

# **HAZARD COMMUNICATION**

## **RIGHT-TO-KNOW**

### **Employee Handbook**



## INTRODUCTION

This handbook along with the Compliance Plus Audio/Visual Training Program is designed to promote your safety and health by providing information about the potential hazards that may exist in your workplace. They will teach you how to know what chemicals you are handling, how to handle them safely, how to protect yourself from chemical hazards, where to get specific information about the chemicals, and more.

**This training program is part of the Occupational Safety and Health Administration (OSHA) Hazard Communication Federal Standard** that your employer is following. This standard has become known as the "Right-To-Know" law, meaning both you and your employer have a right-to-know about the hazards associated with the materials you work with.

Both you and your employer share the responsibility to make this program work. YOUR EMPLOYER is responsible for providing a safe workplace along with information about the potential hazards and how to properly protect yourself YOU have a responsibility to follow the proper procedures and know and understand the chemicals you are working with.

To make this training program complete, you should also view and understand the audio/visual program, read the Material Safety Data Sheets for the chemicals you work with, and receive a SPECIFIC COMPANY INFORMATION LIST that will inform you of information that is specific to the company you work for.

YOU EMPLOYER CARES ABOUT YOUR HEALTH AND SAFETY. THIS PROGRAM IS FOR YOUR BENEFIT AND PROTECTION.

There are three main types of health hazards: biological, physical and chemical.

**BIOLOGICAL HAZARDS**-consists of micro-organisms or infectious agents that may cause disease. They can also include poisonous plants and animals.

**PHYSICAL HAZARDS**- can include noise, heat and certain types of radiation exposure.

**CHEMICAL HAZARDS**- can include inhaling vapors, fumes and gases from toxic chemicals, and igniting chemicals that are flammable.

This training program deals mainly with chemical hazards and is designed to reduce chemical source illness and injury in the workplace.

## **CHEMICAL HAZARDS**

Chemicals are a way of life, not only at work but also at home. In fact many household chemicals can be more hazardous than the chemical used every day in the workplace.

Some chemicals are beneficial in small quantities but dangerous in larger quantities, while other chemicals can be bad for you in any quantity.

There are a number of different types of hazards associated with chemicals. These can be grouped as: **HEALTH**                      **FLAMMABILITY**                      **REACTIVITY**

Most chemicals have one or more of these potential hazards.

## **HEALTH HAZARDS**

Health hazards generally refer to the toxicity of a chemical or it's ability to cause harmful bodily effects when it is **INHALED, INGESTED OR COMES IN CONTACT WITH THE SKIN.**

### Chemical Exposure

A toxic chemical is only hazardous if it is not used properly! It is important to evaluate how much of a particular chemical you use it during a workday. The concept of "how much" and "how long" is also referred to as the **DOSE**.

Almost any chemical can have harmful effects if the dose is large enough. The body can eliminate or detoxify most chemicals if the dose if not too high.

There are two main types of exposure; **ACUTE** and **CHRONIC**.

### Acute Exposure

Too large a dose in a short time period can cause immediate response such as nausea, irritation, skin burns, and anesthetic effects. This is an acute effect and is normally repaired by the body in a short time period.

### Chronic Exposure

Chronic exposure is generally prolonged or repeated exposure, even to low doses, where the cumulative effect on the body is harmful. With some chronic exposures it may take years for the effect to be noticed.

In addition to acute and chronic exposures, some materials are thought to be, or are known to be CARCINOGENIC or CANCER CAUSING.

### **FLAMMABILITY HAZARD**

Flammability hazard refers to the fire and explosion potential of a chemical. Some chemicals are extremely flammable and will give off flammable vapors even at room temperature while others need to be heated to very high temperatures before they will burn.

### **REACTIVITY HAZARD**

Reactivity hazard means a chemical can change or combine with other chemicals in a hazardous way. Reactive chemicals can explode either by themselves or when mixed with other materials.

### **METHODS USED TO DETERMINE CHEMICAL HAZARDS**

There are two methods you can use to determine the potential hazard of a chemical. The label on the container, and a standard information form supplied by the distributor or manufacturer of the chemical. This form is called a MATERIAL SAFETY DATA SHEET or MSDS.

#### **Material Safety Data Sheet**

Material Safety Data Sheets are generally two to four pages in length and are required by law to have specific hazard information for a specific chemical.

The format for an MSDS is similar to OSHA Form 20, although any format may be used as long as the required information is present.

The hazard communication standard requires that your employer has an MSDS on file for every hazardous chemical in the workplace. This file must be easily accessible to you during the normal workday. You are encouraged to read and/or copy the MSDSs so you can better understand the chemicals you work with.

You also have a right to request that your employers obtain any missing MSDSs for any chemical in the workplace.

The following two pages show a typical Material Safety Data Sheet.

## **Section I- GENERAL INFORMATION**

This section contains general information including the manufacturers name and address, the trade or common name of the material, the emergency telephone number and the chemical family.

## **Section II- HAZARDOUS INGREDIENTS**

This section lists the hazardous ingredients in the chemical that account for 1% or more of its makeup. In the case of carcinogens, they must be listed if the concentrations are 0.1% or greater.

This section also lists the airborne concentration a worker can safely be exposed to in an eight hour day, day-in, day-out, without harmful effects. This is called the TLV or THRESHOLD LIMIT VALUE. It is measured in parts-per-million or PM. THE LOWER THE NUMBER THE MORE HAZARDOUS A SUBSTANCE IS!

TLV's are also called PERMISSIBLE EXPOSURE LIMITS>

## **Section III- PHYSICAL DATA**

This section deals with physical and chemical properties other than toxicity, including the boiling point, vapor pressure, and appearance and odor.

## **Section IV-FIRE AND EXPLOSION HAZARD DATA**

This section contains fire and explosion hazard data and includes the flash point, extinguishing media, special fire fighting procedures and unusual fire and explosion hazards.

It is important to see how flammable a chemical is. The flash point is the temperature at which the chemical will give off enough vapor to ignite upon contact with an ignition source. Material that is highly flammable should only be used in a well-ventilated area.

## **Section V- HEALTH HAZARD DATA**

This section contains health hazard information including the TLV, signs and symptoms of exposure, emergency first aid, and if the chemical is considered a carcinogen.

This section will help with immediate first aid for overexposure until a medical professional can be called. It should also provide information on both acute and chronic overexposure and the primary route of entry into the body.

## **Section VI- REACTIVITY DATA**

This section deals with the reactivity of the chemical and will tell you if a chemical is stable, if it will create a hazard if mixed with other chemicals and if it will decompose dangerously. Certain unstable chemicals have the ability to change form, creating heat or chemical by-products that can cause explosions, or, other hazardous materials.

## **Section VII-SPILL AND LEAK PROCEDURES**

This section tells what procedures to follow in the event of a chemical spill or leak. Some chemicals may need to be neutralized first while others might have to be disposed of in a certain manner.

### **Section VIII-SPECIAL PROTECTION INFORMATION**

This section covers special protection information and includes the type of personal protective equipment recommended such as respirators, protective glasses, goggles, gloves, and aprons. It also tells what ventilation or exhaust systems should be employed.

### **Section IX-SPECIAL PRECAUTIONS**

This section lists special precautions that should be taken when handling and storing the chemical and may include information on transporting the chemical over the highway.

IT IS IMPORTANT TO NOTE THAT SECTION NUMBERS AND WHAT THEY CONTAIN CAN VARY FROM MSDS TO MSDS>

MSDSs are updated periodically. The most current version should always be kept on file. The MSDS contains a wealth of information about the product. Some sections are more important than others in determining what steps to take to work with a chemical safely are.

### **LABELING**

The Hazard Communication Standard specifically mandates that all containers of hazardous material be labeled with an appropriate warning. While this warning does not have to include all of the information contained on the MSDS, it does have to convey enough information to tell they user the name of the chemical, the name and address of the manufacturer, the type of hazard that exists, how to properly handle the chemical or type of protective equipment necessary, and possilbe specific damage. (i.e. lung damage).

If a specific labeling system is used by your employer, the system must be explained to your including the hazard rating, color coding, and what they mean.

It doesn't matter what labeling system is used as long as it quickly and easily presents the correct information to the user.

In the case of the more popular number rating systems, each hazard is represented by a color: RED for FLAMMABILITY, BLUE for HEALTH, YELLOW for REACTIVITY and WHITE for SPECIAL HAZARDS or PERSONAL PROTECTIVE EQUIPMENT>

Each hazard is then rated using a number system from 0 to 4, with 0 being a very minimal hazard and 4 being the most severe hazard.

### **GLOSSARY OF TERMS**

**ABSORBTION:** One substance being taken in (absorbed) through the entire mass of another

**ACUTE:** The immediate or very quick effect on the human body when exposed to too large a dose in a short period of time.

**ANESTHESIA:** The loss (entire or partial) of feeling or sensation.

**CARCINOGEN:** Something, which is capable of causing cancer.

**CATALYST:** A chemical, which causes a reaction (usually chemical in nature) between two other chemicals without affecting the chemical itself.

**CAS NUMBER:** Abbreviation for Chemical Abstract Society Number.

**CEILING LIMIT:** The maximum level of a toxic contaminant that may be allowed in the workroom air.

**CHRONIC:** An exposure to the human body that is generally prolonged or repeated, even to low doses, where the cumulative effect on the body is harmful.

**COMBUSTIBLE:** Able to catch fire and burn.

**CORROSIVE:** That which can weaken or destroy in a gradual process.

**DECOMPOSITION:** The breaking down of a chemical or other substance.

**DERMAL:** By or through the skin.

**DOT:** Abbreviation for the Department of Transportation

**DYSPNEA:** Breathing which is labored or difficult.

**EPA:** Abbreviation for the Environmental Protection Agency

**EXPLOSIVE LIMITS:** The range of vapor concentrations in the air under which a combustible or flammable gas or vapor will produce a flash fire.

**FLAMMABLE:** Catches on fire easily and burns rapidly

**FLAMMABLE LIMITS:** See EXPLOSIVE LIMITS

**FLASH POINT:** The lowest temperature at which a substances vapor will ignite when in contact with an ignition source.

**HAZARDOUS CHEMICALS:** Chemicals which are hazardous either physically, or pertaining to health.

**IGNITION TEMPERATURE:** The lowest temperature at which a substance will catch on fire and continue to burn. The lower the ignition temperature, the more likely the substance is to be a fire hazard.

**INGESTION:** Entry into the body through the mouth (swallowing)

**MUTAGENIC:** A substance that is capable of causing a mutation (change) in cells in such a way that future cell generations are affected.

**NIOSH:** Abbreviation for the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services.

**NPCA:** Abbreviation for the National Paint and Coatings Association.

**OCCUPATIONAL EXPOSURE LIMITS:** Maximum allowable concentrations of toxic substances in workroom air to protect workers who are exposed to toxic substances over a working lifetime.

**OSHA:** Abbreviation for the Occupational Safety and Health Administration, U.S. Department of Labor. OSHA develops and enforces federal standards of occupation safety and health.

**PEL:** Abbreviation for Permissible Exposure Limits

**PERCENT VOLATILE:** The percent of a material that will evaporate usually at the ambient temperature of 70 degrees F.

**POLYMERIZATION:** A chemical reaction in which individual molecules combine to form a single large chemical molecule (a polymer). Usually involves the release of a lot of energy.

**PPM:** Parts per million. Generally used to express small concentrations of one substance in a mixture.

**PULMONARY:** Pertaining to the lungs.

**PYROPHORIC:** Igniting spontaneously.

**REACTIVITY:** The ability of a substance to undergo change, usually by combining with another substance or by breaking down.

**RENAL:** Pertaining to the kidney

**SOLVENT:** A substance, which dissolves another substance. Water is the most common solvent.

**SUSPECT CARCINOGEN:** A substance, while not proven to cause cancer, is suspected of the potential in animals or humans.

**TERATOGEN:** Any substance, which is capable of causing birth defects.

**TLV:** Abbreviation for Threshold Limit Value; TLV's are figured on an average 8-hour occupational exposure limit and are calculated to be safe exposures for a working lifetime.

**TOXIC SUBSTANCE:** Any substance, which can cause injury or illness to the human body. Substances might be considered toxic if they are suspected of being able to cause illness or injury under certain conditions, or manner of use.

Material Safety Data Sheet	<b>U.S. Department of Labor</b>
May be used to comply with	Occupational Safety and Health Administration
OSHA's Hazard Communication Standard,	(Non-Mandatory Form)



29 CFR 1910.1200. Standard must be consulted for specific requirements.	Form Approved OMB No. 1218-0072
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IDENTITY ( <i>As Used on Label and List</i> )	Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.
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**Section I**

Manufacturer's Name	Emergency Telephone Number
Address ( <i>Number, Street, City, State, and ZIP Code</i> )	Telephone Number for Information
	Date Prepared
	Signature of Preparer ( <i>optional</i> )

**Section II - Hazard Ingredients/Identity Information**

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	%( <i>optional</i> )

**Section III - Physical/Chemical Characteristics**

Boiling Point	Specific Gravity (H <sub>2</sub> O = 1)
Vapor Pressure (mm Hg.)	Melting Point
Vapor Density (AIR = 1)	Evaporation Rate (Butyl Acetate = 1)
Solubility in Water	
Appearance and Odor	

**Section IV - Fire and Explosion Hazard Data**

Flash Point (Method Used)	Flammable Limits	LEL	UEL
Extinguishing Media			
Special Fire Fighting Procedures			
Unusual Fire and Explosion Hazards			

**Section V - Reactivity Data**

Stability	Unstable	Conditions to Avoid
	Stable	
Incompatibility ( <i>Materials to Avoid</i> )		
Hazardous Decomposition or Byproducts		
Hazardous Polymerization	May Occur	Conditions to Avoid
	Will Not Occur	

**Section VI - Health Hazard Data**

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
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Health Hazards ( <i>Acute and Chronic</i> )			
Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
Signs and Symptoms of Exposure			
Medical Conditions Generally Aggravated by Exposure			
Emergency and First Aid Procedures			
<b>Section VII - Precautions for Safe Handling and Use</b>			
Steps to Be Taken in Case Material is Released or Spilled			
Waste Disposal Method			
Precautions to Be taken in Handling and Storing			
Other Precautions			
<b>Section VIII - Control Measures</b>			
Respiratory Protection ( <i>Specify Type</i> )			
Ventilation	Local Exhaust	Special	
	Mechanical ( <i>General</i> )	Other	
Protective Gloves		Eye Protection	
Other Protective Clothing or Equipment			
Work/Hygienic Practices			