Hazard Communications

Managers and closely matches the recommendations contained in the eight steps described above. Answering these questions will help you determine whether you have taken all of the steps the EPA recommends to implement good IAQ management practices or whether additional actions should be taken to bring your building up to the level described in the guidance. As you address the issues discussed in the Checklist, keep records of your progress so you can refer to them later if questions or related issues arise.

Hazard Communication

Purpose

To inform all employees, by means of labels, Safety Data Sheets (SDS) and Training, of the physical and health hazards to which they may be exposed.

References

OSHA 29 CFR 1910.1200; 1926.59

OSHA has established a minimum number of chemicals, which are considered hazardous and are covered by the Standard. These are:

- Chemicals listed by OSHA in 29 CFR 1910, Subpart Z, Toxic and Hazardous Substances; and
- Chemicals listed by ACGIH in Threshold Limit Values for Chemical Substances and Physical Agents.

The National Toxicology Program's Annual Report on Carcinogens.

The International Agency on Research on Cancer's Monographs.

Policy

S.C. Swiderski, LLC as an employer engaged in a business where hazardous materials are either used or produced for use or distributed, or where its workers have the potential for contact with hazardous materials in their workplace, will ensure that the hazards of all materials found in the workplace will be evaluated, and that information concerning their hazard will be transmitted to all affected employees. Accordingly, this policy describes how these criteria will be met.

The Safety & Compliance Manager will be responsible for:

- Providing the hazard assessment, based upon the material's Safety Data Sheet (SDS);
- Obtaining and providing additional information on the hazardous materials.
- Overseeing the company's labeling program.
- Identifying and providing appropriate emergency procedures if necessary; and
- Supervising the training program.

Definitions

ACGIH – American Conference of Governmental industrial Hygienists is an organization of professional personnel in governmental agencies or educational institutions engaged in occupational safety and health programs. ACGH establishes recommended occupational exposure limits for chemical substances and physical agents. See TLV.

Acid – Any chemical that undergoes dissociation in water with the formation of hydrogen ions. Acids have a sour taste and may cause severe skin burns. Acid turns litmus paper red and has pH values of 0 to 6.

Acute Effect – Adverse effect on a human or animal that has severe symptoms developing rapidly and coming quickly to a crisis.

Acute Toxicity – Acute effects resulting from a single dose of, or exposure to, a substance. Ordinarily these are used to denote effects in experimental animals.

Aerosol – A fine aerial suspension of particles sufficiently small in size to confer some degree of stability from sedimentation (e.g., smoke or fog).

Alkali – Any chemical substance that forms soluble soaps with fatty acids. Alkalis are also referred to as bases. They may cause severe burns to the skin. Alkalis turn litmus paper blue and have pH values from 8 to 14.

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

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

Base – A substance that (1) Liberate hydroxide (OH) ions when dissolved in water, (2) receives hydrogen ions from a strong acid to form a weaker acid, and (3) neutralizes an acid. Bases react with acids to form salts and water. Bases have a pH greater than 7 and turn litmus paper blue. See Alkali.

Boiling Points (BP) – The temperature at which a liquid changes to a vapor state at a given pressure. The boiling point usually expressed in degrees Fahrenheit at sea level pressure (760 mmHg, or one atmosphere). For mixtures, the initial boiling point or the boiling range may be given.

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

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

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

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

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

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

Chemical – An element (e.g., chlorine) or a compound (e.g., sodium bicarbonate) produced by chemical reaction.

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

Chemical Name – The name given to a chemical in the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS). The scientific designation of a chemical or a name that will clearly identify the chemical for hazard evaluation purposes.

Chronic Effect – An adverse effect on a human or animal body with symptoms that develop slowly over a long period of time or that recur frequently. Also see Acute.

Chronic Exposure – Long term contact with a substance.

Chronic Toxicity – Adverse (chronic) effects resulting from repeated doses of or exposure to a substance over a relatively prolonged period of time. Ordinarily used to denote effects in experimental animals.

Combustible – A term used by the National Fire Protection Association (NFPA), the U.S. Department of Transportation (DOT), and others to classify certain liquids that will burn, on the basis of flash points. Both NFPA and DOT generally define "Combustible liquids" as having a flash point of 100°F (37.8°C) or higher but below 200°F (93.9°C). Also see "flammable." Non-liquid substances such as wood and paper are classified as "ordinary combustibles" by NFPA.

Combustible Liquid – Any liquid having a flash point at or above 100°F (37.8°C), but below 200°F (93.3°C), except any mixture having components with flash points of 200°F (93.3°C) or higher, the total volume of which makes up ninety-nine (99) percent or more of the total volume of the mixture.

Common Name – Any means used to identify a chemical other than its chemical name (e.g., code name, code number, trade name, brand name, or generic name). See Generic.

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

Container – Any bag, barrel, bottle, box, can, cylinder, drum, reaction Bessel, storage tank, or the like that contains a hazardous chemical. For purposes of SDS or HCS, pipes or piping systems are not considered to be containers.

Corrosive – A chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact. For example, a chemical is considered to be corrosive if, when tested on the intact skin of albino rabbits by the method described by the DOT in Appendix A to 49 CFR Part 173, it destroys or changes irreversibly the structure of the tissue at the site of contact following an exposure period of 4 hours. This term shall not refer to action on inanimate surfaces.

Epidemiology – Science concerned with the study of disease in a general population. Determination of the incidence (rate of occurrence) and distribution of a particular disease (as by age, sex, or occupation) which may provide information about the cause of the disease.

Evaporation Rate – The rate at which a material will vaporize (evaporate) when compared to the known rate of vaporization of a standard material. This evaporation rate can be useful in evaluating the health and fire hazards of a material. The

designated standard material is usually normal butyl acetate (NBUAC or n-BuAc), with a vaporization rate designated as 1.0. Vaporization rates of other solvents or materials are then classified as:

- FAST evaporating if greater than 3.0. Examples: Methyl Ethyl Ketone = 3.8, Acetone – 5.6, Hexane = 8.3.
- MEDIUM evaporating if 0.8 to 3.0. 190 proof (95%) Ethyl Alcohol – 1.4 VM&P Naphtha = 1.4, MIBK = 1.6.
- SLOW evaporating if less than 0.8. Examples: Xylene = 0.6, Isobutyl Alcohol = 0.6, Normal Butyl Alcohol = 0.4, Water = 0.3, Mineral Spirits = 0.1.

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

Exposure or Exposed – State of being open and vulnerable to a hazardous chemical by inhalation, ingestion, skin contact, absorption, or any other course; includes potential (accidental or possible) exposure.

Flammable – A chemical that includes one of the following categories:

- **"Aerosol, flammable"** – An aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame protection exceeding 18 inches at full value opening, or a flash back (a flame extending back to the valve) at any degree of valve opening.
- **"Gas, flammable"** – (1) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of 13 percent by volume or less; or (2) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than 12 percent by volume, regardless of the lower limit.
- **"Liquid, flammable"** – Any liquid having a flash point below 100°F (37.8°C), except any mixture having components with flash points of 100°F (37.8°C) or higher, the total of which make up 99 percent or more of the total volume of mixture.
- **"Solid, flammable"** – A solid, other than a blasting agent or explosive as defined in 1910.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A solid is a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

Flash Point – The minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested by the following methods:

- Tableau Closed Tester (see American National Standard Method of Test for Flash Point by Tag Closed Tester, Z11.24 1979 [ASTM D56-79]).
- Pensky-Martens Closed Tester (see American National Standard Method of Test for Flash Point by Pensky-Martens Closed Tester, Z11.7-1979 [ASTM D93-79]).
- Setaflash Closed Tester (see American National Standard Method of Test for Flash Point by Setaflash Closed Tester [ASTM D3278-78]).

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

Hazard Statement: a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.

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

Hazardous Warning – Words, pictures, symbols, or combination thereof presented on a label or other appropriate form to inform of the presence of various materials.

Health Hazard – A chemical for which there is significant evidence, based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term “health hazard” includes chemicals that are carcinogens,

toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, hephrotoxins, neurotoxins, agents that act on the hematopoietic systems, and agents that damage the lungs, skin, eyes or mucous membranes.

Highly Toxic – A chemical in any of the following categories:

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

IDLH – Immediately Dangerous to Life or Health.

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

Irritant – A chemical, which is not corrosive, that causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A chemical is a skin irritant if, when tested on the intact skin of albino rabbits by the methods of 16 CFR 1500 41 for 4 hours exposure or by other appropriate techniques, it results in an empirical score of 5 or more. A chemical is an eye irritant if so determined under the procedure listed in 16 CFR 1500.42 or other appropriate techniques.

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

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

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

LC50 – The concentration of a material in air that will kill 50 percent of a group of test animals with a single exposure (usually 1 to 4 hours). The LC50 is expressed as parts of material per million parts of air, by volume (ppm) for gases and vapors, or as micrograms or material per liter of air (g/l) or milligrams of material per cubic meter of air (m/m3) for dusts and mists, as well as for gases and vapors.

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

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

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

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

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

Mixture – Any combination of two or more chemicals if the combination is not, in whole or part, the result of a chemical reaction.

SDS – Material Safety Data Sheet (s). (To be known as **Safety Data Sheets**)

Neutralize – To eliminate potential hazards by inactivating strong acids, caustics, and oxidizers. For example, adding an appropriate amount of caustic substance to the spill can neutralize acids.

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

Overexposure – Exposure to a hazardous material beyond the allowable exposure limits.

Pathology – Scientific study of alterations produced by disease.

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

Physical Hazard – Means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

Pictogram: a symbol plus other graphic elements, such as a border, background pattern, or color that is intended to convey specific information about the hazards of a chemical. Each pictogram consists of a different symbol on a white background within a red square frame set on a point (i.e. a red diamond). There are nine pictograms under the hazard classes.

GHS Pictograms and Hazard Classes		
		
• Oxidizers	• Flammables • Self Reactives ▪ Pyrophorics ▪ Self-Heating ▪ Emits Flammable Gas ▪ Organic Peroxides	▪ Explosives ▪ Self Reactives ▪ Organic Peroxides
		
▪ Acute toxicity (severe)	▪ Corrosives	▪ Gases Under Pressure
		
▪ Carcinogen ▪ Respiratory Sensitizer ▪ Reproductive Toxicity ▪ Target Organ Toxicity ▪ Mutagenicity ▪ Aspiration Toxicity	▪ Environmental Toxicity	▪ Irritant ▪ Dermal Sensitizer ▪ Acute toxicity (harmful) ▪ Narcotic Effects ▪ Respiratory Tract ▪ Irritation

ACUTE ORAL TOXICITY - Annex 1				
	Category 1	**Category 2**	**Category 3**	**Category 4**
LD_{50}	£ 5 mg/kg	> 5 < 50 mg/kg	³ 50 < 300 mg/kg	³ 300 < 2000 mg/kg
Pictogram				
Signal word	Danger	Danger	Danger	Warning
Hazard statement	Fatal if swallowed	Fatal if swallowed	Toxic if swallowed	Harmful if swallowed

Transport "Pictograms"		
		
Flammable Liquid Flammable Gas Flammable Aerosol	Flammable solid Self-Reactive Substances	Pyrophorics (Spontaneously Combustible) Self-Heating Substances
		
Substances, which in contact with water, emit flammable gases (Dangerous When Wet)	Oxidizing Gases Oxidizing Liquids Oxidizing Solids	Explosive Divisions 1.1, 1.2, 1.3
		
Explosive Division 1.4	Explosive Division 1.5	Explosive Division 1.6
		
Compressed Gases	Acute Toxicity (Poison): Oral, Dermal, Inhalation	Corrosive
		
Marine Pollutant	Organic Peroxides	

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

Precautionary Statement: a phrase that describes recommended measures to be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or improper storage or handling of a hazardous chemical.

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

Table 3.1 Explosives

Division	Characteristics
1.1	Mass explosion hazard
1.2	Projection hazard
1.3	Fire hazard or minor projection hazard
1.4	No significant hazard
1.5	Very insensitive substances with mass explosion hazard
1.6	Extremely insensitive articles with no mass explosion hazard

Table 3.3 Flammable Liquids

Category	Criteria
1	Flash point < 23°C (73.4°F) and initial boiling point = 35°C (95°F)
2	Flash point < 23°C (73.4°F) and initial boiling point > 35°C (95°F)
3	Flash point = 23°C(73.4°F) and = 60°C (140°F)
4	Flash point = 60°C (140°F) and = 93°C (200°F)

Table 3.4 Flammable Solids

Category	Criteria
1	Metal Powders: burning time = 5 minutes Others: wetted zone does not stop fire & burning time < 45 seconds or burning > 2.2 mm/second

2	Metal Powders: burning time > 5 and = 10 minutes Others: wetted zone stop fire for at least 4 minutes & burning time < 45 seconds or burning rate > 2.2mm/second

Table 3.5 Self-Reactive Substances/Table 3.7 Organic Peroxides

Type	Criteria
A	Can detonate or deflagrate rapidly, as packaged.
B	Possess explosive properties and which, as packaged, neither detonates nor deflagrates, but is liable to undergo a thermal explosion in that package.
C	Possess explosive properties when the substance or mixture as package cannot detonate or deflagrate rapidly or undergo a thermal explosion.
D	• Detonates partially, does not deflagrate rapidly and shows no violent effect when heated under confinement; or • Does not detonate at all, deflagrates slowly and shows no violent effect when heated under confinement; or • Does not detonate or deflagrate at all and shows a medium effect when heated under confinement.
E	Neither detonates nor deflagrates at all and shows low or no effect when heated under confinement.
F	Neither detonates in the cavitated bubble state nor deflagrates at all and shows only a low or no effect when heated under confinement as well as low or no explosive power.
G	Neither detonates in the cavitated state nor deflagrates at all and shows non effect when heated under confinement nor any explosive power, provided that it is thermally stable (self-accelerating decomposition temperature is 60°C to 75°C for a 50 kg package), and, for liquid mixtures, a diluent having a boiling point not less than 150°C is used for desensitization.

SDS – Safety Data Sheet

The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or SDSs) to communicate the hazards of hazardous chemical products. As of June 1, 2015, the HCS will require new SDSs to be in a uniform

format, and include the section numbers, the headings, and associated information under the headings below:

Section 1, Identification includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

Section 2, Hazard(s) identification includes all hazards regarding the chemical; required label elements.

Section 3, Composition/information on ingredients includes information on chemical ingredients; trade secret claims.

Section 4, First-aid measures includes important symptoms/ effects, acute, delayed; required treatment.

Section 5, Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire.

Section 6, Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.

Section 7, Handling and storage lists precautions for safe handling and storage, including incompatibilities.

Section 8, Exposure controls/personal protection lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).

Section 9, Physical and chemical properties lists the chemical's characteristics.

Section 10, Stability and reactivity lists chemical stability and possibility of hazardous reactions.

Section 11, Toxicological information includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12, Ecological information*

Section 13, Disposal considerations*

Section 14, Transport information*

Section 15, Regulatory information*

Section 16, Other information, includes the date of preparation or last revision.

*Note: Since other Agencies regulate this information, OSHA will not be enforcing Sections 12 through 15(29 CFR 1910.1200(g)(2)).

Employers must ensure that SDSs are readily accessible to employees.
See Appendix D of 1910.1200 for a detailed description of SDS contents.

Signal words - a single word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used are "danger" and "warning." "Danger" is used for the more severe hazards, while "warning" is used for less severe hazards.

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

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

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

Stability – The ability of a material to remain throughout the body, affecting all body systems and organs. Its adverse effect is not localized in one spot or area.

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

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

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

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

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

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

- **TLV-TWA**: The allowable Time-Weight Average concentration for a normal 8-hour workday or 40-hour workweek.
- **TLV-STEL**: The Short-Term Exposure Limit, or maximum concentration for a continuous 15-minute exposure period (maximum of four such periods per day, with at least 60 minutes between exposure periods, and provided the daily TLV-TWA is not exceeded).
- **TLV-C**: The ceiling exposure limit – the concentration that should not be exceeded even instantaneously.

Toxic – A chemical falling within any of the following categories:

- A chemical that has a median lethal dose (LD50) of more than 50 milligrams per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats' weight between 200 and 300 grams each.
- A chemical that has a median lethal dose (LD50) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.
- A chemical that has a median lethal concentration (LC50) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within 1 hour) to albino rats weighing between 200 and 300 grams.

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

Trade Name – The trademark name or commercial trade name for a material or product.

TWA – Time Weighted Average exposure is the airborne concentration of a material to which a person is exposed, averaged over the total exposure time – generally the total workday (8 to 12 hours). Also see TLV.

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

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

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

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

Vapor Pressure – The pressure exerted by a saturated vapor above its own liquid in a closed container. When quality control tests are performed on products, the test temperature is usually 100°F, and the vapor pressure is expressed as pounds per square inch (psig or psia), but vapor pressures reported as SDS are in millimeters of mercury (mmHg) at 68°F (20°C), unless stated otherwise. Three factors are important to remember:

- Vapor pressure of a substance at 100F will always be higher than the vapor pressure of the substance at 68°F (20°C).
- Vapor pressure reported on MSDA in mmHg is usually very low pressure; 760 mmHg is equivalent to 14.7 pounds per square inch.
- The lower the boiling point of a substance, the higher its vapor pressure.

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

Volatility – A measure of how quickly a substance forms a vapor at ordinary temperatures.

Water-Reactive – A chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

STATE RIGHT-TO-KNOW

Many states and local communities have adopted employee "Right-To-Know" laws. Most of these local laws contain not only the provisions of Federal Standard, but often go far beyond in their compliance requirements. However, the courts have ruled that the Federal OSHA Standard pre-empts all state and community Right-To-Know laws for all employers with respect to those requirements that are covered by the federal standard.

This does not mean S.C. Swiderski, LLC and its Affiliates is exempt from all the requirements of state Right-To-Know laws. According to OSHA, employers need to comply with the labeling, SDS and training requirements. Others must still be met, such as annual reports, community notification of hazardous materials, employee right of refusal to work, additional hazardous material sources, etc. Each state and local community must be checked to determine their local requirements regarding hazardous materials.

EXEMPTIONS

There are two types of exemptions from this program, and they are as follows:

The following materials or operations are exempt from the provisions of this Standard:

- Any hazardous waste which is subject to the regulations of the Environmental Protection Agency (EPA);
- Toxic substances used in the workplace which are in the same form, volume, concentration, and for the same use as commonly sold by retail outlets as consumer goods.
- Any consumer product used in the workplace in the same manner as normal customer use, which will not result in a duration and frequency of exposure greater than consumer exposure.
- Tobacco or tobacco products.
- Foods, drugs, or cosmetics for personal consumption by employees in the workplace.

When labeled in accordance with federal requirements, the following substances shall be exempt only from the labeling provisions of the Standard.

- Pesticides subject to EPA's Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) labeling requirements.
- Food, drug, or cosmetic material subject to labeling requirements of the Food and Drug Administration (FDA).

- Distilled spirits, wine, or malt beverages subject to labeling requirements of the Treasury's Bureau of Alcohol, Tobacco and Firearms (BATF); and
- Consumer products subject to labeling requirements of the Consumer Products Safety Commission.

Hazard Assessment

S.C. Swiderski, LLC has chosen to rely on the evaluation and determination of the material by the material manufacturer and importer and the use of the Safety Data Sheets (SDS) they have provided, to satisfy the requirements of 29 CFR 1910.1200 (d) Hazard Determination.

S.C. Swiderski, LLC relies, in good faith, on the SDS received with all hazardous material shipments, or soon thereafter in the case of missing or updated MDSD, from the material manufacturer, importer or distributor. If new and significant information concerning the potential health hazard of a material in the workplace is uncovered, then the Safety Manager will ensure that either an updated SDS is obtained from the supplying source, or in the event such SDS is not available, that the new information is added to the appropriate section of the existing SDS within two (2) moths of his being advised of the new information.

S.C. Swiderski, LLC will rely solely on the SDS and will not utilize any in-house alternatives to the SDS for hazard assessment.

Since S.C. Swiderski, LLC does not have access to the written procedures maintained by the material manufacturer or importer, should a problem arise with the information received which cannot be resolved with the supplier; the matter will be referred to the nearest OSHA office for investigation.

In the event S.C. Swiderski, LLC should become a “hazardous material manufacturer” due to a material being produced during a process of any type, and should S.C. Swiderski, LLC employees become either exposed or potentially exposed, the material will be evaluated in accordance with the provisions of the Standard by an appropriate outside chemical laboratory who will also be requested to provide a completed SDS on the basis of their analysis of the material.

Should S.C. Swiderski, LLC find it necessary to mix two or more materials, and the mixture has already been tested by any of the suppliers to determine its hazards, the results of this testing will be requested on an SDS for the mixture. If this mixture has not been tested as a whole, then paragraphs (5) (ii), (5) (iii), and (5) (iv) of the Standard will be used as the procedure for determination of the hazard. Should this become necessary, the procedures used to evaluate this mixture will be described in writing and attached to the completed SDS.

NOTE: *Ingredients of less than 1% of the mixture must be identified if there is evidence that the ingredients could be released from the mixture in concentrations that would exceed a maximum threshold limit or present a health hazard.*

HAZARDOUS MATERIAL INVENTORY

The Safety & Compliance Manager will conduct an inventory of all hazardous materials within the workplace. From the appropriate SDS on each of these materials, he/she will make a hazard assessment and take the necessary steps to ensure that the hazard information is included on all Hazardous Materials Identification System (HMIS) labels. The Safety & Compliance Manager will also determine whether or not there are any missing SDS and if any have been requested from the appropriate supplier. The complete inventory of all hazardous materials in the workplace will be kept in the chemical management program through Velocity EHS.

SAFETY DATA SHEETS

Safety Data Sheets (SDS)

The SDS is the primary document in the hazard communication procedure. The Standard requires manufacturers and importers to provide an SDS with the materials they ship and requires employers to have an SDS on each hazardous material they use. We cannot overstate the importance of the SDS. This form contains known hazard and protection information on a hazardous material. It is the one place everyone should look before starting any job involving hazardous materials and any time there is a question about a particular material's risks or means of protection.

Acquiring SDS

The Safety & Compliance Manager is responsible for obtaining an SDS on each material substance or compound entering the workplace. The normal procedure for acquiring an SDS will be to place a notice on all purchase orders requiring the supplier to comply with the SDS requirements of the standard by providing the SDS with the ordered product at the time of delivery.

Commodities ordered/received by the project shall not be distributed into the workplace until the Purchasing Department has confirmed receipt on the accompanying SDS. The supplier has 30 days in which to respond. A follow-up letter should be sent if the SDS is not received within the 30-day period. This second request should be accompanied by a telephone call.

If the SDS is not received within 10 working days following the second request, a certified letter requesting the SDS should be sent to the supplier. Continued absence of the SDS within the then (10) working days following the certified letter should result in the filing of a written complaint with the nearest OSHA regional office or appropriate state agency. One other possibility is to seek an alternate supplier who can guarantee an immediate SDS.

NOTE: One of the most important aspects of state Right-To-Know laws is documentation. Therefore, it is imperative that you carefully document all communications with both supplier and customers when dealing with hazardous materials and SDS.

TRADE SECRETS

Most state-level Right-To-Know Act laws, as well as the Federal Law, provide protection for trade secrets in varying degrees. If trade secret information is withheld on the SDS, all other information must be provided on the substance's properties and effects. The SDS must also indicate the category of information being withheld and the claim of a trade secret must be able to be supported. The specific chemical identity that may be withheld includes the chemical name, CAS number, or any other information, which could reveal the precise chemical designation of the substance.

Should a treating physician or health care professional determine that a medical emergency exists; the manufacturer must immediately disclose any necessary trade secret information that will assist the medical professionals in handling the emergency.

Hazardous Materials Identification

Container Labeling (Hazardous Chemicals Only)

Each container of a hazardous chemical must have a warning label. The labeling system adopted by S.C. Swiderski, LLC is not intended to be the sole or the most complete source of information regarding the nature or identity of the hazardous chemicals within the workplace. The identity of the chemical, as it is show on the label, could be any term the company wishes to use, if it also appears on the SDS for that chemical along with its precise chemical name.

In doing this, it allows the company to use a common term familiar to the employees of this company, while still providing them with more extensive information including specific chemical identities on the SDS. This is not true of shipping containers of hazardous chemicals.

The Safety & Compliance Manager is responsible for ensuring that containers of hazardous chemicals which are shipped to the workplace are marked with the identity of the chemical, the appropriate health warning, the target organ effects or the chemical, and the name and address of the chemical manufacturer, importer, or other responsible party.

S.C. Swiderski, LLC is not required to label small portable containers into which hazardous chemicals are transferred from labeled containers, if these portable containers are intended only for the immediate use of the employees who performs the transfer.

Hazardous Materials Identification System (HMIS)

The HMIS is a comprehensive color-coded labeling system covering both hazard assessment and hazard communication. Hazard assessment involves the collection and evaluation of SDS' and the development of numerical ratings for the acute health, flammability and reactivity hazards of the chemical, the designation of chronic health hazards, and the assignment of a personal protective equipment index. The hazard communication portion of the HMIS procedure communicates information on the chemical's identity, its degree of acute health, flammability, and reactivity hazards, its chronic health hazards, and the proper personal protective equipment that must be used when exposed to the hazardous chemical.

The chemical's identity is conveyed by a chemical, trade, or brand name, by a chemical code number, or by some other descriptive term which clearly identifies the chemical to the work force and for hazard evaluation purposes. The acute health, flammability and reactivity hazards are communicated by numerical ratings, and an asterisk on the label,

which is tied to descriptive information on the SDS, communicates the chronic health hazard. An alphabetical designation is used to denote a single item, or a combination of terms, of personnel protective equipment appropriate for use when exposed to the hazardous chemical.

The HMIS label utilizes a four-color rectangle or square, which is affixed to the chemical container, conveyance, or piping system, etc.

Workplace Labels

LABELS USED ON CONTAINERS OF HAZARDOUS CHEMICALS WHICH DO NOT LEAVE THE WORKPLACE

The use of the standard HMIS labels, as identified below, may be used an all containers, which remain within the workplace. The standard label is described as follows:

White space --Chemical name **0** = Little or no hazard

Blue space --Health Hazard **1** = Slight hazard

Red space --Flammability hazard **2** = Moderate hazard

Yellow space --Reactivity hazard **3** = High hazard

White space --Personal Protective Equipment **4** = Extreme hazard

The numbers 0 to 4 may appear in the blue, red, and yellow spaces.

Shipping Labels

LABELS USED ON CONTAINERS OF HAZARDOUS CHEMICALS WHICH ARE SHIPPED OUT OF THE WORKPLACE

In the case of shipped containers of hazardous chemicals, the label must also include the target organ effects of the hazardous chemical. In addition to the information contained in the standard HMIS label, the shipping HMIS label must also contain the following information:

- Health hazards
- Immediate and delayed target organ effects
- Routs of entry
- Physical hazards
- Name and address of chemical manufacturer, importer, or other responsible party.

Completing the Hazardous Material Information System (HMIS) Label

The Safety & Compliance Manager is responsible for ensuring that the proper hazard assessment and protective equipment ratings appear on all HMIS labels used for identifying hazardous chemicals in the workplace. Work area supervisors should assist the Safety & Compliance Manger in ensuring that all such containers in the workplace are properly labeled, stenciled, or tagged. The appropriate information concerning the chemical should be written directly onto the HMIS label with an indelible felt-tip marking or writing pen.

Stockroom or warehouse receiving supervisors are responsible for ensuring that all containers of hazardous chemicals received at the dock or coming onto the site are free from damage and/or leaks prior to their acceptance. They are also responsible for ensuring that all such chemicals received are properly identified, that an accompanying SDS is available, and that the appropriate HMIS label is displayed on or affixed to the container before it is removed from the receiving area for either storage or delivery to the work area.

CONTRACTOR NOTIFICATION

All contractual agreements with on-site contractors will contain a notification advising the contractor of S.C. Swiderski, LLC Communication Procedure and requiring the contractor to make himself, and those of his employees that will be working at the site, to become familiar with the provisions of this program.

In the event the contractor will be performing his work in an area where hazardous materials are present, the contractor must be given: a verbal orientation on the program by the Safety & Compliance Manger, a copy of the S.C. Swiderski, LLC Hazard Communication Program, and the hazardous material inventory for that area.

Supervisor Responsibilities

Supervisors are responsible for establishing safe procedures and for ensuring that the protective equipment needed to work with the chemicals is available. Supervisors must instruct their workers about possible hazards, safety precautions that must be observed, possible consequences of an accident, and procedures to follow if an accident does occur. The supervisor is required to enforce the proper use of protective equipment and established safety practices.

It is the responsibility of employees and all who use S.C. Swiderski, LLC facilities to understand the properties of the chemicals with which they will work and follow all precautions that apply to each specific task.

When faced with an unexpected threat of malfunction, injury, or damage, employees are expected to choose a course of action that provides the most protection to themselves and to others in the area. Every employee is expected to report to the supervisor any unsafe condition seen in the area that would not permit him/her to work safely.

The Safety & Compliance Manager assists employees and supervisors to work safely by providing information on the hazardous properties of materials, recommending methods for controlling the hazards of specific operations, and by monitoring the work environment. Supervisors must instruct their personnel about the potential hazards involved in the work, proper safety precautions to follow, and emergency procedures to use if an accident should occur.

To supplement the supervisor's training, the Safety & Compliance Manager will conduct training courses and materials on selected topics. In addition, safety data sheets and safety information, including hazards, health effects, potential routes of exposure, proper handling precautions, and emergency procedures on specific chemicals, are available through the Safety Portal.

Responsibilities of Supervisors/Management
to Identify Hazards for Respective Work Areas

Ensure hazards are properly labeled. Obtain/maintain copies of material safety data sheets, as required, of each hazardous material used in the work area and make them accessible to employees during each work shift. Have the written Hazard Communication Program available to all employees. Provide hazard-specific training for employees. Identify hazardous materials in the hazard review section of the S.C. Swiderski, LLC purchase requisition form. Employees must: Attend safety training meetings. Perform operations in a safe manner. Notify management immediately of any safety hazards or

injuries. When ordering materials, identify hazardous chemicals in the hazard review section of the S.C. Swiderski, LLC purchase requisition form.

The Safety & Compliance Manager shall:

- Develop a written Hazard Communication Program.
- Maintain a central file of material safety data sheets.
- Review and update S.C. Swiderski, LLC stock safety labels.
- Provide generic training programs.
- Assist supervisors in developing hazard-specific training programs.
- Oversee the Hazard Communication.
- Standard written policy and implementation plans.
- Alert on-site contractors to hazardous materials in work areas.
- Alert on-site contractors that they must provide their employees' information on hazardous materials they bring to the worksite.

The number of hazardous chemicals and the number of reactions between them is so large that prior knowledge of all potential hazards cannot be assumed. Therefore, when the chemical properties of a material are not fully known, it should be assumed hazardous and used in as small quantities as possible to minimize exposure and thus reduce the magnitude of unexpected events.

The following general safety precautions should be observed when working with chemicals:

- Keep the work area clean and orderly.
- Use the necessary safety equipment.
- Carefully label every container with the identity of its contents and appropriate hazard warnings.

Orientation and Training

S.C. Swiderski, LLC has established an initial orientation and on-the-job training program for each employee who may encounter, or be exposed to, a hazardous material in the workplace.

We believe that color coded warning labels, SDS, Hazardous Chemical Inventories, and a specific orientation and training program, all play an equally important part in the Hazard Communication Program.

Each employee, who is affected by the OSHA Hazard Communication Standard, must be informed of the provisions of the Standard. This will include an explanation of the requirements of the Standard, the S.C. Swiderski, LLC written Hazard Communication Program, how to use the Safety Data Sheet online portal, the Hazardous Material Inventory, and the color-coded label system. Training will be provided at the time of initial assignment and whenever a new hazardous material is introduced into the work area. Employees will be informed of operations in the work area where hazardous materials are present, an where they can find the company's written Hazard Communication Program, the Hazardous Material Inventory, the hazard determination procedure, and the SDS.

Initial Orientation and Training

New or transferred employees must be assumed to have little or no prior knowledge of the extent of hazards associated with hazardous materials. Prior to initiation of work, the supervisor must give the new employee a thorough description of the work area, use and maintenance of personnel protective devices, and a complete description of the initial work assignment.

The format of the hazard communication portion of the initial orientation and training includes supervisor's classroom instruction on the employees' right-to-know, how to use an SDS, the company's Hazard Communication Program, the OSHA Standard, and the Hazardous Material Inventory.

On-The-Job Training

For those employees who will be working directly with a hazardous material, the functional supervisor in the area in which the work will take place will be responsible for specific on-the-job training regard to these materials. The supervisor will instruct these employees on the methods and observations that may be used to detect the presence or release of the hazardous chemical, including air sampling, personal monitoring, visual appearance, odor, etc., the physical and health hazard of the chemical, and the specific measures the employee can take to protect himself from these hazards.

During this on-the-job training and working directly with the hazardous material, it should be planned to have the new employee work closely with a more experienced co-worker until such time as it is determined the new employee can work independently.

Non-Routine Tasks

All management personnel are responsible for contacting the Safety & Compliance Manager before any non-routine task is undertaken in their respective department or anywhere else in the workplace where personnel may have the potential for exposure to a hazardous material. This also applies to non-routine maintenance tasks. This is necessary to allow for a hazard assessment to be made and to communicate these hazards to the affected employees before the non-routine tasks are performed and personnel are subject to exposure.

Records

OSHA does not require that SDS or the chemical inventory be kept for a specific period of time. They need only be maintained on a current status and to the extent required by OSHA's Employee Access to Exposure and Medical Records, as specified in 29 CFR 1910.20. However, while neither SDS nor chemical inventories have to be kept for a specified period of time, this is only true provided some other record of identity and where and when the hazardous chemical was used is kept for a period of 30 years.

Therefore, S.C. Swiderski, LLC has the option of keeping either the SDS or the inventories, or some other record of chemical identity for the 30-year period specified in the Records Access Rule. It is the responsibility of the Safety Manger to ensure that the SDS are maintained up to date for immediate employee access.

The passage of the OSHA Hazard Communication Standard has mandated that the employer provide worker training in the area of hazardous materials. It has been found that it is not adequate to just provide this training, but that it is necessary to have sufficient written documentation that the employee has received and understood the training.

It will therefore be necessary to obtain a written statement from the employee attesting to the fact that they have received hazard communication training, that they have been furnished hazard communication material, that they have studied the material, and that they comprehend the information contained in the material. These records will be maintained in the Human Resource office for record retention.

Revision #2
Created 2024-05-23 10:50:15 UTC by Dale Bergman
Updated 2026-05-03 15:39:23 UTC by Marc Bouwer