
Enforced by TOSHA (Tennessee Occupational Safety and Health Administration) and by OSHA.

Can be found in 29 CFR 1910.1200, 29 CFR 1926.59 and TDL Rule 0800-1-9

Apply to all places of employment where employees are exposed to a chemical hazard.
• Employees have a need and a right-to-know the hazards and identities of chemicals they are exposed to while working.
• Employees need to know how to protect themselves from adverse effects of chemicals.
Chemical Hazards

- Chemicals have many valuable uses and are used often.
- However, many chemicals also have hazards that can present risks to health and safety when they’re used on the job.

**Routes of Entry**

Chemicals may enter the body in four ways:

1. Inhalation (breathing)
2. Ingestion (swallowing)
3. Absorption through the skin
4. Injection
Hazardous Chemicals

Chemicals are hazardous if they:

- Cause short term (acute) health problems
  - (such as corrosives that can burn eyes or skin)
- Cause long term (chronic) health problems
  - (such as toxic chemicals that can cause long-term illnesses, such as cancer)
Hazardous Chemicals

- Have physical hazards, such as:
  - Suddenly release pressure
    - (these explosive chemicals includes gases that could expand violently)
  - Are flammable/combustible
    - (chemicals that catch fire easily)
  - Are reactive
    - (these chemicals are not stable, and thus can burn, explode, or release dangerous vapors if exposed to heat, air, water, or certain other chemicals.)

- Exhibit potential environmental hazards
Exceptions to HAZCOM

- Food
- Articles
- Pills
- Cosmetics
- Consumer products used just like a consumer
  - Same duration and frequency as consumer use
  - Product is used for the purpose intended
- Nuisance Particles
- Radiation
- Biological Hazards
Employers are required to communicate the hazards associated with chemicals that an employee is exposed to in the workplace and how the employee can minimize exposure.

There are 5 components of the Hazard Communication Standard, or HazCom.
Components of HAZCOM

- There are 5 Components to the Hazard Communication Standard:
  - Chemical Inventory
  - Written Program
  - Labels
  - MSDS sheets
  - Training
What is GHS?

- GHS (Global Harmonization System): developed by the United Nations as an international standardized approach to hazard communications. This ensures that chemical hazard communication is consistent on a global scale.
- March 2012: OSHA integrated components of the GHS with the existing Hazard Communication (HAZCOM) regulation.
Advantages of GHS:

- OSHA says GHS will:
  - Help improve information received from other countries by standardizing the hazard information.
  - Ensure symbols and hazard statements are familiar and understood by all workers.
  - Ensure that chemicals crossing country borders have consistent information.
  - Allow everyone to access information on hazards of chemicals more effectively and efficiently.
  - Enhance both employee and employer understanding of hazards.
Transition to GHS

- **Hazard classification**: Provides specific criteria for classification of health and physical hazards by manufacturers, as well as classification of mixtures.
- **Labels**: Chemical manufacturers and importers will be required to provide a label that includes 6 elements, including: pictograms, signal words, and hazard statements.
- **Safety Data Sheets**: Will now have a specified 16-section format.
- **Information and training**: The Final HCS will require that workers are trained by December 1, 2013 on the new label elements and SDS format.
What is your responsibility?

- Employers must:
  - Provide a hazard communication program
  - Maintain MSDSs and a chemical inventory
  - Train on hazardous materials and how employees can protect themselves from the hazards.

- Employees must:
  - Read labels and MSDSs
  - Follow employer instructions and warnings
  - Identify hazards before starting a job
  - Participate in training
Hazard Communication: 7 Basic Questions

- What are the requirements of the hazard communication standard?
- What hazardous chemicals are you exposed to in your work environment?
- Where are these chemicals located?
- What are the short and long term health effects?
- How can you detect if you are overexposed?
- How can you protect yourself?
- Where are the MSDS sheets located and the HAZCOM policy?
Two More Questions for GHS

- What information must be on the label on containers of hazardous chemicals?
- What do the pictograms indicate?
All containers of hazardous chemicals must be labeled with the following information:

- The GHS Standard requires that there be six label elements:
  - Product identifier or ingredient disclosure;
  - Signal word;
  - Hazard statement;
  - Pictograms;
  - Precautionary statement; and
  - Supplier identification.

- Label must be cross-referenced with the MSDS and the chemical inventory entry.
- Must be written in ENGLISH
- Chemical manufacturers must use the new labeling system by June 1, 2015.
Labels for Portable Containers

- Identity and hazard warning must be transferred unless the portable container is:
  - Under the control at all times of the employee making the transfer from the labeled container, and
  - Contents are used up in one shift.
  - Avoid using old food containers
Parts of a GHS Label

- **Pictogram**
- **Product identifier**
- **Signal word**
- **Hazard Statements**
- **Precautionary Statements**
- **Chemical manufacturer, importer, or other responsible party.**

*ToxiFlam (contains Benzene)*

Danger: Toxic if swallowed, flammable liquid and vapor.

Do not taste or swallow. Do not take internally. Wash thoroughly after handling. Keep away from heat, sparks, and flames. Keep container closed. Use only with adequate ventilation.

First Aid: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

See Safety Data Sheet for further details regarding safe use of this product.

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Barrington, IL 60011
Tel: 866 382 9694
Signal Words

- Used to indicate the relative level of severity of hazard and discriminate between levels of hazard.
- There are two signal words used:
  - “Danger” - more severe hazard
  - “Warning” - less severe hazard
Hazard Statement

- Assigned to a hazard class and hazard category and describes the nature of the hazard.
- **Examples:**
  - Fatal if swallowed
  - Extremely flammable liquid or vapor
  - May cause damage to *kidneys* through prolonged or repeated exposure.
Precautionary Statements

- Phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure or improper storage and handling.
  - Prevention
  - Response
  - Storage
  - Disposal
- They can be combined to save space on a label.
Pictograms

- There are nine pictograms designated by GHS.
- No requirements on size of pictogram.
- All labels must have pictograms, a signal word and hazard and precautionary statements by June 1, 2015.
GHS Pictograms

- Explosive
  - Self-Reactive
  - Organic
  - Peroxides

- Flammables
  - Self- Reactive
  - Pyrophorics
  - Self- Heating
  - Emits
  - Flammable Gas

- Oxidizers
  - Organic
  - Peroxides

- Corrosives
  - Carcinogen
  - Respiratory Sensitizer
  - Reproductive Toxicity
  - Target Organ Toxicity
  - Mutagenic
  - Aspiration hazard

- Environmental Toxicity

- Gases under Pressure

- Acute Toxicity
  - (severe)

- Irritant
  - Dermal/Skin Sensitizers
  - Acute Toxicity
  - (harmful)
  - Transient target organ effects
  - (narcotic or respiratory)
<table>
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<tr>
<th>Flame Over Circle</th>
<th>Flame Over Circle</th>
<th>Exploding Bomb</th>
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<td>• Oxidizers</td>
<td>• Flammables</td>
<td>• Explosives</td>
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<td></td>
<td>• Self Reactives</td>
<td>• Self Reactives</td>
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<td></td>
<td>• Pyrophorics</td>
<td>• Organic Peroxides</td>
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<td></td>
<td>• Self-Heating</td>
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<td></td>
<td>• Emits Flammable Gas</td>
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<td></td>
<td>• Organic Peroxides</td>
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<thead>
<tr>
<th>Skull and Crossbones</th>
<th>Corrosion</th>
<th>Gas Cylinder</th>
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</thead>
<tbody>
<tr>
<td>• Acute toxicity (severe)</td>
<td>• Corrosives</td>
<td>• Gases Under Pressure</td>
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<table>
<thead>
<tr>
<th>Health Hazard</th>
<th>Environment</th>
<th>Exclamation Mark</th>
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<tbody>
<tr>
<td>• Carcinogen</td>
<td>• Environmental Toxicity</td>
<td>• Irritant</td>
</tr>
<tr>
<td>• Respiratory Sensitizer</td>
<td></td>
<td>• Dermal Sensitizer</td>
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<td></td>
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<tr>
<td>• Target Organ Toxicity</td>
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<td>• Narcotic Effects</td>
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<td>• Mutagenicity</td>
<td></td>
<td>• Respiratory Tract</td>
</tr>
<tr>
<td>• Aspiration Toxicity</td>
<td></td>
<td>• Hazardous to Ozone Layer</td>
</tr>
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</table>
Old Labeling before GHS

NFPA Diamonds

HMIS Labels
SDS: Safety Data Sheets

- Developed by chemical manufacturers and importers.
- Required to be provided by suppliers with all deliveries
- MUST be Accessible to EVERYONE in the workplace
- Must be current
- Employees must read SDS before working with chemical.
- Must be made available to attending physician in the event of exposure.
- SDS must be in the new GHS format by June 1, 2015.
Your employer must have an SDS for every hazardous chemical you use as part of your job.

If you request to see a copy of an SDS for a product you use, and your employer cannot provide it after one working day, you may refuse to use that product or work in an area where it is being used.

If you request your own personal copy of an SDS, your employer has 15 days to provide it.

In TN, SDS must be made accessible to students in laboratories.
What Information is on an SDS?

- Chemical names.
- Manufacturer info (name, address and telephone numbers).
- List of chemical ingredients.
- Permissible exposure limits (PELs) or threshold limit values (TLVs).
- First Aid Information
- Physical Properties
SDS Format: 16 headings

1. Identification
2. Hazard(s) identification
3. Composition/information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure control/personal protection
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information
All employers are required to have a written HAZCOM program in place.

- Covers how the HAZCOM program will be implemented at UTK.

- Assurance that all aspects of HAZCOM has been addressed.

- UT Knoxville’s written Hazard Communications plan can be found on the EHS web-site at: [http://web.utk.edu/~ehss/](http://web.utk.edu/~ehss/), or by contacting EHS at 974-5084.

- You should have a copy accessible in your department and know where it is located.

- You might need to write a HAZCOM policy specific to your work area.
Written Program Requirements

- Hazardous Chemical Inventory
- Labeling Policy
- MSDS Policy
- Training
- Non-routine tasks training methods
- Multi-employer activity
Chemical Inventories

- Chemical Inventory of each hazard chemical normally used or stored in the workplace will be compiled and maintained.
- The inventory must be updated anytime revised information is made available and the currency of the information will be checked at a minimum of once/year.
- This year, Chemical Inventories are due on March 1, 2013. For more information or questions, please contact EHS at 974-5084.
Hazard Communication
Employee Training

The training must cover:

- Requirements of regulations
- Location and availability of MSDSs
- Hazardous chemicals used in the workplace
- Method to detect release
- Physical and health hazards
- Measures for personal protection
- Details and location of the written plan
Employee training must take place:

- Upon initial employment.
- When a new hazardous product/chemical is introduced into the workplace.
- Change in process.
- As deemed necessary by supervision/management.
Hazard Communication
Recordkeeping

- Employers must maintain training records for period of employment + 5 years.
  - Identity of employee trained
  - Date(s) of training
  - Brief description of the training

- SDS must be maintained for as long as the chemical is used or stored.

- Chemical inventory list must be maintained for 30 years.
Safe Handling of Chemicals

- Corrosives, solvents and other chemical substances can be potentially dangerous.

- Safe handling procedures
  - Read container labels.
  - Check SDS.

- Never sniff a chemical for identification.

- Use appropriate personal protective equipment.

- Know how to clean up a spill or at least who to call.
Information Sources

www.osha.com
www.state.tn.us/labor-wfd
www.cdc.com
www.ehs.utk.edu

You can also contact EHS at 974-5084
Quiz Time

To complete the Hazard Communication and GHS Training module, please [click here](#) for the quiz.