HAZARD COMMUNICATION and GHS

Environmental Health and Safety
OSHA created the Hazard Communication Standard in 1983. Applies to all places of employment where employees are exposed to a chemical hazard.
RIGHT-TO-KNOW LAW

- 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:

- Inhalation (breathing)
- Ingestion (swallowing)
- Absorption through the skin
- 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
HAZARD COMMUNICATIONS

- 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
  - SDS 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

Employees must:
- Read labels and SDSs
- Follow employer instructions and warnings
- Identify hazards before starting a job
- Participate in training

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

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
  - Supplier identification
Labels

- Label must be cross-referenced with the SDSs 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
- Contents are used up in one shift

Avoid using old food containers
Parts of a label

**CHEMICAL NAME**
The scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name that will clearly identify the chemical for the purpose of conducting a hazard classification.

GHS 1.4.10.5.2 (d) (29 CFR 1910.1200(c))

**PRODUCT IDENTIFIER**
The name or number used for a hazardous chemical on a label or in the SDS. It provides a unique means by which the user can identify the chemical. The product identifier used shall permit cross-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label and the SDS.

GHS 1.4.10.5.2 (d) (29 CFR 1910.1200(c))

**PICTOGRAMS**
A 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 about the hazards of a chemical. Eight pictograms are designated under HCS and nine pictograms are designated under GHS for application to a hazard category.

GHS 1.4.10.4 (29 CFR 1910.1200(c))

**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. The signal words used in this section are “danger” and “warning”. “Danger” is used for more severe hazards, while “warning” is used for the less severe.

GHS 1.4.10.5.2 (a) (29 CFR 1910.1200(c))

**HAZARD STATEMENT**
A statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.

Example: Fatal if swallowed.

GHS 1.4.10.5.2 (b) (29 CFR 1910.1200(c))

**SUPPLIER IDENTIFICATION**
The name, address, and telephone number of the manufacturer, importer, or other responsible party.

GHS 1.4.10.5.2 (e) (29 CFR 1910.1200(f) (1) (vi))

**PRECAUTIONARY STATEMENT**
A phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or improper storage or handling.

Example: Do not eat, drink, or smoke when using this product.

GHS 1.4.10.5.2 (c) (29 CFR 1910.1200(c))

**FIRST AID**
Call emergency medical care.
Wash affected area of body thoroughly with soap and fresh water.

**FIRST AID STATEMENT**
There are four types of precautionary statements presented, “prevention,” “response,” “storage,” and “disposal.”

GHS 1.4.105.2 (c) (29 CFR Appendix C to 1910.1200-C.2.4.1)
Signal Words

There are two signal words used:
- “Danger” - more severe hazard
- “Warning” - less severe hazard

Used to indicate the relative level of severity of hazard and discriminate between levels of 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

**EXAMPLE**

**METHANOL**

Highly flammable liquid and vapour. Toxic if swallowed, in contact with skin or if inhaled. Causes damage to organs.


**IF SWALLOWED:** Immediately call a POISON CENTER or doctor/physician.
**IF EXPOSED:** Call a POISON CENTER or doctor/physician.

See Material Safety Data Sheet for further details regarding safe use of this product.
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 (can be combined to save space on a label):

- Prevention
- Response
- Storage
- Disposal

<table>
<thead>
<tr>
<th>Precautionary statement codes</th>
<th>Precautionary measurement</th>
<th>For example</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1**</td>
<td>General</td>
<td>P102: Keep out of reach of children</td>
</tr>
<tr>
<td>P2**</td>
<td>Prevention</td>
<td>P210: Keep away from heat/sparks/open flames/hot surfaces.</td>
</tr>
<tr>
<td>P3**</td>
<td>Response</td>
<td>P311: Call a poison center or doctor/physician</td>
</tr>
<tr>
<td>P4**</td>
<td>Storage</td>
<td>P403: Store in a well-ventilated place</td>
</tr>
</tbody>
</table>
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.
Old Labeling before GHS

- HMIS label
- NFPA Diamonds
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.
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
Format: 16 headings (cont.)

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
Written Program Requirements

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

- All employers are required to have a written HAZCOM program in place.
- Assurance that all aspects of HAZCOM has been addressed.
- You should have a copy accessible in your department and know where it is located.
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.
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
Hazard Communication Employee Training

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.cdc.com