



Globalized Harmonized System Safety Meeting Guidelines

Meeting Objectives

To review the information contained on chemical labels and explain OSHA's requirements for labels under the revised Hazard Communication Standard that has been aligned with the Globally Harmonized System for Classification and Labeling of Chemicals (GHS). The result should be greater use and understanding of the labels as a safety tool.

Suggested Materials to Have on Hand

- Samples of container labels
- Handout 1—Sample Label
- Handout 2—Label Pictograms and Hazards

Introduction/Overview

You're all familiar with Right to Know, officially called the Hazard Communication Standard. And you know an important source of chemical hazard information required by Right to Know is container labels.

When you read a chemical's label before you start a job, you get an outline of what you need to know about that chemical. OSHA requires the following information on chemical labels:

- Product identifier
- Supplier identification
- Signal word
- Pictogram
- Hazard statement
- Precautionary statement

You may also find supplemental information provided by the chemical manufacturer that is not required by OSHA.

Labels, of course, can't tell you everything; you need a safety data sheet to fill in the details. But they can get you started by focusing in on the hazards and protections you need to be aware of before you start a job with any hazardous chemical.

General Hazards

Chemical labels provide brief information on the physical and health hazards presented by a chemical. Each component of a chemical label gives different information on how to protect yourself and your co-workers.

Product identifier and supplier information. The chemical label must contain both a product identifier for the chemical and supplier identification information.

- The product identifier is the name or number that allows you to identify the chemical in the container.
- Supplier identification must include the name, address, and telephone number for the company supplying

the chemical.

Signal words. The label will include one of two signal words that identify the relative severity of the hazard presented. The words alert you to a potential hazard. For example:

- Danger is the more serious of the signal words and indicates a higher level of hazard.
- Warning is less serious than danger and indicates a lower hazard level.

Pictograms. Pictograms include a black symbol and other graphic elements intended to convey specific information about the physical and health hazards of a chemical. The symbols appear on a white background framed within a diamond-shaped box with a red border and are placed on the label based on a chemical's hazard classification. There are eight standardized hazard symbols used in pictograms, each of which conveys the specific hazard of the chemical, with an additional nonmandatory symbol. A chemical label may show more than one pictogram depending on its hazards. We'll discuss pictograms in more detail later in this presentation.

Hazard statements. Hazard statements describe the nature of the hazard and, where appropriate, the degree of the hazard. The hazard statement can include information on fatal or toxic exposures, organ damage, and routes of exposure. For example, a hazard statement could say:

- Highly flammable liquid and vapor.
- May cause liver and kidney damage.

Precautionary statements. Precautionary statements describe recommended measures to be taken to minimize or prevent harmful effects from exposure to a chemical or improper storage or handling. Four types of precautionary statements appear on a chemical label. They are:

- Prevention. For example, "Wash thoroughly after handling."
- Response. For example, "If swallowed, immediately call a poison center."
- Storage. For example, "Store locked up."
- Disposal. For example, "Dispose of in accordance with local, regional, national, and international regulations, as specified."

Supplemental information. Supplemental information on the label includes any additional information or details provided by the manufacturer or supplier that is not required by law. This information can be required by other authorities or it can be additional information included by the manufacturer, importer, or distributor if they choose to do so. When included, supplemental information cannot be presented in a way that makes it harder to identify information required on the label by GHS.

All containers of hazardous chemicals supplied to the workplace must be labeled. The labels on containers delivered to your facility must be either kept intact or, if removed or damaged, immediately marked with the required information, which includes the product identifier and a combination of words, pictures, or symbols that provide at least general information about the chemical hazards and specific information regarding the physical and health hazards.

- Pipes or piping systems do not have to be labeled.
- Likewise, portable containers where the hazardous chemical is transferred from a labeled container for immediate use by the employee do not have to be labeled.

OSHA Regulations

Labeling requirements for hazardous chemicals are covered under OSHA's Hazard Communication Standard at 29 CFR 1910.1200.

Once the container gets to the workplace where it will be used, the user company has to make sure the required information mentioned earlier is on the labels—and stays there. Labels also must be "legible, in English, and prominently displayed on the container," the Standard says.

You should be aware, though, that OSHA doesn't limit its definition of a label to something that sticks to the container. The regulation specifically states that "the employer may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials" instead of labels. However, if alternatives are used, they still must be legible, prominently displayed, and contain the required information.

The Hazard Communication Standard also specifically mentions labels as one of the parts of required training for employees who work with hazardous chemicals. So the bottom line is that the labels are supposed to be there, and you're supposed to know about them, understand them, and use them to protect yourself on the job.

Alternative labeling systems. You may see labels on chemical containers in your work area that are slightly different from the original container label used to ship them to your workplace. The alternative labels are OK to use as long as they display all the same information shown on the label from the original shipped container. Alternative labels you might run across are:

- The National Fire Protection Association (NFPA) hazard rating label; *and*
- Hazardous Materials Information System, or HMIS, label.

Protection Against Hazards

Labels actually provide a lot of safety information. If you know what to look for, you can learn a lot from a label.

Of course, a label can't tell you everything. Check the safety data sheet (SDS) for more detailed information about the chemical.

So, with that in mind, we're going to take a close look at the nine pictograms you will find on a label and what they mean.

This is a Health Hazard Pictogram:



It is put on a chemical label when a substance presents the following health hazards:

- Carcinogen—may cause cancer
- Respiratory sensitizer—may cause respiratory irritation
- Reproductive toxicity—may damage fertility or the unborn child
- Target organ toxicity—may cause damage to bodily organs
- Mutagenicity—may cause genetic defects

- Aspiration toxicity—may be fatal if swallowed and it enters the airways

This is a Flame Pictogram:



It appears on chemical labels for substances that are:

- Flammables—which are gases, aerosols, liquids, or solids that will burn or ignite under certain conditions,
- Self-Reactives—heating alone, without air, may cause fire or explosion,
- Pyrophorics—in small amounts, may ignite within 5 minutes after contact with air,
- Self-Heating—which may catch fire only in large amounts and after long periods of time when exposed to air,
- Emitters of flammable gas, *and*
- Organic peroxides—which, when heated, may cause fire or explosion; may be sensitive to impact or friction; and may react dangerously with other chemicals.

This is an Exclamation Mark Pictogram:



It is used on a chemical label for substances that represent the following hazards:

- Irritant—irritates the skin or eyes;
- Skin sensitizer—which is an allergic response following skin contact;
- Acute toxicity—which may be fatal or cause organ damage from a single short-term exposure;
- Narcotic effects like drowsiness, lack of coordination, and dizziness; *and*
- Respiratory tract irritation.

This is a Gas Cylinder Pictogram:



When you see this pictogram on a chemical label, it means that the substance is a compressed, liquefied, or dissolved gas under pressure at 29 pounds per square inch or more.

This is a Flame Over Circle Pictogram:



When you see this symbol on a chemical label, it means that the substance is an oxidizer. Oxidizers may cause a fire by increasing the concentration of oxygen in the air.

This is a Corrosion Pictogram:



This pictogram on a chemical label means that the substance causes skin burns, eye damage, or destroys metals.

This is a Skull and Crossbones Pictogram:



Substances with a hazard of acute toxicity will have this symbol on their chemical label. Acute toxicity means that exposure to a single dose of the chemical may be toxic or fatal if inhaled or swallowed, or if it comes into contact with the skin.

This is an Exploding Bomb Pictogram:



The exploding bomb pictogram appears on the chemical labels of substances that are:

- Explosives—which is a solid or liquid chemical capable of a chemical reaction that causes damage to the surroundings,
- Self-Reactive—heating may cause fire or explosion without the need for air, *or*
- Organic peroxides—again, heating may cause fire or explosion.

This is an Environment Pictogram:



If you see this pictogram, the hazard the chemical presents is aquatic toxicity.

Now that's a lot of information for a label, and you won't necessarily find it all on every label. And you'll never find the detail you need. The label points you in the right direction, highlighting the things you need to be most concerned about so that you can study those areas carefully on the SDS.

When you're actually working with the chemical, the label can also serve as a reminder of what you learned from the SDS.

Safety Procedures

To get the most out of label hazard and safety information, keep these tips in mind:

- Read the label before you start any job with a hazardous chemical.
- Read the hazard warning as a reminder every time you handle the container.
- Don't depend on the label alone for protective information; read the SDS.
- Never use anything that doesn't have a label.
- Report missing, dirty, or illegible labels so they can be replaced.
- Don't cover labels so they can't be read.
- Place labels on portable containers that hold hazardous chemicals.
- Check labels on products like cleaning solutions or pesticides that may be hazardous.
- Follow the instructions on the label.
- If you have any questions about information that's on—or not on—a label, ask me.

Suggested Discussion Questions

1. What are the basic requirements for hazardous chemical label information?
2. What kinds of things might be considered labels?
3. What are the common signal words to tell you how dangerous a chemical is?
4. What kinds of physical hazards might be listed on the label?
5. What kinds of health hazards might be listed on the label?
6. What are some of the pictograms you might find on a label?
7. What other types of information might be included on container labels?
8. What should you do if you find an unlabeled container?
9. What do you do after you've checked the label information?
10. Are there any other questions?

Wrap-Up

Container labels are one of the requirements of the Hazard Communication Standard. But even if they weren't required, they're a great idea.

A label sets you on the right path with a hazardous chemical from the start. It tells you the basics of what you've got in front of you so that you can start planning protective equipment and safe handling even before you get all the specifics from the safety data sheet.

So use the labels. Read them and put the information they provide to work. They're there to help keep you safe.

Handout 1

Sample Label

Product Identifier

CODE _____
Product Name _____

Supplier Identification

Company Name _____
Street Address _____
City _____ State _____
Postal Code _____ Country _____
Emergency Phone Number _____

Precautionary Statements

Keep container tightly closed. Store in cool, well ventilated place that is locked.
Keep away from heat/sparks/open flame. No smoking.
Only use non-sparking tools.
Use explosion-proof electrical equipment.
Take precautionary measure against static discharge.
Ground and bond container and receiving equipment.
Do not breathe vapors.
Wear Protective gloves.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.
Disposal of in accordance with local, regional, national, international regulations as specified.
In Case of Fire: use dry chemical (BC) or Carbon dioxide (CO₂) fire extinguisher to extinguish.
First Aid
If exposed call Poison Center.
If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.

Hazard Pictograms



Signal Word

Danger

Hazard Statement

**Highly flammable liquid and vapor.
May cause liver and kidney damage.**

Supplemental Information

Directions for use

Fill weight: _____ Lot Number _____










Gross weight: _____ Fill Date: _____

Expiration Date: _____

Handout 2

Label Pictograms and Hazards

As of June 1, 2015, the Hazard Communication Standard (HCS) will require pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

<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 (Nonmandatory)</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 (Nonmandatory)</p>  <p>Aquatic Toxicity</p>	<p>Skull and Crossbones</p>  <p>Acute Toxicity (fatal or toxic)</p>