

HazCom Basics



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Table of Contents

Introduction	3
What is OSHA’s Hazard Communication Standard?	3
Regulatory Links.....	3
The Addition of GHS to OSHA’s Hazard Communication Standard	3
What is the Globally Harmonized System (GHS)?.....	4
Hazard Communication Standard after GHS	4
GHS Elements in OSHA’s Hazard Communication Standard.....	5
Responsibilities of Different Groups under HazCom 2012.....	6
Classification	7
Pictograms	8
Labels	9
What are primary labels?	9
What are secondary labels?	9
Safety Data Sheets	10
What are the fundamental questions answered on an SDS?.....	10
Important Questions to Ask when Reading a Safety Data Sheet.....	11
HazCom in action	12
Summary	12

HazCom Basics

Introduction

This guide provides a general overview of OSHA's Hazard Communication Standard commonly called HazCom, which addresses chemical safety requirements in the USA; it is intended for informational purposes only.

What is OSHA's Hazard Communication Standard?

The Hazard Communication Standard is an American-wide system that has been in place since 2012. It's based on the principle that workers have a need and the right-to-know about the hazardous materials that are at their workplace, as well as the appropriate protective measures to prevent unwanted health effects.

OSHA stands for the Occupational Health and Safety Administration which is part of the US Department of Labor. OSHA sets and enforces workplace health and safety standards including the Hazard Communication Standard.

Regulatory Links

[Hazard Communication - Overview | Occupational Safety and Health Administration \(osha.gov\)](#)

The Addition of GHS to OSHA's Hazard Communication Standard

GHS stands for The Globally Harmonized System of Classification and Labeling of Chemicals. GHS was created by the United Nations as an international standard. In the past there has been variability in classification, as an example, two products with similar ingredients, may have an SDS and label that are quite different depending on what country manufactures them. That confusion is avoided because of GHS. Now everyone will use the same criteria. How chemical products are classified is better defined. Hazard phrases are provided in standardized direct wording, and it is easier to find the information you are looking for. The information always appears in the same place on labels and SDSs. This will reduce confusion for workers everywhere.

OSHA's Hazard Communication Standard adopts and integrates the elements of GHS into a USA standard called HazCom 2012.

HazCom Basics

What is the Globally Harmonized System (GHS)?

The GHS is a system for harmonizing hazard classification criteria and chemical hazard communication elements worldwide. The GHS is not a regulation; rather it is a framework or guidance for classifying and labeling hazardous chemicals. The purpose of classification under the GHS is to provide harmonized information to users of chemicals with the goal of enhancing protection of human health and the environment.

Around the world countries have regulatory systems for chemical classification and hazard communication. The systems may look similar, but their differences can lead to multiple interpretations and inconsistencies for a classification, label, and Safety Data Sheets (SDS) for the same product. Moving to one standard in the age of global trade simplifies regulations and improves the safety for workers who interact with hazardous products.

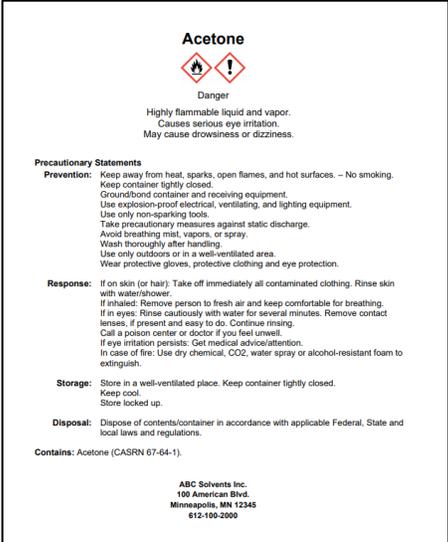
Hazard Communication Standard after GHS

The Hazard Communication Standard requires:

- Chemical suppliers to evaluate the hazards of the chemicals they produce and classify them with Physical and/or Health hazards.
- Suppliers also need to prepare labels and safety data sheets to be shipped with their chemicals that convey the hazard information to their customers.
- All employers with hazardous chemicals need to ensure the chemicals in their workplace have labels and Safety Data Sheets available for their workers.
- Employers need to train their workers on how to safely handle the chemicals in their workplace.
- Employers also need to prepare a list of hazardous chemicals at the workplace and develop a written hazard communication program.

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GHS Elements in OSHA's Hazard Communication Standard

<p>Signal Word (Listed on SDSs and Labels)</p>	<p>Danger (more serious hazards) Warning (less serious hazards)</p>
<p>Classification</p>	<p>Health Hazard Classes (12 categories) Physical Hazard Classes (9 categories) Environmental Hazard Classes (2 categories but not adopted by USA, may see on SDS arriving from outside USA)</p>
<p>Safety Data Sheets (SDSs)</p>	<p>16-section format Order is very structured and specific Signal words (Warning or Danger) Hazard and Precautionary Statements Hazard Pictograms</p>
<p>Red Square 45° on a point Pictogram</p>	
<p>Primary Label</p>	 <p>Acetone</p> <p> </p> <p>Danger Highly flammable liquid and vapor. Causes serious eye irritation. May cause drowsiness or dizziness.</p> <p>Precautionary Statements Prevention: Keep away from heat, sparks, open flames, and hot surfaces. – No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist, vapors, or spray. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves, protective clothing and eye protection.</p> <p>Response: If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center or doctor if you feel unwell. If eye irritation persists: Get medical advice/attention. In case of fire: Use dry chemical, CO₂, water spray or alcohol-resistant foam to extinguish.</p> <p>Storage: Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.</p> <p>Disposal: Dispose of contents/container in accordance with applicable Federal, State and local laws and regulations.</p> <p>Contains: Acetone (CASRN 67-64-1).</p> <p>ABC Solvents Inc. 100 American Blvd. Minneapolis, MN 12345 612-100-2000</p>

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Responsibilities of Different Groups under HazCom 2012

OSHA's HazCom 2012 incorporates a flow of information from chemical suppliers, downstream to employers, and ultimately workers.

<p>Suppliers: Manufacturers, Distributors, and Importers</p> 	<p>What are supplier responsibilities?</p> <ul style="list-style-type: none"> • Classify hazards for the products they manufacturer, import and distribute. • Create container labels and Safety Data Sheets for their hazardous products. • Provide SDSs to customers with purchase of the hazardous product.
<p>Employers</p> 	<p>What are employer responsibilities?</p> <ul style="list-style-type: none"> • Train workers on HazCom. • Inform workers of the hazardous products at their workplace and how to protect themselves from harm. • Make SDSs readily available. • Ensure hazardous products in the workplace are labelled. • Develop a written hazard communication program. • Maintain a list of all hazardous chemicals present at the workplace. • Make PPE available for workers.
<p>Workers</p> 	<p>What are worker responsibilities?</p> <ul style="list-style-type: none"> • Participate in training. • Take necessary steps to protect themselves and their co-workers. • Participate in identifying and controlling hazards. • Communicate to your employer any problems with labels and SDSs. • Refuse unsafe work.

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Classification



Most of the hazard classes adopted by OSHA HazCom are common to other countries that have implemented GHS. The HazCom approach to classification assigns a product to a group and then to a category and finally a class. HazCom has two main groups of hazards: the physical hazards group and the health hazards group. There is also a third GHS group called the Environmental Hazards Group that is not used at this time. A product can have more than one hazard group classification.

Physical Hazards Group: chemicals in this hazard group present significant physical danger. Products are classified based on their physical state (solid, liquid, gas) and physical properties (explosive, flammable, corrosive).

Health hazard Group: chemicals in this hazard group present health danger either in the short term or long term.

Example: Methanol Classification

Group	Class	Category
Physical Hazard	Flammable liquid	2
Health Hazard	Acute toxicity (Oral)	3
Health Hazard	Acute toxicity (Dermal)	3
Health Hazard	Acute toxicity (Inhalation)	3
Health Hazard	Eye Irritation	2B
Health Hazard	Reproductive toxicity - Effects on or via lactation	1A
Health Hazard	Specific target organ toxicity (single exposure)	1

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Pictograms

GHS pictograms are graphic images that show you what type of hazard is present. They are organized according to the hazard group category. A chemical may have more than one pictogram.

Health Hazard



HEALTH HAZARD

Carcinogen
Mutagenicity
Reproductive Toxicity
Respiratory Sensitizer
Target Organ Toxicity
Aspiration Toxicity



SKULL & CROSSBONES

Acute Toxicity:
Fatal or toxic



EXCLAMATION MARK

Irritant (skin & eye)
Skin Sensitizer
Acute Toxicity (harmful)
Respiratory Tract Irritant
Narcotic Effects



CORROSION

Skin Corrosion / Burns
Eye Damage
Corrosive to Metals

Physical Hazard



GAS CYLINDER

Gases Under Pressure



EXPLODING BOMB

Explosives
Self-Reactives
Organic Peroxides



FLAME

Flammables
Pyrophorics
Self-Heating
Emits Flammable Gas
Self-Reactives
Organic Peroxides



FLAME OVER CIRCLE

Oxidizers



Biohazardous
Infectious
Materials
(unique to Canada)

Optional Environmental GHS Pictograms not adopted by WHMIS 2015 but you may see on labels and SDSs arriving from outside Canada.



ENVIRONMENT

Aquatic Toxicity



EXCLAMATION MARK

Hazardous Ozone Layer

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Labels

In the Workplace there are several types of containers that have different label requirements. There are shipped or primary container labels, workplace or secondary container labels, stationary container labels like tanks and pipes, and portable containers which have NO label requirements under HazCom.

What are primary labels?

You should see a primary label on every container of hazardous product that you use on the job. There are 6 required elements that need to be on Shipped or Primary labels this includes:

- Chemical name of the hazardous product.
- Pictograms that identify the physical and Health hazards of the product.
- Supplier of the product including name, address, and telephone number.
- Signal word of either 'Danger' or 'Warning' to quickly alert people to the serious hazard of the product.
- Hazard statements that describe the nature of the hazard posed by the hazardous product.
- Precautionary Statements that describe how to handle or store the product safely.

Acetone	
  Danger Highly flammable liquid and vapor. Causes serious eye irritation. May cause drowsiness or dizziness.	
Precautionary Statements	
Prevention: Keep away from heat, sparks, open flames, and hot surfaces. – No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist, vapors, or spray. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves, protective clothing and eye protection.	
Response: If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center or doctor if you feel unwell. If eye irritation persists: Get medical advice/attention. In case of fire: Use dry chemical, CO ₂ , water spray or alcohol-resistant foam to extinguish.	
Storage: Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.	
Disposal: Dispose of contents/container in accordance with applicable Federal, State and local laws and regulations.	
Contains: Acetone (CASRN 67-64-1).	
ABC Solvents Inc. 100 Americas Blvd. Minneapolis, MN 12345 612-100-2000	

What are secondary labels?

Suppliers may need to apply a secondary label to a product when:

- a hazardous product is made at the workplace and used at the same workplace
- a hazardous product is transferred to a secondary container
- a supplier label becomes damaged or unreadable

Acetone	
ABC Solvents Inc. (Industrial use)  DANGER 	
GHS Hazards   	
Personal Protective Equipment Highly flammable liquid and vapour. Causes serious eye irritation. May cause drowsiness or dizziness.	
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Keep cool. Ground and bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment. Use non-sparking tools. Take action to prevent static discharges. Avoid breathing mist, vapors, or spray. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves, protective clothing and eye protection. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center or doctor if you feel unwell. If eye irritation persists: Get medical advice/attention. In case of fire: Use dry chemical, CO ₂ , water spray or alcohol-resistant foam to extinguish. Store in a well-ventilated place. Keep container tightly closed. Store locked up. Dispose of contents/container to be in accordance with applicable Federal, State and local laws and regulations.	
<small>Hazard Statements and Precautionary Statements Refer to the Safety Data Sheet at http://www.abc-solvents.com for additional information.</small>	

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Safety Data Sheets

The Safety Data Sheet or SDS is a document that helps you to identify hazardous materials and gives you full details on what the hazards are. SDSs provide more detailed hazard information about the product than the label. It provides instruction on how to work safely with the hazardous product. It spells out the steps you need to take if there ever is an emergency. The SDS is where you find the facts on hazardous products you work with. Its where you go for more information.

What are the fundamental questions answered on an SDS?

You should be familiar with the hazards of a product before you start to use it. Ensure the product name on the container is an exact match with the SDS.

Here are some basic questions you need to be able to answer before you work safely with a product:

1. What is this product? (Section 1: Product Identification)
2. What are the hazards? (Section 2: Hazard Identification)
3. How do I work with this safely? (Section 7: Handling and Storage)
4. What do I do in an emergency? (Section 4, 5, and 6: First Aid, Fire Fighting Measures, and Accidental Release Measures)

ABC Solvents Inc.		Acetone
SAFETY DATA SHEET		Date of Preparation: March 10, 2021
Section 1: IDENTIFICATION		
Product Name:	Acetone	
Synonyms:	2-Propanone; Dimethyl ketone.	
Product Use:	Industrial use.	
Restrictions on Use:	Not available.	
Manufacturer/Supplier:	ABC Solvents Inc. 100 American Blvd. Minneapolis, MN 12345	
Phone Number:	612-100-2000	
Emergency Phone:	Company Emergency Number	
Date of Preparation of SDS:	March 10, 2021	
Section 2: HAZARD(S) IDENTIFICATION		
GHS INFORMATION		
Classification:	Flammable Liquids, Category 2 Eye Irritation, Category 2A Specific Target Organ Toxicity (Single Exposure), Category 3 - Narcotic Effects	
LABEL ELEMENTS		
Hazard Pictogram(s):	 	
Signal Word:	Danger	
Hazard Statements:	Highly flammable liquid and vapor. Causes serious eye irritation. May cause drowsiness or dizziness.	
Precautionary Statements		
Prevention:	Keep away from heat, sparks, open flames, and hot surfaces. – No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist, vapors, or spray. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves, protective clothing and eye protection.	
Response:	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center or doctor if you feel unwell.	
Page 1 of 6		Deerfoot Consulting Inc.

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Important Questions to Ask when Reading a Safety Data Sheet

When you read through a Safety Data Sheet there are certain questions you should ask to ensure you have a thorough understanding of the product. The information on the SDS may prompt follow up in other areas of your health and safety program.

Identification

- Do I have the correct SDS for the product and for the country?
- Do I have the most up to date SDS for the product?
- Does the SDS description match the product I have?

Potential Hazards

- Can this material burn or explode?
- Is this material unstable? If so, under what conditions?
- Can this product react with other chemicals? If so, which ones?
- How can this product harm my health?
- What are the symptoms of exposure?
- Do I need a discussion with my doctor on the health effects of the product?

Preventive Measures

- Do I need engineering controls?
- Are there any special handling precautions?
- What PPE is recommended?
- Do I need to be careful when mixing this material with any other chemicals?
- Are there special storage conditions?

Emergency Measures

- What do I do in a fire or explosion?
- What are the first aid measures if I am exposed?
- What do I do in a spill or leak?
- Where is the emergency response equipment?

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HazCom in action

HazCom training is frequently done when employees are hired as part of their orientation to a new company. Although there is no standard or expiration for HazCom training industry best practices recommends HazCom training should be ongoing, reviewed at least annually and adapt as hazards change in the workplace. A good HazCom training program incorporates dialogue between the employer and employee with engagement and dialogue between management and front-line workers.

HazCom training should incorporate:

- Roles and responsibilities
- Discussion on workplace Chemical Hazards, how to handle and store properly
- Classification and GHS pictogram awareness
- Safety Data Sheet education
- SDS labelling requirements

Training needs to be done to make it workplace specific and practical to the employees. Examples of regular training can include review of the location hazard communication plan; emergency drills and standards; annual chemical inventory; and regular toolbox talks on chemical safety relevant to the workplace.

Summary

[Chemscape](#) has many tools to help organizations with their HazCom implementation and compliance. Chemscape provides [SDS Authoring](#) services to suppliers, has an online SDS Management system called [sdsBinders](#) to keep your inventory up-to-date and compliant, and Chemscape has an online HazCom course many of our sdsBinders customers use. Chemscape also has an online chemical management program called [CHAMP \(Chemscial Hazard Assessment and Management Program\)](#). Chemscape's CHAMP system provides hazard assessments on your chemicals and offers recommendations on controls to reduce risk. Chemscape provides Industrial Hygiene Services to coach clients on chemical management best practices using our technologies.