

Hazard Communication

**You Don't Have To Be a
Chemist To Understand
Hazardous Chemicals**

If you are exposed to hazardous chemicals on the job, you have a right to know what the hazards are and how you can protect yourself. The hazard communication program makes chemical hazards easier to understand.

Section I

Introduction

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This course will take a closer look at how you can use hazard communication information to learn about chemical hazards and stay safe.

Introduction

- OSHA's requirements – Occupational Safety & Health Bureau for the State of Montana
- The presence of hazardous chemicals

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We will discuss – OSHA's Requirements. The City of Helena falls in under the Safety & Health Bureau for the State of Montana

And we will look at the presence of hazardous chemicals

Introduction

- Physical hazards
- Health hazards
- Protecting yourself

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We will also look at physical hazards, health hazards and how to protect yourself.

Introduction

- Material safety data sheets (MSDSs)
- Labels



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We will also take a look at Material safety data sheets (MSDS) and Labels.

Section II

OSHA's – Occupational Safety & Health
Bureau for the State of Montana
requirements

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Hazard communication standard – the chemical right-to-know provisions. Your employer is required to inform you of the requirements of the standard.

Purpose

- Evaluate hazards
- Provide information



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The purpose of this rule is to ensure that all chemicals are evaluated for their hazards and that employers and employees have access to the hazard information. The standard sets requirements for chemical manufacturers, importers, and employers and it applies to any chemical in the workplace to which employees can be exposed under normal conditions of use or in an emergency.

Hazard evaluation

- Chemical manufacturers
- Importers

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A chemical's hazards are evaluated by the chemical manufacturer or the importer. Most employers do not have to evaluate the hazards – they rely on the information they receive when they buy the chemical. OSHA and other agencies provide plenty of guidance on how to evaluate a chemical's hazards.

Written program

- List of chemicals
- MSDSs
- Labels



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Employers who use hazardous chemicals must have a program to ensure the information is provided to their employees. The written program must include:

A list of hazardous chemicals present in your workplace;

A description of how MSDS requirements are being met; and

A description of how labels and other forms of warning are being used.

Written program

- Training
- Non-routine tasks
- Chemicals in pipes
- Contractors

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The written program must also include

- Methods used to comply with employee training and information requirements;
- Methods for informing employees of the hazards of non-routine tasks and the hazards associated with chemicals contained in unlabeled pipes; and
- Methods used to inform outside contractors about access to MSDSs, the labeling system, and precautionary measures that their employees need to take.

The written hazard communication program does not have to be accessible in every work area, but it must be available to employees upon request.

OSHA's – Occupational Safety & Health Bureau for the State of Montana requirements

- MSDS
- Labels

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Employees will become very familiar with two provisions in the rule: MSDSs and labels. We will go over these requirements a little later.

Requirements

Training:

- upon assignment
- new hazard



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Another requirements is that employees experience first-hand training and information. Training is required at the time of the employee's initial assignment and whenever a new physical or health hazard that the employee has not previously been trained about is introduced into the work area.

Requirements

- Trade secrets

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Chemicals are a product and manufacturers do not want to give away trade secrets. The standard sets a balance between providing detailed information about a trade secret chemical when it is needed most (during emergencies and when health care professionals need it to treat a patient) and protecting a manufacturer's trade secret information when it is safe to do so.

Requirements

- Chemicals in work areas
- Location of written program



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OSHA requires your employer to tell you what operations in your work area involve the presence of hazardous chemicals.

You must also be told where the written hazard communication program, list of chemicals, and MSDSs are located and how you can have access to them.

Section III

Presence of hazardous chemicals

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There are safe methods for detecting or observing that hazardous chemicals are present or have been released.

Presence of chemicals

- Air monitoring equipment
- Appearance, odor
- Unknown = hazardous



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Sometimes automatic air monitoring equipment that will detect hazardous chemicals and display their airborne concentrations may have been installed. Most of the time, employees need to rely on portable sensing equipment, testing tools such as litmus paper, or their own senses to detect the presence or release of hazardous chemicals.

Workers should be familiar with information on a chemical's appearance, odor, and physical and chemical characteristics before they work with the chemical. While workers should be alert for any chemical odors that may develop, they should not purposefully sniff to try to identify chemicals or detect a release. The same rule applies to trying to identify a chemical by touching it (to find out if it feels oily, for example).

A hazard communication program takes steps to ensure that all chemicals in the workplace are identified, but if you encounter an unknown chemical, you should consider it to be hazardous and get more information about it.

Section IV

Physical hazards

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It has been mentioned that chemical manufacturers and importers are responsible for determining the chemical hazards of their products.

Physical hazards

- Flammable, combustible
- Compressed gases
- Explosives
- Organic peroxides

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Employers rely on these hazard determinations, and employees should know that there are two general types of chemical hazards: physical hazards and health hazards. A chemical can have both physical and health hazards.

Chemicals that present physical hazards can include:

Flammable and combustible liquids, solids, or gases;

Compressed gases;

Explosives;

Organic peroxides;

Physical hazards

- Oxidizers
- Pyrophoric
- Unstable
- Water-reactive



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Oxidizers;

Pyrophoric materials;

Unstable materials; and

Water-reactive materials

A chemical can have more than one physical hazard. If chemicals that have physical hazards are not used or stored properly, the result can often be a fire or explosion.

Section V

Health hazards

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You must also be aware of the health hazards associated with a chemical.

Health hazards

- Irritants
- Corrosives
- Toxic agents
- Sensitizers



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The types of health hazards include:

Irritants

Corrosives

Toxic agents

Sensitizers (causes an allergic reaction),...

Health hazards

- Carcinogens
- Reproductive toxins
- Organ-specific agents

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Carcinogens,
Reproductive toxins, and
Organ-specific agents.

The effects of a chemical's health hazards can be acute (immediate or short-term) or chronic (long-term), and a chemical can have both acute and chronic health hazards.

Section VI

Protecting yourself

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Knowing about a chemical's hazards helps you understand the need to use it safely.

Control measures

- Engineering
- Administrative
- Work practice



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Hazards can be reduced or eliminated through the use of engineering, administrative, and work practice controls.

Protecting yourself

- Personal protective equipment (PPE)

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Hazards can also be reduced or eliminated through the use of personal protective equipment.

Control measures

- Enclosing
- Ventilation
- Substitution
- Handling procedures

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Engineering, administrative, and work practice controls can include such methods as:

- Enclosing an operation to eliminate exposures,
- Installing ventilation equipment to reduce exposures,
- Substituting less hazardous chemicals,
- Implementing chemical handling procedures, or
- Other methods.

Protecting yourself

PPE:

- selection based on hazards
- resistant to chemicals
- additional training



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If the hazards can't be completely controlled or eliminated through other measures, PPE offers protection. PPE selection is based on an assessment of the hazards.

Employees may be required to wear goggles, face shields, gloves, etc. The PPE must be designed to be resistant to the chemicals you are using. You will receive additional training on the PPE you are required to use. Remember, PPE is only effective if you wear it.

Emergency protections

- First aid
- Medical attention
- Emergency eyewash, shower



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These control measures, combined with PPE, may not always be enough to protect you.

For example, protective gloves or clothing can rip or tear, or a respirator may malfunction. If you are overexposed to any chemical, you should take it seriously and report the incident right away.

Prompt first aid and medical attention can prevent a serious injury or illness. First aid information is available on every MSDS, and you should review it before you start using the chemical. Know where emergency eyewash and shower stations are located in your work area and learn how they work.

Emergency protections

Report:

- spills
- releases



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It has been mentioned that unknown chemicals are to be considered hazardous. In case of a chemical spill or release, the identities of the chemicals might not be obvious. In this situation, it is especially important to treat the chemicals as hazardous. Specially trained emergency responders need to address situations where unknown chemicals are involved in a release. Your role in the response may be to leave the area and report the spill from a place of safety.

Since the conditions involving any chemical spill or release are unique, the situation could still require an emergency response even if you know the identity of a spilled chemical. Follow your department's policy for reporting chemical spills and releases.

Section VII

Material Safety Data Sheets

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The single most important source for information on chemicals in the workplace is the MSDS.

MSDS

- Chemical identity
- Physical, chemical characteristics
- Physical hazards
- Health hazards



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The MSDS provides detailed information about a specific chemical. It is required that all MSDSs contain certain information, including:

- The chemical identity (including all hazardous ingredients);
- Physical and chemical characteristics;
- Physical hazards;
- Health hazards;

MSDS

- Routes of entry
- Exposure limits
- Carcinogen
- Safe handling, use

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- Primary routes of entry;
- Permissible exposure limit (PEL), threshold limit value (TLV), or other exposure limits;
- Whether the chemical is a carcinogen;
- Precautions for safe handling and use;

MSDS

- Control measures
- Emergency, first aid procedures
- Date
- Name, address, phone number



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- Recommended control measures;
- Emergency and first aid procedures;
- Date of preparation; and
- The name address and phone number of the manufacture importer or other responsible party.

Use MSDSs to

- Verify labels
- Find out hazards
- Learn safe handling, use
- Find out PPE
- Find first aid procedures



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You can use MSDSs to:

- Verify label information,
- Find out a substance's hazards,
- Learn how to handle and use the chemical safely,
- Find out PPE recommendations, and
- Find recommended first aid procedures.

MSDS

MSDS readily accessible to employees

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Employees must have ready access to MSDSs while they are in their work areas during each work shift. Computerized data sheets are permitted if they are readily accessible to employees.

Section VIII

Labels

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The MSDS information is great, but you're handling chemicals directly. Labels provide instant information on the chemicals in a container.

Labels

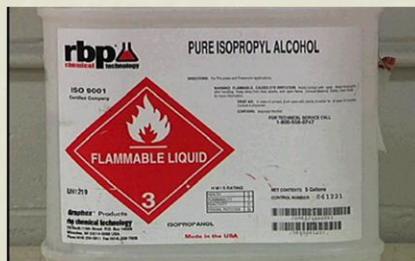
- Original, manufacturer's
- In-house

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There are basically two different types of labels: the original, manufacturer's label, and in-house labels that are used when chemicals are transferred to other containers.

Original labels

- **Chemical identity**
- **Hazard warnings**
- **Name and address**



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When a container leaves the manufacturer's importer's, or distributor's workplace, the label must include:

The identity of the hazardous chemical;

Appropriate hazard warnings; and

The name and address of the chemical manufacturer, importer, or other responsible party.

In-house labels

- Chemical identity
- Hazard warnings



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In the workplace, each container must be labeled, tagged, or marked with:

- The identity of the hazardous chemical and
- The appropriate hazard warnings

Labels

- Words
- Pictures
- Symbols
- Details in MSDS



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Workplace labels can consist of words, pictures, and/or symbols. The label provides general information – details are available in the MSDS.

Labels

- Leave existing labels in place

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Many employers have policies to leave existing labels on in-coming containers intact.

Stationary process containers

- Signs
- Placards
- Process sheets
- Batch tickets
- Operating procedures

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Instead of putting labels on stationary process containers, the employer can use signs, placards, process sheets, batch tickets, operating procedures, or other written materials that are immediately available.

Unlabeled portable container

- Transferred from labeled container
- Used by same employee
- Immediate use



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When a chemical product is transferred into an unlabeled container, a label must be applied to the new container. The only exception to this is when an employee transfers the hazardous chemical from a labeled container into a portable container for his own immediate use. The container needs a label if it will be used during the next shift or on the next day.

HMIS® labels

Hazardous Materials Identification System

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Employers have options on how they prepare labels.

One option is the Hazardous Materials Identification System (HMIS). This labeling system, developed by the National Paint and Coatings Association (NPCA) has been in use for many years.

HMIS labels

- Rectangle
- Color-coded bars
- Numeric hazard ratings
- Alphabetic PPE code
- Chemical's name



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The HMIS label consists of a rectangle divided into color-coded horizontal bars which provide information on the chemical's identity, the health hazards, the flammability hazards, the physical hazards, and PPE.

A numerical 0-4 rating scale is used to indicate the hazards, with 0 indicating minimal hazards and 4 indicating significant hazards or risks. PPE ratings are indicated using an alphabet code which corresponds to various combinations of PPE.

The health rating is on a blue bar; flammability, on a red bar, and physical hazards, on an orange bar. The HMIS label also shows the chemical's name and recommended PPE.

HMIS labels

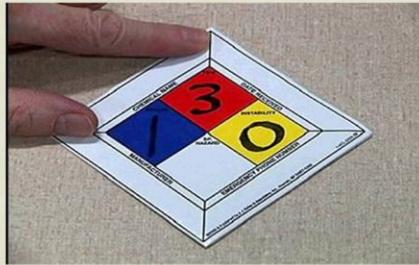
Hazards under normal conditions

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The ratings represent the hazards under normal conditions of use. HMIS is not intended to indicate the hazards of an emergency situation.

NFPA labels

National Fire Protection Association



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Another common labeling system was developed by the National Fire Protection Association (NFPA)

NFPA labels

- Diamond
- Color-coded points
- Numeric hazard ratings



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NFPA labels are diamond shaped. Each color-coded point gives a hazard rating (0-4), with 0 indicating minimal hazards and 4 indicating the highest hazard level).

Blue is for the health hazard rating, red, for the flammability; yellow, for reactivity; and white for special hazards (such as water reactive). NFPA labels do not recommend PPE.

NFPA

Hazards in emergencies

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The NFPA system was designed for the use of fire fighters, and the ratings indicate the hazards under emergency conditions.

Section IX

Conclusion

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Hazard communication rules encourages employees to learn about the hazardous chemicals in the work area. When you understand the hazards you can better protect yourself from illness and injury.

Summary

- Requirements
- The presence of hazardous chemicals
- Physical hazards
- Health hazards
- How to protect yourself
- Labels
- MSDS

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We have discussed the requirements and the presence of hazardous chemicals, the physical hazards, health hazards, how to protect yourself, labels, and Material safety data sheets.

Questions?

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Any questions?

Now proceed to the Hazard Communication Test for credit!