

HAZCOM & GHS – What’s Wrong with This Picture?

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This book is intended to provide reasonably accurate and current information on the subject matter contained herein. This book is not provided as a substitute for the Hazard Communication Standard issued by OSHA. Because government regulations are subject to change, please consult the Standard for detailed and current information. This book is distributed with the understanding that the Producer and Sponsor are not engaged in rendering legal or other professional service. These materials are not intended to comply with any and all regulatory or OSHA standards that may apply. The recommendations herein may help reduce the risk of loss but is not a guarantee of the elimination of any risk of loss. This content should not be considered legal advice nor exhaustive of the topic. Since each business situation is unique, the sample forms herein should be edited to meet your specialized circumstances, needs, and applicable laws. Qualified counsel should be sought regarding questions specific to your circumstances and in developing forms and procedures for your business.

How to Use This Book

Effective Hazard Communication training has become an important part of every up-to-date corporate safety training effort. Whether your company is large or small, this book and video can help you organize and simplify your Hazard Communication training efforts.

Use this book to:

- 1) Introduce and present the accompanying "What's Wrong With This Picture?" video
- 2) Answer employee questions that may come up during training
- 3) Reference as a day-to-day information source

We suggest you keep this book in a file or binder that also includes all the elements of your Hazard Communication Program, such as:

- 1) Written Compliance Plan
- 2) Chemical Inventory
- 3) Safety Data Sheet Forms
- 4) Safety Data Sheet Requests
- 5) Employee Training Documentation
- 6) Any Other Material Related to Hazard Communication

Some Background

There are an estimated 880,000 hazardous chemicals used in the workplace. Hundreds of new ones are introduced every year. This tremendous volume places over 40 million workers in situations of potential exposure to one or more chemical hazards.

In other words, in this day and age, chemical hazards exist in practically every workplace including, very probably, yours.

Exposure to these chemicals can cause effects ranging from mild skin irritations to serious health problems, such as heart and organ damage or cancer. Some chemicals present safety problems, such as the potential to cause fires or explosions.

To help us become aware of these hazards and to understand how to protect ourselves from them, the Occupational Safety and Health Administration (OSHA) has issued a rule called the "Hazard Communication Standard" (29 CFR 1910.1200).

A copy of the Hazard Communication Standard is provided on page 14 in this guidebook.

The Standard is often called the "Right to Know" law. It's called Right to Know because it is designed to help us know about chemical hazards and how to protect ourselves from them.

The primary purpose of the Hazard Communication Standard is to help us know how to work safely with chemicals.

How the Standard Works

Chemical manufacturers, importers, and suppliers are required to determine the hazards of each product they produce or distribute. They are required to communicate the hazard information and associated protective measures to their customers, such as you, through the use of container warning labels and forms called a Safety Data Sheet (SDS), previously called a Material Safety Data Sheet (MSDS).

Employers are required to identify and list all hazardous chemicals in your workplace to which your employees may be exposed. You must also maintain SDSs for each hazardous chemical, make sure chemical containers are properly labeled, and develop and implement a written hazard communication program. You must then communicate this hazard information to your employees.

If there are only a few chemicals in the workplace, then you may want to discuss each one individually. Where there are large numbers of chemicals, or the chemicals change frequently, you will probably want to train generally based on the hazard categories (e.g., flammable liquids, corrosive materials, carcinogens). Employees will have access to the substance-specific information on the labels and SDSs.

The bottom line that OSHA looks at is how well your compliance program is working in your workplace. For example, it is important that employees not only receive Hazard Training but that they understand and use the information contained in the training.

Remember, we are describing the Federal Hazard Communication Standard here. Be sure to check your state regulations also. In some states hazards such as heat, cold, noise, and radiation are also regulated.

Exemptions

There are a number of exemptions to the various requirements of the Hazard Communication Standard. Consult the Standard for details on which exemptions may apply to your situation.

A note of caution: Unless adhered to with extreme care, some of these exemptions can open the possibility of mistakes or neglect. We suggest avoiding involvement with exemptions if possible.

Consumer Products

Consumer products in the workplace are exempt from some aspects of the Standard, such as labeling and SDS requirements, if they are used in a similar manner to normal consumer use and if exposure does not exceed normal consumer exposure. For example, if an employee occasionally uses a glass cleaner on a window or a computer screen, the cleaner would be exempt. If the employee routinely uses the glass cleaner, such as a custodial worker may, then the cleaner would not be exempt.

Sealed Containers

For work situations where employees handle chemicals in sealed containers which are not opened under normal work conditions (such as marine cargo handling, warehousing, and retail sales) certain exemptions to the Standard apply. This is explained in section (b)(4) covering the scope and application of the Standard.

Information about Hazard Communication Requirements

For additional information about the requirements of the Hazard Communication Standard, you can refer to the Standard, which is reprinted in this book.

Introducing the Video

Some employees may not be aware of the Hazard Communication Standard or understand its purpose. Before presenting the video, briefly explain that the Standard is a Federal law, commonly called the Employee Right-to-Know law. Its purpose is to ensure that everyone receives the information and training they need in order to work with and around chemicals safely.

Emphasize that the HAZCOM training, including this video, is for the benefit of the employees. Make sure your employees understand that the Hazard Communication Standard was designed to protect their health and safety years into the future.

Here's a story that gives some historical perspective to the importance of having the right information available. It's called the "Mad Hatter" story. You may want to tell it.

"The Mad Hatter"

In the past, people working with chemicals often suffered illness or injury because there wasn't enough information about the chemicals they worked with.

In 19th century England, workers who made felt hats were exposed to small amounts of mercury in the process.

Over time the repeated exposure to mercury led to neurological damage, which caused unusual behavioral and physical problems.

The hat makers suffered memory loss, loss of coordination, strange uncontrollable rapid eye movements, muscle contractions and spasms, and emotional instability.

They appeared (in 19th century jargon) to "go mad." This is where the saying, "mad as a hatter" originated.

Describe that in the past, little was known about chemical hazards or the need for protection from those hazards. Today we have access to a wealth of information about working with chemicals safely. When the information is available, it is everyone's responsibility to pay attention and use that information.

Explain that the video describes the contents and format for labels and safety data sheets required by the current Federal Standard.

The DVD menu provides an option to play the entire video, and in separate segments to present the topic about hazard communication labels, or safety data sheets.

English and Spanish text captions are also shown during the scenes with players having captions enabled.



Key Points

Here is a review of some of the most important information contained in the video. We have also included additional facts and related information that can help you answer employee questions.

Physical Hazards and Health Hazards

The Standard divides the physical and health hazard classes of chemicals. The different hazard classes are broadly described below. A complete list of hazard classes, which are further divided into categories, are explained in the Standard's Appendices.

Physical hazard classes of chemicals can result in effects like burns, fires, or explosions. Chemicals that present physical hazards include:

- combustibles
- gases under pressure
- pyrophorics
- flammable gases, liquids, and solids
- organic peroxides
- reactive substances
- explosives
- oxidizers
- unstable substances

Health hazard classes of chemicals can result in effects ranging from mild skin disorders to cancer or birth defects. Some chemicals can damage internal organs, such as lungs, kidneys, or liver. Some can damage body systems, such as the nervous system or reproductive system. The health hazard criteria include:

- carcinogens
- irritants
- mutagen
- corrosives
- sensitizers
- reproductive toxicity
- toxic substances
- specific organ damaging substances

Physical Agents

Some states also regulate physical agents, such as heat, cold, noise, and radiation.

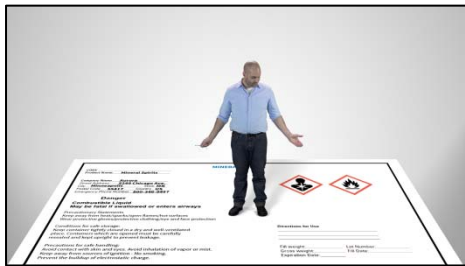
Acute and Chronic Effects

Some chemicals affect us rapidly. These are called ACUTE effects. CHRONIC effects, on the other hand, take place over a longer period of time. They often don't show up until some time after an exposure or after repeated exposures.

Routes of Entry

The way chemicals get into our body is called **Routes of Entry**. These include inhalation (breathing), ingestion (swallowing), and absorption through the skin or eyes.










There are safety measures we can take to prevent chemicals from entering our bodies. Proper ventilation or respirators can reduce inhalation. Keeping food and beverages out of a work area and making sure we wash our hands before eating can prevent ingestion. Wearing protective equipment, such as goggles, gloves, aprons, and boots can prevent absorption.



Label Information

Labels are an immediate source of information for the person working directly with a chemical. We should always read labels **BEFORE** starting to work with a chemical. Here is the information we should find on a hazardous chemical container label according to the global standard:

- **Product identifier** provides a unique means by which the user can identify the chemical with a cross-reference to a list of hazardous chemicals required in the written hazard communication program.
- **Supplier identification** should have the name, address, and telephone number of the chemical manufacturer, importer, or other responsible party.
- **Signal words** identify the level of hazard and alert by indicating a “danger” or “warning.”
- **Hazard statements** describe the nature of the hazard(s) of a chemical.
- **Precautionary statements** recommend ways to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or improper storage or handling.
- **Pictograms** as a graphical symbol to indicate specific information about the hazards.

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

After the Video

After showing the video, we suggest you continue the HAZCOM training by explaining how the Hazard Communication Standard applies specifically to your workplace. Here are the things that should be covered in the training:

- 1) Tell your employees what hazardous chemicals are present at your workplace. Show them your inventory of hazardous chemicals.
- 2) Explain how these chemicals are used and which employees are most likely to come in contact with them.
- 3) Explain the physical and health hazards associated with these chemicals.
- 4) Explain the proper safety precautions needed to work safely with the chemicals, such as protective clothing and equipment, correct handling and storage procedures, and first aid procedures.
- 5) Explain how to recognize the presence or release of hazardous chemicals, such as their color, odor, and appearance.
- 6) Review the labeling system used to identify these chemicals in your workplace and the important information to be found on these labels.
- 7) Point out where the SDS forms for the chemicals are located at your workplace. Make sure all employees understand how to read and interpret the relevant safety and precautionary information on SDS forms.
- 8) Review any additional information or procedures in your Hazard Communication Program and explain where your Written Program is located.

Management Compliance Efforts

Explain the steps management is taking to comply with the Standard and create a safe work environment. Point out things you are doing to provide protection, such as proper ventilation, engineering changes, or using substances that are less hazardous.

This will help employees appreciate the broad coverage of the law. It can also help create an atmosphere of cooperation between management and employees, an atmosphere that can help your HAZCOM Program work effectively.

Employee Involvement and Responsibility

After you've explained the steps that management is taking to meet its responsibilities, emphasize what employees should do to make their workplace safe. Employee responsibilities include:

- taking every aspect of the HAZCOM training seriously
- using the appropriate protective equipment
- being alert for damaged labels so the labels can be quickly cleaned or replaced
- ask questions when unsure about a procedure or warning

Documentation of Training

The federal rule does not require employers to maintain records of employee training, but many employers choose to do so. This may help you monitor your own program to ensure that all employees are appropriately trained. When each employee receives Hazard Communication Training, have them sign a statement listing the date, who performed the training, and what the training consisted of. A written quiz can help document training and verify understanding.

QUIZ for HAZCOM & GHS – What’s Wrong with This Picture?

Name _____ Date _____

1. The Hazard Communication Standard (HazCom) helps workers understand how to find information on the hazards of chemicals they may encounter in their workplace.
 - a. True
 - b. False
2. GHS, the Globally Harmonized System of Chemical Classification and Labeling standardizes the way information about chemicals are presented on Labels and Safety Data Sheets.
 - a. True
 - b. False
3. The source of information you probably encounter most often is:
 - a. Chemical manufacture’s websites
 - b. Labels
 - c. Supplier catalogs
4. Effects from chemicals are always noticeable immediately.
 - a. True
 - b. False
5. Our skin prevents chemicals from entering our body.
 - a. True
 - b. False
6. In the video, chemicals were entering Larry’s body when he was:
 - a. using a respirator incorrectly (Inhalation)
 - b. using chemicals without gloves (Absorption)
 - c. handling food without washing his hands (Ingestion)
 - d. all of the above
7. Manufactures and suppliers are required to provide a _____ for each chemical they provide to a facility.
 - a. free sample
 - b. Safety Data Sheet (SDS)
 - c. Generic alternative
8. If you transfer a chemical to a secondary container and you are not the only person that may possibly use that chemical and container, you must label the secondary container.
 - a. True
 - b. False
9. Pictograms are graphic symbols that:
 - a. contain the logo of the manufacturer
 - b. alert you to the specific types of hazards of a chemical
 - c. are included on labels and SDS
 - d. all of the above
 - e. only b and c
10. Two types of chemical hazards are:
 - a. Health hazards and physical hazards
 - b. Physical hazards and property damage
 - c. Health hazards and cancer

Employee Post Training Checklist

Do All Employees Know:

Yes	No	
_____	_____	The existence and requirements of the Hazard Communication Standard?
_____	_____	Who the Hazard Communication Coordinator is?
_____	_____	Where the list of Hazardous Chemicals is located?
_____	_____	About the hazards associated with chemicals they are exposed to?
_____	_____	How to read and understand relevant warning label information?
_____	_____	The location of the Safety Data Sheets forms?
_____	_____	How to read and understand relevant information on Safety Data Sheets forms?
_____	_____	The safety precautions for handling chemicals they work with?
_____	_____	The protective clothing and equipment for use when working with chemicals?
_____	_____	Measures to take for protecting themselves from hazards?
_____	_____	Procedures the company has to protect employees from exposure?
_____	_____	How to recognize the presence or release of hazardous chemicals?
_____	_____	Signs and symptoms of overexposure?
_____	_____	Emergency and first aid procedures?
_____	_____	Their responsibilities and involvement with compliance efforts?

Quiz Answer Key	
1.	a. True
2.	a. True
3.	b. Labels
4.	b. False
5.	b. False
6.	d. all of the above
7.	b. Safety Data Sheets (SDS)
8.	a. True
9.	e. only b and c
10.	a. Health hazards and physical hazards

Glossary of Terms

This glossary provides general definitions for a variety of terms, words, and abbreviations that you might see on container labels, SDS forms, or in other publications.

ACGIH - American Conference of Governmental Industrial Hygienists. This organization establishes recommended occupational exposure limits for chemicals and physical agents.

Acid - A chemical that yields hydrogen ions when dissolved in water. Acids may cause severe skin burns. Acids have a sour taste, turn litmus paper red, and have pH values of 0 to 6.

Acute Effect - An effect that takes place quickly with rapidly developing symptoms resulting in crisis.

Acute Exposure - Exposure to a high concentration during a short period of time.

Acute Toxicity - Adverse effects occurring following oral or dermal administration of a single dose of a substance, or multiple doses given within 24 hours, or an inhalation exposure of 4 hours.

Aerosol - Any non-refillable receptacle containing a gas compressed, liquefied or dissolved under pressure, and fitted with a release device allowing the contents to be ejected as particles in suspension in a gas, or as a foam, paste, powder, liquid or gas.

Air-line Respirator - A respirator that supplies fresh air to the person from a tank of compressed air. The air is supplied through a tube connecting the tank and the person's mask or hood.

Air-purifying Respirator - A respirator that uses a mechanical filter system to remove dust or particles from the air or uses chemicals to remove specific gases or vapors.

Alkali - A chemical that neutralizes acids and forms salts with them. Alkalis are also referred to as Bases. Alkalis turn litmus paper blue, have pH values from 8 to 14, and can cause severe skin burns.

ANSI - The American National Standards Institute is a voluntary, privately funded, membership organization that develops consensus standards.

Antidote - A medicine, substance, or remedy that will counteract, relieve, or prevent the effects of a poison.

Asphyxiant - A gas or vapor that can cause unconsciousness or death by suffocation. Simple Asphyxiants are harmful when the concentration is high enough to reduce oxygen levels to below 18 percent. (Normal air oxygen level is 21 percent.) Chemical Asphyxiants, such as carbon monoxide, prevent the body from properly absorbing or transporting oxygen.

Aspiration - The entry of a liquid or solid chemical directly through the oral or nasal cavity, or indirectly from vomiting, into the trachea and lower respiratory system.

Asymptomatic - An illness or injury that shows no symptoms.

Atmosphere-supplying Respirator - A respirator that supplies a person with a source of air independent from the workplace, such as from outside the work area or from a tank of compressed air. There are two types: air-line respirator and self-contained breathing apparatus.

Base - See Alkali.

Boiling Point - The temperature at which a liquid boils or changes to a vapor. Usually expressed in degrees Fahrenheit at sea level pressure (760 mmHG or one atmosphere). Flammable liquids with low boiling points can present special fire hazards.

Carcinogen - A substance or a mixture of substances which induce cancer or increase its incidence.

CAS or CAS Number - Identifies a specific chemical by a system developed by the Chemical Abstracts Service, an organization of the American Chemical Society that indexes and abstracts chemical literature from throughout the world.

Caustic - A substance that is an Alkali. Can cause skin burns.

cc - Cubic Centimeters is a volume measurement equal to 1 milliliter. There are approximately 946 cubic centimeters in 1 quart.

Ceiling Value (C) - A concentration of a chemical that should not be exceeded, even momentarily. It is a maximum exposure limit often listed in connection with the Threshold Limit Value or Permissible Exposure Limit. See TLV and PEL.

Chemical-cartridge Respirator - A respirator that uses chemicals to remove certain vapors or gases. Usually used where a low concentration (.05% to .1% by volume) of a hazardous substance exists.

Chronic Effect - Effects from a chemical with symptoms that develop over a long period of time, appear some time after the exposure, appear after repeated exposures, or repeatedly recur.

Chronic Exposure - Long-term exposure to a substance, usually involving low level exposure.

Combustible - A classification used by the NFPA and the DOT based on flash point. Combustible liquids have flash points between 100°F and 200°F. Non-liquid substances, such as wood and paper, are classified as "Ordinary Combustibles." Combustibles do not ignite as readily as Flammables.

Concentration - The relative amount of a substance when combined with other substances. Usually listed as ppm (parts per million) or mg/M³ (milligrams per cubic meter).

Corrosive - A substance that causes visible destruction or permanent alterations in skin tissue at the site of contact, or if corrosive to metals by a chemical action which will materially damage, or even destroy, metals.

Dermal - Relating to or affecting the skin.

Dermatitis - A skin condition that causes the skin to become dry, reddened, scaly, or irritated.

Extinguishing Media - The substance to be used in the event of a fire. Usually listed by generic names, such as foam, water, fog, etc.

Evaporation Rate - The rate at which a substance changes to a vapor (evaporates). This rate is expressed as a number and is related to the known rate of a standard substance, usually Normal Butyl Acetate (n-BuAc) which has an evaporation rate of 1. Substances with evaporation rates above 3 are classified as Fast, those with rates of 0.8 to 3 are Medium, and those with rates of less than 0.8 are classified as Slow. Acetone has an evaporation rate of 5.6 while water has a rate of 0.3. Evaporation rates are an important factor when evaluating the health and fire hazards of substances.

Eye Irritation - The production of changes in the eye following the application of test substance to the front-facing surface of the eye, which are fully reversible within 21 days of application.

Flammable Gas - A gas having a flammable range with air at 20°C (68°F) and a standard pressure of 101.3 kPa (14.7 psi).

Flammable Liquid - A liquid with a flash point of not more than 93 °C (199.4 °F).

Flammable Limits - The upper and lower limits of the range of concentration necessary for a flammable, combustible, or explosive to burn in air. If the concentration is below the Lower Explosion Limit (LEL), it is too lean to burn. If the concentration is above the Upper Explosion Limit (UEL), it will be too rich to burn.

Flash Point - The lowest temperature at which a liquid gives off enough vapor to be easily ignited.

Fumes - Extremely fine, airborne particulate matter that is usually generated by molten metal. This term is often confused with vapor, which is the gaseous form of a material.

g or Gram - A metric unit of weight measurement. 28.4 grams equal 1 ounce.

Gas - A gas is a formless fluid, such as oxygen or nitrogen, (not a solid or liquid) which readily diffuses.

General Exhaust Ventilation - Also called General Ventilation or Dilution Ventilation. This is a system of circulating fresh air into the general work area. See Local Exhaust.

Generic Name - An identification, such as a trade name or brand name, by which a substance is known.

Hematopoietic System - Related to the blood system.

Hepatotoxin - A substance that can damage the liver.

Incompatible - Materials that should be kept isolated from each other because they can produce a dangerous reaction, such as fire or explosion, if they come in contact with each other.

Organic Peroxides - Organic peroxides are potentially hazardous chemicals which are related to hydrogen peroxide. They are very strong oxidizing agents. During chemical reactions they can release large amounts of oxygen, causing them to be fire hazards.

OSHA - The Occupational Safety and Health Administration is an agency of the Department of Labor. This is the federal agency that publishes and enforces the safety and health regulations that apply to most workplaces throughout the nation.

Oxidation - The chemical reaction in which oxygen combines with another chemical. Rusting and burning are two forms of oxidation.

Oxidizer - A chemical which starts or contributes to combustion in other materials.

Oxidizing Gas - Any gas which may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does.

PEL or Permissible Exposure Level - This is a term found on many SDS forms and describes the maximum amount of a chemical a person can be exposed to, as established by OSHA. It may be listed as the amount you could safely be exposed to in an 8-hour day, called Time Weighted Average (TWA). It may also be listed as the amount you could be exposed to for 15 minutes, called Short Term Exposure Limit (STEL). It can also be listed as the Ceiling Limit, which is the amount that should not be exceeded even for an instant. See TLV.

pH - A term that indicates if a substance is acid, neutral, or alkaline. Numbers less than 7 are acid, 7 is neutral, and from 7 to 14 are alkaline. 1 is very strong acidity and 14 is very strong alkalinity.

Polymerization - If an MSDS for a substance says "hazardous polymerization may occur," it means that under certain conditions a dangerous chemical reaction may occur that will produce certain physical or health hazards.

PPM - An abbreviation for parts per million. It is used to describe the concentration of a gas or vapor in a million parts of air or the concentration of particulate matter in a liquid or a solid.

Pulmonary - Relating to the lungs.

Pyrophoric - A chemical that will spontaneously ignite at a temperature of 130°F or below.

Reactivity - A term that indicates the likelihood of a substance to undergo a chemical change when exposed to other chemicals or conditions, such as heat or rough handling.

Reproductive Toxin - A substance that can damage a person's reproductive system and may reduce the ability to have children.

Respiratory Hazard - The concentration of a substance that can produce health hazards when it is breathed in.

Respiratory Sensitizer - A chemical that will lead to hypersensitivity of the airways following inhalation of the chemical.

Routes of Entry - The ways that chemicals can enter our bodies, such as swallowing, breathing, or absorption through the skin or eyes.

Self-reactive chemical - Chemical possessing explosive properties when in laboratory testing the formulation is liable to detonate, to deflagrate rapidly or to show a violent effect when heated under confinement.

Sensitizer - A chemical that may cause an allergic reaction in a person after repeated exposures to the chemical.

Short Term Exposure Limit or STEL - The maximum amount of a substance a worker can be exposed to in 15 minutes, four times a day, with a minimum of one hour between exposures. See also PEL and TLV.

Skin Absorption - The process in which a chemical can pass directly through the skin and enter the bloodstream.

Skin Corrosion - The production of irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis, following the application of a test substance for up to 4 hours.

Skin Irritation - The production of reversible damage to the skin following the application of a test substance for up to 4 hours.

Skin Sensitizer - A chemical that will lead to an allergic response following skin contact.

Solubility In Water - The percentage of a substance that will dissolve in water.

Solvents - Substances, usually liquids, in which other substances can be dissolved. Water is the most common solvent.

Specific Gravity - The weight of a substance compared to an equal volume of water. Water has a specific gravity of 1 - If a substance has a specific gravity greater than 1, it will sink in water. If it has a specific gravity less than 1, it will float on water. Most flammable liquids have a specific gravity less than 1 and would float on top of water even when burning.

Spontaneous Combustion - The ability of a substance to have a chemical reaction within itself, causing it to catch fire with no outside source of ignition.

Systemic Toxicity - This term describes harmful health effects from a substance that occur throughout most or all of a person's body rather than in specific organs.

Teratogen - A substance that can damage an unborn fetus if the mother is exposed to it.

TLV or Threshold Limit Value - Advisory exposure guidelines established by the American Conference of Government Industrial Hygienists that represents the amount of a substance most people can be exposed to today after day without harmful effects. Threshold Limit Values are listed as Time Weighted Averages, Short Term Exposure Limits, or Ceiling Limits. On an SDS form, Threshold Limit Value is often found next to Permissible Exposure Limit, the exposure limits established by OSHA. (See PEL.)

Toxicity - The potential harmfulness of a substance if a person were exposed to it.

Trade Name - The commercial or trademark name for a material. One substance may have as many different trade names as there are manufacturers of the substances.

TWA or Time Weighted Average - This is the amount of a chemical a person may safely be exposed to in an eight-hour day. See PEL or Permissible Exposure Limit.

UEL or UFL - Upper Explosive Limit or Upper Flammable Limit - This is the highest concentration of a vapor or gas in air that will ignite. At concentrations above this figure, the mixture is too "rich" to ignite.

Unstable - A substance that tends to easily change its chemical form under normal storage or handling conditions.

Vapor - The gaseous form of a liquid or solid material given off during evaporation.

Vapor Density - This is the weight of a gas or vapor compared to an equal volume of air, with air having a rating of 1. A gas or vapor with a vapor density less than 1 is lighter than air and will rise to the ceiling if it escapes. A gas or vapor with a vapor density greater than 1 is heavier than air and will sink to the floor or other low areas where it can more easily cause health or physical hazards.

Vapor Pressure - This is the pressure created in a closed container as a vapor evaporates from the liquid in that container. The lower the boiling point of a liquid, the higher the vapor pressure and the more precautions that may be necessary for handling and storage of the liquid.

Viscosity - This is a measure of how readily a liquid flows. A liquid with a high viscosity, like 50 weight motor oil flows more slowly than a liquid with a low viscosity, such as a 10 weight motor oil.

Volatility - This is a measure of how fast a substance gives off vapors under normal temperatures. Since methyl alcohol gives off vapors (evaporates) much faster than water, it is much more volatile than water.

Water Reactive - This term describes a chemical that gives off a hazardous gas when it comes in contact with water.

Code of Federal Regulations

Title 29 - Labor
CHAPTER XVII - OCCUPATIONAL SAFETY AND
HEALTH ADMINISTRATION, DEPARTMENT OF
LABOR. PART 1910 - OCCUPATIONAL SAFETY
AND HEALTH STANDARDS.

Current as of January 28, 2016

Subpart Z - Toxic and Hazardous Substances. § 1910.1200 Hazard communication.

(a) Purpose.

(1) The purpose of this section is to ensure that the hazards of all chemicals produced or imported are classified, and that information concerning the classified hazards is transmitted to employers and employees. The requirements of this section are intended to be consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Revision 3. The transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, safety data sheets and employee training.

(2) This occupational safety and health standard is intended to address comprehensively the issue of classifying the potential hazards of chemicals, and communicating information concerning hazards and appropriate protective measures to employees, and to preempt any legislative or regulatory enactments of a state, or political subdivision of a state, pertaining to this subject. Classifying the potential hazards of chemicals and communicating information concerning hazards and appropriate protective measures to employees, may include, for example, but is not limited to, provisions for: developing and maintaining a written hazard communication program for the workplace, including lists of hazardous chemicals present; labeling of containers of chemicals in the workplace, as well as of containers of chemicals being shipped to other workplaces; preparation and distribution of safety data sheets to employees and downstream employers; and development and implementation of employee training programs regarding hazards of chemicals and protective measures. Under section 18 of the Act, no state or political subdivision of a state may adopt or enforce any requirement relating to the issue addressed by this Federal standard, except pursuant to a Federally-approved state plan.

(b) Scope and application.

(1) This section requires chemical manufacturers or importers to classify the hazards of chemicals which they produce or import, and all employers to provide information to their employees about the hazardous chemicals to which they are exposed, by means of a

hazard communication program, labels and other forms of warning, safety data sheets, and information and training. In addition, this section requires distributors to transmit the required information to employers. (Employers who do not produce or import chemicals need only focus on those parts of this rule that deal with establishing a workplace program and communicating information to their workers.)

(2) This section applies to any chemical which is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency.

(3) This section applies to laboratories only as follows:

(i) Employers shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced;

(ii) Employers shall maintain any safety data sheets that are received with incoming shipments of hazardous chemicals, and ensure that they are readily accessible during each workshift to laboratory employees when they are in their work areas;

(iii) Employers shall ensure that laboratory employees are provided information and training in accordance with paragraph (h) of this section, except for the location and availability of the written hazard communication program under paragraph (h)(2)(iii) of this section; and,

(iv) Laboratory employers that ship hazardous chemicals are considered to be either a chemical manufacturer or a distributor under this rule, and thus must ensure that any containers of hazardous chemicals leaving the laboratory are labeled in accordance with paragraph (f) of this section, and that a safety data sheet is provided to distributors and other employers in accordance with paragraphs (g)(6) and (g)(7) of this section.

(4) In work operations where employees only handle chemicals in sealed containers which are not opened under normal conditions of use (such as are found in marine cargo handling, warehousing, or retail sales), this section applies to these operations only as follows:

(i) Employers shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced;

(ii) Employers shall maintain copies of any safety data sheets that are received with incoming shipments of the sealed containers of hazardous chemicals, shall obtain a safety data sheet as soon as possible for sealed containers of hazardous chemicals received

without a safety data sheet if an employee requests the safety data sheet, and shall ensure that the safety data sheets are readily accessible during each work shift to employees when they are in their work area(s); and,

(iii) Employers shall ensure that employees are provided with information and training in accordance with paragraph (h) of this section (except for the location and availability of the written hazard communication program under paragraph (h)(2)(iii) of this section), to the extent necessary to protect them in the event of a spill or leak of a hazardous chemical from a sealed container.

(5) This section does not require labeling of the following chemicals:

(i) Any pesticide as such term is defined in the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136 *et seq.*), when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Environmental Protection Agency;

(ii) Any chemical substance or mixture as such terms are defined in the Toxic Substances Control Act (15 U.S.C. 2601 *et seq.*), when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Environmental Protection Agency.

(iii) Any food, food additive, color additive, drug, cosmetic, or medical or veterinary device or product, including materials intended for use as ingredients in such products (e.g. flavors and fragrances), as such terms are defined in the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 *et seq.*) or the Virus-Serum-Toxin Act of 1913 (21 U.S.C. 151 *et seq.*), and regulations issued under those Acts, when they are subject to the labeling requirements under those Acts by either the Food and Drug Administration or the Department of Agriculture;

(iv) Any distilled spirits (beverage alcohols), wine, or malt beverage intended for nonindustrial use, as such terms are defined in the Federal Alcohol Administration Act (27 U.S.C. 201 *et seq.*) and regulations issued under that Act, when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Bureau of Alcohol, Tobacco, Firearms and Explosives;

(v) Any consumer product or hazardous substance as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 *et seq.*) and Federal Hazardous Substances Act (15 U.S.C. 1261 *et seq.*) respectively, when subject to a consumer product safety standard or labeling requirement of those Acts, or regulations issued under those Acts by the Consumer Product Safety Commission; and,

(vi) Agricultural or vegetable seed treated with pesticides and labeled in accordance with the Federal

Seed Act (7 U.S.C. 1551 *et seq.*) and the labeling regulations issued under that Act by the Department of Agriculture.

(6) This section does not apply to:

(i) Any hazardous waste as such term is defined by the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6901 *et seq.*), when subject to regulations issued under that Act by the Environmental Protection Agency;

(ii) Any hazardous substance as such term is defined by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. 9601 *et seq.*) when the hazardous substance is the focus of remedial or removal action being conducted under CERCLA in accordance with Environmental Protection Agency regulations.

(iii) Tobacco or tobacco products;

(iv) Wood or wood products, including lumber which will not be processed, where the chemical manufacturer or importer can establish that the only hazard they pose to employees is the potential for flammability or combustibility (wood or wood products which have been treated with a hazardous chemical covered by this standard, and wood which may be subsequently sawed or cut, generating dust, are not exempted);

(v) Articles (as that term is defined in paragraph (c) of this section);

(vi) Food or alcoholic beverages which are sold, used, or prepared in a retail establishment (such as a grocery store, restaurant, or drinking place), and foods intended for personal consumption by employees while in the workplace; (vii) Any drug, as that term is defined in the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 *et seq.*), when it is in solid, final form for direct administration to the patient (e.g., tablets or pills); drugs which are packaged by the chemical manufacturer for sale to consumers in a retail establishment (e.g., over-the-counter drugs); and drugs intended for personal consumption by employees while in the workplace (e.g., first aid supplies);

(viii) Cosmetics which are packaged for sale to consumers in a retail establishment, and cosmetics intended for personal consumption by employees while in the workplace;

(ix) Any consumer product or hazardous substance, as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 *et seq.*) and Federal Hazardous Substances Act (15 U.S.C. 1261 *et seq.*) respectively, where the employer can show that it is used in the workplace for the purpose intended by the chemical manufacturer or importer of the product, and the use results in a duration and frequency of

exposure which is not greater than the range of exposures that could reasonably be experienced by consumers when used for the purpose intended;

(x) Nuisance particulates where the chemical manufacturer or importer can establish that they do not pose any physical or health hazard covered under this section;

(xi) Ionizing and nonionizing radiation; and,

(xii) Biological hazards.

(c) Definitions.

Article means a manufactured item other than a fluid or particle:

(i) which is formed to a specific shape or design during manufacture;

(ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and

(iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee. *Chemical* means any substance, or mixture of substances.

Chemical manufacturer means an employer with a workplace where chemical(s) are produced for use or distribution.

Chemical name means 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.

Classification means 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.

Commercial account means an arrangement whereby a retail distributor sells hazardous chemicals to an employer, generally in large quantities over time and/or at costs that are below the regular retail price.

Common name means any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.

Container means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

Designated representative means any individual or organization to whom an employee gives written authorization to exercise such employee's rights under this section. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.

Director means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

Distributor means a business, other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or to employers.

Employee means a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous chemicals only in non-routine, isolated instances are not covered.

Employer means a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.

Exposure or *exposed* means that an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. "Subjected" in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, skin contact or absorption.)

Foreseeable emergency means any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the workplace.

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.

Hazard not otherwise classified (HNOC) means an adverse physical or health effect identified through evaluation of scientific evidence during the classification process that does not meet the specified criteria for the physical and health hazard classes addressed in this section. This does not extend coverage to adverse physical and health effects for which there is a hazard class addressed in this section, but the effect either falls below the cut-off value/concentration limit of the hazard class or is under a GHS hazard category that has not been adopted by OSHA (e.g., acute toxicity Category 5).

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.

Hazardous chemical means any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.

Health hazard means a chemical which is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard. The criteria for determining whether a chemical is classified as a health hazard are detailed in Appendix A to § 1910.1200—Health Hazard Criteria.

Immediate use means that the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Importer means the first business with employees within the Customs Territory of the United States which receives hazardous chemicals produced in other countries for the purpose of supplying them to distributors or employers within the United States.

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 specified pictogram, hazard statement, signal word and precautionary statement for each hazard class and category.

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

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 or 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 § 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 pictograms are designated under this standard for application to a hazard category.

Precautionary statement means a phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling.

Produce means to manufacture, process, formulate, blend, extract, generate, emit, or repackage.

Product identifier means 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-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label and the SDS.

Pyrophoric gas means a chemical in a gaseous state that will ignite spontaneously in air at a temperature of 130 degrees F (54.4 degrees C) or below.

Responsible party means someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

Safety data sheet (SDS) means written or printed material concerning a hazardous chemical that is prepared in accordance with paragraph (g) of this section.

Signal word means 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 asphyxiant means a substance or mixture that displaces oxygen in the ambient atmosphere, and can thus cause oxygen deprivation in those who are exposed, leading to unconsciousness and death.

Specific chemical identity means the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

Substance means chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

Trade secret means any confidential formula, pattern, process, device, information or compilation of information that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it. Appendix E to § 1910.1200—Definition of Trade Secret, sets out the criteria to be used in evaluating trade secrets. *Use* means to package, handle, react, emit, extract, generate as a byproduct, or transfer. *Work area* means a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

Workplace means an establishment, job site, or project, at one geographical location containing one or more work areas.

(d) Hazard classification.

(1) Chemical manufacturers and importers shall evaluate chemicals produced in their workplaces or imported by them to classify the chemicals in accordance with this section. For each chemical, the chemical manufacturer or importer shall determine the hazard classes, and, where appropriate, the category of each class that apply to the chemical being classified. Employers are not required to classify chemicals unless they choose not to rely on the classification performed by the chemical manufacturer or importer for the chemical to satisfy this requirement.

(2) Chemical manufacturers, importers or employers classifying chemicals shall identify and consider the full range of available scientific literature and other evidence concerning the potential hazards. There is no requirement to test the chemical to determine how to classify its hazards. Appendix A to § 1910.1200 shall be consulted for classification of health hazards, and Appendix B to § 1910.1200 shall be consulted for the classification of physical hazards.

(3) Mixtures.

(i) Chemical manufacturers, importers, or employers evaluating chemicals shall follow the procedures described in Appendices A and B to § 1910.1200 to classify the hazards of the chemicals, including determinations regarding when mixtures of the classified chemicals are covered by this section.

(ii) When classifying mixtures they produce or import, chemical manufacturers and importers of mixtures may rely on the information provided on the current safety data sheets of the individual ingredients,

except where the chemical manufacturer or importer knows, or in the exercise of reasonable diligence should know, that the safety data sheet misstates or omits information required by this section.

(e) Written hazard communication program.

(1) Employers shall develop, implement, and maintain at each workplace, a written hazard communication program which at least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, safety data sheets, and employee information and training will be met, and which also includes the following:

(i) A list of the hazardous chemicals known to be present using a product identifier that is referenced on the appropriate safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas); and,

(ii) The methods the employer will use to inform employees of the hazards of non-routine tasks (for example, the cleaning of reactor vessels), and the hazards associated with chemicals contained in unlabeled pipes in their work areas.

(2) *Multi-employer workplaces.* Employers who produce, use, or store hazardous chemicals at a workplace in such a way that the employees of other employer(s) may be exposed (for example, employees of a construction contractor working on-site) shall additionally ensure that the hazard communication programs developed and implemented under this paragraph (e) include the following:

(i) The methods the employer will use to provide the other employer(s) on-site access to safety data sheets for each hazardous chemical the other employer(s)' employees may be exposed to while working;

(ii) The methods the employer will use to inform the other employer(s) of any precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies; and,

(iii) The methods the employer will use to inform the other employer(s) of the labeling system used in the workplace.

(3) The employer may rely on an existing hazard communication program to comply with these requirements, provided that it meets the criteria established in this paragraph (e).

(4) The employer shall make the written hazard communication program available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director, in accordance with the requirements of 29 CFR 1910.20 (e).(5) Where employees must travel between workplaces during a workshift, *i.e.*, their work is carried out at

more than one geographical location, the written hazard communication program may be kept at the primary workplace facility.

(f) Labels and other forms of warning—

(1) *Labels on shipped containers.* The chemical manufacturer, importer, or distributor shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged, or marked. Hazards not otherwise classified do not have to be addressed on the container. Where the chemical manufacturer or importer is required to label, tag or mark the following information shall be provided:

- (i) Product identifier;
- (ii) Signal word;
- (iii) Hazard statement(s);
- (iv) Pictogram(s);
- (v) Precautionary statement(s); and,
- (vi) Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party.

(2) The chemical manufacturer, importer, or distributor shall ensure that the information provided under paragraphs (f)(1)(i) through (v) of this section is in accordance with Appendix C to § 1910.1200, for each hazard class and associated hazard category for the hazardous chemical, prominently displayed, and in English (other languages may also be included if appropriate).

(3) The chemical manufacturer, importer, or distributor shall ensure that the information provided under paragraphs (f)(1)(ii) through (iv) of this section is located together on the label, tag, or mark.

(4) Solid materials.

(i) For solid metal (such as a steel beam or a metal casting), solid wood, or plastic items that are not exempted as articles due to their downstream use, or shipments of whole grain, the required label may be transmitted to the customer at the time of the initial shipment, and need not be included with subsequent shipments to the same employer unless the information on the label changes;

(ii) The label may be transmitted with the initial shipment itself, or with the safety data sheet that is to be provided prior to or at the time of the first shipment; and,

(iii) This exception to requiring labels on every container of hazardous chemicals is only for the solid material itself, and does not apply to hazardous chemicals used in conjunction with, or known to be present with, the material and to which employees handling the items in transit may be exposed (for example, cutting fluids or pesticides in grains).

(5) Chemical manufacturers, importers, or distributors shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged, or marked in accordance with this section in a manner which does not conflict with the requirements of the Hazardous Materials Transportation Act (49 U.S.C. 1801 *et seq.*) and regulations issued under that Act by the Department of Transportation.

(6) Workplace labeling. Except as provided in paragraphs (f)(7) and (f)(8) of this section, the employer shall ensure that each container of hazardous chemicals in the workplace is labeled, tagged or marked with either:

(i) The information specified under paragraphs (f)(1)(i) through (v) of this section for labels on shipped containers; or,

(ii) Product identifier and words, pictures, symbols, or combination thereof, which provide at least general information regarding the hazards of the chemicals, and which, in conjunction with the other information immediately available to employees under the hazard communication program, will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical.

(7) The employer may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable and conveys the information required by paragraph (f)(6) of this section to be on a label. The employer shall ensure the written materials are readily accessible to the employees in their work area throughout each work shift.

(8) The employer is not required to label portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer. For purposes of this section, drugs which are dispensed by a pharmacy to a health care provider for direct administration to a patient are exempted from labeling.

(9) The employer shall not remove or deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information.

(10) The employer shall ensure that workplace labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work shift. Employers having employees who speak other languages may add the information in their language to the material presented, as long as the information is presented in English as well.

(11) Chemical manufacturers, importers, distributors, or employers who become newly aware of any significant information regarding the hazards of a chemical shall revise the labels for the chemical within six months of becoming aware of the new information, and shall ensure that labels on containers of hazardous chemicals shipped after that time contain the new information. If the chemical is not currently produced or imported, the chemical manufacturer, importer, distributor, or employer shall add the information to the label before the chemical is shipped or introduced into the workplace again.

(g) Safety data sheets.

(1) Chemical manufacturers and importers shall obtain or develop a safety data sheet for each hazardous chemical they produce or import. Employers shall have a safety data sheet in the workplace for each hazardous chemical which they use.

(2) The chemical manufacturer or importer preparing the safety data sheet shall ensure that it is in English (although the employer may maintain copies in other languages as well), and includes at least the following section numbers and headings, and associated information under each heading, in the order listed (See Appendix D to § 1910.1200—Safety Data Sheets, for the specific content of each section of the safety data sheet):

- (i) Section 1, Identification;
- (ii) Section 2, Hazard(s) identification;
- (iii) Section 3, Composition/information on ingredients;
- (iv) Section 4, First-aid measures;
- (v) Section 5, Fire-fighting measures;
- (vi) Section 6, Accidental release measures;
- (vii) Section 7, Handling and storage;
- (viii) Section 8, Exposure controls/personal protection;
- (ix) Section 9, Physical and chemical properties;
- (x) Section 10, Stability and reactivity;
- (xi) Section 11, Toxicological information;
- (xii) Section 12, Ecological information;

(xiii) Section 13, Disposal considerations;

(xiv) Section 14, Transport information;

(xv) Section 15, Regulatory information; and

(xvi) Section 16, Other information, including date of preparation or last revision.

Note 1 to paragraph (g)(2): To be consistent with the GHS, an SDS must also include the headings in paragraphs (g)(2)(xii) through (g)(2)(xv) in order. Note 2 to paragraph (g)(2): OSHA will not be enforcing information requirements in sections 12 through 15, as these areas are not under its jurisdiction.

(3) If no relevant information is found for any sub-heading within a section on the safety data sheet, the chemical manufacturer, importer or employer preparing the safety data sheet shall mark it to indicate that no applicable information was found. (4) Where complex mixtures have similar hazards and contents (i.e. the chemical ingredients are essentially the same, but the specific composition varies from mixture to mixture), the chemical manufacturer, importer or employer may prepare one safety data sheet to apply to all of these similar mixtures.

(5) The chemical manufacturer, importer or employer preparing the safety data sheet shall ensure that the information provided accurately reflects the scientific evidence used in making the hazard classification. If the chemical manufacturer, importer or employer preparing the safety data sheet becomes newly aware of any significant information regarding the hazards of a chemical, or ways to protect against the hazards, this new information shall be added to the safety data sheet within three months. If the chemical is not currently being produced or imported, the chemical manufacturer or importer shall add the information to the safety data sheet before the chemical is introduced into the workplace again. (6)(i) Chemical manufacturers or importers shall ensure that distributors and employers are provided an appropriate safety data sheet with their initial shipment, and with the first shipment after a safety data sheet is updated;

(ii) The chemical manufacturer or importer shall either provide safety data sheets with the shipped containers or send them to the distributor or employer prior to or at the time of the shipment;

(iii) If the safety data sheet is not provided with a shipment that has been labeled as a hazardous chemical, the distributor or employer shall obtain one from the chemical manufacturer or importer as soon as possible; and,

(iv) The chemical manufacturer or importer shall also provide distributors or employers with a safety data sheet upon request.

- (7)(i) Distributors shall ensure that material data sheets, and updated information, are provided to other distributors and employers with their initial shipment and with the first shipment after a safety data sheet is updated;
- (ii) The distributor shall either provide safety data sheets with the shipped containers, or send them to the other distributor or employer prior to or at the time of the shipment;
- (iii) Retail distributors selling hazardous chemicals to employers having a commercial account shall provide a safety data sheet to such employers upon request, and shall post a sign or otherwise inform them that a material safety data sheet is available;
- (iv) Wholesale distributors selling hazardous chemicals to employers over-the-counter may also provide safety data sheets upon the request of the employer at the time of the over-the-counter purchase, and shall post a sign or otherwise inform such employers that a material safety data sheet is available;
- (v) If an employer without a commercial account purchases a hazardous chemical from a retail distributor not required to have safety data sheets on file (*i.e.*, the retail distributor does not have commercial accounts and does not use the materials), the retail distributor shall provide the employer, upon request, with the name, address, and telephone number of the chemical manufacturer, importer, or distributor from which a safety data sheet can be obtained;
- (vi) Wholesale distributors shall also provide safety data sheets to employers or other distributors upon request; and,
- (vii) Chemical manufacturers, importers, and distributors need not provide safety data sheets to retail distributors that have informed them that the retail distributor does not sell the product to commercial accounts or open the sealed container to use it in their own workplaces.
- (8) The employer shall maintain in the workplace copies of the required safety data sheets for each hazardous chemical, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s). (Electronic access and other alternatives to maintaining paper copies of the safety data sheets are permitted as long as no barriers to immediate employee access in each workplace are created by such options.)

(9) Where employees must travel between workplaces during a workshift, *i.e.*, their work is carried out at more than one geographical location, the safety data sheets may be kept at the primary workplace facility. In this situation, the employer shall ensure that employees can immediately obtain the required information in an emergency.

(10) Safety data sheets may be kept in any form, including operating procedures, and may be designed to cover groups of hazardous chemicals in a work area where it may be more appropriate to address the hazards of a process rather than individual hazardous chemicals. However, the employer shall ensure that in all cases the required information is provided for each hazardous chemical, and is readily accessible during each work shift to employees when they are in their work area(s).

(11) Safety data sheets shall also be made readily available, upon request, to designated representatives, the Assistant Secretary, and the Director, in accordance with the requirements of § 1910.1020(e).

(h) *Employee information and training.*

(1) Employers shall provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new chemical hazard the employees have not previously been trained about is introduced into their work area. Information and training may be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and safety data sheets.

(2) *Information.* Employees shall be informed of:

- (i) The requirements of this section;
- (ii) Any operations in their work area where hazardous chemicals are present; and,
- (iii) The location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and safety data sheets required by this section.

(3) *Training.* Employee training shall include at least:

- (i) Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);
- (ii) The physical, health, simple asphyxiation, combustible dust, and pyrophoric gas hazards, as well as hazards not otherwise classified, of the chemicals in the work area;

(iii) The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and,

(iv) The details of the hazard communication program developed by the employer, including an explanation of the labels received on shipped containers and the workplace labeling system used by their employer; the safety data sheet, including the order of information and how employees can obtain and use the appropriate hazard information.

(i) Trade secrets.

(1) The chemical manufacturer, importer, or employer may withhold the specific chemical identity, including the chemical name, other specific identification of a hazardous chemical, or the exact percentage (concentration) of the substance in a mixture, from the safety data sheet, provided that:

(i) The claim that the information withheld is a trade secret can be supported;

(ii) Information contained in the safety data sheet concerning the properties and effects of the hazardous chemical is disclosed;

(iii) The safety data sheet indicates that the specific chemical identity and/or percentage of composition is being withheld as a trade secret; and,

(iv) The specific chemical identity and percentage is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of this paragraph (i).

(2) Where a treating physician or nurse determines that a medical emergency exists and the specific chemical identity and/or specific percentage of composition of a hazardous chemical is necessary for emergency or first-aid treatment, the chemical manufacturer, importer, or employer shall immediately disclose the specific chemical identity or percentage composition of a trade secret chemical to that treating physician or nurse, regardless of the existence of a written statement of need or a confidentiality agreement. The chemical manufacturer, importer, or employer may require a written statement of need and confidentiality agreement, in accordance with the provisions of paragraphs (i)(3) and (4) of this section, as soon as circumstances permit.

(3) In non-emergency situations, a chemical manufacturer, importer, or employer shall, upon request, disclose a specific chemical identity or percentage composition, otherwise permitted to be withheld under paragraph (i)(1) of this section, to a health professional (i.e. physician, industrial hygienist, toxicologist, epidemiologist, or occupational health

nurse) providing medical or other occupational health services to exposed employee(s), and to employees or designated representatives, if:

(i) The request is in writing;

(ii) The request describes with reasonable detail one or more of the following occupational health needs for the information:

(A) To assess the hazards of the chemicals to which employees will be exposed;

(B) To conduct or assess sampling of the workplace atmosphere to determine employee exposure levels;

(C) To conduct pre-assignment or periodic medical surveillance of exposed employees;

(D) To provide medical treatment to exposed employees;

(E) To select or assess appropriate personal protective equipment for exposed employees;

(F) To design or assess engineering controls or other protective measures for exposed employees; and,

(G) To conduct studies to determine the health effects of exposure.

(iii) The request explains in detail why the disclosure of the specific chemical identity or percentage composition is essential and that, in lieu thereof, the disclosure of the following information to the health professional, employee, or designated representative, would not satisfy the purposes described in paragraph (i)(3)(ii) of this section:

(A) The properties and effects of the chemical;

(B) Measures for controlling workers' exposure to the chemical;

(C) Methods of monitoring and analyzing worker exposure to the chemical; and,

(D) Methods of diagnosing and treating harmful exposures to the chemical;

(iv) The request includes a description of the procedures to be used to maintain the confidentiality of the disclosed information; and,

(v) The health professional, and the employer or contractor of the services of the health professional (i.e. downstream employer, labor organization, or individual employee), employee, or designated representative, agree in a written confidentiality agreement that the health professional, employee, or designated representative, will not use the trade secret information for any purpose other than the health need(s) asserted and agree not to release the information under any circumstances other than to OSHA, as provided in paragraph (i)(6) of this section, except as authorized by the terms of the agreement or by the chemical manufacturer, importer, or employer.

(4) The confidentiality agreement authorized by paragraph (i)(3)(iv) of this section:

(i) May restrict the use of the information to the health purposes indicated in the written statement of need;

(ii) May provide for appropriate legal remedies in the event of a breach of the agreement, including stipulation of a reasonable pre-estimate of likely damages; and, (iii) May not include requirements for the posting of a penalty bond.

(5) Nothing in this standard is meant to preclude the parties from pursuing non-contractual remedies to the extent permitted by law.

(6) If the health professional, employee, or designated representative receiving the trade secret information decides that there is a need to disclose it to OSHA, the chemical manufacturer, importer, or employer who provided the information shall be informed by the health professional, employee, or designated representative prior to, or at the same time as, such disclosure.

(7) If the chemical manufacturer, importer, or employer denies a written request for disclosure of a specific chemical identity or percentage composition, the denial must:

(i) Be provided to the health professional, employee, or designated representative, within thirty days of the request;

(ii) Be in writing;

(iii) Include evidence to support the claim that the specific chemical identity or percent of composition is a trade secret; (iv) State the specific reasons why the request is being denied; and,

(v) Explain in detail how alternative information may satisfy the specific medical or occupational health need without revealing the trade secret.

(8) The health professional, employee, or designated representative whose request for information is denied under paragraph (i)(3) of this section may refer the request and the written denial of the request to OSHA for consideration.

(9) When a health professional, employee, or designated representative refers the denial to OSHA under paragraph (i)(8) of this section, OSHA shall consider the evidence to determine if:

(i) The chemical manufacturer, importer, or employer has supported the claim that the specific chemical identity or percentage composition is a trade secret;

(ii) The health professional, employee, or designated representative has supported the claim that there is a medical or occupational health need for the information; and,

(iii) The health professional, employee or designated representative has demonstrated adequate means to protect the confidentiality.

(10)(i) If OSHA determines that the specific chemical identity or percentage composition requested under paragraph (i)(3) of this section is not a "bona fide" trade secret, or that it is a trade secret, but the requesting health professional, employee, or designated representative has a legitimate medical or occupational health need for the information, has executed a written confidentiality agreement, and has shown adequate means to protect the confidentiality of the information, the chemical manufacturer, importer, or employer will be subject to citation by OSHA.

(ii) If a chemical manufacturer, importer, or employer demonstrates to OSHA that the execution of a confidentiality agreement would not provide sufficient protection against the potential harm from the unauthorized disclosure of a trade secret, the Assistant Secretary may issue such orders or impose such additional limitations or conditions upon the disclosure of the requested chemical information as may be appropriate to assure that the occupational health services are provided without an undue risk of harm to the chemical manufacturer, importer, or employer.

(11) If a citation for a failure to release trade secret information is contested by the chemical manufacturer, importer, or employer, the matter will be adjudicated before the Occupational Safety and Health Review Commission in accordance with the Act's enforcement scheme and the applicable Commission rules of procedure. In accordance with the Commission rules, when a chemical manufacturer, importer, or employer continues to withhold the information during the contest, the Administrative Law Judge may review the citation and supporting documentation "in camera" or issue appropriate orders to protect the confidentiality of such matters.

(12) Notwithstanding the existence of a trade secret claim, a chemical manufacturer, importer, or employer shall, upon request, disclose to the Assistant Secretary any information which this section requires the chemical manufacturer, importer, or employer to make available. Where there is a trade secret claim, such claim shall be made no later than at the time the information is provided to the Assistant Secretary so that suitable determinations of trade secret status can be made and the necessary protections can be implemented.

(13) Nothing in this paragraph shall be construed as requiring the disclosure under any circumstances of process information which is a trade secret.

(j) Effective dates.

(1) Employers shall train employees regarding the new label elements and safety data sheets format by December 1, 2013.

(2) Chemical manufacturers, importers, distributors, and employers shall be in compliance with all modified provisions of this section no later than June 1, 2015, except:

(i) After December 1, 2015, the distributor shall not ship containers labeled by the chemical manufacturer or importer unless the label has been modified to comply with paragraph (f)(1) of this section.

(ii) All employers shall, as necessary, update any alternative workplace labeling used under paragraph (f)(6) of this section, update the hazard communication program required by paragraph (h)(1), and provide any additional employee training in accordance with paragraph (h)(3) for newly identified physical or health hazards no later than June 1, 2016.

(3) Chemical manufacturers, importers, distributors, and employers may comply with either § 1910.1200 revised as of October 1, 2011, or the current version of this standard, or both during the transition period.

Appendix Listing

The Appendices A-F for the Hazard Communication Standard is listed below. These are available online. See the Regulations at <http://www.osha.gov>.

§ 1910.1200 Appendix A - Health Hazard Criteria (Mandatory)

§ 1910.1200 Appendix B - Physical Hazard Criteria (Mandatory)

§ 1910.1200 Appendix C - Allocation of Label Elements (Mandatory)

§ 1910.1200 Appendix D - Minimum Information for an SDS (Mandatory)

§ 1910.1200 Appendix E - Definition of "Trade Secret" (Mandatory)

§ 1910.1200 Appendix F - Guidance for Hazard Classifications Re: Carcinogenicity (Non-Mandatory)

[59 FR 6170, Feb. 9, 1994, as amended at 59 FR 17479, Apr. 13, 1994; 59 FR 65948, Dec. 22, 1994; 61 FR 9245, Mar. 7, 1996; 77 FR 17785, Mar. 26, 2012; 78 FR 1416, Feb. 2013]

Appendix D To §1910.1200 - Safety Data Sheets (Mandatory)

A safety data sheet (SDS) shall include the information specified in Table D.1 under the section number and heading indicated for sections 1-11 and 16. If no relevant information is found for any given subheading within a section, the SDS shall clearly indicate that no applicable information is available. Sections 12-15 may be included in the SDS, but are not mandatory.

Table D.1. Minimum Information for an SDS

	Heading	Subheading
1.	Identification	(a) Product identifier used on the label; (b) Other means of identification; (c) Recommended use of the chemical and restrictions on use; (d) Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party; (e) Emergency phone number.
2.	Hazard(s) identification	(a) Classification of the chemical in accordance with paragraph (d) of §1910.1200; (b) Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of §1910.1200. (Hazard symbols may be provided as graphical reproductions in black and white or the name of the symbol, e.g., flame, skull and crossbones); (c) Describe any hazards not otherwise classified that have been identified during the classification process; (d) Where an ingredient with unknown acute toxicity is used in a mixture at a concentration = 1% and the mixture is not classified based on testing of the mixture as a whole, a statement that X% of the mixture consists of ingredient(s) of unknown acute toxicity is required.
3.	Composition/ information on ingredients	Except as provided for in paragraph (i) of §1910.1200 on trade secrets: For Substances (a) Chemical name; (b) Common name and synonyms; (c) CAS number and other unique identifiers; (d) Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance. For Mixtures In addition to the information required for substances: (a) The chemical name and concentration (exact percentage) or concentration ranges of all ingredients which are classified as health hazards in accordance with paragraph (d) of §1910.1200 and (1) are 5% present above their cut-off/concentration limits; or (2) present a health risk below the cut-off/concentration limits. (b) The concentration (exact percentage) shall be specified unless a trade secret claim is made in accordance with paragraph (i) of §1910.1200, when there is batch-to-batch variability in the production of a mixture, or for a group of substantially similar mixtures (See A.0.5.1.2) with similar chemical composition. In these cases, concentration ranges may be used. For All Chemicals Where a Trade Secret is Claimed Where a trade secret is claimed in accordance with paragraph (i) of §1910.1200, a statement that the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret is required.
4.	First-aid measures	(a) Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion; (b) Most important symptoms/effects, acute and delayed. (c) Indication of immediate medical attention and special treatment needed, if necessary.
5.	Fire-fighting measures	(a) Suitable (and unsuitable) extinguishing media. (b) Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products). (c) Special protective equipment and precautions for fire-fighters.
6.	Accidental release measures	(a) Personal precautions, protective equipment, and emergency procedures. (b) Methods and materials for containment and cleaning up.
7.	Handling and storage	(a) Precautions for safe handling. (b) Conditions for safe storage, including any incompatibilities.

8.	Exposure controls/personal protection	<p>(a) OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.</p> <p>(b) Appropriate engineering controls.</p> <p>(c) Individual protection measures, such as personal protective equipment.</p>			
9.	Physical and chemical properties	<p>(a) Appearance (physical state, color, etc.)</p> <p>(b) Odor</p> <p>(c) Odor threshold</p> <p>(d) pH</p> <p>(e) Melting point/freezing point</p>	<p>(f) Initial boiling point and boiling range</p> <p>(g) Flash point</p> <p>(h) Evaporation rate</p> <p>(i) Flammability (solid, gas)</p> <p>(j) Upper/lower flammability or explosive limits</p>	<p>(k) Vapor pressure</p> <p>(l) Vapor density</p> <p>(m) Relative density</p> <p>(n) Solubility(ies)</p> <p>(o) Partition coefficient: n-octanol/water</p>	<p>(p) Auto-ignition temperature</p> <p>(q) Decomposition temperature</p> <p>(r) Viscosity</p>
10.	Stability and reactivity	<p>(a) Reactivity;</p> <p>(b) Chemical stability;</p> <p>(c) Possibility of hazardous reactions;</p> <p>(d) Conditions to avoid (e.g., static discharge, shock, or vibration);</p> <p>(e) Incompatible materials;</p> <p>(f) Hazardous decomposition products.</p>			
11.	Toxicological information	<p>Description of the various toxicological (health) effects and the available data used to identify those effects, including:</p> <p>(a) Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact);</p> <p>(b) Symptoms related to the physical, chemical and toxicological characteristics;</p> <p>(c) Delayed and immediate effects and also chronic effects from short- and long-term exposure;</p> <p>(d) Numerical measures of toxicity (such as acute toxicity estimates).</p> <p>(e) Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA.</p>			
12.	Ecological information (Non-mandatory)	<p>(a) Ecotoxicity (aquatic and terrestrial, where available);</p> <p>(b) Persistence and degradability;</p> <p>(c) Bioaccumulative potential;</p> <p>(d) Mobility in soil;</p> <p>(e) Other adverse effects (such as hazardous to the ozone layer).</p>			
13.	Disposal considerations (Non-mandatory)	<p>Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.</p>			
14.	Transport information (Non-mandatory)	<p>(a) UN number;</p> <p>(b) UN proper shipping name;</p> <p>(c) Transport hazard class(es);</p> <p>(d) Packing group, if applicable;</p> <p>(e) Environmental hazards (e.g., Marine pollutant (Yes/No));</p> <p>(f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code);</p> <p>(g) Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises.</p>			
15.	Regulatory information (Non-mandatory)	<p>Safety, health and environmental regulations specific for the product in question.</p>			
16.	Other information, including date of preparation or last revision	<p>The date of preparation of the SDS or the last change to it.</p>			

Retention of DOT Markings, Placards and Labels

Separate from the Hazard Communication Standard is the OSHA General Industry Section §1910.1201 referencing the Department of Transportation (DOT) markings, placards, and labels to communicate hazards of materials while in transportation. The DOT provides training and outreach information along with a "Hazardous Materials Markings, Labeling and Placarding Guide" as a "DOT CHART" available online at <http://phmsa.dot.gov/hazmat>.

Subpart Z - Toxic and Hazardous Substances. §1910.1201 Retention of DOT markings, placards and labels.

(a) Any employer who receives a package of hazardous material which is required to be marked, labeled or placarded in accordance with the U. S. Department of Transportation's Hazardous Materials Regulations (49 CFR Parts 171 through 180) shall retain those markings, labels and placards on the package until the packaging is sufficiently cleaned of residue and purged of vapors to remove any potential hazards.

(b) Any employer who receives a freight container, rail freight car, motor vehicle, or transport vehicle that is required to be marked or placarded in accordance with the Hazardous Materials Regulations shall retain those markings and placards on the freight container, rail

freight car, motor vehicle or transport vehicle until the hazardous materials which require the marking or placarding are sufficiently removed to prevent any potential hazards.

(c) Markings, placards and labels shall be maintained in a manner that ensures that they are readily visible.

(d) For non-bulk packages which will not be reshipped, the provisions of this section are met if a label or other acceptable marking is affixed in accordance with the Hazard Communication Standard (29 CFR 1910.1200).

(e) For the purposes of this section, the term "hazardous material" and any other terms not defined in this section have the same definition as in the Hazardous Materials Regulations (49 CFR Parts 171 through 180).

[59 FR 36700, July 19, 1994]

OSHA Resources

There are a number of services provided by OSHA that can help you comply with the Hazard Communication Standard. Additional information on the Hazard Communication Standard can be found on OSHA's Hazard Communication webpage at www.osha.gov/dsg/hazcom.

OSHA Consultation Project

OSHA's On-site Consultation Program offers free and confidential safety and occupational health advice to small and medium-sized businesses in all states across the country, with priority given to high-hazard worksites. On-site Consultation services are separate from enforcement and do not result in penalties or citations. Consultants from state agencies or universities work with employers to identify workplace hazards, provide advice on compliance with OSHA standards, and assist in establishing injury and illness prevention programs. OSHA's Consultation Directory can be found on the OSHA website at <http://www.osha.gov>.

OSHA Publications

All About OSHA (OSHA 3302 - 2012)

Workers' Rights Booklet (OSHA 3021 - 2011)

Consultation Services (OSHA 3357 - 2009)

Principal Emergency Response and Preparedness (OSHA 3122 - 2004)

Job Hazard Analysis Guide (OSHA 3071 - 2002)

Personal Protective Equipment (OSHA 3151 - 2003)

Respiratory Protection Standard: Small Entity Compliance Guide (OSHA 3384 - 2011)

Hazard Communication: Small Entity Compliance Guide for Employers That Use Hazardous Chemicals (OSHA 3695)

A single free copy of the above materials can be obtained from OSHA field offices or OSHA Publications Office, Room N3101, Washington, D.C., 20210, Telephone: (202) 693-1888 or Fax: (202) 693-2498. (202) 219-4667. These publications, and many more, are also available on-line at <http://www.osha.gov>.