

# VIGILANT™

● counsel for employers



## VIGILANT TRAINING

Safety & Health Management Classes

### HAZARD COMMUNICATION TRAINING INSTRUCTORS MANUAL

\*Funding and support for this project has been provided by the State of Washington, Department of Labor & Industries, Safety & Health Investment Projects.\*

# HAZARD COMMUNICATION TRAINING INSTRUCTORS MANUAL

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- Container Label Requirements
- Safety Data Sheets



## Hazard Communication

### **Hazard Communication And Global Harmonization System**



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Start your class with an opener that gets their attention.

Example:

Did you know there could be chemicals in your workplace that could kill you?  
I am not saying there are, but think about. How would you find out?

Question:

Has anyone in the group been involved or witnessed a chemical spill? Ask if they would like to share with the group?  
Share a story you know about with your class.  
Could any of these happen to us?

## Hazard Communication

As an employer, we must provide you with:

- A written hazard communication program
- A list of hazardous materials
- Safety Data Sheets
- Training



This class is designed to make you aware of our hazard communication program and the new GHS standard with new container labels and Safety Data Sheets. Material Safety Data Sheets (MSDS) will now be called Safety Data Sheets (SDS). We will talk about it more in later slides.

## Statistics



- Statistics show that more than 32 million American workers are exposed to 650,000 hazardous chemical products in more than 3 million workplaces.

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Read statistics, explain that we don't have statistics on the number of deaths due to exposure to chemicals.

## Course Overview

- How hazardous chemicals affect the body
- Product labels
- Safety Data Sheets
- How to protect yourself from hazardous chemicals

We will cover each of these areas:

- What are hazardous chemicals,
- How hazardous chemicals affect the body,
- What are the different types of hazardous chemicals,
- What is on product labels,
- What are safety data sheets,
- How to protect yourself from hazardous chemicals.

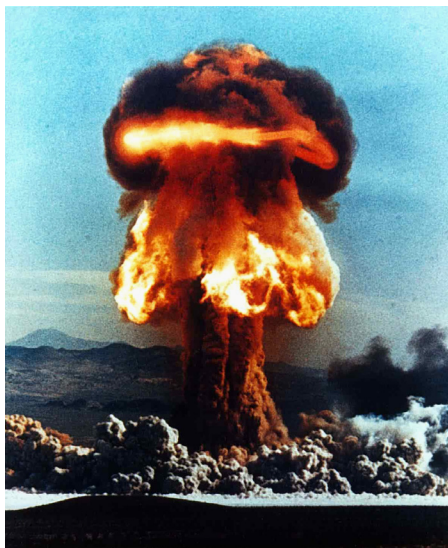
## What is a Hazardous Chemical ?

- A hazardous chemical is any chemical that can do harm to your body
- Most industrial chemicals can harm you at some level
- It depends how much gets into your body

Some chemicals are more toxic than others. Just a little bit of some chemicals entering your body could harm you. Others are much less toxic and it would take great amounts entering your body to do any harm. Chemicals can enter your body in several ways.

## Physical Related Hazards

Flammable  
Explosive



Examples are:  
Working with petroleum products-Gasoline

## Health related hazards

Short-term effects  
Headache, dizziness,  
skin irritation



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## Health Related Hazards

### Long-term effects

- Liver or lung damage or cancer
- Materials with health hazards include those labeled as:
  - Corrosive
  - Toxic



## Hazardous chemicals in our work place

Chemicals that could cause physical harm

Chemicals that could cause health effects



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The kind of exposure you have to a chemical often determines how the chemical might affect your health. The dosage refers to the amount of the chemical you are exposed to. With some chemicals, it takes a very large amount to do any serious harm, but with others, only a tiny amount can be very dangerous. Acute effects are short-term effects on the body that usually disappear if you are no longer exposed. Examples include skin irritation from touching a chemical, or irritation of your nose and throat by inhaling fumes. Chronic effects are long-term effects that develop over a long period of exposure—even exposure to small amounts. Examples include damage to the liver or other organs, or developing cancer as a result of chemical exposure.

Can you name any chemicals in our facility that could cause either Physical or Health hazards? Where would you find information on those chemicals?

## How do Hazardous Chemicals Enter Your Body?

- Skin absorption or eye contact
- Inhaling hazardous fumes, vapors, mists, or dust



Eye contact and inhaling hazardous dust.

Can anyone give examples of how chemicals in our work place can enter our bodies?

## How do Hazardous Chemicals Enter Your Body?


- Ingestion (eating contaminated food)
- Penetration through a cut, puncture, or injection



What are the rules for consuming food and/or drink at our facility?  
Discuss different types of drink containers.



**SAMPLE LABEL**

<p><b>PRODUCT IDENTIFIER</b></p> <p>CODE _____          Product Name _____</p> <p><b>SUPPLIER IDENTIFICATION</b></p> <p>Company Name _____          Street Address _____          City _____ State _____          Postal Code _____ Country _____          Emergency Phone Number _____</p> <p><b>PRECAUTIONARY STATEMENTS</b></p> <p>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.          Dispose of in accordance with local, regional, national, international regulations as specified.</p> <p><b>In Case of Fire:</b> use dry chemical (BC) or Carbon dioxide (CO<sub>2</sub>) fire extinguisher to extinguish.</p> <p><b>First Aid</b>          If exposed call Poison Center.          If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.</p>	<p><b>HAZARD PICTOGRAMS</b></p>  <p><b>SIGNAL WORD</b>  <b>Danger</b></p> <p><b>HAZARD STATEMENT</b></p> <p><b>Highly flammable liquid and vapor.          May cause liver and kidney damage.</b></p> <p><b>SUPPLEMENTAL INFORMATION</b></p> <p><b>Directions for use</b>          _____          _____</p> <p>Fill weight: _____ Lot Number _____          Gross weight: _____ Fill Date: _____          Expiration Date: _____</p>
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Ok, switch gears, lets discuss the new GHS label requirements.  
 Information found on the new GHS Labels:

- Product name and supplier information are identified.
- Product identifier should match product identifier used on the SDS
- Name, address and telephone number of the manufacturer or supplier of the substance or mixture should be provided.
- Precautionary statements including how to store the product, PPE and first-aid information

Next you will see a Pictogram and below that a signal word with a hazard statement  
 List supplemental information about the product










## GHS Hazard Communication Labels

- Symbols
- Hazard pictograms



All GHS pictograms will have a red border with black graphics and a white background. The red border should be wide enough to be clearly visible. All hazard pictograms should be in the shape of a square set on a point (diamond).

## GHS Labels Nine Symbols

<p><u>Flame over circle</u></p>  <ul style="list-style-type: none"> <li>• Oxidizers</li> </ul>	<p><u>Flame</u></p>  <ul style="list-style-type: none"> <li>• Flammables</li> <li>• Pyrophorics</li> <li>• Self-Heating</li> <li>• Emits Flammable Gas</li> <li>• Self Reactives</li> <li>• Organic Peroxides</li> </ul>	<p><u>Exploding bomb</u></p>  <ul style="list-style-type: none"> <li>• Explosives</li> <li>• Self Reactives</li> <li>• Organic Peroxides</li> </ul>
<p><u>Skull and crossbones</u></p>  <ul style="list-style-type: none"> <li>• Acute toxicity (severe)</li> </ul>	<p><u>Corrosion</u></p>  <ul style="list-style-type: none"> <li>• Corrosives</li> </ul>	<p><u>Gas cylinder</u></p>  <ul style="list-style-type: none"> <li>• Gases under pressure</li> </ul>
<p><u>Health Hazard</u></p>  <ul style="list-style-type: none"> <li>• Carcinogen</li> <li>• Mutagenicity</li> <li>• Reproductive Toxicity</li> <li>• Respiratory Sensitizer</li> <li>• Target Organ Toxicity</li> <li>• Aspiration Toxicity</li> </ul>	<p><u>Environment</u></p>  <ul style="list-style-type: none"> <li>• Aquatic Toxicity</li> </ul>	<p><u>Exclamation mark</u></p>  <ul style="list-style-type: none"> <li>• Irritant</li> <li>• Skin Sensitizer</li> <li>• Acute Toxicity (harmful)</li> <li>• Narcotic effects</li> <li>• Respiratory Tract Irritation</li> <li>• Hazardous to Ozone Layer</li> </ul>

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The GHS provides Symbols for each hazard class.

## Pictograms - Health Hazard

- Carcinogen
- Respiratory sensitizer
- Reproductive toxicity
- Target organ toxicity
- Mutagenicity
- Aspiration toxicity



This is the 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

## Pictogram - Flame

- Flammables
- Self-Reactives
- Pyrophorics
- Self-Heating
- Emits flammable gas
- Organic peroxides



This is the 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—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.

## Pictogram - Exclamation Mark

- Skin and eye irritant
- Skin sensitizer
- Acute toxicity
- Narcotic effects
- Respiratory tract irritant



This is the 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.

## Pictogram--Gas Cylinder

- **Gas Under Pressure**



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Discuss the differences:

Which ones were missed?

This is the gas cylinder pictogram (slide 19). 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.

Slide 20 is the 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.

## Pictogram--Flame over circle

- **Oxidizer**



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## Pictogram - Corrosives

- Corrosives



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

## Pictogram - Skull and Crossbones

- Acute toxicity



Next is the skull and crossbones pictogram symbol. Substances with a hazard of acute toxicity will have this symbol on the 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.

## Pictogram - Exploding Bomb

- Self-Reactive
- Organic peroxides
- Explosives



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.

## Pictogram - Environmental

- Aquatic toxicity



This is the pictogram for Environment. If you see it, the hazard the chemical presents is aquatic toxicity or environmental hazard.



- Signal Word
- “Danger” or “Warning”
- Hazard Statement
- Toxic if swallowed
- Other
- Precautions
- Identification
- Supplier
- Supplemental information

### Signal Word

A word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. Signal words used in GHS are “Danger” and “Warning.” Danger is for the more severe hazard categories.




### Hazard Statements

A phrase assigned to a hazard class and category that describes the nature of the hazards of a hazardous product, including when appropriate, the degree of the hazard.

## GHS Labels

### – GHS Label Elements for Flammable Liquids


Table 3: GHS Label Elements for Flammable (and Combustible) Liquids

	Category 1	Category 2	Category 3	Category 4
Symbol				No symbol
Signal Word	Danger	Danger	Warning	Warning
Hazard Statement	Extremely flammable liquid and vapor	Highly flammable liquid and vapor	Flammable liquid and vapor	Combustible liquid

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Flammable (and Combustible) liquids have three different categories with the same pictogram.

## GHS Label Sample

SAMPLE LABEL	
<b>PRODUCT IDENTIFIER</b> CODE _____ Product Name _____	<b>HAZARD PICTOGRAMS</b> 
<b>SUPPLIER IDENTIFICATION</b> Company Name _____ Street Address _____ City _____ State _____ Postal Code _____ Country _____ Emergency Phone Number _____	<b>SIGNAL WORD</b> Danger
<b>PRECAUTIONARY STATEMENTS</b> 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. Dispose of in accordance with local, regional, national, international regulations as specified.	<b>HAZARD STATEMENT</b> Highly flammable liquid and vapor. May cause liver and kidney damage.
<b>First Aid</b> If exposed call Poison Center. If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.	<b>SUPPLEMENTAL INFORMATION</b> Directions for use _____ _____ Fill weight: _____ Lot Number _____ Gross weight: _____ Fill Date: _____ Expiration Date: _____

This is a sample label.

Product name and supplier information are identified.

In addition:

- Precautionary statements including first-aid information
- Pictogram with signal word and hazard statement
- Supplemental information about the product



MSDS (Material Safety Data Sheets) will now be called SDS (Safety Data Sheets). Employers must ensure that each employee has a basic knowledge of how to find information on an SDS and how to properly make use of that information. Employers also must ensure the following:

1. Complete and accurate SDS's are made available during each work shift to employees when they are in their work areas.
2. Information is provided for each hazardous chemical.

SDS contains more than warnings. It has instructions and information on ways to reduce the risk of chemical accidents and health problems from exposure. It may cover:

- Personal protective equipment, such as respirators or eye protection
- Hygiene practices, such as washing hands after working with the chemical
- Engineering controls, such as ventilation
- Instructions for handling and storing the substance properly and safely, such as avoiding heat sources.
- Clean up spills and leaks
- Put out fires
- Dispose of the chemical properly.

## Safety Data Sheet

SDS have a 16 point format



The SDS format has 16 sections. All SDS will follow this format, you will always find First-Aid information in section number 4.

## Safety Data Sheet

Delo 400 LE SAE  
15W-40



Handout Delo 400 SDS.

Notice the SDS says Material Safety Data Sheet. Explain that Chevron sells products globally and has had to meet the SDS requirements for some time. This MSDS meets the SDS format requirements.

You will find as you go through the old MSDS book a lot of the MSDS will be based on the SDS format.

## Safety Data Sheet

1. Identification of the Chemical and its Supplier
2. Hazard Identification
3. Composition/Information on Ingredients
4. First-Aid Measures
5. Fire-Fighting Measurers

Discuss 1 through 4 using the Delo SDS.

1. Product name and information about company and supplier.
2. Hazards and Health effects
3. Composition and or ingredients
4. First-Aid
5. Fire-Fighting

## Safety Data Sheet

6. Accidental Release Measures
7. Handling and Storage
8. Exposure Controls/Personal Protection
9. Physical and Chemical Properties
10. Stability and Reactivity
11. Toxicological Information

Continue discussion on sections 6 through 10

Number 8 addresses exposure control and personal protection.

Read this section, notice it refers you back to section number 2, hazard identification and immediate health effects.

Personal Protective Equipment is addressed here.

Sections 9 through 11 contain other technical and scientific information, such as physical and chemical properties, information about stability and reactivity, toxicology, exposure control, and other information for any required element.

## Safety Data Sheet

- 12. Ecological Information
- 13. Disposal Considerations
- 14. Transport Information
- 15. Regulatory Information

## Safety Data Sheet

16. Other Information,  
including date of  
SDS preparation  
or last revision

- **SAFETY DATA SHEET**



- **HMIS RATINGS:** Health: 0  
Flammability: 0 Reactivity: 0
- **LABEL RECOMMENDATION:**
- Label Category : ENGINE OIL  
1 - ENG1
- **REVISION STATEMENT:** This  
revision updates the  
following sections of this  
Material Safety Data Sheet:

Here is an example of other information, number 16, found on the SDS

## Summary

- Chemicals in the workplace could cause physical harm and possible health effects
- Protect yourself by knowing what chemicals you are working with and the hazards related to those chemicals

We must be aware of what products we are working with, the hazards working with these chemicals and ways to protect ourselves while working with chemicals. All this information can be found on the Safety Data Sheets and corresponding Product Labels.

## Summary

Information on SDS and Labels will match

- Product name
- Supplier information
- Precautionary information
- First-aid information

Summarize information found on both the SDS and Labels

## Questions and Comments

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Summarize information found on both the SDS and Labels