

## A

**Absolute Gravity** - Refers to the density or specific gravity of a fluid at standard conditions; for example, with gases, at 760 mm Hg (pressure) and 0 degrees Centigrade (temperature). Also known as absolute density.

**ACGIH** - American Conference of Governmental Industrial Hygienists: an organization of professional personnel in governmental agencies or educational institutions engaged in occupational safety and health programs. ACGIH develops and publishes recommended occupational exposure limits (see "TLV") for hundreds of chemical substances and physical agents.

**ACGIH.** American Conference of Governmental Industrial Hygienists, which develops and publishes recommended occupational exposure limits for hundreds of chemical substances and physical agents. See TLV.

**Acid** - A compound which dissociates in water to form an anion and a hydronium ion. An acid reacts with a base or alkali to form a salt and water. An acid turns litmus paper to red.

**Acid.** Any chemical with a low pH that in water solution can burn the skin or eyes. Acids turn litmus paper red and have pH values of 0 to 6.

**Action level.** Term used by OSHA and NIOSH to express the level of toxicant which requires medical surveillance, usually one half of the PEL.

**Activated Charcoal.** Charcoal is an amorphous form of carbon formed by burning wood, nutshells, animal bones, and other carbonaceous materials. Charcoal becomes activated by heating it with steam to 800-900°C. During this treatment, a porous, submicroscopic internal structure is formed which gives it an extensive internal surface area. Activated charcoal is commonly used as a gas or vapor adsorbent in air-purifying respirators and as a solid sorbent in air-sampling.

**Acute Effect** - An adverse effect on a human or animal, with symptoms developing rapidly and coming quickly to crisis. Usually occurs following a single exposure to a chemical. Also see "chronic effect."

**Acute Effect.** Adverse effect on a human or animal which has severe symptoms developing rapidly and coming quickly to a crisis. Also see "chronic effect."

**Acute Exposure** - a short-term exposure usually occurring at high concentration.

**Acute Toxicity** - The adverse (acute) effects resulting from a single dose of, or short exposure to, a substance.

**Adsorption.** The condensation of gases, liquids, or dissolved substances on the surfaces of solids.

**Aerosol** - An airborne solid or liquid substance.

**AIHA.** American Industrial Hygiene Association.

**Air.** The mixture of gases that surrounds the earth; its major components are as follows: 78.08% nitrogen, 20.95% oxygen, 0.03% carbon dioxide, and 0.93% argon. Water vapor (humidity) varies.

**Air-line respirator.** A respirator that is connected to a compressed breathing air source by a hose of small inside diameter. The air is delivered continuously or intermittently in a sufficient volume to meet the wearer's breathing requirements.

**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.

**Alkali** - A compound that has the ability to neutralize an acid to form a salt. A substance that is bitter in a water solution, and somewhat irritating or corrosive to the skin, eyes, and mucous membranes. This type of substance turns litmus paper to blue. Common strong alkalis are sodium and potassium hydroxide. Also known as "base."

**Allergic Reaction** - An abnormal physiologic response to chemical or physical stimuli by a sensitive person. Some dermatitis and asthma-like symptoms result from allergic reactions.

**Allergy** - An immune hypersensitivity reaction of body tissues to allergens that can affect the skin (urticaria), respiratory tract (asthma), gastrointestinal tract (vomiting and nausea) or produce a systemic circulatory response (anaphylactic response).

**Ambient environment** - The surrounding environment. This can refer to ambient air, ambient water, or ambient soil.

**Anemia** - A condition in which there is reduced or impaired red blood cells or hemoglobin resulting in an inadequate capacity of the blood to transport oxygen to body tissues.

**Anesthetic Effect** - The temporary loss of feeling induced by certain chemical agents, which reduce the ability to feel pain or other sensations. For example, hydrogen sulfide has an anesthetic effect on the olfactory nerve and thus reduces one's ability to smell the gas.

**Anoxia** - An insufficient (below normal) supply of oxygen in the body tissues.

**ANSI.** The American National Standards Institute is a voluntary membership organization (run with private funding) that develops consensus standards nationally for a wide variety of devices and procedures.

**Antidote** - a remedy or other agent to counteract the effects of a poison.

**APR** - Air purifying respirators. These respirators remove contaminants by passing breathing air through a purifying element. There are two subclasses; (1) particulate APRs which use a mechanical filter element and (2) gas and vapor APRs which utilize chemical sorbents contained in a cartridge or canister.

**Asphyxiant** - A vapor or gas that can cause unconsciousness or death by suffocation (lack of oxygen). "Simple asphyxiants" are those asphyxiants which are harmful to the body only when they become so concentrated that they reduce oxygen in the air (normally about 21 percent) to dangerous levels (19.5 percent or less). Asphyxiation is one of the principal potential hazards of working in confined spaces.

**Aspiration Hazard** - The danger of drawing a fluid into the lungs and causing an inflammatory response to occur.

**ASTM.** American Society for Testing and Materials.

**Atmosphere-supplying respirator.** A respirator that provides breathing air from a source independent of the surrounding atmosphere. There are two types: air-line and self-contained breathing apparatus.

**Atmospheric pressure.** The pressure exerted in all directions by the atmosphere. At sea level, mean atmospheric pressure is 29.92 inches Hg, 14.7 psi, or 407 inches w.g.

**Atomic Weight** - The average weight of an atom of an element, usually expressed relative to one atom of the carbon isotope taken as a weight of 12.

**Autoignition Temperature** - the minimum temperature required to initiate or cause self-sustained combustion, in the absence of a spark or flame.

## B

**Base** - See "Alkali."

**Benign.** Not malignant. A benign tumor is one which does not metastasize or invade tissue. Benign tumors may still be lethal, due to pressure on vital organs.

**Biodegradation** - Breakdown of a chemical into smaller less complex molecules by microorganisms in environmental media (e.g., soil, water, sediment).

**Biohazard.** A combination of the words biological hazard. Organisms or products of organisms that present a risk to humans.

**Blasting Agents** - DOT (the U.S. Department of Transportation) Hazard Classification applied to those substances which have probability of accidental initiation owing to explosion or probability of transition from deflagration to detonation.

**Body Burden** - The concentration of a substance which has accumulated in the body.

**Boiling point.** The temperature at which the vapor pressure of a liquid equals atmospheric pressure.

**Bone Marrow** - The tissue within the internal open space of bones (e.g., shaft of long bones) in which the blood-forming elements exist.

## C

**C, or Ceiling** - The maximum allowable human exposure limit for an airborne substance; not to be exceeded, even momentarily. Also see "PEL" and "TLV."

**C.A.S.** - Chemical Abstracts Service: an organization operated by the American Chemical Society that indexes information published in "Chemical Abstracts" and provides index guides by which information about particular substances may be located in the Abstracts. C.A.S. Numbers - Identify specific chemicals.

**Cancer** - An uncontrolled growth of abnormal cells, creating a tumor that can invade surrounding tissues and may spread (metastasis) to distant organs.

**Carbon monoxide.** A colorless, odorless toxic gas produced by any process that involves the incomplete combustion of carbon-containing substances. It is emitted through the exhaust of gasoline powered

vehicles.

**Carcinogen.** A substance or agent capable of causing or producing cancer in mammals, including humans. A chemical is considered to be a carcinogen if: a) it has been evaluated by the International Agency for Research on Cancer (IARC) and found to be a carcinogen or potential carcinogen; or b) 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 c) it is regulated by OSHA as a carcinogen

**Carcinogenicity** - The complex process whereby normal body cells are transformed to cancer cells.

**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.

**Ceiling limits (C).** An airborne concentration of a toxic substance in the work environment, which should never be exceeded.

**CERCLA.** Comprehensive Environmental Response, Compensation and Liability Act of 1980. Commonly known as "Superfund." (US EPA)

**CEV *Ceiling Exposure Value:*** The maximum airborne concentration of a biological or chemical agent to which a worker may be exposed at any time.

**CFR** - Code of Federal Regulations; the standards, regulations, and rules promulgated under U.S. law and published in the **Federal Register**.

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

**Chemical Asphyxiant** - Substances that prevent the body from receiving or using an adequate oxygen supply. Carbon monoxide and cyanide are examples.

**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 no more than ten times the TLV of the contaminant, if the contaminant has warning properties (odor or irritation) below the TLV.

**Chemical Family** - A group of compounds with related chemical and physical properties. Example: acetone, methyl ethyl ketone (MEK), and methyl isobutyl ketone (MIBK) are three members of the "ketone" family.

**Chemical Formula** - sometimes called the molecular formula, indicates the elements that make up a chemical.

**Chemical Name** - a proper scientific name for the active ingredient of a product.

**Chemical Pneumonitis** - Inflammation of the lungs, caused by accumulation of lung liquids following chemical irritation. See "aspiration hazard."

**CHEMTREC.** Chemical Transportation Emergency Center. Public service of the Chemical Manufacturers Association that provides immediate advice for those at the scene of hazardous materials emergencies. CHEMTREC has a 24-hour toll-free telephone number (800-424-9300) to help respond to chemical transportation emergencies

**Chronic Dose** - Substance administered or received gradually over a long period of time (months to

years).

**Chronic Effect** - An adverse effect on a human or animal in which symptoms develop slowly following repeated, normally low level exposures to a chemical over a long period of time, or recur frequently.

**Chronic Health Effects** - an effect that appears a long time after exposure.

**Chronic Toxicity** - Adverse (chronic) effects resulting from repeated doses of, or exposures to, a substance over a prolonged period of time.

**CNS** - Central nervous system, composed of the brain and spinal cord.

**CNS Depression** - Lowered sensitivity level or loss of sensation in the central nervous system, usually due to exposure to a particular chemical hazard or anesthetic.

**CO<sub>2</sub>** - Carbon dioxide; a colorless, nonflammable, and relatively nontoxic gas. Is produced by the combustion and decomposition of organic substances and as a by-product of many chemical processes. A simple asphyxiant at high concentrations.

**Combustible** - A substance capable of fueling a fire. Also a term used to classify certain liquids on the basis of their flash points. Also see "flammable."

**Combustible Liquid** - a liquid which has a flash point above 37.8 C.

**Combustible liquid.** Combustible liquids are those having a flash point at or above 37.8°C (100°F).

**Concentration** - The amount of a substance in a stated unit of a mixture or solution. Example: 2 parts per million hydrogen sulfide in air, or a 50 percent caustic solution.

**Concentration.** The amount of a given substance in a stated unit of measure. Common methods of stating concentration are percent by weight or by volume, weight per unit volume, normality, etc.

**Contaminated** - The presence of any extraneous material that may render a substance, a material (such as clothing), or a surface (such as skin) impure.

**Controlled Products** - Under the Controlled Products Regulation, a controlled product is defined as a material, product or substance which is imported or sold in Canada and meets the criteria for one or more of the following classes: -Class A - Compressed Gas

Class B - Flammable and Combustible Material

Class C - Oxidizing Material

Class D - Poisonous and Infectious Material

Class E - Corrosive Material

Class F - Dangerously Reactive Material

**Corneal/Conjunctival Burns** - Burns to the transparent membrane covering the eyeball and lining the eyelids.

**Corrosive Material** - a material that can attack (*corrode*) metals or cause permanent damage to human tissues such as skin and eyes on contact. As defined by the Department of Transportation, a corrosive material is a liquid or solid that causes visible destruction or irreversible alterations in human skin (tissue) at the site of contact; or, in case of leakage from its packaging, a liquid that has a severe corrosion rate on steel.

**Corrosive.** A substance that causes visible destruction or permanent changes in human skin tissue at the site of contact

**Cutaneous.** Pertaining to or affecting the skin.

## D

**Dangerously Reactive Materials** - materials that may undergo vigorous condensation, decomposition or polymerization. They may react violently under conditions of shock or increase in pressure or temperature. They may also react vigorously with water or water vapor to release a toxic gas.

**Decomposition** - the breakdown of a substance, often due to heat, decay or other effect, with the release of other compounds such as vapors or gases that may be flammable or toxic.

**Degrees Celsius (Centigrade).** The temperature on a scale in which the freezing point of water is 0°C and the boiling point is 100°C. To convert to Degrees Fahrenheit, use the following formula: °F = (°C x 1.8) + 32

**Degrees Fahrenheit.** The temperature on a scale in which the boiling point of water is 212°F and the freezing point is 32°F.

**Dehydrating Agent** - A substance capable of depleting body fluids or removing moisture from another material.

**Density.** The mass per unit volume of a substance. For example, lead is much more dense than aluminum.

**Dermal** - Of or pertaining to the skin.

**Dermal Sensitization** - An exposure of an agent to skin which results in an immune response. Subsequent exposure will often induce a much stronger (secondary) immune response.

**Dermal Toxicity** - Adverse toxic effects resulting from skin exposure to a substance.

**Dermatitis.** Inflammation of the skin from any cause.

**Dermatosis.** A broader term than dermatitis; it includes any cutaneous abnormality, thus encompassing folliculitis, acne, pigmentary changes, and nodules and tumors.

**Dilution Ventilation** - dilution of contaminated air with uncontaminated air in a general area, room or building for the purposes of health hazard or nuisance control, and/or for heating and cooling.

**DOL.** US Department of Labor. OSHA and MSHA are part of the DOL.

**Dose-response relationship.** Correlation between the amount of exposure to an agent or toxic chemical and the resulting effect on the body.

**DOT** - U.S. Department of Transportation: it regulates transportation of chemicals and other hazardous and nonhazardous substances.

**DOT.** US Department of Transportation.

**Dry Chemical** - A powdered fire-extinguishing agent specially treated so that it will flow properly. It may be used on fires involving flammable and combustible materials (class B and C fires). It extinguishes fires by stopping the progressive chemical reaction that take place during a fire.

**Dusts** - Solid particles generated by some mechanical process, such as crushing, grinding, abrasion, or blasting.

**Dusts.** Solid particles generated by handling, crushing, grinding, rapid impact, detonation, and decrepitation of organic or inorganic materials, such as rock, ore, metal, coal, wood and grain. Dusts do not tend to flocculate, except under electrostatic forces; they do not diffuse in air but settle under the influence of gravity.

**Dyspnea.** Shortness of breath, difficult or labored breathing.

**Effects of Overexposure** - Clinical signs and symptoms that may occur or be experienced when one has been overexposed to concentrations of a particular substance above established exposure limits.

## E

**Emergency and First-Aid Procedures** - This refers to the recommended first-aid procedures, based on the inherent toxicity of the product and the route of exposure to the product.

**EPA.** US Environmental Protection Agency.

**Evaporation Rate** - the rate at which a liquid changes to vapor at normal room temperature.

**Evaporation rate.** The ratio of the time required to evaporate a measured volume of a liquid to the time required to evaporate the same volume of a reference liquid (butyl acetate, ethyl ether) under ideal test conditions. The higher the ratio, the slower the evaporation rate. The evaporation rate can be useful in evaluating the health and fire hazards of a material.

**Evaporation.** The process by which a liquid is changed into the vapor state.

**Explosion Hazard** - A hazard that may result from exposure of a substance to heat or flame.

**Explosive** - Any chemical compound, mixture, or device, the primary or common purpose of which is to function by explosion, that is, with instantaneous release of gas and heat (energy). Also, any material having the properties of an explosive.

**Explosive (Class A)** - Department of Transportation hazard classification for those substances that pose a detonating or otherwise maximum explosion hazard.

**Explosive (Class B)** - Department of Transportation hazard classification for those substances that function by rapid combustion rather than by detonation. Includes some explosive devices such as special fireworks, flash powders.

**Explosive (Flammable) Limits** - the lower explosive (*flammable*) limit (*LEL*) is the lowest concentration of vapor in air which will burn or explode upon contact with a source of ignition. The upper explosive (*flammable*) limit (*UEL*) is the highest concentration of vapor in air which will burn or explode upon contact with a source of ignition.

**Exposure Limits**- established concentrations which, if not exceeded, will not generally cause adverse effects to the worker exposed. Exposure limits differ in name and meaning depending on origin. For example:-

**Extinguishing Agents (Methods)** - Agent(s) suitable for controlling or putting out a fire, when properly applied.

**Eye Protection** - Recommended safety glasses, shields, goggles, and other headgear to be used when handling the material - to protect against accidental eye contact.

## F

**Fahrenheit** - (F) The thermometric scale in which, under standard atmospheric pressure, the boiling point of water is 212 degrees above the zero of the scale; the freezing point of water is at 32 degrees above zero of the scale.

**Federal Register.** Publication of US government documents officially promulgated under the law, documents whose validity depends upon such publication. It is published on each day following a government working day. It is, in effect, the daily supplement to the Code of Federal Regulations, CFR.

**Fetal** - Of or pertaining to a fetus, the unborn young of a person or animal while still in the uterus.

**Fibrosis** - A condition marked by the abnormal increase in the amount of fibrous connective tissue in an organ or tissue.

**Fire Point** - The lowest temperature at which a material can evolve vapors fast enough to support continuous combustion.

**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 material that is easily ignited and burns with extreme rapidity.

**Flammable Aerosol** - An aerosol that yields a flame projection for more than 18" at full valve opening, or a flash back (a flame extending back to the valve) at any degree of valve opening.

**Flammable Limits** - "See Explosive Limits".

Flammable Substance - one that will readily catch fire and continue to burn in air if exposed to a source of ignition.

1. Flammable Aerosol- a material that is packaged in an aerosol container which can release a flammable material.
2. Flammable Gas- a gas which can readily catch fire and continue to burn.
3. Flammable Liquid - a material that gives off a vapor which can readily catch fire and continue to burn. A flammable liquid has a flashpoint below 37.8 C.
4. Flammable Solid- a material which can readily catch fire and continue to burn vigorously and persistently. This may occur from friction, absorbing moisture, from spontaneous chemical change, or by retaining heat from manufacturing or processing.
5. Reactive Flammable Material- a material which is a dangerous fire risk because it can react readily with air or water.

**Flammable liquid.** Any liquid having a flash point below 37.8°C (100°F), except any mixture having components with flashpoints of 100°F or higher, the total of which make up 99 percent or more of the total volume of the mixture.

**Flammable range.** The difference between the lower and upper flammable limits, expressed in terms of percentage of vapor or gas in air by volume, and is also often referred to as the "explosive range."



**Flash point.** The minimum temperature at which a liquid gives off vapor within a test vessel in sufficient concentration to form an ignitable mixture with air near the surface of the liquid. Two tests are used - open cup and closed cup.

**Flashpoint** - the lowest temperature of a liquid at which it gives off enough vapor to form an ignitable mixture of vapor and air immediately above the liquid surface.

**Freezing Point** - the temperature at which a liquid becomes a solid, at normal atmospheric pressure.

**Fume.** Airborne particulate formed by the evaporation of solid materials, e.g. metal fume emitted during welding. Usually less than one micron in diameter.

**Fumes** - Fumes are formed by processing, such as combustion, sublimation, or condensation. The term is generally applied to the metal oxides of such metals as zinc, magnesium, or lead.

## G

**Gage pressure.** Pressure measured with respect to atmospheric pressure.

**Gas.** A state of matter in which the material has very low density and viscosity; can expand and contract greatly in response to changes in temperature and pressure; easily diffuses into other gases; readily and uniformly distributes itself throughout any container. A gas can be changed to the liquid or solid state only by the combined effect of increased pressure and decreased temperature. Examples include sulfur dioxide, ozone, and carbon monoxide.

**General Exhaust** - Removal of contaminated air from a large area by use of an air-circulation or exchange system. See also "local exhaust."

**Gram (g).** A metric unit of weight. One ounce equals 28.4 grams.

## H

**Hazard-** the potential for harmful effects.

**Hazardous Combustion Products** - chemicals which may be formed when a material burns. These chemicals may be flammable, toxic or have other hazards.

**Hazardous Ingredient** - Under the Hazardous Products Act, a chemical must be listed in the Hazardous Ingredients section of a MSDS if:-it meets the criteria for a controlled product;  
it is on the Ingredient Disclosure List;  
there is no toxicological information available; or  
the supplier has reason to believe it might be hazardous.

**Hazardous Polymerization** - Polymerization is a process of forming a polymer by combining large numbers of chemical units or monomers into long chains (*polyethylene from ethylene or polystyrene from styrene*). Uncontrolled polymerization can be extremely hazardous. Some polymerization processes can release considerable heat or can be explosive.

**HEPA filter.** (High Efficiency Particulate Air Filter) A disposable, extended medium, dry type filter with a particle removal efficiency of no less than 99.97 percent for 0.3m particles.

**Highly Toxic** - A chemical that: has a median lethal dose (LD50) of 50 milligrams or less per kilogram of body weight. Has an LD50 of 200 milligrams per kilogram of body weight when administered by continuous contact for 24 hours. has a median lethal concentration (LC50) in air of 200 ppm by volume of gas or vapor, or 2 milligrams per liter or less of mists, fumes or dust, administered by continuous inhalation for one hour.

**IARC.** International Agency for Research on Cancer.

**IDLH.** Immediately Dangerous to Life and Health. An atmospheric concentration of any toxic, corrosive or asphyxiant substance that poses an immediate threat to life or would cause irreversible or delayed adverse health effects or would interfere with an individual's ability to escape from a dangerous atmosphere.

**Ignitable** - A solid, liquid, or compressed gas that exhibits a "characteristic of ignitability," as defined by the Resource Conservation and Recovery Act (RCRA), and may be regulated (by the Environmental Protection Agency) as a hazardous waste.

**Ignition source.** Anything that provides heat, spark or flame sufficient to cause combustion/explosion.

**Ignition temperature.** The minimum temperature to initiate or cause self-sustained combustion in the absence of any source of ignition.

**Impervious.** A material that does not allow another substance to pass through or penetrate it. Frequently used to describe gloves.

**Incendiary Spark** - A small, hot glowing particle of a substance thrown out by a body in combustion, or remaining when combustion is nearly complete. This particle is capable of igniting other combustible or flammable materials, gases, vapors, or dusts.

**Inches of mercury column.** A unit used in measuring pressures. One inch of mercury column equals a pressure of 1.66 kPa (0.491 psi).

**Inches of water column.** A unit used in measuring pressures. One inch of water column equals a pressure of 0.25 kPa (0.036 psi).

**Incompatible** - Materials that could cause dangerous reactions from direct contact with one another are described as incompatible.

**Incompatible.** Materials which could cause dangerous reactions from direct contact with one another.

**Ingestion** - means taking a material into the body by mouth (*swallowing*).

**Ingestion** - Taking a substance into the body (stomach) through the mouth; swallowing.

**Ingestion.** Taking in by the mouth.

**Inhalation** - means taking a material into the body by breathing it in.

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

**Insoluble.** Incapable of being dissolved in a liquid.

**Irritant** - some sort of aggravation of whatever tissue the material comes in contact with.

**Irritant.** A chemical, which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact.

## L

**Latent period.** The time that elapses between exposure and the first manifestation of damage.

**LC<sub>50</sub>** - the concentration of a material in air which causes death in 50% of a group of test animals. The material is inhaled over a set period of time, usually 4 hrs. LC stands for lethal concentration.

**LC<sub>50</sub>.** Lethal concentration that will kill 50 percent of the test animals within a specified time. See LD<sub>50</sub>.

**LD<sub>50</sub>** - the weight of material which causes the death in 50% of a group of test animals. It is usually expressed in weight of material per weight of test animal. LD stands for lethal dose.

**LD<sub>50</sub>.** The dose required to produce the death in 50 percent of the exposed species within a specified time.

**Liter (L).** A measure of capacity - one quart equals 0.9L.

**Local Exhaust** - A system for capturing and removing airborne contaminants (gases, particulates) at the point at which they are released. Not to be confused with general exhaust.

**Lower explosive limit (LEL).** The lower limit of flammability of a gas or vapor at ordinary ambient temperatures expressed in percent of the gas or vapor in air by volume. This limit is assumed constant for temperatures up to 120°C (250°F). Above this, it should be decreased by a factor of 0.7 because explosibility increases with higher temperatures.

## M

**Malignant.** As applied to a tumor. Cancerous and capable of undergoing metastasis, or invasion of surrounding tissue.

**Material Causing Immediate and Serious Toxic Effects** - classified under "Poisonous and Infectious Material" as toxic or very toxic based on information such as the LD<sub>50</sub> or LC<sub>50</sub>.

**Metastasis.** Transfer of the causal agent (cell or microorganism) of a disease from a primary focus to a distant one through the blood or lymphatic vessels. Also, spread of malignancy from site of primary cancer to secondary sites.

**Meter.** A metric unit of length, equal to about 39 inches.

**mg/kg - Milligrams per kilogram.** An expression of toxicological dose. See "g/kg."

**mg/m<sup>3</sup>** - Milligrams per cubic meter of air; a unit for measuring concentrations of particulates in the air (a weight per unit volume).

**Micron (micrometer, m).** A unit of length equal to one millionth of a meter, approximately 1/25,000 of an inch.

**Milligram (mg).** A unit of weight in the metric system. One thousand milligrams equals one gram.

**Milligrams per cubic meter (mg/m<sup>3</sup>).** Unit used to measure air concentrations of dusts, gases, mists, and fumes.

**Milliliter (mL).** A metric unit used to measure volume. One milliliter equals one cubic centimeter.

**Millimeter of mercury (mmHg).** The unit of pressure equal to the pressure exerted by a column of liquid mercury one millimeter high at a standard temperature.

**Mists.** 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 by splashing, foaming, or atomizing. Mist is formed when a finely divided liquid is suspended in air.

**Molecular Formula** - A chemical formula that shows the number of atoms of each element in a molecule of a compound.

**MSDS.** Material Safety Data Sheet.

**MSHA.** Mine Safety and Health Administration, US Department of Labor.

**Mucous Membrane** - Mucous-secreting membrane lining the hollow organs of the body, for example, the nose, mouth, stomach, intestines, bronchial tubes, and urinary tract.

**Mucous membranes.** Lining of the hollow organs of the body, notably the nose, mouth, stomach, intestines, bronchial tubes, and urinary tract.

**Mutagen** - an agent that affects the genes or cells of the exposed people in such a way that it may cause cancer in the exposed individual or an undesirable mutation to occur in some later generation.



**NA Number** - See "UN number".

**Nasal Cavity** - Either of the pair of cavities in the nose separated by a septum, the thin wall between the two halves of the nose.

**Neutralize** - To render chemically neutral or harmless; neither acid nor base; to counteract the activity or effect of. The addition of a base (sodium hydroxide) to an acid hydrochloric acid) results in water and a salt (sodium chloride); thus the acid has been "neutralized" or rendered harmless.

**NFPA** - National Fire Protection Association. Founded in 1896, it is an independent, voluntary membership, nonprofit organization dedicated to the safeguarding of people and their environment from destructive fire using scientific and engineering techniques and education. The NFPA publishes 16 volumes of codes known as the National Fire Codes

**NIOSH.** The National Institute for Occupational Safety and Health is a federal agency. It conducts research on health and safety concerns, tests and certifies respirators, and trains occupational health and safety professionals.

**Noncombustible** - A material that will not ignite, burn, support combustion, or release flammable vapors when subjected to heat or fire

**Non-Flammable Gas** - DOT hazard classification applied to any compressed gas other than a flammable compressed gas

**NTP.** National Toxicology Program. The NTP publishes an Annual Report on carcinogens.

**Nuisance dust.** Have a long history of little adverse effect on the lungs and do not produce significant organic disease or toxic effect when exposures are kept under reasonable control.



**Odor** - Odor is described in comparison to common, familiar "smells." Odor threshold refers to the concentration required in the air before vapors are detected or recognized.

**Odor Threshold** - the airborne concentration, usually in part per million, at which an odor becomes noticeable.

**Oil-Impervious Garments** - Clothing that does not allow the entrance or passage of oil to the skin, as with oil-impervious (protective) gloves

**Olfactory** - Relating to the sense of smell. The olfactory region of the nasal mucosa is the area that detects odors and transmits information to the brain via the olfactory nerves.

**Oral Toxicity** - Adverse effects that result from taking a substance into the body via the mouth.

**ORM-B** - A Department of Transportation hazard classification applied to a material (including a solid when wet with water) capable of causing significant damage to a transport vehicle or vessel by leaking during transportation.

**ORM-C** - A Department of Transportation hazard classification applied to a material that has other inherent characteristics not described as an ORM-A or ORM-B, but that make it unsuitable for shipment unless properly identified and prepared for transportation.

**ORM-E** - DOT hazard classification applied to a material which is not included in any other hazard class but which is subject to the requirements of the DOT regulations. Materials in this class include "Hazardous Waste" and other hazardous materials.

**OSHA.** US Occupational Safety and Health Administration, US Department of Labor.

**Oxidizer** - Department of Transportation defines an oxidizer or oxidizing materials as a substance that yields oxygen readily to stimulate the combustion (oxidation) of organic matter. Chlorate (ClO<sub>3</sub>) permanganate (MnO<sub>4</sub>), and nitrate (NO<sub>3</sub>) compounds are examples of oxidizers.

**Oxidizer.** A substance that gives up oxygen readily. Presence of an oxidizer increases the fire hazard.

**OXY** - NFPA special hazard rating for oxidizer.

**Oxygen deficiency.** That concentration of oxygen by volume below which atmosphere supplying respiratory protection must be provided. It exists in atmospheres where the percentage of oxygen by volume is less than 19.5 percent oxygen.

**Oxygen-enriched atmosphere.** An atmosphere containing more than 23.5 percent oxygen by volume.



**Particulate** - Airborne solids or liquids. Dusts, fumes, smokes, mists, and fogs are all examples of particulates.

**Particulate matter.** A suspension of fine solid or liquid particles in air, such as dust, fog, fume, mist, smoke or sprays. Particulate matter suspended in air is commonly known as an aerosol.

**PEL.** Permissible exposure limit. An exposure limit that is published and enforced by OSHA as a legal standard.

**Permissible Exposure Limits (PEL)** - legal limits in the U.S.A. set by the Occupational Safety and Health Administration (*OSHA*).

**Personal protective equipment (PPE).** Devices worn by the worker to protect against hazards in the environment. Respirators, gloves, and hearing protectors are examples.

**pH.** Means used to express the degree of acidity or alkalinity of a solution with neutrality indicated as seven.

**Polymer** - a natural or man-made material formed by combining units, called monomers, into long chains.

**Polymerization** - a process of forming a polymer by combining large numbers of chemical units or monomers into long chains.

**Polymerization.** A chemical reaction in which two or more small molecules (monomers) combine to form larger molecules (polymers) that contain repeating structural units of the original molecules. A hazardous polymerization is the above reaction, with an uncontrolled release of energy.

**ppm.** Parts per million parts of air by volume of vapor or gas or other contaminant. Used to measure air concentrations of vapors and gases.

**psi.** A pound per square inch (for MSDS purposes) 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 absolute; that is, gauge pressure plus sea level atmospheric pressure, or psig plus approximately 14.7 pounds per square inch).

## R

**RCRA.** Resource Conservation and Recovery Act of 1976. (US Environmental Protection Agency)

**Reactivity** - tendency to participate in chemical reactions.

**Reactivity (chemical).** A substance's susceptibility to undergo a chemical reaction or change that may result in dangerous side effects, such as an explosion, burning, and corrosive or toxic emissions.

**Respirable size particulates.** Particulates in the size range that permits them to penetrate deep into the lungs upon inhalation.

**Respirator (approved).** A device which has met the requirements of 30 CFR Part 11 and is designed to protect the wearer from inhalation of harmful atmospheres and has been approved by the National Institute for Occupational Safety and Health (NIOSH) and the Mine Safety and Health Administration (MSHA).

**Respiratory system.** Consists of (in descending order) - the nose, mouth, nasal passages, nasal pharynx, pharynx, larynx, trachea, bronchi, bronchioles, air sacs (alveoli) of the lungs, and muscles of respiration.

**Route of entry.** The path by which chemicals can enter the body. There are three main routes of entry: inhalation, ingestion, and skin absorption.

## S

**SARA.** Superfund Amendments and Reauthorization Act of 1986. (US Environmental Protection Agency)

**SCBA.** Self-contained breathing apparatus.

**Sensitization** - the development, over time, of an allergic reaction to a chemical.

**Sensitizer.** A substance which on first exposure causes little or no reaction but which on repeated exposure may cause a marked response not necessarily limited to the contact site. Skin sensitization is the most common form of sensitization in the industrial setting.

**Short-term exposure limits (STEL).** ACGIH-recommended exposure limit. Maximum concentration to which workers can be exposed for a short period of time (15 minutes) for only four times throughout the day with at least one hour between exposures.

**Skin.** A notation (sometimes used with PEL or TLV exposure data) which indicates that the stated substance may be absorbed by the skin, mucous membranes, and eyes -- either airborne or by direct contact -- and that this additional exposure must be considered part of the total exposure to avoid exceeding the PEL or TLV for that substance.

**Solubility in water.** A term expressing the percentage of a material (by weight) that will dissolve in water at ambient temperature. Solubility information can be useful in determining spill cleanup methods and re-extinguishing agents and methods for a material.

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

**Sorbent.** (1) A material that removes toxic gases and vapors from air inhaled through a canister or cartridge. (2) Material used to collect gases and vapors during air-sampling.

**Specific gravity.** The ratio of the mass of a unit volume of a substance to the mass of the same volume of a standard substance at a standard temperature. Water at 4°C (39.2°F) is the standard usually referred to for liquids; for gases, dry air (at the same temperature and pressure as the gas) is often taken as the standard substance. See Density.

**Stability.** An expression of 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 which may cause instability (dangerous change) are stated. Examples are temperatures above 150°F, shock from dropping.

**STEV Short Term Exposure Value:** - The maximum airborne concentration of a chemical or biological agent to which a worker may be exposed in any 15 minute period, provided the TWAEV is not exceeded.

**Synergism.** Cooperative action of substances whose total effect is greater than the sum of their separate effects.

**Systemic.** Spread throughout the body, affecting all body systems and organs, not localized in one spot or area

## T

**Teratogen** - agents or compounds that a pregnant woman takes into her body that generate defects in the fetus.

**Threshold.** The lowest dose or exposure to a chemical at which a specific effect is observed.

**Time-weighted average concentration (TWA).** Refers to concentrations of airborne toxic materials which have been weighted for certain time duration, usually 8 hours.

**TLV** - See "exposure Limits".

**TLV. Threshold Limit Value.** A time-weighted average concentration under which most people can work consistently for 8 hours a day, day after day, with no harmful effects. A table of these values and accompanying precautions is published annually by the American Conference of Governmental Industrial Hygienists.

**TLV-STEL *Threshold Limit Value - Short Term Exposure Limit:*** a 15 minute time-weighted average exposure which should not be exceeded at any time during a work day even if the 8 hr TWA is within the TLV. Exposures at the STEL should not be repeated more than 4 times a day and there should be at least 60 minutes between successive exposures at the STEL.

**TLV-TWA *Threshold Limit Value - Time-Weighted Average:*** The time-weighted average concentration for a normal 8 hour work day and a 40 hour work week, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.

**Toxicity.** A relative property of a chemical agent and refers to a harmful effect on some biologic mechanism and the conditions under which this effect occurs.

**Trade Name** - the name under which a product is commercially known.

## U

**UEL (Upper Explosive Limits)** - See "Explosive Limits".

**UN Number** - a four digit number assigned to a potentially hazardous material or class of materials. UN (*United Nations*) numbers are internationally recognized and are used by fire fighter and other emergency response personnel for identification of materials during transportation emergencies. NA (*North American*) numbers are assigned by Transport Canada and the US Department of Transport to materials they consider hazardous and to which a UN number has not been assigned.

**Upper explosive limit (UEL).** The highest concentration (expressed in percent vapor or gas in the air by volume) of a substance that will burn or explode when an ignition source is present.

## V

**Vapor** - a gaseous form of a material which is normally solid or liquid at room temperature and pressure.

**Vapor Density** - the density of a vapor compared to the density of an equal amount of air.

**Vapor Pressure** - the pressure of a vapor in equilibrium with its liquid or solid form.

**Vapor pressure.** Pressure (measured in pounds per square inch absolute - psia) exerted by a vapor. If a vapor is kept in confinement over its liquid so that the vapor can accumulate above the liquid (the temperature being held constant), the vapor pressure approaches a fixed limit called the maximum (or saturated) vapor pressure, dependent only on the temperature and the liquid.



**Vapors.** The gaseous form of substances that are normally in the solid or liquid state (at room temperature and pressure). The vapor can be changed back to the solid or liquid state either by increasing the pressure or decreasing the temperature alone. Vapors also diffuse. Evaporation is the process by which a liquid is changed into the vapor state and mixed with the surrounding air. Solvents with low boiling points will volatilize readily. Examples include benzene, methyl alcohol, mercury, and toluene.

**Ventilation** - the movement of air.

**VIDOL.** US Virgin Islands Department of Labor. Division of Occupational Safety and Health, Division of Labor Relations, Division of Workers' Compensation, Division of Job Service, Division of Training, Division of Unemployment Insurance, Division of Administration, Bureau of Labor Statistics, Hearings and Appeals Information Technology Unit, and Business and Special Services Unit are part of the VIDOL.

**VIDOSH** Virgin Islands Division of Occupational Safety and Health ensures as much as practicable, a safe and healthful working environment for all public sector employers and employees of the U.S. Virgin Islands.

**Viscosity.** The property of a fluid that resists internal flow by releasing counteracting forces.

**Volatility** - the ability of a material to evaporate.

**Volatility.** The tendency or ability of a liquid to vaporize. Such liquids as alcohol and gasoline, because of their well-known tendency to evaporate rapidly, are called volatile liquids.



**Water column.** A unit used in measuring pressure. See also Inches of water column.