or enclosure. For technical accuracy, pressure must be expressed as psig (pounds per square inch gauge) or psia (pounds per square inch absolute; that is, gauge pressure plus sea level atmospheric pressure, or psig plus approximately 14.7 pounds per square inch). See also mmHg.

Pulmonary

Relating to, or associated with, the lungs.

Pulmonary Edema

Fluid in the lungs.

Pyrophoric

A chemical substance that will ignite spontaneously in air at or below a temperature of 130°F (54.4°C).

Reaction

A chemical transformation or change. The interaction of two or more substances to form new substances.

Reactivity

Chemical reaction with the release of energy. Undesirable effects—such as pressure buildup, temperature increase, formation of noxious, toxic or corrosive byproducts—may occur because of the reactivity of a substance to heating, burning, direct contact with other materials, or other conditions in use or in storage.

RCRA

Resource Conservation and Recovery Act is environmental legislation aimed at controlling the generation, treatment, storage, transportation and disposal of hazardous wastes. It is administered by EPA.

Reducing Agent

In a reduction reaction, which always occurs simultaneously with an oxidation reaction, the reducing agent is the chemical or substance which combines with oxygen, or loses electrons to the reaction. See Oxidation.

REL

The NIOSH REL (Recommended Exposure Limit) is the highest allowable airborne concentration which is not expected to injure workers. It may be expressed as a ceiling limit or as a time-weighted average (TWA).

Reproductive Toxin

Substances that affect either male or female reproductive systems and may impair the ability to have children. See also Mutagen.

Respiratory Protection

Devices that will protect the wearer's respiratory system from overexposure by inhalation to airborne contaminants. Respiratory protection is used when

a worker must work in an area where he/she might be exposed to concentration in excess of the allowable exposure limit.

Respiratory System

The breathing system that includes the lungs and the air passages (trachea or “windpipe,” larynx, mouth, and nose) to the air outside the body, plus the associated nervous and circulatory supply.

Routes of Entry

The means by which material may gain access to the body, for example, inhalation, ingestion, and skin contact.

Self-Contained Breathing Apparatus

A respiratory protection device that consists of a supply or a means of respirable air, oxygen, or oxygen-generating material which is carried by the wearer.

Sensitizer

A chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.

Silicosis

A disease of the lungs (fibrosis) caused by the inhalation of silica dust.

Skn

Skin.

“Skin”

A notation sometimes used with PEL or TLV exposure data that indicates that the stated substance may be absorbed by the skin, mucous membranes, and eyes, either by airborne or by direct contact.

Skin Absorption

Ability of some hazardous chemicals to pass directly through the skin and enter the bloodstream.

Skin Toxicity

See Dermal Toxicity.

Solubility in Water

A term expressing the percentage of a material (by weight) that will dissolve in water at ambient temperature.

Solvent

A substance, usually a liquid, in which other substances are dissolved. The most common solvent is water.

Specific Chemical Identity

The chemical name, Chemical Abstracts Service (CAS) Registry Number, or any precise chemical designation of a substance.

Specific Gravity

The weight of a material compared to the weight of an equal volume of water is an expression of the density (or heaviness) of a material. Insoluble materials with specific gravity of less than 1.0 will float on water. Insoluble materials with specific gravity greater than 1.0 will sink in water. Some flammable liquids have specific gravities greater than 1.0 and will sink in water. Most flammable liquids have specific gravities less than 1.0 and, if not soluble, will float on water, which is an important consideration for fire suppression.

Spill or Leak Procedures

The methods, equipment, and precautions that should be used to control or clean up a leak or spill.

Splash-Proof Goggles

Eye protection that fits snugly against the face, and may have indirect ventilation ports.

Spontaneously Combustible

Capable of catching fire without an ignition source. Can occur due to oxidation in air or by internal heat buildup.

Stability

The ability of a material to remain unchanged. For MSDS purposes, a material is stable if it remains in the same form under expected and reasonable conditions of storage or use. Conditions that may cause instability (dangerous change) are stated; for example, temperatures above 150°F; shock from dropping.

STEL

Short-Term Exposure Limit (ACGIH terminology). See TLV.

Subcutaneous

Beneath the layers of the skin.

Supplied-Air Respirators

Air line respirators or self-contained breathing apparatus.

Sys

System or systemic.

Systemic Poison

A poison that spreads throughout the body, affecting all body systems and organs. Its adverse effect is not localized in one spot or area.

Systemic Toxicity

Adverse effects caused by a substance that affects the body in a general rather than local manner.

Synonym

Another name or names by which a material is known. Methyl alcohol, for example, is also known as methanol or wood alcohol.

Target Organ Toxin

A toxic substance that attacks a specific organ of the body. For example, overexposure to carbon tetrachloride can cause liver damage.

TCL

Toxic concentration low, the lowest concentration of a gas or vapor capable of producing a defined toxic effect in a specified test species over a specified time.

TDL

Toxic dose low, lowest administered dose of a material capable of producing a defined toxic effect in a specified test species.

Temp

Temperature.

Ter

See Teratogen.

Teratogen

A substance or agent, exposure to which by a pregnant female can result in malformations in the fetus.

Tfx

Toxic effects(s).

TLV

Threshold Limit Value is a term used by ACGIH to express the airborne concentration of material to which nearly all persons can be exposed day after day without adverse effects. ACGIH expresses TLVs in three ways:

TLV-TWA: The allowable Time-Weighted Average concentration for a normal 8-hour workday or 40-hour workweek.

TLV-STEL: The Short-Term Exposure Limit, or maximum concentration for a continuous 15-minute exposure period (maximum of four such periods per day, with at least 60 minutes between exposure periods, and provided the daily TLV-TWA is not exceeded).

TLV-C: The Ceiling exposure limit. The concentration that should not be exceeded even instantaneously.

Torr

A unit of pressure, equal to 1/760 atmosphere.

Toxic

A chemical falling within any of the following categories:

a. A chemical that has a median lethal dose (LD₅₀) of more than 50 milligrams per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.

b. A chemical that has a median lethal dose (LD₅₀) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.

c. A chemical that has a median lethal concentration (LC₅₀) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each. See also Highly Toxic.

Toxic Substance

Any substance that can cause acute or chronic injury to the human body, or which is suspected of being able to cause diseases or injury under some conditions.

Toxicity

The degree of poisoning that can occur from exposure to a chemical.

Trade name

The trademark name or commercial trade name for a material or product.

Transplacental

A chemical that is capable of causing physical defects in the developing embryo because it can easily cross the placental barrier between mother and fetus.

TSCA

Toxic Substances Control Act. Federal Environmental Legislation administered by EPA that regulates the manufacture, handling, and use of materials classified as "toxic substances."

TWA

Time-Weighted Average exposure is the airborne concentration of a material to which a person is exposed, averaged over the total exposure time—generally the total workday (8 hours). Also see TLV.

UEL, or UFL

Upper explosive limit or upper flammable limit of a vapor or gas; the highest concentration (highest percentage of the substance in air) that will produce a flash of fire when an ignition source (heat, arc, or flame) is present. At higher concentrations, the mixture is too "rich" to burn. See also LEL.

ug

Microgram, one millionth of a gram.

Unstable

Tending toward decomposition or other unwanted chemical change during normal handling or storage.

Unstable Reactive

A chemical that, in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or become self-reactive under conditions of shock, pressure, or temperature.

Vapor

The gaseous form of a solid or liquid substance as it evaporates.

Vapor Density

The weight of a vapor or gas compared to the weight of an equal volume of air is an expression of the density of the vapor or gas. Materials lighter than air have vapor densities less than 1.0. Some examples are acetylene, methane, hydrogen. Materials heavier than air, such as propane, hydrogen sulfide, ethane, butane, chlorine, and sulfur dioxide, have vapor densities greater than 1.0. All vapors and gases will mix with air, but the lighter materials will tend to rise and dissipate unless confined. Heavier vapors and gases are likely to concentrate in low places—along or under floors, in sumps, sewers, and manholes, in trenches and ditches where they may create fire or health hazards.

Vapor Pressure

The pressure exerted by a saturated vapor above its own liquid in a closed container. Vapor pressures reported on MSDS are in millimeters of mercury (mmHg) at 68°F (20°C), unless stated otherwise. Some important facts to remember are that vapor pressure increases with temperature, and the lower the boiling point of a chemical, the higher its vapor pressure.

Examples of vapor pressures at 20°C in mm Hg:

Acetone	184
Mercury	0.002
Methylene Chloride	350
Phenol	0.36

Ventilation

See General Exhaust, Local Exhaust, and Mechanical Exhaust.

Vermiculite

Substance used as sorbent for spill control and cleanup.

Viscosity

The tendency of a fluid to resist internal flow without regard to its density.

Volatility

A measure of how quickly a substance forms a vapor at ordinary temperatures. Chemicals with higher vapor pressures and lower boiling points will have higher volatilities and will evaporate quicker.

Water-Reactive

A chemical that reacts with water to release a gas that is either flammable or toxic.