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I. POLICY STATEMENT

It is the policy and intent of Gallant Builders to ensure that the hazards of chemicals stored or used by our firm are evaluated and that information concerning their hazards is transmitted to all employees, firefighting personnel and the general public.

II. RESPONSIBILITY

The Gallant Builders superintendent or designated person is responsible for ensuring that all employees on his/her jobsite are informed of their rights under the Hazardous Chemical Right to Know Act. The person in charge of the Gallant Builders shop, office or other facilities, shall have the same responsibility.

III. COMPLIANCE REQUIREMENTS

This written Hazard Communication program is available to Gallant Builders employees, their designated representatives, etc. (Collective Bargaining Agent). A copy shall be maintained at each project.

A list shall be developed and maintained of Gallant Builders hazardous chemicals or substances that are on each jobsite. They should be site specific. SDS (Safety Data Sheets) are available at www.msdsonline.com if there are any difficulties in obtaining them.

Provide information and training to all Gallant Builders employees relative to the Hazard Communication Regulation and about any potential exposure to hazardous chemicals.

Explain how to read, interpret and comply with information on SDS (Safety Data Sheets) and labels to Gallant Builders employees as part of the ongoing safety training. Employees have a right to receive data contained on the SDS (Safety Data Sheets).

Training shall be conducted and documented at a safety meeting of information on hazardous chemicals to which the employee will be exposed in the work area.

Maintain records of employee accidental exposure to hazardous chemicals.

Have available to other contractors or Trade Contractors SDS (Safety Data Sheets) information on hazardous chemicals being used by Gallant Builders on the jobsite.

IV. HAZARD COMMUNICATION PROGRAM PROCEDURES FOR COMPLIANCE

STEP 1 - IDENTIFICATION OF HAZARDOUS CHEMICALS & SUBSTANCES

A survey of the project should be made to identify all hazardous chemicals and substances to be used by Gallant Builders employees Trade Contractor to which Gallant Builders employees will be exposed.

The hazardous chemical site specific inventory sheet should contain the following information:

1. The chemical identifier that is referenced on the appropriate Safety Data Sheet (SDS).

2. The manufacturer's name, address and telephone number.
3. The work area in which the chemical is used or stored.

4. Date SDS (Safety Data Sheet) was requested or received.

The hazardous chemical list must be updated as additional hazardous chemicals and substances are brought on to the jobsite to which Gallant Builders employees will be exposed.

DEFINITION:
"Hazardous Chemical" means any chemical which is classified as a physical or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified and falls in the following categories:

	HEALTH HAZARD		PHYSICAL HAZARD
a)	Carcinogenicity	a)	Flammable (liquid, gas, solid, aerosol)
b)	Skin Corrosion/Irritation	b)	Compressed gas
c)	Eye Damage/Irritation	c)	Explosive
d)	Sensitizer	d)	Organic Peroxide
e)	Acute Toxicity	e)	Oxidizer
f)	Specific organ toxicity	f)	Pyrophoric (Liquid or solid)
g)	Aspiration Hazard	g)	Corrosive to Metal
h)	Reproductive toxicity	h)	Self Reactive
i)	Germ cell mutagenicity	i)	Self Heating

STEP 2 - SAFETY DATA SHEETS (FORMERLY MATERIAL SAFETY DATA SHEETS – MSDS)

DEFINITION:

"SDS" - is the abbreviation used to identify a Safety Data Sheet. "SDS" is a document which supplies information about a particular hazardous chemical.

The SDS must provide product identifier, information on the physical and chemical characteristics of the hazardous chemical: known acute and chronic health effects and related health information; exposure limits; whether the chemical is considered to be a carcinogen by NIOSH, or OSHA; precautionary measures; emergency and first aid procedures; and the identification of the organization responsible for preparing the sheet, including name, address, telephone number and emergency phone number.

OBTAINING AN SDS
Trade Contractor shall furnish to Contractor the applicable SDS for all hazardous materials or chemicals used in connection with or consumed or incorporated into this project as required by the Hazard Communication Standard of the Occupational Safety and Health Administration (OSHA).

Copies of SDS's for all hazardous substances to which employees of this company may be exposed will be kept in the Gallant Builders field office. Generic SDS's (gasoline, diesel fuel) are prohibited.

A review will be made of incoming data sheets for new and significant health/safety information. New information will be passed on to the affected employees and Trade Contractors on the jobsite.

If an SDS is missing or obviously incomplete, a new SDS will be requested from the manufacturer.

EMPLOYEES' RIGHTS
Employees have a right to receive data contained on the SDS. Employees will not be discharged or discriminated against for exercising their rights in this regard.

STEP 3 - EMPLOYEE TRAINING

Employees are to attend an employee health and safety orientation or tool box meeting set up by the superintendent, prior to starting work, for information and training on the following:

1. An overview of the requirements contained in the Hazard Communication Regulation, including their rights under the Hazard Regulation.

2. Inform employees of any operation in their work area where hazardous chemicals are present. (Utilize hazardous chemical list)

3. Location and availability of the written Hazard Communication Program.

4. Physical and health effects of the hazardous chemicals.

5. Methods and observation techniques used to determine the presence of or the release of hazardous chemicals in the work area.

6. How to lessen or prevent exposure to these hazardous substances through use of engineering controls, work practices, and/or the use of personal protective equipment.
7. Steps the company has taken to lessen or prevent exposure to these chemicals.

8. Emergency and first aid procedures to follow if employees are exposed to hazardous substance(s).

9. How to read labels and review SDS to obtain appropriate hazard information.

10. Have each employee trained in the above, sign the Employee Acknowledgment Form. (See Appendix)

11. Conduct an annual review of the Hazard Communication Program with all employees and maintain a record of those in attendance.

12. Employees involved in non-routine tasks (such as acid wash of concrete or confined space entry) will be informed of the hazards involved and trained at specific training sessions so as to ensure awareness of required information.

NOTE: It is critically important that all employees understand the training. They should know what an SDS is, how to read labels and the protective requirements, as well as first aid procedures for any hazardous chemical they are using. Employees should contact the Superintendent or Designated Safety Representative with any additional questions.

When new hazardous chemicals are introduced, the superintendent will review the above items as they relate to the new chemical in a safety meeting prior to employees being exposed to the chemicals or substance.

STEP 4 - LABELING

DEFINITION:
Materials received at the jobsite shall be properly labeled. If labels are not provided, contact the supplier for specific labels. Information contained on labels must not conflict with federal, state or local laws and/or regulations in label requirements. These labels should provide the following:

1. Product Identifier: Identify the chemical products or substance in the container.

2. Pictograms: A symbol plus other graphic elements to convey specific information about the hazards of a chemical.

3. Signal Words: A single word used to indicate level of severity. (Danger or Warning)

4. Hazard Statement: Describes the nature of the hazard(s) of a chemical, including degree of hazard, where appropriate.
5. Precautionary Statement: Phrase that describes recommended measures to minimize or prevent adverse effects resulting from exposure.

6. List name, address and telephone number of the manufacturer or other responsible party as well as an emergency phone number.

USE OF LABELS:
The labels must not be removed and should be replaced if illegible.

1. All containers of chemical products, including laboratory bottles, solvent cans and dispensers must be labeled. For smaller containers (less than one gallon or 3.7 liters), labels must be consistent with the standards that are specified above. Only those chemicals that can be classified as "immediate use," one gallon or less are exempt from the labeling procedures described above.

2. "Immediate use" is defined as the hazardous chemicals under control of, and used only by the person who transfers it from the labeled container and only within the work shift in which it is transferred.

3. In storage areas where similar chemical products are stored, signs and/or placards may be posted to identify the material and transmit the required information in lieu of individual container labels.

4. If any materials are to be transferred from a storage tank or container through a pipeline, labels with the required information will be affixed to the line at the discharge point (valve).

5. In cases where a chemical product other than that specified on the container label is placed in the container, re-label the container to accurately reflect the hazards of the chemical product that has been substituted.

STEP 5 - SHARING OF INFORMATION

General Contractor/Trade Contractor Responsibilities

1. Access of information by other employers - Gallant Builders will make available to Trade Contractors a copy of the written Hazard Communication Program and a list of the hazardous chemicals being used by Gallant Builders on the jobsite. A copy of the appropriate SDS will be available for any hazardous chemical or substance to which the Trade Contractors' employees or others may be exposed at the jobsite trailer.

2. Likewise, it shall be the responsibility of all Trade Contractors to provide Gallant Builders with a copy of their written Hazard Communication Program and the appropriate SDS's for hazardous chemicals being used by their company at the jobsite to which Gallant Builders employees may be exposed. This is required by the Hazard Communication Standard of the Occupational Safety & Health Administration (OSHA).

STEP 6 - RECORDKEEPING (at jobsite)

A. Written Hazard Communication Program

B. Safety Data Sheets and requests for any SDS not furnished

C. Chemical Inventory List

D. Records of employee training and employee acknowledgment copies

E. Records of any employee accidentally overexposed to a hazardous chemical

F. Records of any environmental testing

TRAINING AID - LABELS AND SAFETY DATA SHEETS / MATERIAL SAFETY DATA SHEETS

LABELS
Any product that contains a hazardous chemical must be labeled by the manufacturer. The label must contain the following information:

1. Product Identifier.
2. Pictograms
3. Signal Words (Only two are used: Danger or Warning)
4. Hazard Statement
5. Precautionary Statement
6. Name and address of the manufacturer, importer, or other responsible party and emergency phone number.

We will be using the labels that are placed on the product by the manufacturer. For more detailed information, refer to the Safety Data Sheet (SDS). If you see a container that has no label or a damaged label, report it to your supervisor.

V. SAFETY DATA SHEETS (SDS)

The SDS gives you detailed information about a chemical and its hazards. It tells you how to use, handle, and store chemicals safely. The sections of the SDS are as follows:

Section 1 **Identification**: Includes the 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.

Section 3 **Composition/Information on ingredients**: designed to help you identify the material by observing its appearance and odor is provided in this section.

Section 4 **First Aid Measures**: This section contains important symptoms/effects, acute, delayed information and required treatment.

Section 5 **Fire Fighting Measures**: This section lists suitable extinguishing techniques, equipment and chemical hazards from fire.

Section 6 **Accidental Release Measures**: Lists emergency procedures, protective equipment, proper methods of containment and cleanup in cases of spills.

Section 7 **Handling and Storage**: Lists precautions for safe handling and storage, including incompatibilities with other chemicals, etc.

Section 8 **Exposure Controls/Personal Protection**: This section lists OSHA's Permissible Exposure Limits (PEL's) and Threshold Limit Values (TLV's) with appropriate engineering controls and personal protective equipment to be utilized.

Section 9 **Physical and Chemical Properties**: In this section you will find the chemical's characteristics.

Section 10 **Stability and Reactivity**: This section lists the chemicals stability and possibility of hazardous reactions.

Section 11 **Toxicological Information:** This section provides information on the routes of exposure (absorption, inhalation, etc) of the chemical and describes related symptoms, acute and chronic effects and includes numerical measures of toxicity.

Section 12.* **Ecological Information**: This section address environmental issues of the chemical.

Section 13.* **Disposal Considerations**: This section addresses proper disposal requirements.

Section 14.* **Transportation Information**: This section address the proper transport methods of the chemical product.

Section 15.* **Regulatory Information**:

Section 16 **Other Information**: This section includes the date of the SDS preparation or last revision and can also include any other additional information from the manufacturer/distributor.

Note: * Sections 12 thru 15 are required in the SDS to be consistent with the GHS (Globally Harmonized Systems) HazCom standard. Enforcement of these sections does NOT fall under OSHA's jurisdiction.

VI. HAZARD COMMUNICATION STANDARD PICTOGRAM

As of June 1, 2015, the Hazard Communication Standard (HCS) will require pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

HCS Pictograms and Hazards

Health Hazard ▪ Carcinogen ▪ Mutagenicity ▪ Reproductive Toxicity ▪ Respiratory Sensitizer ▪ Target Organ Toxicity ▪ Aspiration Toxicity	**Flame** ▪ Flammables ▪ Pyrophorics ▪ Self-Heating ▪ Emits Flammable Gas ▪ Self-Reactives ▪ Organic Peroxides	**Exclamation Mark** ▪ Irritant (skin and eye) ▪ Skin Sensitizer ▪ Acute Toxicity ▪ Narcotic Effects ▪ Respiratory Tract Irritant ▪ Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder ▪ Gases Under Pressure	**Corrosion** ▪ Skin Corrosion/Burns ▪ Eye Damage ▪ Corrosive to Metals	**Exploding Bomb** ▪ Explosives ▪ Self-Reactives ▪ Organic Peroxides
Flame Over Circle ▪ Oxidizers	**Environment** **(Non-Mandatory)** ▪ Aquatic Toxicity	**Skull and Crossbones** ▪ Acute Toxicity (fatal or toxic)

SAMPLE LABEL

PRODUCT IDENTIFIER

CODE
Product Name

SUPPLIER IDENTIFICATION

Company Name
Street Address
City State
Postal Code Country
Emergency Phone Number

PRECAUTIONARY STATEMENTS

Keep container tightly closed. Store in cool, well ventilated place that is locked.
Keep away from heat/sparks/open flame. No smoking.
Only use non-sparking tools.
Use explosion-proof electrical equipment.
Take precautionary measure against static discharge.
Ground and bond container and receiving equipment.
Do not breathe vapors.
Wear Protective gloves.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.
Dispose of in accordance with local, regional, national, international regulations as specified.

In Case of Fire: use dry chemical (BC) or Carbon dioxide (CO_2) fire extinguisher to extinguish.

First Aid
If exposed call Poison Center.
If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.

HAZARD PICTOGRAMS

SIGNAL WORD
Danger

HAZARD STATEMENT

Highly flammable liquid and vapor.
May cause liver and kidney damage.

SUPPLEMENTAL INFORMATION

Directions for use

Fill weight: Lot Number
Gross weight: Fill Date:
Expiration Date:

VII. SDS GLOSSARY

The following is a list of acronyms, terms and definitions associated with the Safety Data Sheet in the Hazard Communication Program.

Absorption - The process by which a substance can be readily taken into a body. For example, some chemicals can be absorbed through unbroken skin.

Acid - A compound consisting of hydrogen plus one or more other elements and which, in the presence of some solvents or water, reacts to release hydrogen. Acids have the ability to turn litmus paper red and to neutralize bases.

Acute - Severe, usually critical, often dangerous conditions in which relatively rapid changes occur as a result of exposure to high concentrations of material over a short period of time. Acute effects are easier to reverse than are the effects of a chronic exposure. See "chronic."

Alkali - A compound which has the ability to neutralize an acid and form a salt. Like bases, alkalis turn litmus paper blue. See: "Base" and "pH".

Anhydride - An oxide or compound which when combined with water produces an acid or base.

Anhydrous - Does not contain water.

Aqueous - A water-based solution.

Auto-Ignition Temperature - The lowest temperature at which a flammable gas or vapor-air mixture will ignite from its own heat source or a contacted heated surface without the presence of a spark or flame.

Base - A compound which reacts with an acid to form salt. It turns litmus paper blue. Base is another term for "alkali."

Biohazard - This is a combination of the words biological hazard and is used to describe infectious agents presenting a risk or potential risk to the well-being of man or animals either directly through infection, or indirectly through disruption of the environment.

Boiling Point - The temperature at which a substance will boil. This is the point at which the vapor pressure of a liquid is equal to atmospheric pressure.

Buffer - Substance that reduces the change in hydrogen ion concentration, which otherwise would result from adding acids or bases.

Carcinogen - Any substance which, under certain quantified exposures, produces cancer in animals or humans. A chemical is considered to be a carcinogen if:

(a) it has been evaluated by the International Agency for Research on Cancer (IRAC) and found to be a carcinogen or potential carcinogen; or
(b) It is listed as a carcinogen or potential carcinogen in the annual report on carcinogens published by the National Toxicology Program (NTP); or

(c) it is regulated by OSHA as a carcinogen

Catalyst - A substance which, without changing itself, causes a chemical reaction to proceed faster.

Caustic - Something which strongly irritates, burns or destroys living tissue.

Ceiling Value (C) - A maximum established level which no human exposure should ever exceed.

Chemical - Any substance or mixture of substances.

Chemical Change (Reaction) - Change of composition in properties due to rearrangement of elements, atoms or molecules.

Chemical Compound - A substance composed of definite proportions by weight of two or more elements, and whose properties differ from those of its elements. Also see: "Mixture".

Chemical Family - A group of individual elements or compounds with a common general name. Example, acetone, methyl ethyl ketone (MEK), etc.

Chemical Name - The scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name that will clearly identify the chemical for the purpose of conducting a hazard classification.

Chronic - Persistent, prolonged and/or repeated effects which are the result of repeated exposure to low concentrations of a chemical substance over a long period of time. See: "Acute"

Classification – To identify the relevant data regarding the hazards of a chemical; review those data to ascertain the hazards associated with the chemical; and decide whether the chemical will be classified as hazardous according to the definition of hazardous chemical in this section. In addition, classification for health and physical hazards includes the determination of the degree of hazard, where appropriate, by comparing the data with the criteria for health and physical hazards.

Combustible Liquid - Any liquid with a flashpoint above 100 degrees F.
Compressed Gas - A gas under pressure of at least 40 pounds per square inch and some liquids with a very high vapor pressure, i.e., pressure that exceed 40 pounds per square inch. Examples are argon, helium, and nitrogen.

Contact Dermatitis - Caused by contact with a primary irritant, a skin irritation at the area of skin contact.

Corrosive - Any material, liquid or solid, that causes visible destruction of, or irreversible alterations in, human skin tissues at the site of contact (Burns). Examples of corrosive caustics are sodium hydroxide or ammonia solutions.

Dermatitis - Inflammation of the skin. These are two types of skin reactions: primary irritation dermatitis and sensitization dermatitis. Also see: "Irritant", "Senistizer" and "Contact Dermatitis".

Dose - The term used to express the amount of energy or substance absorbed in a unit volume of an organ or individual. Dose rate is the dose delivered per unit of time.

Evaporation Rate - The time it takes a given amount of material to completely vaporize (evaporate) when compared to an equal amount of a reference material.

Flammable - Any substance that is easily ignited, burns intensely, or has a rapid rate of flame spread.

Flammable Gas - A gas that will burn or explode if combined with air over a wide concentration range. Examples are acetylene, hydrogen and propane.

Flammable Liquid - A liquid that has a flashpoint below 100^0F and can be ignited by a spark without any pre-heating. Examples are acetone, toluene, and methanol.

Flammable Solid - A solid, other than a blasting agent or explosive, that is easily ignited and burns intensely without fuel being needed. Ignition can occur through friction, absorption or moisture, spontaneous chemical change, or retained from manufacturing or processing. Examples are aluminum metal powder, magnesium metal strips or powder, and zirconium metal.

Flammable (Explosive) Limits - LEL & UEL - Indicates the explosive or flammable range of a vapor or gas. Are those concentrations of a vapor or gas in air below or above which flame does not occur on contact with a source of ignition. The lower explosive limit (LEL) is the minimum concentration below which the vapor-air mixture is too "lean" to burn or explode. The upper explosive limit (UEL) is the maximum concentration above which the vapor-air mixture is too "rich" to burn or explode. LEL and UEL are given in terms of percentage by volume of gas or vapor in air.

Flash Point - The lowest temperature at which a liquid produces enough vapor to form an ignitable mixture with the air.

Hazard Category – Means the division of criteria within each hazard class, (e.g., oral acute toxicity and flammable liquids include four hazard categories). These categories compare hazard severity within a hazard class and should not be taken as a comparison of hazard categories more generally.

Hazard Class – Means the nature of the physical or health hazards, (e.g., flammable solid, carcinogen, oral acute toxicity)

Hazardous Material - A material that is characterized by one or more of the following: (1) has a flashpoint below 140^0F, closed cup, or subject to spontaneous heating; (2) has a threshold limit value below 500 ppm for gases and vapors, below 500 Mg/M3 for fumes, and below 25 MPPCF for dusts; (3) single oral dose LD 50 or below 500 mg/kg of body weight; (4) is subject to polymerization which results in the release of large amount of energy; (5) is a strong oxidizing or reducing agent; (6) causes first degree burns to skin in short time exposure, or is systematically toxic on contact with the skin; and/or (7) in the course of normal operations may produce dusts, gases, fumes, vapors, mists, or smoke which has one or more of the above characteristics.

Hazard Statement – Means 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.

Health Hazard - A chemical which is classified as posing one if the following hazardous effects:

- Acute toxicity (any route of exposure)
- Skin corrosion or irritation
- Serious eye damage or irritation

- Respiratory or skin sensitization
- Germ cell mutagenicity
- Carcinogenicity
- Reproductive toxicity
- Specific target organ toxicity (single or repeated exposure)
- Aspiration hazard

The criteria for determining whether a chemical is classified as a health hazard are detailed in Appendix A to OSHA 1910.1200 – Health Hazard Criteria.

Hypoxia - Insufficient oxygen especially as applied to body cells.

Incompatible - Materials that could cause dangerous reaction from direct contact with one another.

Ingestion - The taking in of a substance through the mouth; eating it. Failure to wash hands before eating, drinking and smoking can result in the ingestion of chemicals.

Inhalation - The act of breathing in. This is the most common route of entry for chemicals.

Injection - The entry of chemicals into the body by means of broken skin from sores, cuts, burns and scratches.

Insoluble - A substance which is incapable of being dissolved.

Irritant - A chemical that is not corrosive, but that causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. Also see: "Dermatitis" and "Sensitizer".

Label – Means an appropriate group of written, printed or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging.

Label Elements – Means the specific pictogram, hazard statement, signal word and precautionary statement for each hazard class and category.

Latent Period - The period of time between exposure and the first manifestation of damage.

LEL - Lower explosive limit. See "Flammable (Explosive) Limits."

Lethal Concentration - LC - A concentration of a substance that is sufficient to kill a test animal.

Lethal Concentration 50 - LC50 - See "Toxic Inhalation - LC50."

Lethal Dose - LD - An amount of a substance that is sufficient to kill a test animal.

Lethal Dose 50 - LD50 - See toxic inhalation LD50.

LEL - Lower Explosive Limit - See flammable (Explosive) limits.

Mixture – A combination or a solution composed of two or more substances in which they do not react.

Mutagen - A chemical that causes defect in sperm or egg cells prior to conception.

Nausea - Tendency to vomit; feeling of sickness of the stomach.

Nephrotoxins - Chemicals that produce kidney damage.

Neurotoxins - Chemicals that affect the nervous system primarily.

Oral Toxicity - Adverse effects resulting from taking a substance into the body via the mouth.

Organic Peroxides - Organic compounds that are highly reactive; some are unstable and may act as an explosive or oxidizer.

Oxidizer - A chemical, other than a blasting agent or an explosive that contains oxygen and may start or assist combustion in other materials. Examples are chromic acid, concentrated nitric acid, and potassium permanganate.

Oxidizing Agent - A material which gives off oxygen during a chemical reaction.

Permissible Exposure Limit - PEL - an exposure limit established by OSHA regulatory authority. See "Threshold Limit Value (TLV)."

Personal Protective Equipment - PPE - Devices worn by the worker to protect against hazards in the environment. Respirators, gloves, and ear protectors are examples.

pH - A symbol used to quantify the level of acidity or alkalinity. Strong acids have a pH near 1, strong bases near 13, and a pH of 7 indicates neutrality.

Physical Hazard – Means a chemical that is classified as posing one of the following hazardous effects:

- Explosive
- Flammable (gases, aerosols, liquids, or solids)
- Oxidizer (liquid, solid, gas)
- Self-reactive
- Pyrophoric (liquid or solid)
- Self-heating
- Organic peroxide
- Corrosive to metal
- Gas under pressure, or in contact with water emits flammable gas.

See Appendix B to OSHA 1910.1200 – Physical Hazard Criteria.

Pictogram – Means a composition that may include 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. Eight (8) pictograms are designated under this standard (OSHA 1910.1200) for application to a hazard category.

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

Product Identifier – The name or number used for a hazardous chemical on a label or in the SDS. It provides a unique means by which the user can identify the chemical. The product identifier used shall permit cross-reference to be made among the lists of hazardous chemicals required in the written hazard communication program, the label and the SDS.

Pulmonary Agents - Chemicals that may damage the lungs.

Pyrophoric Gas - A chemical in a gaseous state that will ignite spontaneously in air at a temperature of 130^0F (54.4 degrees C) or below.

Reactivity - The ability of a material to undergo chemical reaction with the release of energy or heat.

Reproductive Toxins - Chemicals which have a negative effect on the reproductive capabilities, including chromosomal damage (mutations) and birth defects to the fetus (teratogensis).

Respirator - A device designed to protect the wearer from the inhalation of contaminated air.

Respiratory Disease - Any disease which affects the lungs or the respiratory tract.

Respiratory Irritants - Any chemical that produces a reversible inflammatory effect on the respiratory system.

Safety Can - An OSHA-approved closed container which has the following characteristics: (1) a capacity of not more than 5 gallons (19 liters); (2) a spring-closing lid and spout cover; (3) flash-arresting screen; and (4) designed to safely relieve internal pressure if exposed to fire.

Safety Data Sheet (SDS) – [formerly MSDS] – Written or printed material concerning a hazardous chemical that is prepared in accordance with paragraph (g) of this section [OSHA 1910.1200] HCS 2012.

Signal Word - A 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 in this section are **"Danger" and "Warning". "Danger"** is used for the more severe hazards, while **"warning"** is used for the less severe.

Simple Asphxyiant – A substance or mixture that displaces oxygen in the ambient atmosphere, and can thus cause deprivation in those who are exposed, leading to unconsciousness and death.

Sensitization - Chemicals that may cause an allergic reaction after one or more exposures. Once an individual becomes sensitized, a small dose of the material may cause a big affect. See Dermatitis and "Irritant".

Solubility in Water - The percentage of a material (by weight) that will dissolve in water at ambient temperature. Terms used to express solubility are:

Negligible	less than 0.1%
Slight	0.1 to 1.0%
Moderate	1 to 10%
Appreciable	more than 10%
Complete	soluble in all proportion

Specific Gravity - A measurement used to quantify the weight of a substance by comparing the weight of a given volume of material to the same volume of water. Materials with a specific gravity greater than one is heavier than water and will sink if it does not dissolve. Materials with a specific gravity less than one will float on the water if it does not dissolve. See "Solubility in Water".

Spontaneous Combustion - Combustion resulting from a chemical reaction with the slow generation of heat from oxidation of organic compounds until the ignition temperature of the material (fuel) is reached. This condition is reached only where there is sufficient air for oxidation but not enough ventilation to carry away the heat as fast as it is generated.

Stability - The tendency of a material to resist undesirable chemical changes during storage or transportation.

Tachycardia - Excessively rapid heartbeat.

Target Organ - Primary organ in the body attacked by a chemical.

Teratogens - Chemicals that cause birth defects in a developing fetus.

Threshold Limit Value - TLV and PEL
The Threshold Limit Value (TLV) is a safe exposure level set by the American Conference of Governmental Industrial Hygienists (ACGIH). A Permissible Exposure Limit (PEL) is a similar level set by OSHA. Both refer to airborne concentrations of substances and represent an exposure level under which most people can work constantly for 8 hours a day, day after day, with no harmful effects. Three categories of TLV are specified:

(a) Time Weighted Average (TLV-TWA) - This is the time-weighted average concentration for a normal 8-hour workday or 40-hour work week, to which all workers may normally be exposed day after day, without adverse affect.

(b) Short-Term-Exposure Limit (TLV-STEL) - This is the maximum concentration to which workers can be exposed for a period up to 15 minutes continuously without suffering from (1) irritation, (2) chronic or irreversible tissue change, or (3) narcosis of sufficient degree to impair self-rescue or reduce work efficiency. No more than four 15-minute exposure periods per day are permitted with at least 60 minutes between those exposure periods.

(c) Ceiling (TLV-C) - The concentration that should not be exceeded even instantaneously.

NOTE: If any of the above TLV is exceeded, a potential hazard from that substance is presumed to exist.

Toxic - The toxicity of a chemical can be measured using a variety of animal studies. OSHA uses three categories for this.

(a) Oral LD50 - Lethal dose 50% test: the medium lethal dose (LD50) that kills 50% of the albino white rats that received it. Oral LD50 is expressed as milligrams of chemical per kilogram of test animal body weight. A dose of one milligram per kilogram (Mg/Kg) is equal to 1 one millionth of the test animals body weight. OSHA considers a chemical to be toxic if the oral LD50 is between 50 Mg/Kg and 500 Mg/Kg.

(b) Skin LD50 - A dose that kills 50% of the albino white rabbits that had the chemical applied directly to the bare skin for 24 hours. Skin LD50 is also expressed in Mg/Kg. OSHA considers a chemical to be toxic if the skin LD50 is between 200 Mg/Kg and 1000 Mg/Kg.

(c) Inhalation LC50 - Lethal concentration 50%, is the concentration of a chemical in the air needed to kill 50% of the albino white rats that breathed it. LC50 is expressed as parts-per million (PPM) for bases and vapors. LC50 is also expressed as milligrams per liter (MG/L) for mists, fumes and dusts.

Toxicity - The degree of injury or illness caused by a toxic material.

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

UEL - **Upper Explosive Level** - See "Flammable Explosive Limits."

Vapor Density - A measure of how heavy a vapor is compared to air, which has a vapor density of one. Vapors more dense than air accumulate close to the floor and in low spaces.

Vapor Pressure - A measure of how readily a material will evaporate and indicates how volatile a liquid is. The lower the vapor pressure, the slower it evaporates and the longer it takes to build up toxic or explosive concentrations.

Volatility - The tendency or ability of a liquid to vaporize.

Volatile Organic Compound (VOC) - An organic compound that evaporates.

Volatile Percent - The fraction by weight or volume of a chemical that evaporates in a mixture.

Water Reactive - A chemical that reacts with water.

VIII. ABBREVIATIONS & SYMBOLS FOUND IN SAFETY DATA SHEETS

ABIH American Board of Industrial Hygiene
ACGIH American Conference of Governmental Industrial Hygienists
ACS American Chemical Society
AIHA American Industrial Hygiene Association
AMA American Medical Association
ANSI American National Standards Institute
AQTX Aquatic Toxicity
ASTM American Society for Testing and Materials
atm Atmosphere

BLS Bureau of Labor Statistics
ca (circa) about
CAR Carcinogenic effects
CAS Chemical Abstract Service
cc Cubic centimeter
CC Closed Cup
(C) Ceiling concentration
CFM Cubic feet per minute
CFR Code of Federal Regulations
CNS Central Nervous System
COC Cleveland Open Cup
conc Concentration
cum or M3 Cubic meter
decomp Decompose or decomposition
DHHS U.S. Department of Health and Human Services
DOL U.S. Department of Labor
DOT Department of Transportation
EPA Environmental Protection Agency
^{0}F Degree Fahrenheit
FR Federal Register
G.I. or GI Gastrointestinal
g or gm Gram
IRAC International Agency for Research on Cancer
inhl Inhalation
insol Insoluble
IRDS Primary irritation dose
IRR Irritant effects (Systemic)
kg Kilogram (one thousand grams)
L Liter
LC50 Lethal concentration to 50% of those tested (Mean lethal concentration)
LDLo Lowest possible lethal dose
LEL Lower explosive limit
LFM Linear feet per minute
m3 Cubic meter
mg Milligram (1/1000, 10-3, of a gram)
mg/m3 Milligrams of substance per cubic meter of air
ml Milliliter
mm Hg Millimeters of Mercury
MLD Mild
mppcf Millions of particles per cubic foot of air
MW Molecular weight
n- Normal
NBS National Bureau of Standards
NCI National Cancer Institute
NEC Neoplastic effects
NFPA National Fire Protection Association
NIOSH National Institute of Occupational Safety & Health

Nox	Oxides of Nitrogen
NTIS	National Technical Information Services
ng	Nanogram (one billionth, 10-9, of a gram)
OSHA	Occupational Safety & Health Administration
PEL	Permissible Exposure Limit (OSHA)
pH	Negative Lorarithm the hydrogen ion concentration
PMCC	Pensky-Martens Closed Cup
ppb	Parts per billion
PPE	Personal Protective Equipment
ppm	Parts per million parts of air, parts per million
ppt	Parts per trillion
PUL	Pulmonary
SCBAF	Self-contained breathing apparatus w/full facepiece
SCC	Setaflash Closed Cup
SCFM	Standard cubic feet per minute
SCI	Specific Chemical Identity - means the chemical name Chemical Abstracts Service (CAS) registry number, or any other information that reveals the precise chemical designator of the substance
SDS	Safety Data Sheet(s) [formerly MSDS]
SKN	Skin effects
soln	Solution
SOx	Oxides of sulfur
STEL	Short term exposure limit. See also "Threshold Limit Value"
STP	Standard temperature and pressure
SYS	Systemic effects
TCC	Tag Closed Cup
TCLo	Lowest Published Toxic Dose
temp	Temperature
TER	Teratogenic effects
TFX	Toxic effects
TLm	Median tolerance limit
TLV	Threshold limit value
TOC	Tag Open Cup
torr	mm Hg pressure
TWA	Time weighted average
UEL	Upper explosive limit
ug	Microgram (one millionth, 10-6, of a gram)
VOC	Volatile organic compounds
>	Greater than
<	Less than