

Environmental Health and Safety – Glossary of Terms

ACGIH Organization

The American Conference of Governmental Industrial Hygienists is a voluntary membership organization of professional industrial hygiene personnel in government or educational institutions.

See Threshold Limit Value (TLV) and ACGIH Carcinogens.

ACGIH Carcinogens

American Conference of Governmental Industrial Hygienists (ACGIH) is an organization of professional personnel in governmental agencies or educational institutions who are employed in occupational safety and health programs. ACGIH uses five categories to convey the difference in research results between carcinogens.

- **Status A1** - designates a confirmed human carcinogen
- **Status A2** - designates a suspected human carcinogen
- **Status A3** - designates an animal carcinogen
- **Status A4** - designates not classifiable as a human carcinogen
- **Status A5** - designates not suspected as a human carcinogen

Acute

Severe, often dangerous conditions in which relatively rapid changes occur.

Acute Exposure

An intense exposure over a relatively short period of time.

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.

Asphyxiant

A chemical (gas or vapor) that can cause death or unconsciousness by suffocation. Simple asphyxiants such as nitrogen either use up or displace oxygen in the air. They become especially dangerous in confined or enclosed spaces. Chemical asphyxiants, such as carbon monoxide and hydrogen sulfide, interfere with the body's ability to absorb or transport oxygen over the tissues.

Boiling Point

The temperature at which the vapor pressure of a liquid equals atmospheric pressure or at which the liquid changes to a vapor. The boiling point is usually expressed in degrees Fahrenheit. If a flammable material has a low boiling point, it indicates a special fire hazard.

"C" or Ceiling

A description usually used with a published exposure limit. It refers to the concentration that should not be exceeded, even for an instant. It may be written TLV-C or Threshold Limit Value - Ceiling.

See also THRESHOLD LIMIT VALUE.

CAA (Clean Air Act)

The Clean Air Act was passed in 1970 to regulate air emissions from area, stationary, and mobile sources. It authorized the EPA to create National Ambient Air Quality Standards (NAAQS) to protect the public health and environment by limiting the level of hazardous pollutants in the air. In 1977 the act was amended to extend the dates for states to comply with these levels and expand the law to include new source performance standards, hazardous air pollutant standards, motor vehicle standards, fuel provisions, and aircraft emissions. Major amendments were made in 1990 to more specifically address the problems of acid rain, ground-level ozone, stratospheric ozone depletion, and air toxins. The new law strengthened measures for attainment and maintenance of air quality standards. It mandated stricter vehicle emission standards and the regulation of toxic air pollutants by the development of "maximum achievable control technology." A new permit system affecting

major sources was called for along with the progressive phase-out of the five most destructive ozone-depleting chemicals and most chlorofluorocarbons (CFCs) and halons.

CAA 112(b) Hazardous Air Pollutants (NESHAP) - Section 112 of the Act requires that the EPA establish regulations setting emission standards for categories of sources of HAP (Hazardous Air Pollutants) emissions. Section 112(b) lists the HAPs that are regulated under the Clean Air Act, designating each chemical or class of chemicals as an Organic HAP (OHAP), Volatile (VHAP), or a Synthetic Organic Chemical Manufacturing Industry (SOCMI) substance.

- **CAA 112(b) OHAP- Organic Hazardous Air Pollutants** - Organic (carbon-based) chemicals that have been shown to be hazardous air pollutants. Table 2 of Subpart F of 40 CFR 63 lists those chemicals designated as OHAPs.
- **CAA 112(b) VHAP - Volatile Hazardous Air Pollutants** - Volatile chemicals, both organic and inorganic that have been determined to be HAPs.
- **CAA 112(b) SOCMI - Synthetic Organic Chemical Manufacturing Industry** - This rule regulates the emissions of organic chemicals identified in the CAA's list of hazardous air pollutants at both new and existing SOCMI sources and from equipment leaks at sources in certain polymer and resin production processes, and certain miscellaneous processes. EPA's final rule is referred to as the hazardous organic NESHAP or the HON rule

CAA 112(r) Accidental Release Prevention (RMP) - Section 112(r) requires a Risk Management Program (RMP) if a chemical listed is emitted above the threshold quantity. Any owner or operator of a stationary source with processes that exceed these limits must develop an RMP and register the program with the implementing agency.

- **CAA 112(r) Threshold Quantity (lbs)** - Regulated toxic and flammable substances covered under Section 112(r) are included in this list as well as explosives listed by DOT as Division 1.1. The threshold quantity for these explosives is 5,000 pounds.

CAA 602 Ozone Depleters - Under section 602 of the Clean Air Act, the EPA was required to list in the Federal Register the Global Warming Potentials for ozone-depleting substances. That list was first published on January 19, 1996. Section 602 lists all possible substances that will be phased out of use in the future. Class One substances have an ozone-depleting potential of 0.2 or greater. Class Two substances include all hydrofluorocarbons and are numbered according to the ASHRAE Standard 34 Scheme. Ozone Depleting Potential is defined as the ratio of calculated ozone column change for each mass unit of a gas emitted into the atmosphere relative to the calculated depletion for the reference gas CFC-11 (ODP = 1.0).

Cal-OSHA Carcinogens

Cal-OSHA carcinogens include all those chemicals determined by the Cal-OSHA Standards Board to cause cancer, supplemental to federal standards. The board sets up regulations for workplace information and safety practices regarding carcinogenic substances.

CALARP

The California Accidental Release Prevention Program, is a merge of both state and federal programs for the accidental release protection of toxic and flammable substances. The goal is to eliminate the need for two separate chemical risk management programs. The program consists of two phases: phase one consisted of incorporating federal accidental release program emergency regulations and incorporating them into the state regulations while phase two consists of table of substances and threshold amounts. Any business that exceeds a threshold quantity of a regulated substance is subject to CALARP.

Canadian Exposure Limits

See Time Waited Average – TWA.

CANUTEC

CANUTEC stands for Canadian Transport Emergency Centre, which is part of the Transport Dangerous Goods Directorate of Transport Canada. CANUTEC provides information and communications assistance in case of

transportation emergencies involving dangerous goods. It is accessible in Canada by telephone, 24 hours a day.

Carcinogen

A substance or physical agent that may cause cancer in humans or animals.

CAS Number

Identifies a particular chemical by the Chemical Abstracts Service, a service of the American Chemical Society that indexes and compiles abstracts of worldwide chemical literature called "Chemical Abstracts".

CC

Cubic centimeter, a volumetric measurement that is also equal to one milliliter (mL).

CCOHS

CCOHS stands for the Canadian Centre for Occupational Health and Safety. CCOHS provides an occupational health and safety information service through answers to inquiries, publications and a computerized information service. The computerized information is available both on the internet and on CD-ROM.

CERCLA (The Comprehensive Environmental Response, Compensation, and Liability Act)

CERCLA was enacted in 1980 in order to clean up hazardous waste sites and distribute the costs of the clean-up among the parties who generated and handled the hazardous substances at those sites. CERCLA authorized the EPA to clean up released hazardous substances and respond to threats of releases to the environment. In order to implement this power, CERCLA created a National Priority List (NPL) which ranks sites according to their potential hazard to the surrounding environment. Under CERCLA, the EPA was authorized to collect the cost of cleaning up the hazardous substances from the party determined responsible for the release. If no responsible party could be found, a \$1.6 billion Superfund was created to pay for the clean-up of uncontrolled or abandoned hazardous waste sites as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment. The Act requires notification of a release of a listed hazardous substance over the reportable quantity (RQ) to the National Response Center (NRC). It also authorized penalties, such as fines or imprisonment for parties found guilty of improper disposal, failure to report a release, and other violations.

- **Reportable Quantity (lbs)** - The minimum quantity for which a listed chemical must be reported if it is spilled or released in a 24-hour period.

Chemical

An element or a compound, produced by chemical reactions on a large scale for direct industrial and consumer use, or for reaction with other chemicals.

Chemical Reaction

A change in the arrangement of atoms or molecules to yield substances of different composition and properties. See also REACTIVITY.

CHP

Chemical Hygiene Plan

Chronic

Persistent, prolonged or repeated conditions.

Chronic Exposure

A prolonged exposure occurring over a period of days, weeks or years.

Clean Water Act (CWA)

Also known as the Federal Water Pollution Control Act, the Clean Water Act was originally enacted in 1948. It was substantially revised in 1972 into its current form. The focus of the Clean Water Act is the "restoration and maintenance of chemical, physical, and biological integrity of the nation's waters." It is the principal federal statute requiring water quality improvement and protecting the nation's surface and navigable waters and

adjoining shorelines from pollution. The CAA makes the discharge of any pollutant by any person unlawful except under specific provisions outlined in the Act.

The act is divided into two major parts, one of which authorizes federal financial assistance for the building of municipal sewage treatment plants and the other that describes the regulatory requirements applicable to industrial and municipal dischargers. The water quality improvement parts of the Act have rigorous technology requirements, so that it has become known as a technology-forcing statute. This is because of the requirements for industries to achieve ever higher levels of pollution abatement using the "best practicable control technology." The EPA is required to establish effluent limitation guidelines and standards for classes and categories of point source pollution. These guidelines balance the most attainable effluent reduction and the best practicable technology that is economically achievable.

The EPA sets national minimum standards for discharges from sewage treatment plants and specific industrial facilities. The states' role is to set water quality standards and issue discharge permits as needed.

- **CWA 307 - Toxic Pollutants** - Also known as Priority Pollutants, Section 307 requires the EPA to maintain a list of chemicals for which an effluent standard has been developed. This list provides a chemical-by-chemical discharge standard based upon extensive research into their effects on the aquatic environment.

Combustible Liquid

According to the DOT and NFPA, combustible liquids are those having a flash point at or above 100°F (37.8°C), or liquids that will burn. They do not ignite as easily as flammable liquids. Combustible liquids however, can be ignited under certain circumstances and must be handled with caution. Substances such as wood, paper, etc. are termed "ordinary combustibles."

Concentration

Ten thousand parts per million is equal to one percent.

Controlled Products

Under the Canadian Products Regulations [part of the Workplace Hazardous Materials Information System (WHMIS)], 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:

- Division 1 - Flammable Gas
- Division 2 - Flammable Liquid
- Division 3 - Combustible Liquid
- Division 4 - Flammable Solid
- Division 5 - Flammable Aerosol
- Division 6 - Reactive Flammable Material

Class C - Oxidizing Material

Class D - Poisonous and Infectious Material:

- Division 1 - Material Causing Immediate and Serious Toxic Effects:
 - Subdivision A - Very Toxic Material
 - Subdivision B - Toxic Material
- Division 2 - Material Causing Other Toxic Effects:
 - Subdivision A - Very Toxic Material
 - Subdivision B - Toxic Material
- Division 3 - Biohazardous Infectious Material

Class E - Corrosive Material

Class F - Dangerously Reactive Material

Controlled Products Regulations (CPR)

The Controlled Products Regulations are Canadian federal regulations developed under the Hazardous Products Act. They are part of the national Workplace Hazardous Materials Information System (WHMIS). The regulations apply to all suppliers (importers or sellers) in Canada of controlled products intended for use in

Canadian workplaces. The regulations specify the criteria for identification of controlled products. They also specify what information must be included on labels and Material Safety Data Sheets (MSDSs).

Corrosive

A substance defined by the DOT, as causing visible destruction or permanent changes in human skin tissue at the site of contact, or is highly corrosive to steel.

COSHH

(Control of Substances Hazardous to Health) - COSHH regulations impose a number of obligations on employers; the object of the regulations is to promote safe working with potentially hazardous chemicals.

Cubic Meter (m³)

A measure of volume in the metric system.

Cutaneous

Pertaining to, or affecting the skin.

CWA

See Clean Water Act

Dangerously Reactive Material

The Canadian Controlled Products Regulations (part of the Workplace Hazardous Materials Information System (WHMIS)) describes technical criteria for identifying materials which are classified as dangerously reactive. A dangerously reactive material can react vigorously:

- with water to produce a very toxic gas;
- on its own by polymerization or decomposition; or
- under conditions of shock, or an increase in pressure or temperature.

The American National Standards Institute (ANSI) defines a dangerously reactive material as one that is able to undergo a violent self-accelerating exothermic chemical reaction with common materials, or by itself.

A dangerously reactive material may cause a fire, explosion or other hazardous condition. It is very important to know which conditions (such as shock, heating or contact with water) may set off the dangerous reaction so that appropriate preventive measures can be taken.

Decomposition

The breakdown of a chemical or substance into different parts or simpler compounds. Decomposition can occur due to heat, chemical reaction, decay, etc.

Department of Environmental Protection (DEP)

Massachusetts state agency responsible for administration of laws to control and reduce pollution of air, water and land systems within Massachusetts. Regulations enforced by MA DEP include EPA initiatives.

Dermal

Pertaining to, or affecting the skin.

Dept of Homeland Security. Chemicals of Interest (DHS)

Section 550 of the Department of Homeland Security Appropriations Act of 2007 required DHS to develop a temporary program for instituting security performance anti-terrorism standards for high-risk chemical facilities.

The regulations include a list of DHS Chemicals of Interest which contains hundreds of chemicals. DHS will now require owners of chemical facilities housing certain quantities of any of these substances to complete a preliminary screening assessment that determines the level of risk associated with the facility. If a chemical facility preliminarily qualifies as high risk, its owners will be required to prepare and submit a security vulnerability assessment and site security plan. Submissions will be verified through audits and site inspections.

The department will provide technical assistance to facility owners and operators as needed. Security standards will be required to achieve specific outcomes, such as securing the perimeter and critical targets, controlling access, deterring theft of potentially dangerous chemicals, and preventing internal sabotage.

Department of Transportation (DOT)

The United States Department of Transportation is the federal agency that regulates the labeling and transportation of hazardous materials.

See DOT Hazard Codes

DHS

See Dept of Homeland Security. Chemicals of Interest

DOT Hazard Codes

- 1 Explosives
- 2.1 Flammable gas
- 2.2 non-flammable gas
- 2.3 Poisonous gas
- 3 Flammable liquid
- 4.1 Flammable solid
- 4.2 Spontaneously combustible
- 4.3 Dangerous when wet
- 5.1 Oxidizer
- 5.2 Organic peroxide
- 6.1 Poison- keep away from food
- 6.2 Infectious material
- 7 Radioactive
- 8 Corrosive
- 9 Miscellaneous

Domestic Substances List (DSL)

Environment Canada created The Domestic Substances List (DSL) in accordance with the Canadian Environmental Protection Act (CEPA). The DSL defines "existing" substances for the purposes of implementing CEPA and is the sole basis for determining whether a substance is "existing" or "new" to Canada. Substances that are not on the DSL may require notification and assessment before they can be manufactured or imported into Canada. Also see Non-Domestic Substances List.

DSL

See Domestic Substances List .

Dyspnea

Shortness of breath. Difficulty or labored breathing.

Environmental Protection Agency (EPA)

The United States Environmental Protection Agency is responsible for administration of laws to control and reduce pollution of air, water and land systems.

EINECS

Acronym for European Inventory of Existing Commercial Chemical Substances.

ELINCS

Acronym for European List of Notified Chemical Substances.

EPA Number

The number assigned to chemicals (typically hazardous wastes) regulated by the Environmental Protection Agency (EPA).

Epidemiology

The study of diseases in populations.

Erythema

A reddening of the skin.

Evaporation Rate

The rate at which a material is converted to a vapor (evaporates) at a given temperature and pressure compared to the evaporation rate of water. Health and fire hazard evaluations of materials involve consideration of the evaporation rate as one aspect of the evaluation.

Explosive

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

Flammable Liquid

According to the DOT and NFPA, a flammable liquid is one that has a flash point below 100°F (37.8°C). See also FLASH POINT.

Flash Point

The lowest temperature at which a liquid gives off enough vapor to form an ignitable mixture and burn when a source of ignition (sparks, open flames, cigarettes, etc.) is present. Two tests are used to determine the flash point: open cup and closed cup. The test method is indicated on the MSDS after the flash point.

Florida Toxic Substances

The Florida Substance List identifies the substances covered by Florida's Right-To-Know Law. The List was adopted by the Department of Labor and Employment Security pursuant to the procedures set forth in Section 442.103, F.S., based on recommendations submitted by the Toxic Substances Advisory Council established under Section 442.105, F.

General Ventilation

Also known as general dilution ventilation, this is a system of ventilation consisting of either natural or mechanically induced fresh air movements to mix with and dilute contaminants in the workroom air. Dilution ventilation is not the preferred method to control contaminants that are highly toxic; when there may be corrosion problems from the contaminant; when the worker is close to where the contaminant is being generated or where fire or explosion hazards are generated close to sources of ignition.

Gram (g)

A metric unit of weight. One ounce is equal to 28.4 g.

Grams Per Kilogram (g/kg)

Indicates the dose of a substance given to test animals in toxicity studies. For example, a dose may be 2 grams of a substance per kilogram of body weight of the experimental animal.

Hazard Communication Standard

The U.S. OSHA regulation that details requirements for MSDSs and labeling (29 CFR Part 1910.1200).

Hazardous Material

Any substance or compound that has the capability of producing adverse effects on the health and safety of humans.

HAZCOM

HAZCOM stands for the Hazard Communication Standard (U.S.).

HMIS Rating

The HMIS (Hazardous Materials Identification System) rating is a labeling system developed by the National Paint and Coating Association (NPCA) to help quickly identify the hazards associated with a certain material. The HMIS rating is separated into five parts; blue for health hazards, red for flammability hazards, yellow for reactivity hazards, white for personal protective equipment (PPE) that should be used when handling the material, and a space at the top for the name of the material. The first three hazards are rated on a scale of 0 to 4. A value of 0 indicates that the material poses essentially no hazard, while a rating of 4 indicates extreme danger. The white box is reserved for the PPE information. Letters of A-K and X are placed here. Each letter corresponds to different types of protective equipment that should be worn when handling the material.

Health Hazard (Blue)

- 4 - Material is a *severe* health hazard. It may be life threatening. Material may be extremely toxic. Irreversible injury may result from brief contact.
 - 3 - Material is a *serious* health hazard. Major injury likely unless prompt action is taken and medical treatment is given. Has a high level of toxicity or is corrosive.
 - 2 - Material is a *moderate* health hazard. Temporary or transient injury may occur. Prolonged exposure may affect the CNS and lead to apparent intoxication, nausea, headache, dizziness, weakness, or fatigue.
 - 1 - Material is a *slight* health hazard. Minor reversible injury or irritation is possible.
 - 0 - Material is a *minimal* health hazard and does not present a significant risk to health.
- In 1995 the HMIS system was revised to include a second box on the blue (health hazard) bar. If an asterisk (*) appears next to the rating then the material has presents a chronic (long term effect).

Flammability Hazard (Red) – Criteria for Flammability rating adapted from NFPA 704

- 4 - Material is a *severe* fire hazard.
- 3 - Material is a *serious* fire hazard.
- 2 - Material is a *moderate* fire hazard.
- 1 - Material is a *slight* fire hazard.
- 0 - Material is a *minimal* fire hazard.

Reactivity Hazard (Yellow) - Criteria for Reactivity rating adapted from NFPA 704

- 4 - Material is a *severe* reactivity hazard.
- 3 - Material is a *serious* reactivity hazard.
- 2 - Material is a *moderate* reactivity hazard.
- 1 - Material is a *slight* reactivity hazard.
- 0 - Material is a *minimal* reactivity hazard.

PPE (Personal Protective Equipment) (White)

This bar indicates what types of personal protective equipment should be used in order to handle the material safely. Each letter corresponds to the different level of protection recommended to handle the material.

- A - Safety Glasses
- B - Safety Glasses and Gloves
- C - Safety Glasses, Gloves and Apron
- D - Face Shield, Gloves and Apron
- E - Safety Glasses, Gloves and Dust Respirator
- F - Safety Glasses, Gloves, Apron and Dust Respirator
- G - Safety Glasses, Gloves and Vapor Respirator
- H - Splash Goggles, Gloves, Apron and Vapor Respirator
- I - Safety Glasses, Gloves and Combination Dust and Vapor Respirator
- J - Splash Goggles, Gloves, Apron and Combination Dust and Vapor Respirator
- K - Air Line Hood or Mask, Gloves, Full Suit and Boots
- X - Ask supervisor or safety specialist for handling instructions

IARC Carcinogens

The International Agency for Research on Cancer (IARC) is a part of the World Health Organization under the United Nations and publishes a report based on the independent assessments of international experts on the carcinogenic risks of tested substances. IARC has four primary ratings for carcinogens, grouping them in order of carcinogenicity

- **Group 1** - The chemical (mixture) is carcinogenic to humans. The exposure circumstance entails exposures that are carcinogenic to humans. This category is used when there is sufficient evidence of carcinogenicity in humans.
- **Group 2A** - The chemical (mixture) is probably carcinogenic to humans. The exposure circumstance entails exposures that are probably carcinogenic to humans. This category is used when there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals. Exceptionally, a chemical may be classified in this category solely on the basis of limited evidence of carcinogenicity in humans or of sufficient evidence of carcinogenicity in experimental animals strengthened by supporting evidence from other relevant data.
- **Group 2B** - The chemical is possibly carcinogenic to humans. The exposure circumstance entails exposures that are possibly carcinogenic to humans. This category is generally used for chemicals for which there is limited evidence in humans in the absence of sufficient evidence in experimental animals. It may also be used when there is inadequate evidence of carcinogenicity in experimental animals. In some instances, a chemical for which there is inadequate evidence or no data in humans, but limited evidence of carcinogenicity in experimental animals together with supporting evidence from other relevant data, may be placed in this group.
- **Group 3** - The chemical is unclassifiable as to carcinogenicity to humans.
- **Group 4** - The chemical is probably not carcinogenic to humans.

Ignitable

A solid, liquid or compressed gas that has a flash point of less than 140°F. Ignitable material may be regulated by the EPA as hazardous waste as well.

Ingestion

Taking a substance into the body through the mouth.

Inhalation

The breathing in of an airborne substance that may be in the form of gases, mists, vapors, dusts or aerosols.

Inhibitor

A substance that is added to another to prevent, or slow down, unwanted reaction or change.

Irritant

A substance that produces an irritating effect when in contact with the skin, eyes, nose or respiratory system.

LC50

See LETHAL CONCENTRATION 50.

LD50

See LETHAL DOSE 50.

LEL

See LOWER EXPLOSIVE LIMIT.

Lethal Concentration 50

The concentration of an air contaminant (LC50) that kills 50 percent of the test animals in a group, within the first 30 days following exposure.

Lethal Dose 50

A calculated dose of a substance which is expected to cause the death of 50 percent of the entire defined experimental animal population.

LFL

See LOWER EXPLOSIVE LIMIT.

Liter (L)

A measure of volume. One quart equals 0.946 liters.

Local Exhaust Ventilation

A ventilation system that captures and removes contaminants at the site of generation before they escape into the workroom air. The system consists of hoods, duct work, a fan and possibly an air cleaning device.

Advantages of local exhaust ventilation over general ventilation include that these systems require less air volume and are more economical over the long term. The system must be properly designed with properly designed and located hoods and correctly sized fans and duct work.

Lower Explosive Limit (LEL)

The lower limit of flammability of a gas or vapor. It is usually expressed in percentage of gas or vapor in air by volume.

Massachusetts Hazardous Substances

Hazardous substances and extraordinarily hazardous substances identified on this list must be identified as a part of Massachusetts Department of Public Health Right to Know requirements codified in 105 CMR 670.00. Chemicals listed on the Massachusetts list of hazardous substances may require the labeling of containers of toxic substances in the workplace.

Massachusetts Water Resources Authority (MWRA)

Commonwealth of Massachusetts authority responsible for developing and implementing measures to insure safe drinking water.

Melting Point

The temperature at which a solid changes to a liquid. A melting range may be given for mixtures.

Mexico-Drinking Water Ecological Criteria

This regulation was established by Mexico's General Law of Ecological Balance and Environmental Protection (LGEEPA) under Mexican Official Standards (NOM-052 through NOM-087), similar to the CFR of the U.S., and is governed by the National Water Commission. It covers 9 substances or classes of substances.

Michigan Critical Materials

All businesses discharging waste products or by-products into the waters of the state or any sewer system are required to report the annual amounts to the Michigan Department of Natural Resources. The chemicals that must be reported appear on the Critical Materials Register. Critical Materials may be listed either by CAS number or class.

Milligram (mg)

A unit of weight in the metric system. One thousand milligrams equal one gram.

Milligrams Per Cubic Meter (mg/m³)

Units used to measure concentration of dusts, gases, mists and fumes in air.

Milliliter (mL)

A metric unit used to measure volume. One milliliter equals one CC. One thousand milliliters equals one liter.

Minnesota Hazardous Substances

This is listing of hazardous substances published by the Minnesota Department of Labor that may be encountered in the state. This requires that employers exercise reasonable diligence in evaluating their workplace for the presence of these and other hazardous substances and assure that employees are provided with the necessary information required by the right-to-know law.

MSDS

A widely used abbreviation for Material Safety Data Sheet, which contains details of the hazards associated with a chemical, and gives information on its safe use.

Mutagen

Anything that can cause a change or mutation in the genetic material of a living cell.

Narcosis

Stupor or unconsciousness caused by exposure to a chemical.

National Fire Prevention Association (NFPA)

The National Fire Prevention Association is a voluntary membership organization that promotes and improves fire protection and prevention. NFPA has published 16 volumes of codes known as the National Fire Codes. Many state and local fire departments adopt these codes as policy.

See NFPA Ratings

NFPA Ratings

The National Fire Protection Agency (NFPA), in section 704 of the National Fire Code, specifies a system for identifying the hazards of a chemical. This system was developed primarily with the needs of fire protection agencies in mind, but it is valuable to who might handle hazardous chemicals. The hazard identification signal is a color-coded array of four color and number coded diamonds arranged in a diamond shape. There are four sections to the diamond, blue (health hazards), red (fire hazards), and white (special precautions). The first three use a numbering scale ranging from 0 to 4 to the rate the hazard. A value of 0 indicates that the material poses no hazards while a value of 4 indicates extreme danger. The white diamond is used for indicating special precautions associated with the chemical.

Health Hazard (Blue) - This rates the capability of a material to cause personal injury due to contact with or entry into the body via inhalation, ingestion, skin contact or eye contact.

4 - Materials that, under emergency conditions, can be lethal

3 - Materials that, under emergency conditions, can cause serious or permanent injury

2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury

1 - Materials that, under emergency conditions, can cause significant irritation

0 - Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials

Flammability Hazard (Red) - This rates the susceptibility of a material to burning.

4 - Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature, or that are readily dispersed in air and that will burn readily.

3 - Liquids and solids that can be ignited under almost all ambient temperature conditions. Materials in this degree produce hazardous atmospheres with air under almost all ambient temperatures, or though unaffected by ambient temperatures, are readily ignited under almost all circumstances.

2 - Materials that must be moderately heated or exposed to relatively high ambient temperature before ignition can occur. Materials in this degree would not under normal conditions form hazardous atmospheres with air, but under high ambient temperatures or under moderate heating could release vapor in sufficient quantities to produce hazardous atmospheres with air.

1 - Materials that must be preheated before ignition can occur. Materials in this degree require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur.

0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

Instability Hazards (Yellow) - This rates the degree of a material's intrinsic susceptibility to release energy.

4 - Materials that in themselves are readily capable of detonation or explosive decomposition or explosive reaction at normal temperatures and pressures.

3 - Materials that in themselves are capable of detonation or explosive decomposition or explosive reaction, but that require a strong initiating source or that must be heated under confinement before initiation.

2 – Materials that readily undergo violent chemical change at elevated temperature and pressures

1 – Materials that in themselves are normally stable, but that can become unstable at elevated temperatures and pressures.

0 – Materials that in themselves are normally stable, even under fire conditions.

Special Hazards (White) This section describes special precautions that may cause special problems or require special fire fighting techniques. This field may be left blank if there are no special hazards present.

OXY - Material is an oxidizer

W - Do not use water

RAD - Material is radioactive, may self-react, or polymerize

COR - Material is corrosive

ACID - Material is an acid, but not corrosive

ALK - Material is alkaline, but not corrosive

National Institute of Occupational Safety and Health (NIOSH)

NIOSH (National Institute for Occupational Safety and Health) is organization that was formed at the same time as OSHA to serve as a research agency to develop new standards with respect to health effects due to occupational exposure.

National Pollutant Release Inventory (NPRI)

The NPRI was created in 1992 to provide Canadians with information on discharges of pollutants from facilities located in their communities. This information is available to the public and includes the amounts of these pollutants released to the air, water, land or underground injection, and any amounts sent for disposal, treatment or recycling. The owner or operator of a facility which manufactures, processes or otherwise uses a threshold amount of any of the listed NPRI substances must submit an annual report to Environment Canada. This information is used to identify priorities for action, track progress in reducing releases, and encourages industry to take a proactive approach to reduce releases.

See NIOSH Exposure Limits

NDSL

See Non-Domestic Substances List.

New Jersey Right-to-Know

The state of New Jersey, under the New Jersey Worker and Community Right-to-know Act, requires annual reporting of inventories of hazardous substances which are stored, produced, or used at a place of business in New Jersey. Both state and federal laws require this type of annual reporting and the information collected is available to the public and to emergency responders, such as police and fire departments. It is also used to supplement other regulatory programs within the state facilitate proper planning for a response to a facility emergency that could threaten the surrounding environment. Employers in New Jersey regulated under the New Jersey Worker and Community Right-to-know Act are required to complete and submit a survey for each facility. In 1991, the Worker and Community Right-to-Know Act was amended to make all substances on the 1978 Industrial Survey project list designated as extremely hazardous substances.

NIOSH

See National Pollutant Release Inventory

NIOSH Exposure Limits

NIOSH (National Institute for Occupational Safety and Health) is organization that was formed at the same time as OSHA to serve as a research agency to develop new standards with respect to health effects due to occupational exposure. But, there are many recommended exposure limits that have not been adopted. NIOSH also revises old standards as more information accumulates. Unlike OSHA, the NIOSH exposure limits are not legally enforceable, although they are used as recommended exposure limits by many Health and Safety professionals as exposure guidelines.

- **IDLH** - IDLH (Immediately Dangerous to Life or Health) represents a maximum concentration from which a person could escape within 30 minutes without impairing symptoms or any irreversible health effects. These levels were defined by the Standards Completion Program Committee.
- **NIOSH TWA (ppm)** - TWA (Time Weighted Average): The employee's average airborne exposure, which shall not be exceeded in any 8-hour work shift of a 40-hour workweek as recommended by NIOSH. This is expressed in ppm (Parts Per Million) This is the concentration of gas or vapor in air, parts (by volume) of the gas or vapor in a million parts of air and also the concentration of a particular liquid or solid. This is one way of expressing tiny concentrations of pollutants in air, water, soil, human tissue, food, or other products.
- **NIOSH TWA (mg/m3)** - TWA (Time Weighted Average): The employee's average airborne exposure, which shall not be exceeded in any 8-hour work shift of a 40-hour workweek as recommended by NIOSH. This is expressed mg/m3 (Milligrams Per Cubic Meter) This is the concentration of a pollutant by weight, in milligrams, of the gas or vapor in a cubic foot of air and also the concentration of a particular liquid or solid. This is another way of expressing tiny concentrations of pollutants in air, water, soil, human tissue, food, or other products.
- **NIOSH STEL TWA (ppm)** - STEL (Short-Term Exposure Limit): An employee's 15-minute TWA exposure, unless otherwise noted, which must not be exceeded in a workday expressed in Parts Per Million as recommended by NIOSH.
- **NIOSH STEL TWA (mg/m3)** - STEL (Short-Term Exposure Limit): An employee's 15-minute TWA exposure, unless otherwise noted, which must not be exceeded in a workday expressed in Milligrams Per Cubic Meter as recommended by NIOSH.
- **NIOSH Ceiling TWA (ppm)** - The concentration that should not be exceeded even instantaneously expressed in Parts Per Million as recommended by NIOSH.
- **NIOSH Ceiling TWA (mg/m3)** - The concentration that should not be exceeded even instantaneously expressed in Milligrams Per Cubic Meter as recommended by NIOSH.

Non-Domestic Substances List

The Non-Domestic Substances List (NDSL) specifies substances, other than those on the DSL, that were in world commerce, but not in Canada, and is based on the US Environmental Protection Agency's (EPA's) 1985 inventory compiled for the Toxic Substances Control Act (TSCA). Substances on the NDSL have different notification requirements than substances on the DSL. Also see Domestic Substances List.

NPRI

See National Pollutant Release Inventory

NTP Carcinogens

The National Toxicity Program (NTP) was established in 1978 by the Secretary of Health and Human Services to coordinate toxicology research and testing within the department, to provide information about potentially toxic chemicals to regulatory and research agencies and the public, and to strengthen the toxicological science-base. It integrates the toxicological activities of the National Institute of Health, the Centers for Disease Control, and the Food and Drug Administration. The NTP groups suspected carcinogenic substances into two categories: known and potential carcinogens.

- **Group 1** – Substances or groups of substances, and medical treatments that are known to be carcinogenic. "Known carcinogens" are defined in the NTP report as those substances for which there is sufficient evidence of carcinogenicity from studies in humans to indicate a causal relationship between the agent and human cancer.
- **Group 2** - Substances or groups of substances, and medical treatments which may reasonably be anticipated to be carcinogens. "Reasonably anticipated to be carcinogens" defines carcinogens for which there is limited evidence of carcinogenicity in humans and/or sufficient evidence of carcinogenicity in experimental animals. Sufficient evidence in animals is demonstrated by positive carcinogenicity findings in multiple strains and species of animals, in multiple experiments, or to an unusual degree with regard to incidence, site or type of tumor, or age of onset.

OEL(Occupational Exposure Limit)

A (generally legally-enforcable) limit on the amount or concentration of a chemical to which workers may be exposed.

Odor Threshold

The minimum concentration of a substance at which a majority of test subjects can detect and identify the substance's characteristic odor.

OSHA

OSHA stands for Occupational Safety and Health Administration. It is the branch of the United States government Department of Labor which sets and enforces occupational health and safety regulations. For example, OSHA sets the legal exposure limits in the United States, which are called Permissible Exposure Limits (PELs). OSHA also specifies what information must be given on labels and Material Safety Data Sheets for materials which have been classified as hazardous using their criteria.

OSHA Carcinogens

Carcinogens regulated by the Occupational Safety and Health Administration (OSHA) in OSHA 29CFR Part 1910 Subpart Z - Toxic and Hazardous Substances. Carcinogens are primarily determined by air quality standards, medical monitoring, and hazard communication. OSHA does not sub-categorize carcinogens.

Oxidation

The process of combining oxygen with some other substance or chemical change in which an atom loses electrons.

Oxidizer

A substance that gives up oxygen easily, to stimulate combustion of organic material.

Oxygen Deficiency

An atmosphere having less than 21% oxygen.

Particulates Not Otherwise Classified (PNOC)

Particulates not otherwise classified is a term defined by the ACGIH (American Conference of Governmental Industrial Hygienists). It is used to describe particulates for which there is no evidence of specific toxic effects such as fibrosis or systemic effects. These materials are not to be considered inert, however, and can produce general toxic effects depending on the airborne concentration.

PEL

See PERMISSIBLE EXPOSURE LIMIT.

Pennsylvania Hazardous Substances

The Commonwealth of Pennsylvania's Department of Labor and Industry adopted a list of hazardous substances (35 P. S. § 7303) as a part of the Pennsylvania Worker and Community Right to Know Act. This act requires employers doing business in the Commonwealth of Pennsylvania to complete a Hazardous Substance Survey Form every year by April 1, for the previous calendar year. Disclosure of chemicals found on the Hazardous Substances list may be required in addition to labeling and training requirements. This list specifically identifies some chemicals that are identified by the Commonwealth of Pennsylvania's as:

- Environmental Hazards
- Special Hazards

Permissible Exposure Limit (PEL) - OSHA

In 1971, OSHA (Occupational Safety and Health Administration) promulgated Permissible Exposure Limits. These limits were extracted from the 1968 Threshold Limit Values, American National Standards Institute standards, and other federal and industry standards. The PEL values can be found at 29 CFR 1910.1000. Since then, additional PELs have been adopted and a few of the originals have been changed. There are also standards for carcinogens in which there is no allowable inhalation exposure. Since OSHA is a regulatory agency, its PELs are legally enforceable standards and apply to all private industries and federal agencies. They may also apply to state and local employees, depending on state laws. This makes OSHA's PELs different from other exposure limits, which are just guidelines.

- **OSHA TWA (ppm)** - TWA (Time Weighted Average): The employee's average airborne exposure, which shall not be exceeded in any 8-hour work shift of a 40-hour workweek as designated by OSHA. This is

expressed in ppm (Parts Per Million) This is the concentration of gas or vapor in air, parts (by volume) of the gas or vapor in a million parts of air and also the concentration of a particular liquid or solid. This is one way of expressing tiny concentrations of pollutants in air, water, soil, human tissue, food, or other products.

- **OSHA TWA (mg/m³)** - TWA (Time Weighted Average): The employee's average airborne exposure, which shall not be exceeded in any 8-hour work shift of a 40-hour workweek as designated by OSHA. This is expressed in mg/m³ (Milligrams Per Cubic Meter) This is the concentration of a pollutant by weight, in milligrams, of the gas or vapor in a cubic foot of air and also the concentration of a particular liquid or solid. This is another way of expressing tiny concentrations of pollutants in air, water, soil, human tissue, food, or other products.
- **OSHA STEL (ppm)** - STEL (Short-Term Exposure Limit): An employee's 15-minute TWA exposure, unless otherwise noted, which must not be exceeded in a workday expressed in Parts Per Million as designated by OSHA.
- **OSHA STEL (mg/m³)** - STEL (Short-Term Exposure Limit): An employee's 15-minute TWA exposure, unless otherwise noted, which must not be exceeded in a workday expressed in Milligrams Per Cubic Meter as designated by OSHA.
- **OSHA Ceiling (ppm)** - The concentration that should not be exceeded even instantaneously expressed in Parts Per Million as designated by OSHA.
- **OSHA Ceiling (mg/m³)** - The concentration that should not be exceeded even instantaneously expressed in Milligrams Per Cubic Meter as designated by OSHA.

Personal Protective Equipment

Any device or clothing worn by a worker to protect against hazards in the environment. Examples are respirators, gloves and chemical splash goggles.

pH

A measure of the acidity or basicity (alkalinity) of a material when dissolved in water.

Pictographs

Widely-used pictorial representations of the hazards presented by chemicals.

Poison Class A or B

Classified by the **DOT** into two classes. Those in Class A are highly toxic materials which, even in very small quantities, present a hazard to life. Examples of such gases are cyanogen, phosgene and hydrocyanic acid. Class B poisons, though less toxic, are presumed to present a serious threat to health during transportation.

Polymerization

A chemical reaction in which two or more small molecules combine to form larger molecules.

ppm

Parts (of a vapor or gas) per million parts of air by volume.

Proposition 65

In 1986 the state of California enacted the Safe Drinking Water and Toxic Enforcement Act, better known as Proposition 65. Prop 65 created a list of chemicals that have been determined by the state of California to cause cancer and/or reproductive toxicity. This list contains over 550 chemicals and is updated periodically. Any company with 10 or more employees that operates or sells in the state of California is regulated under this law. The regulation's provisions prohibit listed chemicals from being discharged into potential sources of drinking water, from exposing people in the state without warning to the given chemical, and a market incentive is provided to manufacturer for removing the chemicals from their products. Affected businesses warn the public by often placing labels on their products, posting signs at their workplace, or publishing notices in the newspaper to comply with this law. Chemicals found on the Prop 65 list are subcategorized and can be found on one or more of the following lists:

- Carcinogens
- Male Reproductive Toxins
- Female Reproductive Toxins
- Developmental Toxins

Reactivity

A substance's susceptibility to undergoing a chemical reaction or change that may result in dangerous side effects such as: explosion, burning and corrosive or toxic emissions. The conditions that cause the reaction, such as heat, other chemicals and dropping will usually be specified as "Conditions to Avoid" on an MSDS.

Respirator

A device that is designed to protect the wearer from inhaling harmful contaminants.

Respiratory Hazard

A particular concentration of an airborne contaminant that, when it enters the body by way of the respiratory system, or by being breathed into the lungs, results in some bodily function impairment.

RTECS number

A substance's identification number set by the US Registry of Toxic Effects of Chemical Substances.

SARA (The Superfund Amendments and Reauthorization Act)

CERCLA was revised in 1986 to include the Superfund Amendments and Reauthorization Act. SARA provided more extensive regulation than CERCLA and was endorsed by community leaders and fire agencies. As well as reauthorizing CERCLA, SARA increased the Superfund from \$1.6 to \$8.5 billion, set completion dates for clean-up projects, increased the EPA's enforcement in cost-recovery, record-keeping, and coordination, established a research and training program for hazardous waste workers and scientists, and required OSHA to enact a health and safety standard for hazardous waste workers, the HAZWOPER. SARA also enacted the Emergency Planning and Community Right-to-Know Act (EPCRA), known as Title III.

SARA 302 - Extremely Hazardous Substances

Section 302 of Title III helps identify locations at the state and local level where emergency planning can be focused by assisting the State Emergency Response Commissions (SERC) and Local Emergency Planning Committees (LEPC) with identifying those facilities that represent a potential risk for experiencing a significant hazardous materials incident. To accomplish this, a list of substances was created which are most likely to inflict serious injury or death upon short-term exposure in the event of an accident. They are known as Extremely Hazardous Substances (EHS). If a facility exceeds the threshold planning quantity (TPQ) for one of these chemicals on site at any one time, it is required to notify the appropriate LEPC and SERC as well as appoint a facility representative to work along with the LEPC in the local emergency planning process.

- **Threshold Type** - Some solids have more than one TPQ listed. In this case, the first TPQ refers to the substance in powder form where the particle size is less than 100 microns, in a solution, or molten.
- **Threshold Quantity (lbs)** - The threshold level for reporting for regulated substances at a given facility. A minimum TPQ of 500 pounds applies to extremely hazardous substances not listed.

SARA 313 - Toxic Release Inventory

Section 313 of Title III requires certain industries that release a specified amount, or threshold quantity, of any listed toxic chemical into the environment to submit a Toxic Chemical Inventory Report, otherwise known as a Form R, on an annual basis. This is also known as a Toxic Release Inventory (TRI). The Form R report identifies the amount of the substance transferred off-site as waste and is routinely or accidentally released on-site in the air, land, or water. The report must be submitted to the EPA and the applicable state agency.

- **De Minimus Concentration Percentage** - If a chemical does not exceed its assigned de minimus concentration in a mixture, it is not required to be used in the calculation of the reportable quantity unless it is a PBT.
- **PBT TQ** - Chemicals on this list have a concentration listed after them and are known as persistent bioaccumulative toxics (PBTs) and have lower reporting threshold quantities associated with them. The concentrations listed refer to concentration levels for reporting under SARA Title III.

Sensitizer

A substance that may cause no reaction in a person during initial exposures, but afterwards, further exposures will cause an allergic response to the substance.

Short Term Exposure Limit (STEL or TLV-STEL)

A maximum concentration to which workers can be exposed for a 15 minute period, four times a day, at least one hour between exposures. Also the daily TLV-TWA must not be exceeded.

Skin

This designation sometimes appears along a TLV or PEL. It refers to the likelihood of absorption of the chemical through the skin and eyes.

Synonym

Another name by which the same chemical may be known.

Systemic

Spread throughout the body; affecting many or all body systems or organs, not localized in one spot or area.

Specific Gravity

Specific gravity is the ratio of the density of a material to the density of water. The density of water is about 1 gram per cubic centimetre (g/cc). Materials which are lighter than water (specific gravity less than 1.0) will float. Most materials have specific gravities exceeding 1.0, which means they are heavier than water and so will sink. Knowing the specific gravity is important for planning spill clean-up and fire fighting procedures. For example, a light flammable liquid such as gasoline may spread and, if ignited, burn on top of a water surface.

TDG

TDG stands for Transportation of Dangerous Goods. In Canada, the transportation of potentially hazardous materials is regulated under the federal Transportation of Dangerous Goods Act and Regulations which are administered by Transport Canada. The TDG Act and Regulations set out criteria for the classification of materials as dangerous goods and state how these materials must be packaged and shipped.

Teratogen

An agent or substance that may cause physical defects in the developing embryo or fetus when a pregnant female is exposed to the substance.

Threshold Limit Value (TLV)

ACGIH TLV's (Threshold Limit Values) - ACGIH (American Conference of Governmental Industrial Hygienists) is a professional organization that recommends concentrations of substances to which most workers can be exposed without adverse effect. These are called TLV's, or Threshold Limit Values. Unlike OSHA, the ACGIH exposure limits are not legally enforceable, although they are used as recommended exposure limits by many Health and Safety professionals as exposure guidelines.

- **ACGIH TWA (ppm) - TWA (Time Weighted Average):** The employee's average airborne exposure, which shall not be exceeded in any 8-hour work shift of a 40-hour workweek as recommended by ACGIH. This is expressed in ppm (Parts Per Million) This is the concentration of gas or vapor in air, parts (by volume) of the gas or vapor in a million parts of air and also the concentration of a particular liquid or solid. This is one way of expressing tiny concentrations of pollutants in air, water, soil, human tissue, food, or other products.
- **ACGIH TWA (mg/m3) - TWA (Time Weighted Average):** The employee's average airborne exposure, which shall not be exceeded in any 8-hour work shift of a 40-hour workweek as recommended by ACGIH. This is expressed in mg/m3 (Milligrams Per Cubic Meter) This is the concentration of a pollutant by weight, in milligrams, of the gas or vapor in a cubic foot of air and also the concentration of a particular liquid or solid. This is another way of expressing tiny concentrations of pollutants in air, water, soil, human tissue, food, or other products.
- **ACGIH STEL TWA (ppm) - STEL (Short-Term Exposure Limit):** An employee's 15-minute TWA exposure, unless otherwise noted, which must not be exceeded in a workday expressed in Parts Per Million as recommended by ACGIH.
- **ACGIH STEL TWA (mg/m3) - STEL (Short-Term Exposure Limit):** An employee's 15-minute TWA exposure, unless otherwise noted, which must not be exceeded in a workday expressed in Milligrams Per Cubic Meter as recommended by ACGIH.

See also Permissible Exposure Limit.

Time-Weighted Average (TWA)

Canadian Exposure Limits - The values listed are the occupational exposure limits for the Canadian Province of Alberta, as published in their Occupational Health and Safety Act appendix.

- **Canada TWA (ppm)** - TWA (Time Weighted Average): The employee's average airborne exposure, which shall not be exceeded in any 8-hour work shift of a 40-hour workweek as recommended by the Province of Alberta's Occupational and Health and Safety Act. This is expressed in ppm (Parts Per Million) This is the concentration of gas or vapor in air, parts (by volume) of the gas or vapor in a million parts of air and also the concentration of a particular liquid or solid. This is one way of expressing tiny concentrations of pollutants in air, water, soil, human tissue, food, or other products.
- **Canada TWA (mg/m3)** - TWA (Time Weighted Average): The employee's average airborne exposure, which shall not be exceeded in any 8-hour work shift of a 40-hour workweek as recommended by the Province of Alberta's Occupational and Health and Safety Act. This is expressed mg/m3 (Milligrams Per Cubic Meter) This is the concentration of a pollutant by weight, in milligrams, of the gas or vapor in a cubic foot of air and also the concentration of a particular liquid or solid. This is another way of expressing tiny concentrations of pollutants in air, water, soil, human tissue, food, or other products.
- **Canada STEL TWA (ppm)** - STEL (Short-Term Exposure Limit): An employee's 15-minute TWA exposure, unless otherwise noted, which must not be exceeded in a workday expressed in Parts Per Million as recommended by the Province of Alberta's Occupational and Health and Safety Act.
- **Canada STEL TWA (mg/m3)** - STEL (Short-Term Exposure Limit): An employee's 15-minute TWA exposure, unless otherwise noted, which must not be exceeded in a workday expressed in Milligrams Per Cubic Meter as recommended by the Province of Alberta's Occupational and Health and Safety Act.
- **Canada Ceiling TWA (ppm)** - The concentration that should not be exceeded even instantaneously expressed in Parts Per Million as recommended by the Province of Alberta's Occupational and Health and Safety Act.
- **Canada Ceiling TWA (mg/m3)** - The concentration that should not be exceeded even instantaneously expressed in Milligrams Per Cubic Meter as recommended by the Province of Alberta's Occupational and Health and Safety Act.

TOC

TOC stands for Tagliabue open cup; a standard method of determining flash points. Generally, this appears in abbreviated form as Tag open cup.

Toxicity

The potential for a substance to exert a harmful effect on humans or animals, and a description of the effect and the conditions or concentrations, under which the effect takes place.

Toxic Substances Control Act

See TSCA

TSCA (The Toxic Substances Control Act)

TSCA was enacted by Congress 1976 to test, regulate, and screen all chemicals produced or imported into the United States. A manufacturer must alert the EPA of a new chemical's use within 90 days of initial production. The EPA is able to maintain a priority list of up to fifty existing or proposed substances that need immediate testing. The substances are evaluated and if the hazard to the environment or human health presents an unreasonable risk, the EPA can ban the import or manufacture of that chemical. After a substance has been demonstrated to have no reasonable risk, it can be marketed. The EPA can also restrict or completely ban any step in manufacture as necessary to protect human health or the environment, such as for polychlorinated biphenyls (PCBs), asbestos, and lead-based paint.

EPA Inventory Flags

Special flags are used to note substances that are subject to an EPA rule or special order under TSCA. A substance may have more than one flag.

- E - The substance is subject to a 5(e) Consent Order.
- F - The substance is subject to a Section 5(f) Rule.

- N - A polymeric substance with no free-radical initiator in its name, but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- P - This is a commenced PMN substance.
- R - This substance is subject to a Section 6 risk management rule.
- S - This substance has been identified in a proposed or final Significant New Use Rule.
- T - This substance is the subject of a Section 4 test rule.
- XU - This substance is exempt from reporting under the Inventory Update Rule.
- Y1 - This is an exempt polymer that has a number-average molecular weight of 1.000 or greater.
- Y2 - This is an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.
- UVCB Flag - Unknown or Variable composition, Complex reaction products, and Biological materials

TWA

See TIME-WEIGHTED AVERAGE.

UEL

See UPPER EXPLOSIVE LIMIT.

UFL

See UPPER EXPLOSIVE LIMIT.

Unstable Liquid

A liquid that in its pure state, or as commercially produced, will react vigorously in some hazardous way under shock conditions (i.e., dropping), certain temperatures or pressures.

Upper Explosive Limit (UEL)

Also known as Upper Flammable Limit (UFL). The highest concentration (expressed in percentage of vapor or gas by air volume) of a substance that will burn or explode when an ignition source is present. Theoretically, above this limit the mixture is said to be too "rich" to support combustion. The range is between the LEL and the UEL, constitutes the flammable range, or explosive range of a substance. For example, if the LEL is 1 ppm and the UEL is 5 ppm, then the explosive range of the chemical is 1 ppm to 5 ppm.

UN Hazard codes

Class 1 Explosive

Class 2 Gases

Class 3.1 Flammable liquids, flash point below -18C

Class 3.2 Flammable liquids, flash point between -18C and 23C

Class 3.3 Flammable liquids, flash point between 23C and 61C

Class 4.1 Flammable solids

Class 5.1 Oxidizing agents

Class 5.2 Organic peroxides

Class 6.1 Poisonous substances

Class 7 Radioactive substances

Class 8 Corrosive substances

Class 9 Miscellaneous dangerous substances

NR Non-regulated

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.

Vapor

The gaseous form of substances that are normally in the liquid or solid state (at normal room temperature and pressure). Solvents are good examples.

Vapour density

The density of a vapour compared to the density of an equal amount of air.

Vapour pressure

The pressure of a vapour in equilibrium with its liquid or solid form.

Vesicant

A chemical which, if it can escape from the vein, causes extensive tissue damage, with vesicle formation or blistering.

VOCs

Volatile Organic Compounds.

Volatility

The ability of a material to evaporate.

WHMIS

WHMIS stands for Workplace Hazardous Materials Information System. It is a Canadian program designed to protect workers by providing them and their employers with vital information about hazardous materials. The following are key features of WHMIS:

- Criteria to identify controlled products and to provide information about them in the workplace;
- A cautionary labelling system for containers of controlled products;
- Requirements for the disclosure of information by the use of material safety data sheets;
- Worker education programs;
- A mechanism to protect trade secrets.

WHMIS is implemented by a series of federal, provincial and territorial acts and regulations. One which is used frequently in preparing Material Safety Data Sheets is the Controlled Products Regulations (CPR). Also see "controlled products" and "Controlled Products Regulations (CPR)".

WHMIS Ingredient Disclosure List

Ingredient Disclosure List is a listing of substances which may be an ingredient of a controlled product outlined by Workplace Hazardous Material Information System (WHMIS) hazard criteria as specified in the Controlled Products Regulations of Canada. These are chemicals that must be identified on Canadian Material Safety Data Sheets.

See DSL and NDSL.