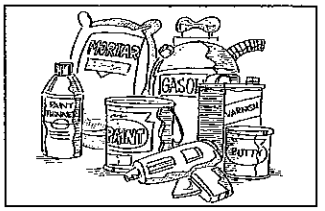


Hazard Communication — An Overview

Overview Of Topic

There are 35 million workers exposed to one or more of the 650,000 chemicals in the United States. OSHA recognized a growing need to protect this segment of the workforce in 1983 when it issued a rule called "Hazard Communication," or just "HazCom." In construction, the rule is located in 29 CFR 1926.59. However, under the section number, OSHA has inserted a simple note which says: *"Note: The requirements applicable to construction work under this section are identical to those set forth at 1910.1200 of this chapter."*

The rule requires companies to implement the following:

Hazard Communication Element:	Requirements:
Labels/Forms of Warning	Employers must ensure that each container of hazardous chemicals in the workplace is labeled, tagged or marked with the identity of the hazardous chemical(s) contained therein, and appropriate hazard warnings, or alternatively, 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 HazCom program, will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical. Employers may use signs, placards, process sheets, batch tickets, operating procedures, or other written materials in lieu of affixing labels to individual stationary process containers as long as the same information is conveyed and they are readily available to employees. Labels and other forms of warning must be in English.
Hazard Evaluation	Chemical manufacturers and importers must evaluate chemicals produced in their workplaces or imported by them to determine if they are hazardous. Employers are not required to evaluate chemicals unless they choose not to rely on the evaluation performed by the chemical manufacturer or importer for chemical.
MSDSs	Employers must have a MSDS in the workplace for each hazardous chemical which they use. MSDSs must be in English and contain the items listed in the Hazard Communication—Material Safety Data Sheets chapter.

Hazard Communication — An Overview

Employee Training	Employers must provide employees with information and training on hazardous chemicals in their work area at the time of their initial assignment and whenever a new physical or health hazard is introduced into their work area. Training includes the elements listed in the Hazard Communication—Training chapter.
Written Program	Employers must develop, implement, and maintain at each worksite, a written hazard communication program which has the elements listed in the Hazard Communication—Written Program chapter.

Employee Training

See the specific training elements listed in the following chapters:

- Hazard Communication—Physical & Health Hazards.
- Hazard Communication—Written Program.
- Hazard Communication—Material Safety Data Sheets.
- Hazard Communication—Labels & Labeling.
- Hazard Communication—Training.

Training Tips

Create a climate where workers feel free to ask questions. This will help you to ensure that the information is understood. You must always remember that the underlying purpose of the HazCom Standard is to reduce the incidence of chemical source illnesses and injuries. If your program works, you and your workers will better understand the chemical hazards within the workplace.

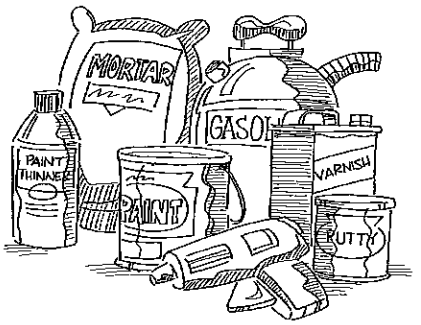
Where To Go For More Information

Many states had hazard communication or "right-to-know" laws prior to the promulgation of the Federal Rule, 29 CFR 1910.1200. If your state is a state plan state, you must comply with the state's requirements, which may be different than those of the Federal Rule. Check for any state regulations on hazard communication.

KELLER'S CONSTRUCTION TOOLBOX TALKS

Hazard Communication—An Overview

If you work with chemicals, you are one of 35 million workers exposed to one or more of the 650,000 chemicals in over 3.5 million companies across the country. The Occupational Safety and Health Administration (OSHA) recognized a growing need to protect workers like you in 1983 when it issued a rule called "Hazard Communication," or just "HazCom." You may have also heard the rule called "Right-to-Know." That is because it is your right to know about the chemical hazards you work with and how you can protect yourself from injury and illness.



The rule will ensure you get trained on the following:

- Material Safety Data Sheets (MSDSs), the source for information on chemicals in your work area.
- The job site's written program regarding hazard communication.
- Chemical labeling, the way to use labels to determine hazards of chemicals in use on the site.

Because chemicals can appear in many places on a job site, be aware of the following potentially hazardous chemcials that are commonly found and used on construction sites. Read their labels when you use them:

Chemicals commonly used in construction

Aluminum	Dynamite	Oxygen
Asphalt	Epoxy Resin	Paint
Asbestos	Fiberglass	Pesticides
Battery fluids	Formaldehyde	Refrigerants
Benzene	Freon	Sealers
Bleach	Galvanized metal	Shellacs
Cadmium	Gasoline & Diesel Fuel	Solders
Carbon dioxide	Glues	Solvents
Carbon monoxide	Grinding wheels	Steel (when welded/cut)
Caulk	Iron	Sulfuric acid
Cement, Portland & PVC Pipe	Isopropyl alcohol	Turpentine
Chlorine	Janitorial supplies	Varnishes
Cleaning agents	Lead	Wood dust
Detergents	LP Gas	Wood preservatives

Handouts may be copied and distributed to workers for use during your training session. Please refer to HOW TO USE THIS MANUAL for restrictions.
Copyright J. J. Keller & Associates, Inc., www.jjkeller.com

Hazard Communication—An Overview Sign-Off Sheet

This sign-off sheet documents the employees who have taken part in a training session on Hazard Communication — An Overview at _____.
(company name)

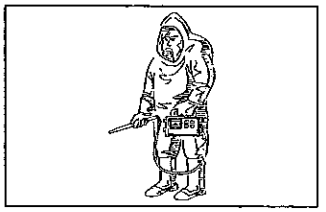
The session covered an overview of hazard communication and the Hazard Communication standard as well as a listing of commonly used hazardous chemicals or construction sites and what employees should look for.

The space below is for each individual who has been trained on this topic to sign his/her names.

Date of Training: _____ **Job Location:** _____

Employee Signature	**Print Name Here**

Sign-off sheets may be copied and distributed to workers for use during your training session. Please refer to HOW TO USE THIS MANUAL for restrictions.
Copyright J. J. Keller & Associates, Inc., www.jjkeller.com



Hazard Communication — HAZWOPER

Overview Of Topic

The dumping of hazardous wastes and other chemicals poses a significant threat and can cause fires, explosions, and pollution of air, water, and land. Spills, leaks, and other hazardous chemical emergencies are potentially dangerous situations. OSHA issued 29 CFR 1926.65, Hazardous Waste Operations and Emergency Response (HAZWOPER), to protect workers and help them handle hazardous wastes and substantial spills and leaks safely and effectively.

The standard covers workers employed in: (1) cleanup operations at uncontrolled hazardous waste sites; (2) EPA-licensed waste treatment, storage, and disposal (TSD) facilities; and (3) emergency response operations for releases of, or substantial threats of releases of, hazardous substances (not just hazardous wastes). If you have chemicals on-site and you have the possibility of a leak or spill (which is not incidental), you may fall under the emergency response requirements.

The standard requires each employer that falls under number one or two above to develop and implement a written safety and health program which includes an emergency response plan (ERP). Those who fall under number three must develop an ERP. An employer who will evacuate employees from the danger area when an emergency occurs, and who will not permit employees to assist with the emergency, is exempt from the ERP requirement if an emergency action plan in accordance with 29 CFR 1926.35 is prepared.

Employee Training

Before an employee may engage in hazardous waste operations or perform emergency response, he/she must be properly trained. The level of training that each employee must receive will be dictated by job function and level of responsibility.

Training must be presented by a trainer who has completed a training course on the subjects, or who has the credentials and experience to demonstrate competency. Required content of the training is detailed in paragraphs 1926.65(e), (p), and (q), where applicable. Upon successful completion of training, each employee is to receive a written certificate. Each employee must receive annual refresher training to maintain competency.

Training Tips

During HAZWOPER training:

- Show trainees where your carts and stations are, list items with which they are stocked, and train designated employees how and when to use them.
- Explain how responders can protect themselves from the dangers.
- Discuss the various routes for chemical exposure and the differences between chronic and acute exposures.
- Demonstrate the proper use of personal protective equipment (PPE) that would be used at the site of a release. Have employees try on PPE. You may also want to contact your sales vendor and request a demonstration of the PPE that he or she sells. Ensure that trainees understand that PPE can itself create significant worker hazards, such as heat stress, physical and psychological stress, and impaired vision.
- Demonstrate the proper procedures for decontamination of clothing, equipment, tools, and vehicles. Understanding the decontamination procedures is critical to hazardous waste operations.
- Discuss a typical emergency response scenario. Talk about the lines of authority.
- Use flip-charts, overhead transparencies, or charts.
- Introduce people involved in site safety and health.
- Consider combining all or portions of HAZWOPER and Hazard Communication training.

Where To Go For More Information

29 CFR 1926.65—Hazardous waste operations and emergency response.

KELLER'S CONSTRUCTION TOOLBOX TALKS

Hazard Communication—HAZWOPER

You could be exposed to chemical spills or hazardous waste. During excavation operations, for example, many companies have been surprised by the sometimes deadly things they have uncovered. That's why OSHA created 29 CFR 1926.65, HAZWOPER. Under this rule, your employer can either (1) participate in the handling of emergencies involving hazardous waste or chemical spills, or (2) immediately evacuate workers and call in trained hazardous materials (HazMat) teams.

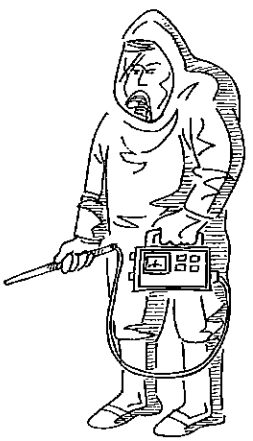
How can HAZWOPER involve you?

Preparing for accidental chemical releases involves special training. OSHA has set up formal training for emergency responders under HAZWOPER regulations, with training levels ranging from awareness training for first response to technical training for those who solve problems associated with spill cleanup.

What should you do in case of a spill?

Whether it's a solid or a liquid leak or spill, you can be exposed to toxic dust or vapor without even knowing it. If you are properly trained, act with care and speed. However, if you have not received training, **do not** respond to a chemical leak or spill. Instead, follow your company's emergency action plan for reporting leaks and spills and evacuating.

While it is vital to avoid panic, it is equally vital to get people out of harm's way as quickly as possible. Assess site hazards and act only when you do not endanger yourself. You want to help your fellow employees, but you won't do that if you become a victim yourself.



Some of the things you can do before help arrives are:

- Determine the potential hazards. (Look at the material safety data sheet.)
- Know about spill equipment and safety personnel.
- Know the exits and escape routes.
- Know the location of fire extinguishers.
- Know first aid and where to get first aid equipment.

Act responsibly in chemical spill emergencies

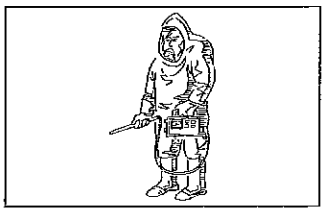
Safety becomes extremely important when hazardous chemicals are spilled. A mistake here can be deadly. Use the buddy system, whether you're part of the emergency response team or not. Don't ever enter a chemical emergency situation alone.

Different chemicals will require different levels of protective clothing or other precautions. Don't touch spills without protection. Avoid contaminated clothing of injured persons. Certainly, if the chemicals involved aren't hazardous, respond immediately within your abilities.

Do only those things that you possess adequate training to perform. Check the area for potential hazards such as electrical cords or wires near the spill or obstacles in the path of the emergency response team. Check for injuries and notify emergency medical personnel. Decontaminate victims, if possible. Cooperate with emergency personnel when they arrive, and pass on any information you've gathered.

Handouts may be copied and distributed to workers for use during your training session. Please refer to HOW TO USE THIS MANUAL for restrictions.

Copyright J. J. Keller & Associates, Inc., www.jjkeller.com



Hazard Communication—HAZWOPER Sign-Off Sheet

This sign-off sheet documents the employees at this company, _____, who have taken part in a training session on Hazard Communication—HAZWOPER. The session covered *(checkmark appropriate set of regulations)*:

✓	29 CFR 1926:	Training requirements
	.65(e)(1) to (9)	• Safety and health hazards employees should expect to find on hazardous waste clean-up sites. • What control measure or techniques are effective for those hazards. • What monitoring procedures are effective in characterizing exposure levels. • What makes an effective employer's safety and health program. • What a site safety and health plan should include. • Hands-on training with personal protective equipment/clothing they may be expected to use. • The contents of the OSHA standard relevant to the employee's duties and function. • Employee's responsibilities under OSHA and other regulations.
	.65(p)(7) and (8)(iii)	• The employer's safety and health program elements affecting employees. • The hazard communication program. • The medical surveillance program. • The hazards and the controls for such hazards that employees need to know for their job duties and functions.
	.65(q)(4) to (8)	• The hazards associated with hazardous substances. • Hazard identification and awareness. • Notification of appropriate persons. • The need for and use of personal protective equipment including respirators. • The decontamination procedures to be used. • Preplanning activities for hazardous substance incidents including emergency response plan. • Company standard operating procedures for hazardous substance emergency responses. • The use of the incident command system and other subjects.

The space below is for employees to "sign-off" that they were in attendance.

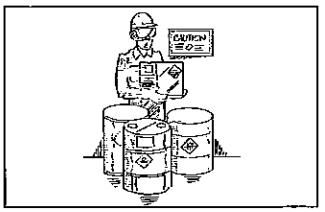
Date of Training: _____ **Job Location:** _____

Employee Signature	**Print Name Here**
_____	_____
_____	_____
_____	_____
_____	_____

_____
Supervisor's Signature

Sign-off sheets may be copied and distributed to workers for use during your training session. Please refer to HOW TO USE THIS MANUAL for restrictions.

Copyright J. J. Keller & Associates, Inc., www.jjkeller.com



Hazard Communication — Labels & Labeling

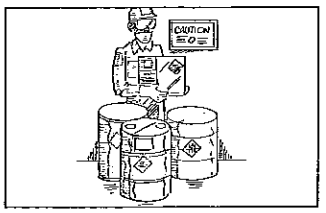
Overview Of Topic

Labeling is the part of Hazard Communication (HazCom) that requires a label, tag, or marking on containers so that construction workers are alerted to the fact that a potential hazard exists. In most cases, the label is affixed right to the container. The label's message is the "hazard warning." OSHA requires two things on a hazard warning label according to 29 CFR 1926.59:

Labeling requirement:	Description:
Hazardous chemical identity	The identity of the chemical(s) contained inside the container. The name used may be a common or trade name ("Black Magic Formula"), or a chemical name (1,1,1-Trichloroethane). The chemical name is found on not only the label, but also the chemical's material safety data sheet (MSDS) and the company's chemical inventory. Therefore, the chemical identity links these three sources of information.
Hazard Warning(s)	Words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the specific physical and health hazard(s), including target organ effects, of the chemical(s) in the container. Hazard warnings are not intended to be the sole or most complete source of hazard information. The hazard warning is a brief statement of the hazardous effects of the chemical ("flammable," "causes lung damage"). Labels frequently contain other information, such as precautionary measures ("do not use near open flame"), but this information is provided voluntarily and is not required by HazCom. Labels must be readable in English. Any size, color, and text can be used.

The chemical manufacturer, importer, or distributor is responsible for labeling, tagging, or marking each container of hazardous chemicals for which they determine to have potential hazards. When chemicals are shipped by tank truck or rail car, the label can be provided along with the shipping papers and MSDS. Department of Transportation (DOT) placards serve as hazard warnings while the chemical(s) is in transport.

In this way, your company can trust that the labeling provided on containers received by the company will be correct and in compli-



Hazard Communication — Labels & Labeling

ance. There are, however, some situations where your company is responsible for labeling:

Labeling area:	Responsibility:
Transferring chemicals	If your company chooses to break a large quantity of chemical into smaller containers, then your company must label each of these smaller containers with the chemical name and the potential hazards contained inside. However, if the amount transferred is used immediately by one employee during one work shift, then the smaller container does not need to be labeled.
Special emissions	Warn employees with signs, posters, or other materials about the potential hazards of welding areas, where employees are exposed to air emissions and fumes and in areas where carbon monoxide is emitted.
Replacing labels	When labels become soiled, unreadable, or fall off, replace labels.

OSHA labeling exemptions include products regulated by other agencies; solid metals that do not go through a process resulting in emissions; pipes; and signs, batch tickets, or placards used in place of labels on individual stationary process containers.

Employee Training

During HazCom label training:

- Appoint and train someone or all trainees to watch for poor or missing labels and report it to someone who is trained to replace the labels.
- Train employees to recognize and understand the labeling system(s) your company uses.

Training Tips

- Have samples of labels used on the employees' chemical containers. Show them how labels will look in use on the job. Point out the two elements required on a label on the sample container labels. Explain the labeling do's and don'ts of transferring chemicals.

KELLER'S CONSTRUCTION TOOLBOX TALKS

Hazard Communication—Labels & Labeling

One out of every four workers contacts hazardous chemicals on the job. As a construction worker, you have a need and a right to know the chemicals to which you are exposed, their hazards, and how to protect yourself when working. This simple concept is the basis of the Hazard Communication Standard (HazCom). Labeling is the part of HazCom that requires a label on containers so that you are alerted to the fact that a potential hazard exists. Because labels are right on a container, in most cases, you can immediately find out what the chemical's hazards are. The label's message about the hazards is the "hazard warning label." Take a look at a hazardous chemical container in your facility, it should have a label. This label should have the following minimum information:

- *Hazardous chemical name*—the identity of the chemical(s) contained inside the container. The name used may be a common or trade name ("Black Magic Formula"), or a chemical name (1,1,1-trichloroethane)

- *Hazard warning(s)*—brief information regarding the physical and health hazards of the chemicals. Hazard warnings won't be the most complete source of hazard information; they are meant to be brief (i.e., "flammable," or "causes lung damage").

If you need more information than that printed on the label, refer to the material safety data sheet for the chemical, the chemical inventory, and/or your company's HazCom written program. Ask your safety director to help you.

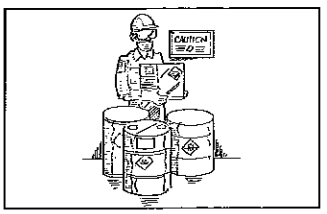
Your company probably receives chemicals from several manufacturers. These manufacturers will label containers differently. For this reason, your company may have developed or adopted a single labeling system to help you recognize and understand labels, which can make it easier for you to identify potential hazards. Original labels may remain on the original container along with or instead of a uniform label. Learn how to understand whatever labels, are in use.

Like anything, labels wear out. They become soiled or unreadable, or they fall off. When you see this happen, let your supervisor know (so he/she can replace the label) and get instructions for using the chemical.

There are a few situations that do not require HazCom labeling. These include: the chemical transfer exception stated earlier; products like foods, drugs, cosmetics which are regulated by other agencies; solid metals such as steel beams or metal castings that do not go through a process resulting in emissions; and signs, batch tickets, or placards used in place of labels on individual stationary process containers.

Handouts may be copied and distributed to workers for use during your training session. Please refer to HOW TO USE THIS MANUAL for restrictions.

Copyright J. J. Keller & Associates, Inc., www.jjkeller.com



Hazard Communication—Labels & Labeling Sign-Off Sheet

This sign-off sheet documents the employees who have taken part in a training session on Hazard Communication — Labels and Labeling at _____.
(company name)

The session covered the following:

- Checking that every purchased container is labeled before accepting it.
- Watching for poor or missing labels and reporting it to the person who is trained to replace the labels.
- Recognizing and understanding the labeling system(s) the company uses.

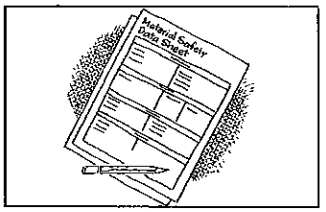
The space below is for each individual who has been trained on this topic to sign his/her names.

Date of Training: _____ **Job Location:** _____

Employee Signature	Print Name Here

Sign-off sheets may be copied and distributed to workers for use during your training session. Please refer to HOW TO USE THIS MANUAL for restrictions.

Copyright J. J. Keller & Associates, Inc., www.jjkeller.com

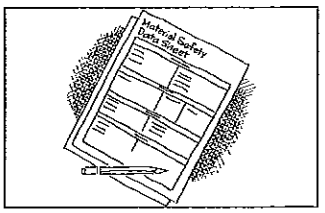


Hazard Communication — Material Safety Data Sheets

Overview Of Topic

The material safety data sheet (MSDS) is a detailed information bulletin prepared by the manufacturer or importer of the chemical that describes the following information for a given chemical:

MSDS section	Description
Chemical identity	The identity used on the label, and except as provided in 29 CFR 1910.1200(i) on trade secrets.
Physical and chemical characteristics	Such as vapor pressure and flash point.
Physical hazards	Including the potential for fire, explosion, and reactivity.
Health hazards	Including signs and symptoms of exposure, and any medical conditions which are generally recognized as being aggravated by exposure to the chemical.
Primary route(s) of entry	—
Exposure limits	The OSHA permissible exposure limit, ACGIH Threshold Limit Value, and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the MSDS, where available.
Whether the chemical is a carcinogen	Whether the hazardous chemical is listed in the a National Toxicology Program (NTP) Annual 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 editions), or by OSHA.
Precautions for safe handling and use	Any generally applicable precautions for safe handling and use which are known to the chemical manufacturer, importer, or employer preparing the MSDS, including appropriate hygienic practices, protective measures during repair and maintenance of contaminated equipment, and procedures for cleanup of spills and leaks.
Control measures	Any generally applicable control measures which are known to the chemical manufacturer, importer, or employer preparing the MSDS, such as appropriate engineering controls, work practices, or personal protective equipment.



Hazard Communication — Material Safety Data Sheets

MSDS section	Description
Emergency and first aid procedures	—
Date of preparation	The date of preparation of the MSDS or the last change to it.
Manufacturer, importer, or responsible party	The name, address, and telephone number of the chemical manufacturer, importer, employer, or other responsible party preparing or distributing the MSDS, who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

Information on an MSDS aids in the selection of safe products and helps prepare employers and employees to respond effectively to daily exposure situations, as well as to emergencies. Employers must maintain a complete and accurate MSDS for each hazardous chemical that it used at the work site. At the same time, employers must ensure that MSDSs are accessible during each work shift to employees when they are in their work area(s). For construction companies, this could mean multiple copies of MSDSs for more than one worksite. Computerized data sheets are permitted as long as they are readily accessible to employees.

Employee Training

An effective MSDS training program will:

- Explain to employees what MSDSs are.
- Tell trainees where MSDSs are located.
- Show trainees how to use the hazard information on MSDS.
- Designate and train someone to obtain and maintain MSDSs.

Training Tips

Bring in a chemical container with a label along with its MSDS. Show trainees how the label information is only a small portion of what appears on the MSDS. Tell them if they have questions about a particular chemical, they can look up the information in the MSDS. Explain that MSDSs are to remain where workers find them, in their designated location. That way everyone can find what they need.

KELLER'S CONSTRUCTION TOOLBOX TALKS

Hazard Communication—Material Safety Data Sheets

OSHA requires that construction workers who come into contact with hazardous chemicals be provided with thorough and accurate information on each hazardous chemical present at their worksite. The material safety data sheet, or MSDS, is the means used to provide the required information on worksite chemicals and hazards.

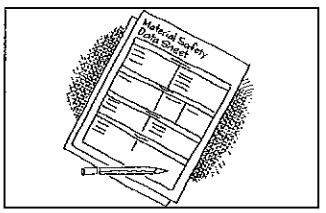
MSDSs are easily stored and can be readily accessible to employees. Your safety director should tell you where those MSDSs are located at your site. If you don't know where they are, find out.

MSDSs come in all kinds of formats. As long as all the prescribed information is presented on the MSDS in English, requirements have been met. Most MSDSs come on paper sheets; however, technology has led some companies to computerize MSDSs. OSHA approves of this method, but only if the information is in English and readily available to workers. Here are the MSDS sections you will find and what information they contain:

MSDS section:	Information/Description:
Chemical identity	The identity used on the label, except trade secrets
Physical and chemical characteristics	Such as vapor pressure and flash point.
Physical hazards	Including the potential for fire, explosion, and reactivity.
Health hazards	Including signs and symptoms of exposure, and any medical conditions which are generally recognized as being aggravated by exposure to the chemical.
Primary route(s) of entry	Including skin contact, inhalation, and ingestion.
Exposure limits	Exposure limits used or recommended by the chemical manufacturer, importer, or employer preparing the MSDS, where available.
Whether the chemical is a carcinogen	Whether the hazardous chemical is listed in the official lists of carcinogens and potential carcinogens.
Precautions for safe handling and use	Any generally applicable precautions for safe handling and use, including appropriate hygienic practices, protective measures during repair and maintenance of contaminated equipment, and procedures for cleanup of spills and leaks.
Control measures	Any generally applicable control measures, such as appropriate engineering controls, work practices, or personal protective equipment.
Emergency and first aid procedures	—
Date of preparation	Date of MSDS preparation or last change.
Manufacturer, importer, or responsible party	The name, address, and telephone number of the chemical manufacturer, importer, employer, or other responsible party preparing or distributing the MSDS.

Handouts may be copied and distributed to workers for use during your training session. Please refer to HOW TO USE THIS MANUAL for restrictions.

Copyright J. J. Keller & Associates, Inc., www.jjkeller.com



Hazard Communication—Material Safety Data Sheets Sign-Off Sheet

This sign-off sheet documents the employees who have taken part in a training session on Hazard Communication — Material Safety Data Sheets (MSDSs) at _____.
(company name)

The session covered the following:

- What MSDSs are and what information they contain.
- Where MSDSs are located. How to find MSDSs. MSDSs are in employee's work areas.
- How to properly make use the appropriate hazard information within an MSDS.
- Alternatives to actual data sheets in the workplace, if used. If MSDSs are computerized, all trainees understand access to them.

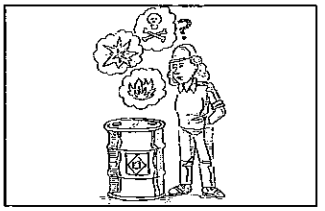
The space below is for each individual who has been trained on this topic to sign his/her names.

Date of Training: _____ **Job Location:** _____

Employee Signature	**Print Name Here**

Sign-off sheets may be copied and distributed to workers for use during your training session. Please refer to HOW TO USE THIS MANUAL for restrictions.

Copyright J. J. Keller & Associates, Inc., www.jjkeller.com



Hazard Communication — Physical & Health Hazards

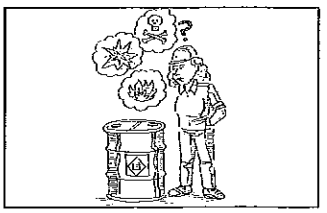
Overview Of Topic

Generally, chemical hazards are physical and/or health hazards:

Hazard:	Description:	Chemical could cause:
Physical	Chemical for which there is scientific evidence that it is a: • Flammable, combustible, or explosive material, • Compressed gas, • Organic peroxide, • Oxidizer, • Pyrophoric (spontaneously igniting substance), or • Unstable (reactive) or water-reactive material.	• Fire, and • Explosion
Health	Chemical for which there is statistically significant evidence that acute (brief exposure causes rapid effect) or chronic (long-term exposure causes long, continuous effects) health effects may occur in exposed employees. Health hazards are not always obvious. Workers may not see, feel, or smell the danger. Includes chemicals which are: • Carcinogens (cancer-causers) like benzene & formaldehyde, • Toxic agents like lawn and garden insecticides and arsenic compounds, • Irritants like bleaches or ammonia, • Corrosives like battery acid or caustic sodas, • Sensitizers like creosote or epoxy resins, • Reproductive toxins like thalidomide or nitrous oxide, or • Organ-specific agents like sulfuric acid (affects skin) or asbestos (affects lungs).	• Heart ailments, • Kidney damage, • Lung damage, • Sterility, • Cancer, • Burns, and • Rashes.

Workers can come into contact with chemicals in three ways:

Contact method:	Description:
Skin	This occurs accidentally, through a spill, or intentionally, through a job process. Burning/irritation/penetration of the skin into body can occur with severe results.
Ingestion	Swallowing a chemical by touching the mouth with fingers can lead to exposure. A worker should not eat or drink in risk areas.



Hazard Communication — Physical & Health Hazards

Contact method:	Description:
Inhalation	Breathing in toxic dust or vapors can occur without a worker knowing it. Workers must learn about the chemicals on the job to see if there is an inhalation danger.

Your company should evaluate all chemical products onsite to determine if they are hazardous according to the hazard communication standard, unless your company chooses to rely on the evaluation performed by the chemical manufacturer or importer.

Employee Training

Once your company determines the hazards for all chemicals onsite (it can use the MSDSs supplied by the manufacturer or importer to do this), you must train exposed workers on the hazards of the chemicals in their work areas.

Training Tips

Hazard communication allows for some flexibility in how you train your workers. Train on each specific chemical trainees work with, OR train by categories of hazards (e.g., flammable liquids, corrosive materials, carcinogens). Typically where there are large numbers of chemicals, or chemicals change frequently, you will want to train workers based on hazard categories.

Where To Go For More Information

MSDSs are valuable sources of physical and health hazard information.

29 CFR 1926.59, Hazard Communication Standard

KELLER'S CONSTRUCTION TOOLBOX TALKS

Hazard Communication—Physical & Health Hazard

Be aware that every chemical substance you handle during the day, whether it is a liquid, solid, vapor, or dust, could cause you great harm if you aren't protected. Your first line of defense is knowing what each chemical can do to you physically and how it can affect your health. With that knowledge tucked under your toolbelt, you can take correct precautions.

OSHA found that many chemicals cause health conditions including heart ailments, lung and kidney damage, cancer, reproductive problems, burns, and dermatitis. Such health effects can be acute or chronic. Acute health effects are those which appear rapidly after a brief exposure to the chemical(s). Chronic health effects are those which appear during and/or after long-term exposure to a chemical(s). If there is enough evidence that exposure to a chemical causes acute or chronic health effects, that chemical is a health hazard. Many chemicals are health hazards. Here are the general chemical categories that are health hazards:

- Carcinogens (cancer-causers) like benzene and formaldehyde.
- Toxic agents like lawn and garden insecticides and arsenic compounds.
- Irritants like bleaches or ammonia.
- Corrosives like battery acid or caustic sodas.
- Sensitizers like creosote or epoxy resins.
- Reproductive toxins like thalidomide or nitrous oxide.
- Organ-specific agents like sulfuric acid (affects skin) or asbestos (affects lungs).

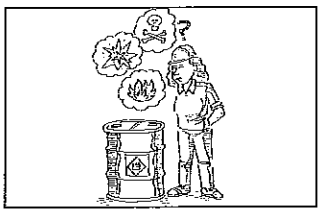
OSHA found that many chemicals cause fires and explosions. These chemicals are physical hazards. Here are the chemical categories which are considered physical hazards, based on scientific evidence:

- Flammable, combustible, or explosive material.
- Compressed gas.
- Organic peroxide.
- Oxidizer.
- Pyrophoric (spontaneously igniting substance).
- Unstable (reactive) or water-reactive material.

You can determine chemical hazards by looking at the chemical's label and/or its material safety data sheet (MSDS). To minimize exposure, follow the directions you will find there. Protect yourself by understanding MSDSs and chemical labels, wearing appropriate personal protective equipment like gloves and goggles, following appropriate safe work practices, and knowing proper emergency response. Talk to your safety director about these methods of protection.

Handouts may be copied and distributed to workers for use during your training session. Please refer to HOW TO USE THIS MANUAL for restrictions.

Copyright J. J. Keller & Associates, Inc., www.jjkeller.com



Hazard Communication—Physical & Health Hazards Sign-Off Sheet

This sign-off sheet documents the employees who have taken part in a training session on Hazard Communication — Physical & Health Hazards at _____.
(company name)

The session covered the following:

- Types of physical and health hazards of chemicals that employees should look for.
- Ways trainees can come into contact with or be exposed to hazardous chemicals at work (skin contact, ingestion, or inhalation), and
- Special precautions for chemicals, including work practices to minimize exposure and the use of personal protective equipment.

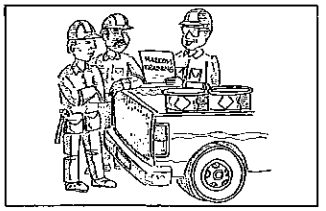
The space below is for each individual who has been trained on this topic to sign his/her names.

Date of Training: _____ **Job Location:** _____

Employee Signature	Print Name Here

Sign-off sheets may be copied and distributed to workers for use during your training session. Please refer to HOW TO USE THIS MANUAL for restrictions.

Copyright J. J. Keller & Associates, Inc., www.jjkeller.com



Hazard Communication — Training

Overview Of Topic

According to the construction hazard communication standard (29 CFR 1926.59), each employee who may be "exposed" to hazardous chemicals when working must be provided information and trained prior to initial assignment to work with a hazardous chemical, and whenever the hazard changes.

Employee Training

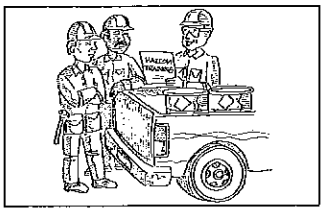
A properly conducted training program will ensure comprehension and understanding. Present information based on the specific hazard information conveyed by labels and material safety data sheets (MSDSs) for your particular worksite. You may cover hazard categories (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must be available through labels and MSDSs. Provide this information and training

Employee Information

Information:	Details:
Requirements of 29 CFR 1910.1200	The provisions of the Hazard Communication Standard (29 CFR 1910.1200).
Hazardous chemical operations in work area	Any operations in the trainees' work area where hazardous chemicals are present.
Written hazard communication program	The location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and MSDSs required by 29 CFR 1910.1200.

Employee Training

Training element:	Details:
Methods for detecting hazardous chemicals	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, and visual appearance or odor of hazardous chemicals when being released.
Physical and health hazards	Physical and health hazards of the chemicals in the work area.



Hazard Communication — Training

Training element:	Details:
Protective measures	Measures employees can take to protect themselves from the physical and health 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 (PPE) to be used.
HazCom program details	Details of the hazard communication program developed by the employer, including an explanation of the labeling system and the MSDS, and how employees can obtain the use of the appropriate hazard information.

Training Tips

Use such things as chemical labels, MSDS, and the written program, to demonstrate to employees during training.

Where To Go For More Information

29 CFR 1926.59, Hazard Communication Standard

KELLER'S CONSTRUCTION TOOLBOX TALKS

Hazard Communication—Training

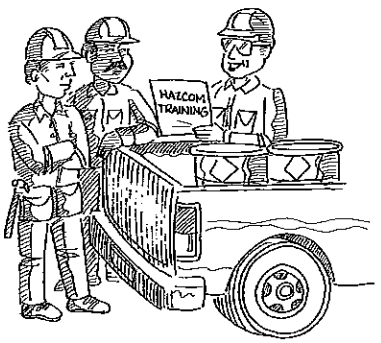
Most construction workers have to work with chemicals at one time or another. The goal of your company's Hazard Communication (HazCom) Program is to inform you about the chemicals you might have to work with, so you can use them safely. Training is a big part of the program.

Who is trained?

Not everyone is required to get HazCom training. Only each employee who may be "exposed" to hazardous chemicals when working must get trained. The term exposure means:

> 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. In terms of health hazards, "subjected" includes any route of entry including inhalation, ingestion, or skin contact or absorption.

Training takes place both before the initial assignment to work with a hazardous chemical and when a new physical or health hazard is introduced into the workplace. That means when a new person is hired, if that person is to be exposed to chemicals during work, he or she must be trained before beginning work. Employees already on the job who are exposed to chemicals must have been trained and will receive more training in any new physical and health hazards before their exposure to them. Contract employees, too, must be trained for the chemicals to which they may be exposed.



What does training include?

Methods to detect the presence of a hazardous chemical in your work area. These detection methods might include periodic monitoring conducted by your company, the use of continuous monitoring devices, and the visual appearance or odor of hazardous chemicals when they are released.

Physical and health hazards of chemicals in your work area.

Measures you can take to protect yourself. These measures might include personal protective equipment (i.e., gloves, face shields, aprons, foot gear, full-body suits, and respirators), work practices for doing your work in the safest manner (i.e., keeping containers labeled, using tools instead of your hands to apply chemicals, and storing and transferring chemicals appropriately), and emergency procedures (i.e., knowing where eyewash stations are located, knowing when to flush chemical burns with water and when not to, knowing where to retrieve MSDSs in an emergency).

The elements of your company's HazCom program. Elements include hazard assessment, the written program, labeling, MSDSs, and training.

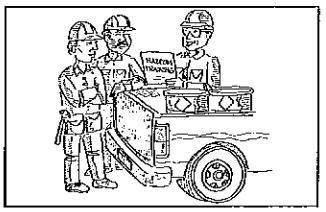
The requirements of the Hazard Communication Regulation (29 CFR 1926.59).

Any operations in your work area where hazardous chemicals are present.

The location and availability of the written hazard communication program.

Handouts may be copied and distributed to workers for use during your training session. Please refer to HOW TO USE THIS MANUAL for restrictions.

Copyright J. J. Keller & Associates, Inc., www.jjkeller.com



Hazard Communication—Training Sign-Off Sheet

This sign-off sheet documents the employees who have taken part in a training session on Hazard Communication — Training at _____.
(company name)

The session covered the training requirements of the Hazard Communication Standard.

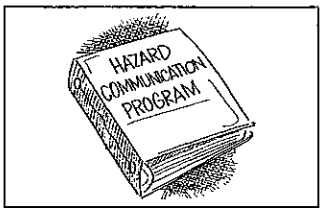
The space below is for each individual who has been trained on this topic to sign his/her names.

Date of Training: _____ **Job Location:** _____

Employee Signature	Print Name Here

Sign-off sheets may be copied and distributed to workers for use during your training session. Please refer to HOW TO USE THIS MANUAL for restrictions.

Copyright J. J. Keller & Associates, Inc., www.jjkeller.com



Hazard Communication — Written Program

Overview Of Topic

Many OSHA regulations require a written program. Hazard Communication regulations, 29 CFR 1926.59, require one, even if you only use one hazardous chemical onsite. Specifically, employers must develop, implement, and maintain at each workplace, a written hazard communication program which at least describes the following:

Program element:	Describes the following:
Container labeling and other forms of warnings	A description of how the criteria in 29 CFR 1910.1200(f) will be met at your worksite. This includes what type of labeling system is being used, if any.
MSDSs	A description of how the criteria in 29 CFR 1910.1200(g) will be met at your worksite.
Employee information and training	A description of how the criteria of 29 CFR 1910.1200(h) will be met at your worksite, including methods for communicating hazards and protective measures to employees and others.
Chemical list	A list of the hazardous chemicals known to be present at the worksite using an identity that is referenced on the appropriate material safety data sheet, also called MSDS (the list may be compiled for the workplace as a whole or for individual work areas).
Multi-employer workplaces—Methods for providing information to other employer's employees, such as contract workers	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 onsite) must additionally ensure that the hazard communication programs developed and implemented include: • Methods you will use to provide the other employer(s) onsite access to MSDSs for each hazardous chemical the other employer(s)' employees may be exposed to while working; • Methods you 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 • Methods you will use to inform the other employer(s) of the labeling system used in the workplace.

Hazard Communication — Written Program

Program element:	Describes the following:
Nonroutine task and unlabeled pipe hazard notification	The methods the employer will use to inform employees of the hazards of nonroutine tasks (for example, the cleaning of reactor vessels), and the hazards associated with chemicals contained in unlabeled pipes in their work areas.

NOTE: See the handout for more details about what is required in the plan.

Preparation of a plan is not just a paper exercise—all the elements must be implemented at the worksite in order to be in compliance with the rule. The only work operations which do not have to comply with the written plan requirements are work operations where employees only handle chemicals in sealed containers. However, these operations still must comply with other hazard communication requirements as specified in 29 CFR 1910.1200(b).

If you use a generic written program, you must adapt it to address your worksite. For example, the written plan must list the chemicals present at the site, indicate who is to be responsible for the various aspects of the program at your worksite, and indicate where written materials will be made available to employees. Appendix E, Guidelines for Employer Compliance, provides the type of information compliance officers will be looking for to decide whether the elements of the hazard communication program have been properly addressed.

Employee Training

Inform employees of the written program's location and its availability to them. The details of the hazard communication program must also be covered during training, including an explanation of the labeling system and the MSDS, and how employees can obtain and use the appropriate hazard information.

Training Tips

It is useful to share the information in the written program with employees, to give them an overview of the entire program and let them see that their training is just one part of a greater overall effort.

KELLER'S CONSTRUCTION TOOLBOX TALKS

Hazard Communication—Written Program

In order for OSHA to ensure that your company is implementing a hazard communication program involving a chemical hazard determination, chemical labeling, material safety data sheets (MSDSs), nonroutine tasks, contractors, and training, your company is required to write a plan that describes how it will implement its hazard communication program.

This written plan is available to you at any time. Your employer must tell you where you may find a copy of the plan. By reading the plan, you can find out what chemicals are present at your worksite and the following information regarding communication about chemical hazards:

About labeling

- What labeling system is being used.
- Who is responsible for ensuring labeling of containers.
- What alternatives to labeling of containers is used, if any.
- How does the company review and update label information when necessary.

About MSDSs

- Who is responsible for obtaining an maintaining the MSDSs.
- How are MSDSs to be maintained at the worksite.
- How employees access MSDSs in their work area during the work shift.
- What procedures to follow when a MSDS is not received at the time of first shipment.
- What alternatives to actual data sheets at the worksite are used, if any.

About training

- Who is responsible for conducting training and elements of the training.
- How will training be accomplished (audiovisuals, classroom instruction, etc.).
- The procedure for training new employees at the time of their initial assignment to work with a hazardous chemical, and when a new hazard is introduced into the workplace.

About nonroutine tasks

- What methods the company will use to inform you of the hazards of nonroutine tasks.

About informing employers of other workers

- Methods your company will use to inform employers of other workers on your site, such as contract workers, of any precautionary measures that they must take to protect themselves, of labeling systems used, and of access to MSDSs for hazardous chemicals to which they may be exposed.

Handouts may be copied and distributed to workers for use during your training session. Please refer to HOW TO USE THIS MANUAL for restrictions.

Copyright J. J. Keller & Associates, Inc., www.jjkeller.com

Hazard Communication—Written Program Sign-Off Sheet

This sign-off sheet documents the names of employees who attended this training session on Hazard Communication—Written Hazard Communication Program at _____.
(company name)

The session covered:

- The written program's location.
- The written program's availability to employees.
- The details of the hazard communication program, including an explanation of the labeling system and the MSDS, and how employees can obtain and use the appropriate hazard information.

The space below is for employees to "sign-off" that they were in attendance..

Date of Training: _____ **Job Location:** _____

Employee Signature	**Print Name Here**

Sign-off sheets may be copied and distributed to workers for use during your training session. Please refer to HOW TO USE THIS MANUAL for restrictions.

Copyright J. J. Keller & Associates, Inc., www.jjkeller.com