



OSHA HAZARD COMMUNICATION  
29 CFR 1910.1200

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THE HAZARD COMMUNICATION STANDARD

AGENDA

- History of the Hazard Communication Standard
- The Written "HAZCOM" Program
- Training
- Labeling
- Safety Data Sheets
- Summary/Questions



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THE HAZARD COMMUNICATION STANDARD

- History of the HAZCOM Standard
  - Bhopal, India – 12/2/84
  - Institute, West Virginia – 8/08
  - > Chemical Usage in the Occupational Environment
  - 1986 HAZCOM Standard
  - Global Marketplace
  - United Nations Leadership
  - Global Harmonization System (GHS)
  - 2012, OSHA Revises Standard
  - Compliance (Training) by December 1, 2013
  - 2021 FR Notification of Revisions

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**THE HAZARD COMMUNICATION STANDARD**

- **OSHA Revised Standard – Why?**
  - A common, coherent approach to classifying and communicating chemical hazards.
    - ✦ Harmonized definitions of hazards.
    - ✦ Specific criteria for labels.
    - ✦ Harmonized format for safety data sheets.
  - Benefits of Adopting the GHS
    - ✦ Increase the quality and consistency of information provided to workers, employers and chemical users.
      - Reduce confusion/increase comprehension of hazards.
      - Facilitate training.
      - Help address literacy problems.

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**THE HAZARD COMMUNICATION STANDARD**

- **Notable Changes:**
  - Using a “specification” approach rather than a “performance oriented” approach.
    - ✦ “Hazard classification” rather than “hazard determination”
  - Labels are now more defined and will require the following:
    - ✦ Signal word
    - ✦ Hazard statements
    - ✦ Precautionary statements and pictograms
    - ✦ Product Identifier
    - ✦ Supplier identification
  - “Safety Data Sheet” (rather than “material safety data sheet”)
    - ✦ Uses a 16 section format

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**THE HAZARD COMMUNICATION STANDARD**

**HAZCOM PROGRAM**

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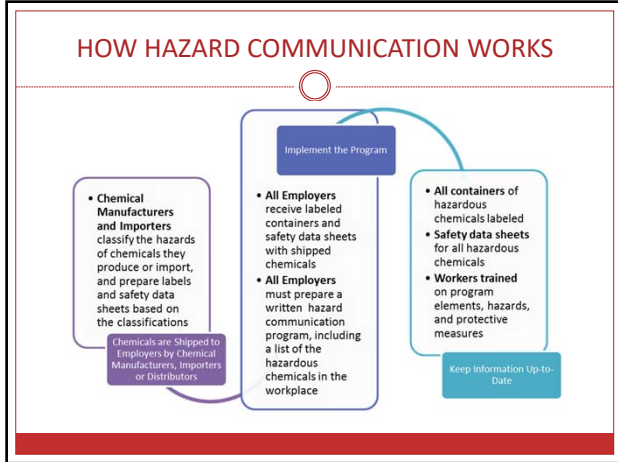
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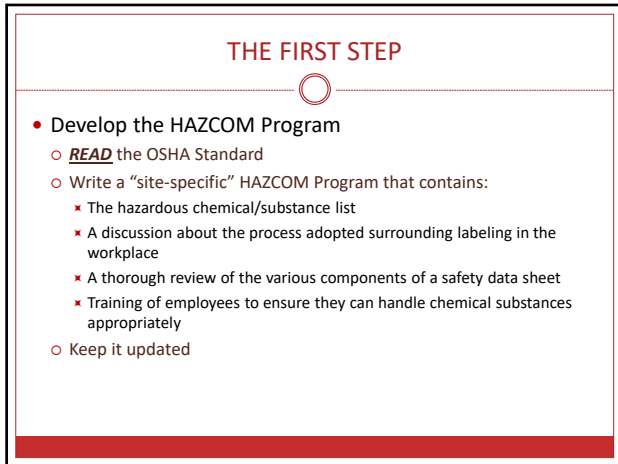
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THE HAZARD COMMUNICATION STANDARD

TRAINING

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EMPLOYEE TRAINING - REQUIREMENTS

- Training must cover:
  - Requirements of the regulations
  - Hazardous chemicals/substances used in the workplace
  - Methods to detect release
  - Physical and health hazards
  - Measures for personal protection
  - GHS labeling system
  - Location and availability of SDSs
  - Details and location of the written plan



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THE HAZARD COMMUNICATION STANDARD

LABELING

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### WHAT MUST BE LABELED?

- ALL hazardous chemicals must be labeled. Labels must appear either on the container itself, the batch ticket, placard, or the process sheets.
- Hazardous chemicals in portable containers which are for the "immediate use" of the employee who performs the transfer is the exception to this rule.
- Do not remove any labels that are on the container.

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### LABEL INFORMATION

- OSHA and the GHS require the following information be included on ALL labels:
  - Signal word
  - Hazard statements
  - Precautionary statements and pictograms
  - Product Identifier
  - Supplier identification

**PRODUCT IDENTIFIER**

CODE \_\_\_\_\_  
Product Name \_\_\_\_\_


**SUPPLIER IDENTIFICATION**

Company Name \_\_\_\_\_  
Street Address \_\_\_\_\_ State \_\_\_\_\_  
City \_\_\_\_\_  
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.  
Do not use near sparking tools.  
Use explosion proof electrical equipment.  
Take precautionary measures against static discharge.  
Ground and bond container and receiving equipment.  
Do not breathe vapors.  
Wear Protection 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.

**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: \_\_\_\_\_ Lit Number: \_\_\_\_\_  
Gross weight: \_\_\_\_\_ Fill Date: \_\_\_\_\_  
Expiration Date: \_\_\_\_\_

**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 (or hair): Take off immediately any contaminated clothing. Rinse skin with water.

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### LABEL INFORMATION (ACUTE TOXICITY)

Hazard class	Classification		Labelling			Hazard statement codes	
	Hazard category	Pictogram	Signal word	Hazard statement			
		GHS	UN Model Regulations*				
Acute toxicity	1	Oral			Danger	Fatal if swallowed	H300
		Dermal			Danger	Fatal in contact with skin	H310
		Inhalation			Danger	Fatal if inhaled	H330
	2	Oral			Danger	Fatal if swallowed	H300
		Dermal			Danger	Fatal in contact with skin	H310
		Inhalation			Danger	Fatal if inhaled	H330
	3	Oral			Danger	Toxic if swallowed	H301
		Dermal			Danger	Toxic in contact with skin	H311
		Inhalation			Danger	Toxic if inhaled	H331
	4	Oral			Warning	Harmful if swallowed	H302
		Dermal			Warning	Harmful in contact with skin	H312
		Inhalation			Warning	Harmful if inhaled	H332
5	Oral	No pictogram	Not required	Warning	May be harmful if swallowed	H303	
	Dermal	No pictogram	Not required	Warning	May be harmful in contact with skin	H313	
	Inhalation	No pictogram	Not required	Warning	May be harmful if inhaled	H333	

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## HEALTH HAZARD STATEMENT CODES

Table A3.1.2: Hazard statement codes for health hazards

Code (1)	Health hazard statements (2)	Hazard class (GHS chapter) (3)	Hazard category (4)
H300	Fatal if swallowed	Acute toxicity, oral (chapter 3.1)	1, 2
H301	Toxic if swallowed	Acute toxicity, oral (chapter 3.1)	3
H302	Harmful if swallowed	Acute toxicity, oral (chapter 3.1)	4
H303	May be harmful if swallowed	Acute toxicity, oral (chapter 3.1)	5
H304	May be fatal if swallowed and enters airways	Aspiration hazard (chapter 3.10)	1
H305	May be harmful if swallowed and enters airways	Aspiration hazard (chapter 3.10)	2
H310	Fatal in contact with skin	Acute toxicity, dermal (chapter 3.1)	1, 2
H311	Toxic in contact with skin	Acute toxicity, dermal (chapter 3.1)	3
H312	Harmful in contact with skin	Acute toxicity, dermal (chapter 3.1)	4
H313	May be harmful in contact with skin	Acute toxicity, dermal (chapter 3.1)	5

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## PICTOGRAM

*Pictogram* means a graphical composition that may include a symbol plus other graphic elements, such as a border, background pattern or color, that is intended to convey specific information.

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## PICTOGRAM – EXPLODING BOMB



- EXPLODING BOMB (GHS01)
  - Explosives
  - Self-Reactives
  - Organic Peroxides

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**PICTOGRAM – FLAME**



- **FLAME (GHS02)**
  - Flammable gases category
  - Aerosols
  - Flammable liquids
  - Flammable solids
  - Self-reactive substances and mixtures
  - Pyrophoric liquids
  - Pyrophoric solids
  - Self-heating substances and mixtures
  - Water activated substances and mixtures
  - Organic peroxides

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**PICTOGRAM – FLAME OVER CIRCLE**



- **FLAME OVER CIRCLE (GHS03)**
  - Oxidizers

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**PICTOGRAM – GAS CYLINDER**



- **GAS CYLINDER (GHS04)**
  - Gasses Under Pressure

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**PICTOGRAM – CORROSION**



- **CORROSION (GHS05)**
  - Skin Corrosion/Burns
  - Eye Damage
  - Corrosive to Metals

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**PICTOGRAM – SKULL AND CROSSBONES**



- **SKULL AND CROSSBONES (GHS06)**
  - Acute Toxicity (fatal or toxic)

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**PICTOGRAM – EXCLAMATION MARK**



- **EXCLAMATION MARK (GHS07)**
  - Irritant (skin and eye)
  - Skin Sensitizer
  - Acute Toxicity (harmful)
  - Narcotic effect
  - Respiratory Tract Irritant
  - Hazardous to Ozone Layer (non-mandatory)

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### PICTOGRAM – HEALTH HAZARD



- HEALTH HAZARD (GHS08)
  - Carcinogen
  - Mutagenicity
  - Reproductive Toxicity
  - Respiratory Sensitizer
  - Target Organ Toxicity
  - Aspiration Toxicity

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### PICTOGRAM – ENVIRONMENT



- ENVIRONMENT (GHS09)
  - Aquatic Toxicity

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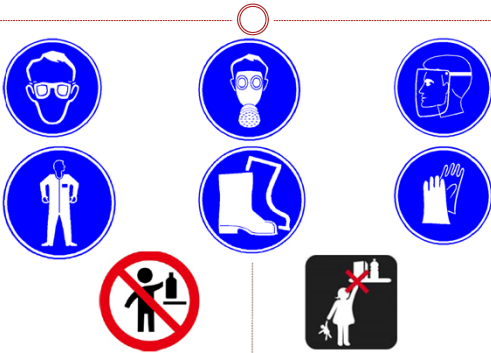
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### PRECAUTIONARY PICTOGRAMS



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**THE HAZARD COMMUNICATION STANDARD**

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**SAFETY DATA SHEETS**

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**SAFETY DATA SHEET**

- While labels are an effective way to display information about hazardous substances, there will be times when your employees will want more information than can be found on a label.
- Additional information about the hazardous substances employees work with can be found in what is called a [material] Safety Data Sheet , or SDS for short. Employees should be familiar with these SDSs.



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**SAFETY DATA SHEET**

- Identification
- Hazard Identification
- Composition/Information on Ingredients
- First-Aid Measures
- Fire-Fighting Measures
- Accidental Release Measures
- Handling and Storage
- Exposure Controls/Personal Protection
- Physical and Chemical Properties
- Stability and Reactivity
- Toxicological Information
- Ecological Information
- Disposal Considerations
- Transport Information
- Regulatory Information
- Other Information

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### SAFETY DATA SHEET - SECTION 1

#### • Identification:

This section identifies the chemical on the SDS as well as the recommended uses. It also provides the essential contact information of the supplier. The required information consists of:

- GHS Product identifier used on the label and any other common names or synonyms by which the substance is known.
- Name, address, phone number of the manufacturer, importer, or other responsible party, and emergency phone number.
- Recommended use of the chemical (e.g., a brief description of what it actually does, such as flame retardant) and any restrictions on use (including recommendations given by the supplier).

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### SAFETY DATA SHEET - SECTION 2

#### • Hazard Identification:

This section identifies the hazards of the chemical presented on the SDS and the appropriate warning information associated with those hazards. The required information consists of:

- The hazard classification of the chemical (e.g., flammable liquid, category<sup>2</sup>).
- Signal word.
- Hazard statement(s).
- Pictograms (the pictograms or hazard symbols may be presented as graphical reproductions of the symbols in black and white or be a description of the name of the symbol (e.g., skull and crossbones, flame).
- Precautionary statement(s).
- Description of any hazards not otherwise classified.
- For a mixture that contains an ingredient(s) with unknown toxicity, a statement describing how much (percentage) of the mixture consists of ingredient(s) with unknown acute toxicity. Please note that this is a total percentage of the mixture and not tied to the individual ingredient(s).

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### SAFETY DATA SHEET - SECTION 3

#### • Composition/Information on Ingredients:

This section identifies the ingredient(s) contained in the product indicated on the SDS, including impurities and stabilizing additives. This section includes information on substances, mixtures, and all chemicals where a trade secret is claimed. The required information consists of:

- Substances.
- Chemical name.
- Common name and synonyms.
- Chemical Abstracts Service (CAS) number and other unique identifiers.
- Impurities and stabilizing additives, which are themselves classified and which contribute to the classification of the chemical.

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### SAFETY DATA SHEET - SECTION 4

#### • First-Aid Measures:

This section describes the initial care that should be given by untrained responders to an individual who has been exposed to the chemical. The required information consists of:

- Necessary first-aid instructions by relevant routes of exposure (inhalation, skin and eye contact, and ingestion).
- Description of the most important symptoms or effects, and any symptoms that are acute or delayed.
- Recommendations for immediate medical care and special treatment needed, when necessary.

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### SAFETY DATA SHEET - SECTION 5

#### • Fire-Fighting Measures:

This section provides recommendations for fighting a fire caused by the chemical. The required information consists of:

- Recommendations of suitable extinguishing equipment, and information about extinguishing equipment that is not appropriate for a particular situation.
- Advice on specific hazards that develop from the chemical during the fire, such as any hazardous combustion products created when the chemical burns.
- Recommendations on special protective equipment or precautions for firefighters.

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### SAFETY DATA SHEET - SECTION 6

#### • Accidental Release Measures:

This section provides recommendations on the appropriate response to spills, leaks, or releases, including containment and cleanup practices to prevent or minimize exposure to people, properties, or the environment. It may also include recommendations distinguishing between responses for large and small spills where the spill volume has a significant impact on the hazard. The required information may consist of recommendations for:

- Use of personal precautions (such as removal of ignition sources or providing sufficient ventilation) and protective equipment to prevent the contamination of skin, eyes, and clothing.
- Emergency procedures, including instructions for evacuations, consulting experts when needed, and appropriate protective clothing.
- Methods and materials used for containment (e.g., covering the drains and capping procedures).
- Cleanup procedures (e.g., appropriate techniques for neutralization, decontamination, cleaning or vacuuming; adsorbent materials; and/or equipment required for containment/clean up).

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### SAFETY DATA SHEET - SECTION 7

• **Handling and Storage:**

This section provides guidance on the safe handling practices and conditions for safe storage of chemicals. The required information consists of:

- Precautions for safe handling, including recommendations for handling incompatible chemicals, minimizing the release of the chemical into the environment, and providing advice on general hygiene practices (e.g., eating, drinking, and smoking in work areas is prohibited).
- Recommendations on the conditions for safe storage, including any incompatibilities. Provide advice on specific storage requirements (e.g., ventilation requirements).

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### SAFETY DATA SHEET - SECTION 8

• **Exposure Controls/Personal Protection:**

This section indicates the exposure limits, engineering controls, and personal protective measures that can be used to minimize worker exposure. The required information consists of:

- OSHA Permissible Exposure Limits (PELs), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.
- Appropriate engineering controls (e.g., use local exhaust ventilation, or use only in an enclosed system).
- Recommendations for personal protective measures to prevent illness or injury from exposure to chemicals, such as personal protective equipment (PPE) (e.g., appropriate types of eye, face, skin or respiratory protection needed based on hazards and potential exposure).
- Any special requirements for PPE, protective clothing or respirators (e.g., type of glove material, such as PVC or nitrile rubber gloves; and breakthrough time of the glove material).

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### SAFETY DATA SHEET - SECTION 9

• **Physical and Chemical Properties:**

This section identifies physical and chemical properties associated with the substance or mixture. The minimum required information consists of:

- |  |   |
|--|---|
| • Appearance (physical state, color, etc.) | • Upper/lower flammability or exposure limits |
| • Odor                                     | • Vapor pressure                              |
| • Odor threshold                           | • Vapor density                               |
| • pH                                       | • Relative density                            |
| • Melting point/freezing point             | • Solubility(ies)                             |
| • Initial boiling point and boiling range  | • Partition coefficient: n-octanol/water      |
| • Flash point                              | • Auto-ignition temperature                   |
| • Evaporation rate                         | • Decomposition temperature                   |
| • Flammability (solid, gas)                | • Viscosity                                   |

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## SAFETY DATA SHEET - SECTION 10

### • Stability and Reactivity:

This section describes the reactivity hazards of the chemical and the chemical stability information. This section is broken into three parts: reactivity, chemical stability, and other. The required information consists of:

#### Reactivity

- Description of the specific test data for the chemical(s). This data can be for a class or family of the chemical if such data adequately represent the anticipated hazard of the chemical(s), where available.

#### Chemical stability

- Indication of whether the chemical is stable or unstable under normal ambient temperature and conditions while in storage and being handled.
- Description of any stabilizers that may be needed to maintain chemical stability.
- Indication of any safety issues that may arise should the product change in physical appearance.

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## SAFETY DATA SHEET - SECTION 11

### • Toxicological Information:

This section identifies toxicological and health effects information or indicates that such data are not available. The required information consists of:

- Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact). The SDS should indicate if the information is unknown.
- Description of the delayed, immediate, or chronic effects from short- and long-term exposure.
- The numerical measures of toxicity (e.g., acute toxicity estimates such as the LD50 (median lethal dose) - the estimated amount [of a substance] expected to kill 50% of test animals in a single dose).
- Description of the symptoms. This description includes the symptoms associated with exposure to the chemical including symptoms from the lowest to the most severe exposure.
- Indication of whether the chemical is listed in the National Toxicology Program (NTP) 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 found to be a potential carcinogen by OSHA.

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## SAFETY DATA SHEET - SECTION 12

### • Ecological Information:

This section provides information to evaluate the environmental impact of the chemical(s) if it were released to the environment. The information may include:

- Data from toxicity tests performed on aquatic and/or terrestrial organisms, where available (e.g., acute or chronic aquatic toxicity data for fish, algae, crustaceans, and other plants; toxicity data on birds, bees, plants).
- Whether there is a potential for the chemical to persist and degrade in the environment either through biodegradation or other processes, such as oxidation or hydrolysis.
- Results of tests of bioaccumulation potential, making reference to the octanol-water partition coefficient (Kow) and the bioconcentration factor (BCF), where available.
- The potential for a substance to move from the soil to the groundwater (indicate results from adsorption studies or leaching studies).
- Other adverse effects (e.g., environmental fate, ozone layer depletion potential, photochemical ozone creation potential, endocrine disrupting potential, and/or global warming potential).

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### SAFETY DATA SHEET - SECTION 13

#### • Disposal Considerations:

This section provides guidance on proper disposal practices, recycling or reclamation of the chemical(s) or its container, and safe handling practices. To minimize exposure, this section should also refer the reader to Section 8 (Exposure Controls/Personal Protection) of the SDS. The information may include:

- Description of appropriate disposal containers to use.
- Recommendations of appropriate disposal methods to employ.
- Description of the physical and chemical properties that may affect disposal activities.
- Language discouraging sewage disposal.
- Any special precautions for landfills or incineration activities.

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### SAFETY DATA SHEET - SECTION 14

#### • Transport Information:

This section provides guidance on classification information for shipping and transporting of hazardous chemical(s) by road, air, rail, or sea. The information may include:

- UN number (i.e., four-figure identification number of the substance).
- UN proper shipping name.
- Transport hazard class(es).
- Packing group number, if applicable, based on the degree of hazard<sup>2</sup>.
- Environmental hazards (e.g., identify if it is a marine pollutant according to the International Maritime Dangerous Goods Code (IMDG Code)).
- Guidance on transport in bulk (according to Annex II of MARPOL 73/78<sup>2</sup> and the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (International Bulk Chemical Code (IBC Code))).
- Any special precautions which an employee should be aware of or needs to comply with, in connection with transport or conveyance either within or outside their premises (indicate when information is not available).

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### SAFETY DATA SHEET - SECTION 15

#### • Regulatory Information:

This section identifies the safety, health, and environmental regulations specific for the product that is not indicated anywhere else on the SDS. The information may include:

- Any national and/or regional regulatory information of the chemical or mixtures (including any OSHA, Department of Transportation, Environmental Protection Agency, or Consumer Product Safety Commission regulations).

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**SAFETY DATA SHEET – SECTION 16**

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- **Other Information:**  
This section indicates when the SDS was prepared or when the last known revision was made. The SDS may also state where the changes have been made to the previous version. You may wish to contact the supplier for an explanation of the changes. Other useful information also may be included here.

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**THE HAZARD COMMUNICATION STANDARD**

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SUMMARY

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**THE HAZARD COMMUNICATION STANDARD**

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- **Summary:**
  - ✓ Requirements of the regulations
  - ✓ Hazardous chemicals used in the workplace
  - ✓ Methods to detect releases
  - ✓ Physical and health hazards
  - ✓ Measures for personal protection
  - ✓ GHS labeling system
  - ✓ Location and availability of SDSs
  - ✓ Details and location of the written plan
  - ✓ All by next Monday!

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