

ATLANTIC PILOTAGE AUTHORITY OHS SYSTEM

OHS DEFINITIONS

ACGIH

ACGIH stands for American Conference of Governmental Industrial Hygienists.

The Threshold Limit Value (TLV) Committee and Ventilation Committee of the ACGIH publish exposure guidelines which are referred to in Canadian federal regulations.

Acid, Acidic

See pH.

Acute

Acute means sudden or brief. Acute can be used to describe either an exposure or a health effect. An acute exposure is a short-term exposure. Short-term means lasting for minutes, hours or days. An acute health effect is an effect that develops either immediately or a short time after an exposure. Acute health effects may appear minutes, hours or even days after an exposure. (See also Chronic.)

Aerosol

An aerosol is a collection of very small particles suspended in air. The particles can be liquid (mist) or solid (dust or fume). The term aerosol is also commonly used for a pressurized container (aerosol can) which is designed to release a fine spray of a material such as paint.

Inhalation of aerosols is a common route of exposure to many chemicals. Also, aerosols may be fire hazards.

Alkali, Alkaline

See pH.

ANSI

ANSI stands for the American National Standards Institute.

Attendant (Confined Space)

An attendant is a person who must remain outside a confined space for the duration of an entry operation, and whose primary role is to ensure the safety of entrants and those people in the area of the confined space.

Auto-ignition Temperature

The auto-ignition temperature is the lowest temperature at which a material begins to burn in air in the absence of a spark or flame. Many chemicals will decompose

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(break down) when heated. The auto-ignition temperature is the temperature at which the chemicals formed by decomposition begin to burn. Auto-ignition temperatures for a specific material can vary by one hundred degrees Celsius or more, depending on the test method used. Therefore, values listed in documents such as a Material Safety Data Sheet may be rough estimates. To avoid the risk of fire or explosion, materials must be stored and handled at temperatures well below the auto-ignition temperature.

Base, Basic

See pH.

Boiling Point

The boiling point is the temperature at which the material changes from a liquid to a gas. Below the boiling point, the liquid can evaporate to form a vapour. As the material approaches the boiling point, the change from liquid to vapour is rapid and vapour concentrations in the air can be extremely high. Airborne gases and vapours may pose fire, explosion and health hazards.

Sometimes, the boiling point of a mixture is given as a range of temperatures. This is because the different ingredients in a mixture can boil at different temperatures.

If the material decomposes (breaks down) without boiling, the temperature at which it decomposes may be given with the abbreviation "dec." Some of the decomposition chemicals may be hazardous. (See also Thermal Decomposition Products.)

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, year round at (613) 996-6666 (collect).

Carcinogen, Carcinogenic, Carcinogenicity

A carcinogen is a substance which can cause cancer. Carcinogenic means able to cause cancer. Carcinogenicity is the ability of a substance to cause cancer.

The lists of carcinogens published by the IARC, ACGIH and NTP include known human carcinogens and some materials which cause cancer in animal experiments. Certain chemicals may be listed as suspect or possible carcinogens if the evidence is limited or so variable that a definite conclusion cannot be made.

Ceiling (C)

See Exposure Limits for a general explanation.

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Chemical Reactivity

Chemical reactivity is the ability of a material to undergo a chemical change. A chemical reaction may occur under conditions such as heating, burning, contact with other chemicals, or exposure to light. Undesirable effects such as pressure buildup, temperature increase or formation of other hazardous chemicals may result.

Chronic

Chronic means long-term or prolonged. It can describe either an exposure or a health effect. A chronic exposure is a long-term exposure. Long-term means lasting for months or years. A chronic health effect is an adverse health effect resulting from long-term exposure or a persistent adverse health effect resulting from a short-term exposure. The Canadian Controlled Products Regulations describe technical criteria for identifying materials which cause chronic health effects. These regulations are part of the Workplace Hazardous Materials Information System (WHMIS). (See also Acute.)

Combustible

Combustible means able to burn. Broadly speaking, a material is combustible if it can catch fire and burn. However, in many jurisdictions, the term combustible is given a specific regulatory meaning. (See Combustible Liquid.)

The terms combustible and flammable both describe the ability of a material to burn. Commonly, combustible materials are less easily ignited than flammable materials.

Combustible Liquid

Under the Canadian Controlled Products Regulations (CPR), a combustible liquid has a flash point from 37.8 to 93.3 degrees C (100 to 200 degrees F) using a closed cup test. The CPR is part of the national Workplace Hazardous Materials Information System (WHMIS). The US OSHA Hazcom Standard uses a similar definition.

This range of flash points is well above normal room temperature. Combustible liquids are, therefore, less of a fire hazard than flammable liquids. If there is a possibility that a combustible liquid will be heated to a temperature near its flash point, appropriate precautions must be taken to prevent a fire or explosion.

Compressed Gas

A compressed gas is a material which is a gas at normal room temperature and pressure but is packaged as a pressurized gas, pressurized liquid or refrigerated liquid.

Regardless of whether a compressed gas is packaged in an aerosol can, a pressurized cylinder or a refrigerated container, it must be stored and handled very carefully. Puncturing or damaging the container or allowing the container to become hot may result in an explosion.

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Confined Space

A confined space is a storage tank, ballast tank, pump room, coffer dam or other enclosure, other than a hold, not designed or intended for human occupancy, except for the purpose of performing work,

- a) that has poor ventilation,
- b) in which there may be an oxygen deficient atmosphere, or
- c) in which there may be an airborne hazardous substance.

Confined spaces onboard pilot boats include Lazarettes and forepeaks. On APA #3, the access space below the wheelhouse deck is a confined space.

Confined Space Entry Permit

A Confined Space Entry Permit is a document issued by the on-duty Launchmaster or the Shore Engineer, stating that the atmosphere in a confined space has been tested and the space is safe for entry at that time. Confined Space Entry Permits are serialized (numbered), produced in duplicate and bound in booklets.

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

Corrosive Material

A corrosive material can attack (corrode) metals or human tissues such as the skin or eyes. Corrosive materials may cause metal containers or structural materials to become weak and eventually to leak or collapse. Corrosive materials can burn or

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destroy human tissues on contact and can cause effects such as permanent scarring or blindness.

Density

The density of a material is its weight for a given volume. Density is usually given in units of grams per millilitre (g/mL) or grams per cubic centimetre (g/cc). Density is closely related to specific gravity (relative density). The volume of a material in a container can be calculated from its density and weight.

Dilution Ventilation

See General Ventilation.

Disabling Injury (from Marine Occupational Health & Safety Regulations)

A disabling injury means an employment injury or an occupational disease that:

- (a) prevents an employee from reporting for work or from effectively performing all the duties connected with the employee's regular work on any day subsequent to the day on which the injury or disease occurred, whether or not that subsequent day is a working day for that employee,
- (b) results in the loss by an employee of a body member or part thereof or in the complete loss of the usefulness of a body member or part thereof, **or**
- (c) results in the permanent impairment of a body function of an employee.

Electrical Installation

Electrical Installation includes the wires, machinery, apparatus, appliances, devices, material and equipment used or intended for use for the generation, transmission, distribution, supply and use of electrical power.

Engineering Controls

Engineering controls help reduce exposure to potential hazards either by isolating the hazard or by removing it from the work environment. Engineering controls include mechanical ventilation and process enclosure. They are important because they are built into the work process.

Engineering controls are usually preferred to other control measures such as the use of personal protective equipment. Substitution of a less hazardous material or industrial process is the best way to reduce a hazard and is often considered to be a type of engineering control.

Entrant (Confined space)

An entrant is a person who enters a confined space to inspect or do work in that space.

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Evaporation Rate

The evaporation rate is a measure of how quickly the material becomes a vapour at normal room temperature. Usually, the evaporation rate is given in comparison to certain chemicals, such as butyl acetate, which evaporate fairly quickly. For example, the rate might be given as "0.5 (butyl acetate=1)." This means that, under specific conditions, 0.5 grams of the material evaporates during the same time that 1 gram of butyl acetate evaporates. Often, the evaporation rate is given only as greater or less than 1, which means the material evaporates faster or slower than the comparison chemical.

In general, a hazardous material with a higher evaporation rate presents a greater hazard than a similar compound with a lower evaporation rate.

Explosive Limits

Explosive limits specify the concentration range of a material in air which will burn or explode in the presence of an ignition source (spark or flame). Explosive limits may also be called flammable limits or explosion limits.

The lower explosive limit (LEL), or lower flammable limit (LFL), is the lowest concentration of gas or vapour which will burn or explode if ignited. The upper explosive limit (UEL), or upper flammable limit (UFL), is the highest concentration of gas or vapour which will burn or explode if ignited. From the LEL to the UEL, the mixture is explosive. Below the LEL, the mixture is too lean to burn. Above the UEL, the mixture is too rich to burn. However, concentrations above the UEL are still very dangerous because, if the concentration is lowered (for example, by introducing fresh air), it will enter the explosive range.

In reality, explosive limits for a material vary since they depend on many factors such as air temperature. Therefore, the values given on a Material Safety Data Sheet are approximate.

The explosive limits are usually given as the percent by volume of the material in the air. One percent by volume is 10,000 ppm. For example, gasoline has a LEL of 1.4% and a UEL of 7.6%. This means that gasoline vapours at concentrations of 1.4% to 7.6% (14,000 to 76,000 ppm) are flammable or explosive.

Exposure Limits (or Occupational Exposure Limits (OELs))

An exposure limit is the concentration of a chemical in the workplace air to which most people can be exposed without experiencing harmful effects. Exposure limits should not be taken as sharp dividing lines between safe and unsafe exposures. It is possible for a chemical to cause health effects, in some people, at concentrations lower than the exposure limit.

Exposure limits have different names and different meanings depending on who developed them and whether or not they are legal limits. For example, Threshold Limit Values (TLVs) are exposure guidelines developed by the American Conference of Governmental Industrial Hygienists (ACGIH). They have been adopted by many Canadian governments as their legal limits. Permissible Exposure Limits (PELs) are

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legal exposure limits in the United States. Sometimes, a manufacturer will recommend an exposure limit for a material.

Exposure limits have not been set for many chemicals for many different reasons. For example, there may not be enough information available to set an exposure limit. Therefore, the absence of an exposure limit does not necessarily mean the material is not harmful.

There are three different types of exposure limits in common use:

1) **Time-weighted average (TWA) exposure limit** is the time-weighted average concentration of a chemical in air for a normal 8-hour work day and 40-hour work week to which nearly all workers may be exposed day after day without harmful effects. Time-weighted average means that the average concentration has been calculated using the duration of exposure to different concentrations of the chemical during a specific time period. In this way, higher and lower exposures are averaged over the day or week.

2) **Short-term exposure limit (STEL)** is the average concentration to which workers can be exposed for a short period (usually 15 minutes) without experiencing irritation, long-term or irreversible tissue damage, or reduced alertness. The number of times the concentration reaches the STEL and the amount of time between these occurrences can also be restricted.

3) **Ceiling (C) exposure limit** is the concentration which should not be exceeded at any time.

"SKIN" notation (SKIN) means that contact with the skin, eyes and moist tissues (for example, the mouth) can contribute to the overall exposure. The purpose of this notation is to suggest that measures be used to prevent absorption by these routes; for example, the use of protective gloves. If absorption occurs through the skin, then the airborne exposure limits are not relevant.

Extinguishing Media

Extinguishing media are agents which can put out fires involving the material. Common extinguishing agents are water, carbon dioxide, dry chemical, "alcohol" foam, and halogenated gases (Halons). It is important to know which extinguishers can be used so they can be made available at the worksite. It is also important to know which agents cannot be used since an incorrect extinguisher may not work or may create a more hazardous situation. If several materials are involved in a fire, an extinguisher effective for all of the materials should be used.

Flammable, Flammability

Flammable means able to ignite and burn readily. Flammability is the ability of a material to ignite and burn readily. (See also Combustible.) Under the Canadian Controlled Products Regulations [part of Workplace Hazardous Materials Information System (WHMIS)] and the U.S. HAZCOM Standard, there are specific technical criteria for identifying flammable materials. (See Flammable Aerosol, Flammable Gas, Flammable Liquid, Flammable Solid and Reactive Flammable Material.)

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There are closely related criteria for the classification of certain flammable materials under the Canadian Transportation of Dangerous Goods (TDG) Regulations and the U.S. Department of Transportation regulations. (See TDG Flammability Classification.) In Canada, local, provincial and national fire codes also classify and regulate the use of flammable materials in workplaces. (See also Combustible.)

Flammable And Combustible Material

Under the Canadian Controlled Products Regulations, a material may be classified as a flammable and combustible material if it meets specific criteria for a flammable gas, flammable liquid, combustible liquid, flammable solid, flammable aerosol or reactive flammable material.

The Canadian Controlled Products Regulations are part of the national Workplace Hazardous Materials Information System (WHMIS).

Flammable Gas

A flammable gas is a gas which can ignite readily and burn rapidly or explosively. Under the Canadian Controlled Products Regulations and under the US Hazard Communication Standard, there are certain technical criteria for the identification of materials as flammable gases for the purposes of each regulation. Flammable gases can be extremely hazardous in the workplace; for example:

- If the gas accumulates so that its lower explosive limit (LEL) is reached and if there is a source of ignition, an explosion may occur.
- If there is inadequate ventilation, flammable gases can travel a considerable distance to a source of ignition and flash back to the source of the gas.

Flammable Limits

See Explosive Limits.

Flammable Liquid

A flammable liquid gives off a vapour which can be readily ignited at normal working temperatures. Under the Canadian Controlled Products Regulations, a flammable liquid is a liquid with a flash point (using a closed cup test) below 37.8 degrees C (100 degrees F). The US Hazard Communication Standard uses a similar, but not identical, definition.

Flammable liquids can be extremely hazardous in the workplace; for example:

- If there is inadequate ventilation, vapours can travel considerable distances to a source of ignition and flash back to the flammable liquid.
- It may be difficult to extinguish a burning flammable liquid with water because water may not be able to cool the liquid below its flash point.

The Canadian Controlled Products Regulations are part of the national Workplace Hazardous Materials Information System (WHMIS).

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Flammable Solid

A flammable solid is a material which can ignite readily and burn vigorously and persistently. There are certain technical criteria in the Canadian Controlled Products Regulations [part of the Workplace Hazardous Materials Information System (WHMIS)] and in the US OSHA Hazard Communication Standard for the identification of flammable solids for the purposes of each regulation. These criteria are based on ease of ignition and rate of burning. Flammable solids may be hazardous because heat from friction (for example, surfaces rubbing together) or heat from processing may cause a fire. Flammable solids in the form of a dust or powder may be particularly hazardous because they may explode if ignited.

Flash Back

Flash back occurs when a trail of flammable gas, vapour or aerosol is ignited by a distant spark, flame or other source of ignition. The flame then travels back along the trail of gas, vapour or aerosol to its source. A serious fire or explosion could result.

Flash Point

The flash point is the lowest temperature at which a liquid or solid gives off enough vapour to form a flammable air-vapour mixture near its surface. The lower the flash point, the greater the fire hazard. The flash point is an approximate value and should not be taken as a sharp dividing line between safe and hazardous conditions. The flash point is determined by a variety of test methods which give different results. Two types of methods are abbreviated as OC (open cup) and CC (closed cup).

Fumes

Fumes are very small, airborne, solid particles formed by the cooling of a hot vapour. For example, a hot zinc vapour may form when zinc-coated steel is welded. The vapour then condenses to form fine zinc fume as soon as it contacts the cool surrounding air. Fumes are smaller than dusts and are more easily breathed into the lungs.

Gas

A gas is a material without a specific shape or volume. Gases tend to occupy an entire space uniformly at normal room pressure and temperature. The terms vapour and fume are sometimes confused with gas.

General Ventilation

As used in a Material Safety Data Sheet, general ventilation, also known as dilution ventilation, is the removal of contaminated air from the general area and the bringing in of clean air. This dilutes the amount of contaminant in the work environment. General ventilation is usually suggested for non-hazardous materials.

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Hazard, Hazardous

Hazard is the potential for harmful effects. Hazardous means potentially harmful. The hazards of a material are evaluated by examining the properties of the material, such as toxicity, flammability and chemical reactivity, as well as how the material is used. How a material is used can vary greatly from workplace to workplace and, therefore, so can the hazard.

Hazardous substance

A hazardous substance includes a controlled product and a chemical, biological or physical agent that, by reason of a property that the agent possesses, is hazardous to the safety or health of a person exposed to it.

H₂S

H₂S is the chemical formula, or scientific shorthand for hydrogen sulfide. Hydrogen sulfide is a colorless, flammable, toxic gas that smells like rotten eggs at lower concentrations. At dangerous concentrations, the odour is not apparent. Hydrogen sulfide is a component in sour crude and sour gas.

Hydrogen Sulfide

Hydrogen sulfide is a colorless, flammable, toxic gas that smells like rotten eggs at lower concentrations. At dangerous concentrations, the odour is not apparent. Hydrogen sulfide is a component in sour crude and sour gas. H₂S is the chemical formula, or scientific shorthand for hydrogen sulfide.

IARC

IARC stands for the International Agency for Research on Cancer. IARC evaluates information on the carcinogenicity of chemicals, groups of chemicals and chemicals associated with certain industrial processes. IARC has published lists of chemicals which are generally recognized as human carcinogens, probable human carcinogens or carcinogens in animal tests.

IDLH

IDLH stands for Immediately Dangerous to Life or Health. For the purposes of respirator selection, the National Institute for Occupational Safety and Health (NIOSH) defines the IDLH concentration as the airborne concentration that poses a threat of exposure to airborne contaminants when that exposure is likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment. The purpose of establishing an IDLH exposure concentration is to ensure that the worker can escape from a given contaminated environment in the event of failure of the respiratory protection equipment. In the event of failure of respiratory protective equipment, every effort should be made to exit immediately.

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Incompatible Materials

Incompatible materials can react with the product or with components of the product and may:

- destroy the structure or function of a product;
- cause a fire, explosion or violent reaction; or
- cause the release of hazardous chemicals.

Ingestion

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

Inhalation

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

Internal Responsibility System (IRS)

The internal responsibility system is the underlying philosophy of the occupational health and safety legislation in all Canadian jurisdictions. Its foundation is that everyone in the workplace - both employees and employers - is responsible for his or her own safety and for the safety of co-workers. In particular, a person with the authority and the ability to correct/control a hazard is generally expected to take all reasonable action to protect health and safety. Where that person does not have adequate authority and/or ability to correct/control a hazard, it must be reported to someone who does. Safety must be a cooperative effort, involving all workplace parties.

LC50

LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours. The LC50 helps determine the short-term poisoning potential of a material.

LD50

LD stands for lethal dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals. The LD50 can be determined for any route of entry, but dermal (applied to skin) and oral (given by mouth) LD50's are most common. The LD50 is one measure of the short-term poisoning potential of a material. (See also LC50.)

LEL

See Explosive Limits.

LFL

See Explosive Limits.

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Local Exhaust Ventilation

Local exhaust ventilation is the removal of contaminated air directly at its source. This type of ventilation can help reduce worker exposure to airborne materials more effectively than general ventilation. This is because it does not allow the material to enter the work environment. It is usually recommended for hazardous airborne materials. (See also Mechanical Ventilation and Ventilation.)

Lock-out Device

A lock-out device is a device that isolates an energy source. A conventional padlock is the most common lock-out device, and may be used along with other lock-out devices to achieve isolation. A lock-out device need not be specifically manufactured for that purpose, but must effectively isolate the energy source and the person who installs it must have strict control over its removal.

Lock-out Tag

A lock-out tag is a tag installed at a lock-out location. Use only approved tags provided by the Authority. Approved lock-out tags direct a person not to start or operate the equipment, machinery or electrical installation, and must identify the person who has performed the lock-out.

Lower Explosion Limit

See Explosive Limits.

Lower Explosive Limit

See Explosive Limits.

Lower Flammable Limit

See Explosive Limits.

Material Causing Immediate And Serious Toxic Effects

The Canadian Controlled Products Regulations describe technical criteria for identifying materials which cause immediate and serious toxic effects. These criteria use information such as the LD50 or LC50 for a material. Based on the specific information, a material may be identified as toxic or very toxic in the class D - Poisonous and Infectious Material.

The Canadian Controlled Products Regulations are part of the Workplace Hazardous Materials Information System (WHMIS).

Material Causing Other Toxic Effects

The Canadian Controlled Products Regulations describe technical criteria for identifying materials which cause toxic effects such as skin or respiratory

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sensitization, mutagenicity and carcinogenicity. Based on the specific information, a material may be identified as toxic or very toxic in the class D - Poisonous and Infectious Material.

The Canadian Controlled Products Regulations are part of the Workplace Hazardous Materials Information System (WHMIS).

Mechanical Ventilation

Mechanical ventilation is the movement of air by mechanical means (for example, a wall fan). There are two kinds of mechanical ventilation: general ventilation and local exhaust ventilation. (See also Ventilation.)

Melting Point

The melting point is the temperature at which a solid material becomes a liquid. The freezing point is the temperature at which a liquid material becomes a solid. Usually one value or the other is given on the Material Safety Data Sheet.

It is important to know the freezing or melting point for storage and handling purposes. For example, a frozen or melted material may burst a container. As well, a change of physical state could alter the hazards of the material.

mg/m³

The abbreviation mg/m³ stands for milligrams (mg) of a material per cubic metre (m³) of air. It is a unit of metric measurement for concentration (weight/volume). The concentrations of any airborne chemical can be measured in mg/m³, whether it is a solid, liquid, gas or vapour.

Minor Injury (from Marine Occupational Health & Safety Regulations)

A minor injury means an employment injury or an occupational disease for which medical treatment is provided and excludes a disabling injury.

MSDS

MSDS stands for Material Safety Data Sheet. The MSDS is a document that contains information on the potential health effects of exposure and how to work safely with the material it is written about. It is an essential starting point to a health and safety program. It contains hazard evaluations on the use, storage, handling, and emergency procedures all related to the material.

In Canada, all products or material covered by the Controlled Products Regulations require an MSDS before the product or material can be used in the workplace. The Controlled Products Regulations are part of the Workplace Hazardous Materials Information System (WHMIS).

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Mutagen, Mutagenic, Mutagenicity

A mutagen is a substance which can cause changes in the DNA of cells (mutations). Mutagenic means able to cause mutations. Mutagenicity is the ability of a substance to cause mutations.

DNA determines the characteristics that children inherit from their parents. DNA also determines how cells in the body divide or reproduce.

Natural Ventilation

Natural ventilation is a type of general ventilation which depends on natural instead of mechanical means for air movement. Natural ventilation can depend on the wind or the difference in temperature from one area to another to move air through a building. Therefore, it is unpredictable and unreliable. (See also Local Exhaust Ventilation, Mechanical Ventilation and Ventilation.)

NFPA

NFPA stands for National Fire Protection Association (U.S.).

NIOSH

NIOSH stands for National Institute for Occupational Safety and Health. NIOSH is a branch of the United States government which undertakes research and develops occupational health and safety standards.

Nuisance Dust, Nuisance Particulate

Nuisance particulate is a term used historically by the ACGIH (American Conference of Governmental Industrial Hygienists) to describe airborne materials (solids and liquids) which have little harmful effect on the lungs and do not produce significant disease or harmful effects when exposures are kept under reasonable control. Nuisance particulates may also be called nuisance dusts. High levels of nuisance particulates in the air may reduce visibility and can get into the eyes, ears and nose. Removal of this material by washing or rubbing may cause irritation. (Also see Particulates Not Otherwise Classified)

Odour Threshold

The odour threshold is the lowest concentration of a chemical in air that is detectable by smell. The odour threshold should only be regarded as an estimate. This is because odour thresholds are commonly determined under controlled laboratory conditions using people trained in odour recognition.

As well, in the workplace, the ability to detect the odour of a chemical varies from person to person and depends on conditions such as the presence of other odorous materials.

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Odour cannot be used as a warning of unsafe conditions since workers may become used to the smell (adaptation), or the chemical may numb the sense of smell, a process called olfactory fatigue. However, if the odour threshold for a chemical is well below its exposure limit, odour can be used to warn of a problem with your respirator.

OSHA

OSHA stands for Occupational Safety and Health Administration. It is the branch of the United States government 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.

Oxidizing Agent, Oxidizing Material

An oxidizing agent or material gives up oxygen easily or can readily oxidize other materials. Examples of oxidizing agents are oxygen, chlorine and peroxide compounds. These chemicals will support a fire and are highly reactive. Under the Canadian Controlled Products Regulations (CPR) and under the U.S. OSHA Hazcom Standard, there are specific criteria for the classification of materials as oxidizing materials. The CPR is part of the national Workplace Hazardous Materials Information System (WHMIS).

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 material are not to be considered inert, however, and can produce general toxic effects depending on the airborne concentration.

PEL

PEL stands for Permissible Exposure Limit. PELs are legal limits in the United States set by the Occupational Safety and Health Administration (OSHA). (See Exposure Limits for a general explanation.)

Personal Protective Equipment

Personal protective equipment is clothing or devices worn to help isolate a person from direct exposure to a hazardous material or situation. Recommended personal protective equipment is often listed on an MSDS. This can include protective clothing, respiratory protection and eye protection.

The use of personal protective equipment is the least preferred method of protection from hazardous exposures. It can be unreliable and, if it fails, the person can be left completely unprotected. This is why engineering controls are preferred. Sometimes, personal protective equipment may be needed along with engineering controls. For example, a ventilation system (an engineering control) reduces the inhalation hazard

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of a chemical, while gloves and an apron (personal protective equipment) reduce skin contact. In addition, personal protective equipment can be an important means of protection when engineering controls are not practical: for example, during an emergency or other temporary conditions such as maintenance operations.

pH

The pH is a measure of the acidity or basicity (alkalinity) of a material when dissolved in water. It is expressed on a scale from 0 to 14. Roughly, pH can be divided into the following ranges:

- pH 0 - 2 Strongly acidic
- pH 3 - 5 Weakly acidic
- pH 6 - 8 Neutral
- pH 9 - 11 Weakly basic
- pH 12 - 14 Strongly basic

Under the Canadian Controlled Products Regulations, materials with pH values of 0-2 or 11.5-14 may be classified corrosive. Corrosive materials must be stored and handled with great care.

Poisonous And Infectious Material

Under the Canadian Controlled Products Regulations, a Poisonous and Infectious Material is any material which meets the criteria for a Material Causing Immediate and Serious Toxic Effects, a Material Causing Other Toxic Effects, or a Biohazardous Infectious Material.

ppb

ppb stands for parts per billion.

ppm

The abbreviation ppm stands for parts per million. It is a common unit of concentration of gases or vapour in air. For example, 1 ppm of a gas means that 1 unit of the gas is present for every 1 million units of air. One ppm is the same as 1 minute in 2 years or 1 penny in \$10,000.00, or 1 inch in 16 miles.

PSI

PSI stands for pounds per square inch and is a unit of pressure.

Reportable Marine Accident

This is a Transportation Safety Board term that means an accident resulting directly from the operation of a ship other than a pleasure craft, where

- (a) a person sustains a serious injury or is killed as a result of
- (i) being on board the ship or falling overboard from the ship, or
 - (ii) coming into contact with any part of the ship or its contents, **or**

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- (b) the ship
 - (i) sinks, founders or capsizes,
 - (ii) is involved in a collision,
 - (iii) sustains a fire or an explosion,
 - (iv) goes aground,
 - (v) sustains damage that affects its seaworthiness or renders it unfit for its purpose, or
 - (vi) is missing or abandoned.

Reportable Marine Incident

This is a Transportation Safety Board term that means an incident resulting directly from the operation of a ship, other than a pleasure craft, where

- (a) a person falls overboard from the ship,
- (b) the ship, of one hundred gross tons or more, unintentionally makes contact with the bottom without going aground,
- (c) the ship fouls a utility cable or pipe, or an underwater commodity pipeline,
- (d) the ship is involved in a risk of collision,
- (e) the ship sustains a total failure of any machinery,
- (f) the ship sustains a shifting of cargo or a loss of cargo overboard,
- (g) the ship is intentionally grounded or beached to avoid an accident,
- (h) any crew member whose duties are directly related to the safe operation of the ship is unable to perform the crew member's duties as a result of a physical incapacitation that poses a threat to the safety of any person, property or the environment, or
- (i) any dangerous goods are released on board or from the ship

Shipping Casualty (from Atlantic Pilotage Authority Regulations)

Shipping Casualty means an incident that occurs whereby a ship in a compulsory pilotage area:

- (a) causes loss or damage to any other vessel or to property located in or adjacent to the waters in that area, whether or not loss or damage results to the ship; or
- (b) is damaged, stranded, lost or abandoned or is in any manner involved in an incident that may directly or indirectly cause damage to or pollution of the surrounding environment.

Solvent

A solvent is a material, usually a liquid, which is capable of dissolving another chemical. Chemicals commonly called solvents can dissolve many different chemicals. Examples of common solvents are water, ethanol, acetone, hexane and toluene.

Sour Crude

Sour crude is crude oil that contains hydrogen and sulfur compounds, including hydrogen sulfide (H₂S). Because of the H₂S, special handling and transport precautions must be taken to ensure safety.

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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.

STEL

STEL stands for Short-Term Exposure Limit. (See Exposure Limits for a general explanation.)

Synergistic, Synergism

Synergism means that exposure to more than one chemical can result in health effects greater than expected when the effects of exposure to each chemical are added together. Very simply, it is like saying $1 + 1 = 3$. When chemicals are synergistic, the potential hazards of the chemicals should be re-evaluated, taking their synergistic properties into consideration.

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, Teratogenic, Teratogenicity

A teratogen is a substance which can cause birth defects. Teratogenic means able to cause birth defects. Teratogenicity is the ability of a chemical to cause birth defects. Teratogenicity results from a harmful effect to the embryo or the fetus/foetus.

TLV

TLV stands for Threshold Limit Value. It is the occupational exposure limit established by the American Conference of Governmental Industrial Hygienists (ACGIH). TLV is a registered trademark of ACGIH. TLVs are adopted by the federal government as their legal limits. (See Exposure Limits for a general explanation.)

TLV-C

TLV-C stands for the ACGIH (American Conference of Governmental Industrial Hygienists) Threshold Limit Value-Ceiling. See also TLV.

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TWA

TWA stands for Time-Weighted Average. (See Exposure Limits for a general explanation.)

UEL

See Explosive Limits.

UFL

See Explosive Limits.

Upper Explosion Limit

See Explosive Limits.

Upper Explosive Limit

See Explosive Limits.

Upper Flammable Limit

See Explosive Limits.

Vapour

A vapour is the gaseous form of a material which is normally solid or liquid at room temperature and pressure. Evaporation is the process by which a liquid is changed into a vapour. Sublimation is the process by which a solid is changed directly into the vapour state.

Vapour Density

Vapour density is the weight per unit volume of a pure gas or vapour. The vapour density is commonly given as the ratio of the density of the gas or vapour to the density of air. The density of air is given a value of 1. Light gases (density less than 1) such as helium rise in air. If there is inadequate ventilation, heavy gases and vapours (density greater than 1) can accumulate in low-lying areas such as pits and along floors.

Vapour Pressure

Vapour pressure is a measure of the tendency of a material to form a vapour. The higher the vapour pressure, the higher the potential vapour concentration. In general, a material with a high vapour pressure is more likely to be an inhalation or fire hazard than a similar material with a lower vapour pressure.

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Ventilation

Ventilation is the movement of air. One of the main purposes of ventilation is to remove contaminated air from the workplace. There are several different kinds of ventilation. (See General Ventilation, Local Exhaust Ventilation, Mechanical Ventilation and Natural Ventilation.)

VOC

VOC stands for Volatile Organic Compound.

Volatile, Volatility

Volatile means a material can evaporate. Volatility is the ability of a material to evaporate. The term volatile is commonly understood to mean that a material evaporates easily.

On an MSDS, volatility is commonly expressed as the "% volatile." The percent volatile can vary from 0% (none of the material will evaporate) to 100% (all of the material will evaporate if given enough time).

If a product contains volatile ingredients, there may be a need for ventilation and other precautions to control vapour concentrations.

WHSC

See Work Place Health & Safety Committee

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).

Work Place Health & Safety Committee

The Workplace Health & Safety Committee is a group made up of both management and non-management employees. It's purpose is to involve both parties,

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cooperatively, in the management of health and safety matters. For more information, see section 135 of the Canada Labour Code Pt. II, and the WHSC Program contained in this OHS System manual.

Zero energy state

Zero energy state is a condition in which equipment, machinery or an electrical installation is not capable of spontaneous or unexpected action or otherwise releasing energy.