



Hazard Communication Plan

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Table of Contents

1. Introduction and Purpose
 2. Scope and Application
 3. Responsibilities
 4. Identification of Hazardous Materials
 5. Labels and Other Warnings
 6. Material Safety Data Sheets
 7. Employee Information and Training
 8. Trade Secrets
 9. Emergency Procedures
 10. Accident Reporting
 11. Program Evaluation
 12. Record Keeping
- Appendix A: Hazardous Chemical Inventory Form
- Appendix B: Hazardous Chemical Survey Form
- Appendix C: HMIS Labeling System
- Appendix D: Sample Letters
- Appendix E: Definitions

Hazard Communication Plan

1. Introduction and Purpose

The primary goal of the standard is to assure employees and employers are adequately informed of chemical hazards in the work place and are provided with information on how to protect themselves while using hazardous chemicals.

The main objective of the Luna Community College (LCC) Hazard Communications Plan (HCP) is to minimize employee exposure to hazardous chemicals in the workplace. The HCP ensures that employees are informed of the potential hazards in their workplace, and also the appropriate means to protect themselves. When chemicals are used by LCC employees in the performance of their duties, these activities shall be conducted in accordance with the provisions of the HCP. The written HCP shall be readily available to all employees, employee representatives and appropriate regulatory agencies upon request.

2. Scope and Application

LCC is classified as a non-manufacturing employer where employees use a variety of hazardous chemicals (in smaller quantities compared to industry) during their employment. Therefore, the Hazard Communication Standard ("Employee Right-To-Know") applies to appropriate LCC facilities. It is the responsibility of LCC to provide a safe workplace for its employees.

The LCC Hazard Communication Program covers all use of hazardous materials on campus except the following:

- Laboratory Reagents
- Hazardous waste (for procedures applicable to hazardous waste, refer to the LCC Hazardous Waste Management Plan)
- Biological Hazards
- Ionizing and nonionizing radiation
- Asbestos);
- Tobacco or tobacco products;
- Wood or wood products;
- Foods, drugs, or cosmetics intended for personal consumption by employees while in the workplace;
- Pesticides; or
- Work operations where employees only handle substances in sealed containers that are not opened.

3. Responsibilities

Life/Safety Coordinator

The Department of Life/Safety is charged with the overall responsibility to develop and implement a Hazard Communication Program. The HCP ensures regulatory compliance and provides employees with the information and training needed to protect themselves while using hazardous chemicals.

- Maintain training records
- Reports all accidents and injuries to Human Resources
- Maintain all accident and injury reports
- Maintain master MSDS inventory for the Department
- Review accident and injury reports and provide recommendations for improvement

Directors and Supervisors

- Establish and implement a department information and training program;
- Conduct annual review and evaluation to determine the effectiveness of the HCP.

Employees

- Know the location and use the information provided in the MSDS
- Ensure proper labeling of hazardous chemicals
- Attend initial and follow-up hazard communication training as required
- Report potential hazards, accidents and near-misses to supervisor immediately
- Assist supervisor in implementing recommendations for improving safety and
- Provide feedback on the effectiveness of the HCP.

Vendors, Contractors and Visitors

- Understand potential hazards in the area they are working or visiting at LCC
- Have all necessary personal protective equipment provided for them by the department or by contractors' management; and
- Contractors must inform the department of any hazardous chemical(s) they may be using during the performance of their work.

4. Identification of Hazardous Materials

The responsibility for determining whether a chemical is hazardous lies with the chemical manufacturer or importer of a chemical. End-users and/or supervisors may rely on the evaluation received from these suppliers, in the form of MSDSs and warning labels. A chemical inventory shall include a list of chemicals, including compressed gas cylinders, used in the workplace covered by the HCP and can be prepared by documenting the names of chemicals that have a warning label indicating a potential hazard (e.g., flammable or corrosive). In addition to chemicals in containers, other substances generated in work operations such as welding fumes and some dusts shall also be listed in the inventory.

All identified chemicals must have a corresponding MSDS available in a binder. The binder must be identified with the acronym MSDS on the spine and be located in an area accessible to all employees at all times, regardless of work shift.

Inventory of Hazardous Materials

Departments that employ individuals who may be exposed to hazardous chemicals in the course of their job duties shall prepare a chemical inventory. The designated department safety coordinator

(supervisor) shall maintain a current chemical inventory. A copy of the prepared chemical inventory shall be forwarded to the Life/Safety Coordinator at least annually. Life/Safety shall compile and maintain the Master Chemical Inventory for LCC. An example hazardous chemical inventory form can be found as Appendix A.

In order to maintain an accurate inventory, all newly introduced and discontinued chemicals shall be noted on the department chemical inventory and the information shall be forwarded to the Life/Safety Coordinator. In addition, to adequately track chemical use and storage, a hazardous chemical survey form should be completed for each chemical. An example can be found as Appendix B.

Chemical inventories shall be placed with a copy of the written Hazard Communication Plan and stored in the Material Safety Data Sheet binder(s). This information shall be accessible to all employees at all times.

The following list identifies, but is not limited to, some types of potentially hazardous chemical that may be present in the workplace:

- | | |
|---------------------|---------------------------|
| Acids | Lye |
| Adhesives | Paints |
| Aerosols | Pesticides |
| Battery Fluids | Plastics |
| Bleach | Process Chemicals |
| Catalysts | Resins |
| Caustics | Sealers |
| Cleaning Agents | Shellacs |
| Coatings | Solders |
| Compresses Gases | Solvents |
| Degreasing Agents | Surfactants |
| Dusts | Thinners |
| Etching Agents | Varnishes |
| Flammables | Water Treatment Chemicals |
| Foaming Resins | |
| Fungicides | |
| Gasoline | |
| Glues | |
| Greases | |
| Herbicides | |
| Industrial Oils | |
| Inks | |
| Insecticides | |
| Janitorial Supplies | |
| Kerosene | |
| Lacquers | |

5. Labels and Other Warnings

Department supervisors are responsible for identifying hazardous chemicals in the workplace and effectively communicating information available from the manufacturers MSDS and labels or other cautionary warnings to employees.

All hazardous chemical containers in the work place must clearly identify, in English, the hazardous contents of the container. The supervisor has the responsibility to ensure that all hazardous chemical container labels are affixed, legible and contain the appropriate information.

All portable container(s) shall use the Hazardous Materials Identification System (HMIS) label or manufacturers label of the appropriate size for the container. Supervisors will ensure that appropriate labels are available. If a manufacturer's label is unavailable, the appropriate information should be copied from the MSDS to the blank HMIS label (refer to Appendix C). If it is not practical to label a container, the proper chemical hazard information may be placed on a sign near the container, which is clearly visible to employees.

Containers of hazardous chemicals at LCC must be received with a label that provides the appropriate identification and the hazards associated with the chemical. The label is to be supplied by the manufacturer, importer or distributor of the chemical. If the container arrives without a label, an HMIS label will be affixed to the container as outlined:

- Identity of chemicals (chemical or common name on the Material Safety Data Sheet);
- Name and address of the chemical manufacturer or distributor; and
- Appropriate hazard warning (designated by the chemical manufacturer or distributor).

Labels will not be removed unless the container is immediately re-labeled or the chemical in the container is emptied, cleaned and/or a new type of chemical is placed in the container, and the chemical container is re-labeled with the identity of the new chemical.

The HMIS labeling system operates on the same principle as the NFPA diamond. Blue indicates health hazard, red indicates flammability, yellow indicates reactivity, and special information (such as what personal protective equipment to wear) will be provided in the white section. It also uses a numerical system from 0-4 to indicate the severity of the hazard. Refer to the chart in Appendix C as a reference.

6. Material Safety Data Sheets

Chemical manufacturers and distributors are required by OSHA to provide Material Safety Data Sheets (MSDS) to consumers. A MSDS is provided to ensure the end-user of chemical products is informed of the hazards associated with the use of the chemical and what safety precautions should be utilized. The same MSDS may be used for several chemicals if they have similar hazards and contents. Updated or new MSDSs will be distributed immediately upon receipt.

Each department must maintain a complete and accurate MSDS for each chemical used in the workplace upon purchase of a chemical. When new and significant information becomes

available concerning the hazards of a chemical or improved method of protection for employees, the chemical manufacturers, importers, or distributors must provide a MSDS with the updated information with the next shipment or within three months to the end-users.

If the manufacturer, importer or distributor fails to send a MSDS with a shipment labeled as a hazardous chemical, the department must obtain one from the chemical manufacturer, importer or distributor as soon as possible. Similarly, if the MSDS is incomplete or unclear, the department should contact the manufacturer, importer or distributor to get clarification or obtain the missing information (see Appendix D for sample letters requesting a MSDS, or additional information for a MSDS). No chemical shall be used by any LCC employee unless a current MSDS is available.

MSDSs will usually be made up of at least 10 sections if they comply with the voluntary American National Standards Institute (ANSI) standard Z400.1, with each section describing a specific detail about the product. There may be up to 6 additional sections if information about a product for these sections is available. (Note: currently there is no mandated standard format for an MSDS; the format may vary depending on the manufacturer, importer, or distributor):

- Chemical product and company identification
- Composition and/or information on hazardous ingredients
- Hazards identification, including emergency overview
- First aid measures
- Fire-fighting measures
- Accidental release measures
- Handling and storage
- Exposure controls and personal protection
- Physical and chemical properties
- Stability and reactivity

Additional sections may include information on toxicological, ecological, transport, disposal and regulatory information as well as any other information not covered in the above-mentioned sections.

A MSDS binder will be located in designated work areas. It is recommended that a brightly colored (red) binder with the acronym MSDS on the spine be used. All employees shall be informed of the location of the binder. In addition, the binder will be readily available to all employees at all times regardless of their work shift. The Department Supervisor will forward new or updated MSDSs to the area Director. The Supervisor will request additional information if the MSDS is unclear. The supervisor will maintain the MSDS in alphabetical order. If the MSDS replaces an older edition, the replacement will be kept in the back of the binder or forward it to the Department Supervisor to file in an archive MSDS binder.

Copies of the MSDS will be made available for any designated representative of the employee, or OSHA officer upon their request. The safety coordinator and/or supervisor will be notified if a non-employee requests a copy of the MSDS.

Maintenance of Material Safety Data Sheets

The Department Director will maintain a department MSDS master chemical file. Upon receipt of a new MSDS, the Supervisor will update the master file. The College Life/Safety Coordinator will assist in performing an annual MSDS audit to ensure MSDSs for all chemicals listed in the chemical inventory are available in the workplace.

Supervisors will maintain the MSDS file and ensure the MSDS file is available for all employees to review at any time, all new MSDS received are filed, and that employees are aware of any new chemical introduced to the workplace. Supervisors will notify the Department Director if a listed chemical is no longer used or stored and will archive the MSDS from the file and update the chemical inventory.

Resources for Obtaining MSDSs

MSDSs can be obtained by contacting the chemical distributor directly, or [via web sites](#).

7. Employee Information and Training

Departments shall have a written training and information program for all employees. Employee training shall be provided when employees are initially hired and when a new chemical hazard is introduced into the workplace. The workplace supervisor will ensure that employees are trained in the specific topics covered in the HCP and provide further training relative to the specific hazardous chemicals employees will use in the performance of their duties.

At a minimum, employees shall be informed of:

- Requirements of OSHA's Hazard Communication Standard
- The physical and health hazards of chemicals used in their workplace
- Methods and observations that may be used to detect the presence or release of a hazardous chemical in the workplace
- How to adequately protect themselves to minimize their exposure
- Location of the chemical inventory and MSDS binder in the workplace
- Details of LCC's HCP, including an explanation of the labeling system and the MSDS and how employees can obtain and use the appropriate hazard information; and
- Location and availability of the written HCP.

8. Trade Secrets

The chemical manufacturer, importer, or employer may withhold the specific chemical identity, including the chemical name and other specific identification of a hazardous chemical, from the material safety data sheet, provided that:

- The claim that the information withheld is a trade secret can be supported;

- Information contained in the material safety data sheet concerning the properties and effects of the hazardous chemical is disclosed;
- The material safety data sheet indicates that the specific chemical identity is being withheld as a trade secret; and,
- The specific chemical identity is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of this paragraph.

9. Emergency Procedures

Each department must develop emergency procedures specific to their operation(s) and all affected employees must be aware of these procedures. This plan should include (but not limited to) actions or contingencies for:

- Evacuations due to fires, chemical spills, and other situations;
- First aid;
- Shut down, lock out during evacuations; and
- Location of emergency equipment (fire extinguishers, fire alarm pull stations, showers, eyewashes, etc.).

Faculty, staff, and students who discover or are involved in a hazardous chemical emergency are responsible for taking appropriate action to protect themselves and the university community by notifying the appropriate authorities and following established protocol.

10. Accident Reporting

Employees shall report accidents and injuries to their supervisor immediately. Supervisors shall submit a report to Human Resource for any accident, injury or near miss associated with the employees' use of hazardous chemicals. All employees will be free from any reprisals for reporting accidents. Accident reporting will assist Human Resource in providing corrective procedures to avoid a recurrence of the accident.

11. Program Evaluation

A program evaluation shall be conducted annually. Program evaluations will be based upon audit, accident, injury, inspection reports, and training records.

12. Record Keeping

Mandated documentation and records shall be maintained to demonstrate compliance with the Hazard Communication Standard, 29 CFR § 1910.1200. Human Resource, individual departments, supervisors, and safety coordinators shall maintain the following records required by the standard:

- Chemical Inventory;
- Material Safety Data Sheets; and
- Employee Training Records.

Appendix B
Hazardous Chemical Survey Form

Department: _____

Supervisor/Contact: _____

Telephone: _____

Chemical Product Location: _____

Survey Date: _____

Chemical Product Information

Chemical Product Name: _____

Stock Number: _____

Labeled as:

Flammable Yes No

Combustible Yes No

Corrosive Yes No

Toxic Yes No

Carcinogen Yes No

Other _____

Quantity in Stock:

Unit of measure _____ Minimum amount _____ Maximum amount _____

MSDS available on site: Yes No

Vendor Information

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Telephone: _____

Manufacturer Information

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Telephone: _____

APPENDIX C

HMIS Labeling System

Example of the HMIS Label:

Chemical Name	
CAS #	
HEALTH	<input type="checkbox"/>
FLAMMABILITY	<input type="checkbox"/>
REACTIVITY	<input type="checkbox"/>
SPECIFIC	<input type="checkbox"/>

HEALTH	FLAMMABILITY	REACTIVITY
4: Deadly: even the slightest exposure to this substance would be life threatening. Only specialized protective clothing, for these materials, should be worn.	4: Flash Point Below 73°F and Boiling Point Below 100°F: this substance is very flammable, volatile or explosive depending on its state. Extreme caution should be used in handling or storing of these 3: materials.	4: May detonate: substances that are readily capable of detonation or explosion at normal temperatures and pressures. Evacuate area if exposed to heat or fire.
3: Extreme Danger: serious injury would result from exposure to this substance. Do not expose any body surface to these materials. Full protective measures should be taken.	3: Flash Point Below 100°F: flammable, volatile or explosive under almost all normal temperature conditions. Exercise great caution in storage or handling of these materials.	3: Explosive: substances that are readily capable of detonation or explosion by a strong initiating source, such as heat, shock or water. Monitor from behind explosion-resistant barriers.
2: Dangerous: exposure to this substance would be hazardous to health. Protective measures are indicated.	2: Flash Point Below 200°F: moderately heated conditions may ignite this substance. Caution procedures should be employed in handling.	2: Unstable: violent chemical changes are possible at normal or elevated temperatures and pressures. Potentially violent or explosive reaction may occur when mixed with water. Monitor from a safe distance.
1: Slight Hazard: irritation or minor injury would result from exposure to this substance. Protective measures are indicated.	1: Flash Point Above 200°F: this substance must be preheated to ignite. Most combustible solids would be in this category.	1: Normally stable: substances that may become unstable at elevated temperatures and pressures or when mixed with water. Approach with caution.
0: No Hazard: exposure to this substance offers no significant risk to health.	0: Will Not Burn: substances that will not burn.	0: Stable: substances which will remain stable when exposed to heat, pressure or water.

Appendix D

Sample Letters

Sample Letter Requesting a MSDS

Blitz Manufacturing Company

Dear Sir/Madam:

The Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR1910.1200) requires employers be provided Material Safety Data Sheets (MSDS) for all hazardous substances used in their facility, and to make these MSDS available to employees potentially exposed to these hazardous substances.

Therefore, we request a copy of the MSDS for your chemical product listed as (give product and/or chemical name here). We did not receive an MSDS with the initial shipment of (Blitz Solvent 90) we received on (date). We also request any additional information, supplemental MSDS, or any other relevant data your company or supplier has concerning the safety and health aspects of this chemical product.

Please consider this letter a standing request to your company for any information concerning the safety and health aspects of using the chemical product that may be learned in the future. Delays in receiving the MSDS information will prevent use of your chemical product in our department. Please send the requested information to John Smith, (Title), (Department), Luna Community College, Las Vegas, NM 87701.

Please be advised, if we do not receive the MSDS for the above chemical by (date), we may have to notify OSHA of our inability to obtain this information. Your cooperation will be appreciated. Thank you for your timely response to this request.

Sincerely,

John Smith

r

Sample Letter Requesting Additional MSDS Information

ACE Chemical Company, Incorporated

Dear Mr. Winston:

In an effort to comply with the Occupational Safety and Health Administration's Hazard Communication Standard, my department is seeking additional information on a chemical product manufactured by your company. The MSDS forwarded to our department appear to be deficient in the following areas:

1. Clear-VU 210 - no health effects listed
2. Clean-up 34 (Solvent) - no physical hazard listed

In order to provide adequate training for our employees and comply with the Standard, we must have completed MSDS, particularly with reference to the above-identified items. Please send the information to John Smith, (Title), (Department), Luna Community College, Las Vegas, NM 87701.

Thank you for your assistance in this matter.

Sincerely,

John Smith

Appendix E

Definitions

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

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

Acute Exposure: A single, brief exposure to toxic substances. Effects (i.e., adverse effects on the human body) if any are evident soon after the exposure and come quickly to a crisis.

Alloys: A mixture of metal (such as brass), in some cases a metal and a non-metal.

Ambient Temperature: Temperature of the immediate surroundings.

Appearance/Odor: The color, physical state at room temperature, size of particles, characteristics of the material. Odor is described in comparison to common familiar "smells." Threshold refers to the concentration required in the air before vapors are detected or recognized.

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

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

Autoignition Temperature: Lowest temperature at which a flammable gas or vapor-air mixture will ignite from its own heat source or other contacted heat source.

Boiling Point: Temperature at which vapor pressure of a liquid equals atmospheric pressure.

C.A.S. Number: The number assigned to chemicals or products by the Chemical Abstracts Service.

Carcinogen: A substance or agent capable of causing or producing cancer.

Catalyst: A substance which changes the speed of a chemical reaction but undergoes no permanent change itself. An example of a catalyst is the platinum used in automotive catalytic converters on the exhaust system.

Chronic Effect: An adverse effect on a human or animal. Symptoms develop slowly over a long period of time or recur frequently.

Combustible: A substance capable of fueling a fire. Also a term used to classify certain liquids on the basis of their flashpoints. Also see "flammable".

Compressed Gas: A gas under pressure which is greater than that of the atmosphere. An example is the air in automobile tires.

Corrosive Material: As defined by the Department of Transportation (DOT), a corrosive material is a liquid or solid that causes visible destruction or irreversible alterations in human skin tissue at the site of contact; or in the cases of leakage from its packaging, a liquid that has a severe corrosion rate on steel.

Cutaneous: Pertaining to or affecting the skin.

Decomposition: Breakdown of a material or substance (by heat, chemical reaction, electrolysis, decay or other processes) into simpler substances.

Dermal: Pertaining to or affecting the skin.

Dyspnea: Shortness of breath, difficult or labored breathing.

Erythema: A reddening of the skin.

Evaporation Rate: The ratio of time required to evaporate the same volume of a reference liquid (ether). The higher the ratio, the slower the evaporation rate.

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

Exposure Limit: Limit set to minimize occupational exposure to a hazardous substance. Recommended occupational exposure limits used are American Council of Governmental Industrial Hygienists' Threshold Limit Values (TLV) and Occupational Safety and Health Administration Permissible Exposure Limits (PEL).

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

Flammable: A material which is easily ignited and burns with extreme rapidity.

Flammable Limits: The range of a vapor/gas concentration in air that will burn or explode if an ignition source is present.

Flash Point: The minimum temperature at which a liquid gives off sufficient vapor to form, with air, an ignitable mixture.

General Exhaust: Removal of contaminated air from a large area by an air circulation or exchange system.

Generic Substance: A substance identified by its general chemical name and/or formula.

Hazard Communication Program (HCP): The written program employers must develop and use which specifies employee training for routine and emergency use of all potentially hazardous chemicals in the work place, details pertaining to chemical labels, storage and Material Safety Data Sheets and a complete list of all hazardous chemicals in the work place.

Hazardous Chemical: Any chemical which poses a physical hazard or a health hazard. This is determined by information in the MSDS.

Health Hazard: Any chemical for which there is at least one scientific study that shows it may cause acute or chronic health symptoms. This includes chemicals which are carcinogens, toxic or highly toxic, irritants, corrosives, sensitizers, or chemicals that effect target organs including the lungs, kidneys, nervous system, pulmonary system, reproductive system, skin and eyes.

Highly Toxic:

- A chemical which has been found through testing of laboratory animals to cause death when exposed at certain levels.
- A chemical is highly toxic to ingest if it has a median lethal dose (LD50) of less than 50 mg/kg. This means that 50 percent of the test animals (rats) died when given an oral dosage of 50 milligrams for each kilogram of body weight.
- A chemical is highly toxic to touch if it has an (LD50) rating of less than 200 mg/kg, meaning that 50 percent of the lab animals (rabbits) dies after having continuous skin contact at that dosage for 24 hours or less.
- A chemical is highly toxic to breathe if it has a (LC50) rating of less than 200 PPM for gas or vapor and a 2 mg/L for dust, fume, or mist when exposed for an hour or less.

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

Incompatible: Materials which could cause dangerous reactions from direct contact with one another are described as incompatible.

Ingestion: The drawing of a substance into the body (lungs) through the nose, mouth, and breathing passages, in the form of a gas, vapor, fume, mist, or dust.

Irritant: A substance which will cause an inflammatory response or reaction of the eye, skin, or respiratory system, following single or multiple exposures.

LC50: Lethal Concentration 50; a single dose of material which on the basis of laboratory tests is expected to kill 50% of a group of test animals when administered by mouth (oral) or applied to the skin (dermal or cutaneous).

LD50: Lethal Dose 50; a single dose of material which on the basis of laboratory tests is expected to kill 50% of a group of test animals. The material may be administered by mouth (oral) or applied to the skin (dermal or cutaneous).

LEL(Lower Explosive Limit): The lowest concentration of a gas or vapor in the air that can produce ignition or explosion.

Local Exhaust: A system for capturing and exhausting contaminants from the air to the point where the contaminants (gases, particulates) are released. Not to be confused with "general exhaust".

MSDS (Material Safety Data Sheet): Written or printed material about a chemical that specifies its hazards, safe use and other information. It is prepared by the chemical manufacturer, and is required by federal law.

Mechanical Exhaust: A powered device, such as a motor-driven fan or air/street venturi tube, for exhausting contaminants from a work place, vessel, or enclosure.

Narcosis: Stupor or unconsciousness caused by exposure to a chemical.

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

Odor Threshold: The minimum concentration of an airborne, toxic substance whose odor is detectable to the average individual. Depending on whether it is above or below substances TLV, it may be indicative of whether additional ventilation is required.

Oral: Of, through, pertaining to, or affecting the mouth.

OSHA: Occupational Safety and Health Administration of the U.S. Department of Labor; a federal agency with safety and health enforcement authority for most of U.S. industry and business.

Oxidizer: Department of Transportation defines oxidizer or oxidizing material as a substance that yields oxygen readily to stimulate the combustion (oxidation) of organic matter. Chlorate (ClO₃), permanganate (MnO₄) and nitrate (NO₃) compounds are examples of oxidizers.

PEL(Permissible Exposure Limit): An exposure limit established by OSHA's regulatory authority. May be a time weighted average (TWA) limit or a maximum concentration exposure limit.

Personal Protective Equipment (PPE): Equipment designed to protect worker health and safety, e.g., chemical resistant gloves, safety glasses or goggles, face shields, etc.

PPM (parts per million): The unit for measuring the concentration of a gas or vapor in contaminated air. Also used to indicate the concentration of a particular substance in a liquid or solid.

Physical Hazard: A chemical which is proved to be a combustible liquid, compressed gas, explosive, flammable, oxidizer, pyrophoric, unstable (reactive) or water-reactive.

Polymerization: A chemical reaction in which a large number of relatively simple molecules combine to form a large chainlike molecule. A hazardous polymerization is a reaction which takes place at a rate which releases large amounts of energy.

Pyrophoric: A chemical which ignites spontaneously with air at 130 degrees F. or less.

Respiratory Protection: Devices for use in conditions exceeding set exposure levels. When properly selected, maintained and worn by the user, will protect the users' respiratory system from exposure to airborne contaminants by inhalation.

SCBA: Self-contained breathing apparatus.

Sensitizer: A substance, which on first exposure, causes little or no reaction in man or test animals, but which on subsequent exposure(s) may cause a marked response not necessarily limited to the contact site. Skin sensitization is the most common form of the problem in the industrial setting, although respiratory sensitization to a few chemicals has been known to occur.

Solubility in Water: The percentage of a material (by weight) that will dissolve in water at a specific temperature.

- NEGLIGIBLE LESS THAN 0.1%
- LIGHT 0.1 TO 1.0%
- MODERATE 1 TO 10%
- APPRECIABLE MORE THAN 10%
- COMPLETE SOLUBLE IN ALL PROPORTIONS

Solvent: A substance which dissolves another substance.

Specific Gravity: The ratio of weight of volume of material to the weight of an equal volume of water usually at 60 F., otherwise specified H²O-1.

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

TLV "Skin": This designation sometimes appear alongside a TLV of PEL. It refers to the possibility of absorption of the particular chemical through the skin and eyes. Thus, the protection of large surface areas of skin should be considered to prevent skin absorption so that the TLV is not invalidated.

Target Organ: The specific organs or body systems that sustain hazardous effects from a toxic chemical, either long or short-term. Target organs could be the liver, kidney, central nervous system or skin.

Toxic: A substance which has a median lethal dose (LD50) of 50 to 500 mg/kg for ingestion, from 200 to 1,000 mg/kg within a 24-hour period for contact and from 200 to 2,000 PPM gas or vapor for inhalation.

UEL (Upper Explosive Limit): The highest concentration of a gas or vapor in air that can produce ignition or explosion.

Unstable (Reactive): A chemical which vigorously undergoes polymerization, decomposition, or condensation via shock, pressure, or temperature.

Vapor Density: The ratio of the density of a substance's vapor to the density of another substance's vapor, usually air. A vapor density of greater than one means that the substance is heavier than air.

Vapor Pressure: The pressure exerted by vapor, in confinement, over its liquid as it accumulates at a constant temperature.

Water Reactive: A chemical which reacts with water to form flammable gas or produces a health hazard.