

# OKLAHOMA STATE UNIVERSITY HAZARD COMMUNICATIONS



## Your Right to Understand

Oklahoma State University  
Environmental Health and Safety  
(405) 744-7241

Current as of January 2019



## OVERVIEW

- Right to ~~Know~~-Understand
- Hazcom Written Plan
- Chemical Inventory List (CIL)
- Safety Data Sheets (SDS's)
- Labeling and Marking Systems
- OSU Placarding & Labeling Requirements
- Employee Training





# WHY IS HAZCOM IMPORTANT

- Informs workers of the hazards associated with the chemicals they use.
- From 2009 – 2016, OSHA has cited nearly **47,000** instances of Hazcom violations in workplaces across the US.
- Hazcom has remained **#2 on OSHA's top 10** list of most frequently cited compliance standards from 2012 – 2018.





# RIGHT TO ~~KNOW~~ UNDERSTAND

- The Federal Government established the OSHA Hazard Communication Standard. This standard is designed to protect employees who use hazardous materials on the job.
- The Hazard Communication Standard states that companies which produce and use hazardous materials must provide their employees with information and training on the proper handling and use of these materials.
- You, as an employee, have a Right to ~~Know~~ Understand about the hazardous materials used in your work area and the potential effects of these materials upon your health and safety.



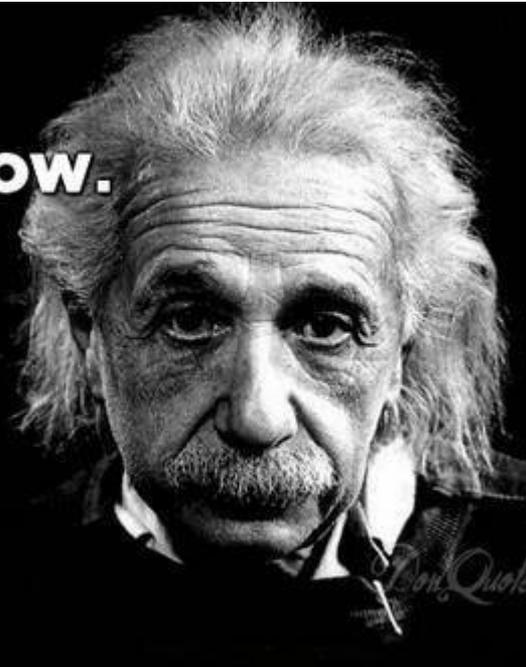


# RIGHT TO ~~KNOW~~ UNDERSTAND

- OSHA has changed this motto slightly, it is not enough to “know” the goal is to “understand”.

## Right to Understand

**“Any fool can know.  
The point is to  
understand.,,  
— Albert Einstein**





# HAZCOM 5 KEY ELEMENTS

- Employers must have an updated chemical inventory.
- SDS must be available to employees.
- Containers must be labeled in a consistent format.
- Workers must be trained.
- Written HAZCOM Program.



# HAZARD COMMUNICATIONS WRITTEN PLAN REQUIREMENTS

- Each workplace must have a site specific Hazcom written plan.
- Laboratories will maintain a Chemical Hygiene Plan in place of the Hazcom written plan.
- All plans must be reviewed annually at a minimum.
- EHS can provide templates of both the Hazcom and Chemical Hygiene Plan.

**You have a right to possess your own free copy of the written hazard communications plan.**

# HAZARD COMMUNICATIONS

## THE WRITTEN PLAN

If you are exposed to a hazardous substance at work, you should report it to your supervisor who will complete an

**“Employee Exposure Report Form”**



**Oklahoma State University  
Hazardous Substance Employee Exposure Report**

Last Name: \_\_\_\_\_ First Name: \_\_\_\_\_ Middle Initial : \_\_\_\_\_

Department: \_\_\_\_\_ Title: \_\_\_\_\_ CWID: \_\_\_\_\_

Date/Time of Exposure: \_\_\_\_\_ Duration of Exposure: \_\_\_\_\_

Location of Exposure (Bldg. & Room #): \_\_\_\_\_

Chemical Name(s): \_\_\_\_\_ Chemical Abstract # (CAS): \_\_\_\_\_

Trade and/or Common Name(s) of Chemical(s): \_\_\_\_\_

Type of Exposure (e.g. inhalation, ingestion, contact) (If contact, what body part was involved?)  
\_\_\_\_\_

How did exposure occur? (Use additional sheet if necessary):  
\_\_\_\_\_

Was personal protection equipment (PPE) available? Yes  No

Was personal protection equipment (PPE) used? Yes  No

If PPE was used, what type(s)? \_\_\_\_\_

What training/instructions was provided prior to exposure? \_\_\_\_\_

Were any symptoms present at time of exposure? Yes  No

If so, describe: \_\_\_\_\_

Severity of Exposure: First Aid  Medical Treatment  Unknown

Describe: \_\_\_\_\_

*(Attach Physician's Report, Employee Injury Report, Sharps Injury Log if applicable)*

Lost time from work? Yes  No  Estimate of lost time: \_\_\_\_\_

Were other employees exposed? Yes  No

If so, list names & CWID (use additional sheet if needed): \_\_\_\_\_

List suggestions to prevent reoccurrence: \_\_\_\_\_

\_\_\_\_\_  
(exposed employee's signature)

\_\_\_\_\_  
(today's date)

\_\_\_\_\_  
(supervisor's signature)

\_\_\_\_\_  
(print/type name of supervisor)

Complete form and return to EHS, **FILE REPORT WITHIN 24 HOURS OF NOTIFICATION**  
Report can be faxed (744-7148) or emailed [ohsp@okstate.edu](mailto:ohsp@okstate.edu)

The statements and facts in this form shall not constitute nor be construed to constitute any admission or evidence of liability.



# CHEMICAL INVENTORY LIST



**Chemical Inventory Lists (CILs)  
will also be required  
from your department.**



# CHEMICAL INVENTORY LISTS

- Inventories must be available in each laboratory, maintenance shop or storage location
  - PIs or shop supervisors are **required** to update their Chemical Inventory List (CIL) found on OSU's Chemical Safety Assistant.
  - <https://ehs.okstate.edu/online-chemical-inventory.html>





# QUIZ 1

- The HAZCOM Standard requires all employers to provide workers with information about the hazardous chemicals to which they are exposed?
  - True
  - False





# QUIZ 1

True



# HAZARD COMMUNICATIONS

## Safety Data Sheets

29CFR1910.1200(g)(2)

Each material safety data sheet shall be in **English** .

(although the employer may maintain copies in other languages as well):

# SAFETY DATA SHEETS

## YOUR RIGHTS

- Your employer must have an SDS for every hazardous substance 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; you may refuse to use that product or work in an area where it is being used.



# SAFETY DATA SHEET

- Identification  
(identifies the chemical , recommended uses, contact information of the supplier).
- Hazard Identification  
(hazards of the chemical presented, appropriate warning information of hazards).
- Composition/Ingredients  
(identifies the ingredient(s) contained in the product including, impurities and stabilizing additives. information on substances, mixtures, and all chemicals where a trade secret is claimed).
- First-aid Measures  
(initial care that should be given to an individual who has been exposed to the chemical).





# SAFETY DATA SHEET (CONT.)

- Fire-fighting Measures  
(Fighting a fire caused by the chemical).
- Accidental Release Measures  
(appropriate response to spills, leaks, or releases, containment and cleanup practices to prevent or minimize exposure to people, properties, or the environment, distinguishing between responses for large and small spills).
- Handling and Storage  
(guidance on the safe handling practices and conditions for safe storage of chemicals).
- Exposure Controls/Personal Protection  
(exposure limits, engineering controls, and personal protective measures that can be used to minimize worker exposure).





# SAFETY DATA SHEET (CONT.)

- **Physical and Chemical Properties**  
(identifies physical and chemical properties associated with the substance or mixture).
- **Stability and Reactivity**  
(reactivity hazards of the chemical and the chemical stability information. three parts: reactivity, chemical stability, and other).
- **Toxicological Information**  
(identifies toxicological and health effects information or indicates that such data are not available).
- **Ecological Information**  
(environmental impact of the chemical(s) if it were released to the environment).





# SAFETY DATA SHEET (CONT.)

- Disposal Considerations  
(guidance on proper disposal practices, recycling or reclamation of the chemical(s) or its container, and safe handling practices). (State/Federal)
- Transport Information  
(guidance on classification information for shipping and transporting of hazardous chemical(s) by road, air, rail, or sea).
- Regulatory Information  
(identifies the safety, health, and environmental regulations specific for the product that is not indicated anywhere else on the SDS).
- Other Information  
(indicates when the SDS was prepared or when the last known revision was made).





# HAZARD COMMUNICATIONS LABELING AND MARKING SYSTEMS

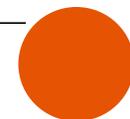
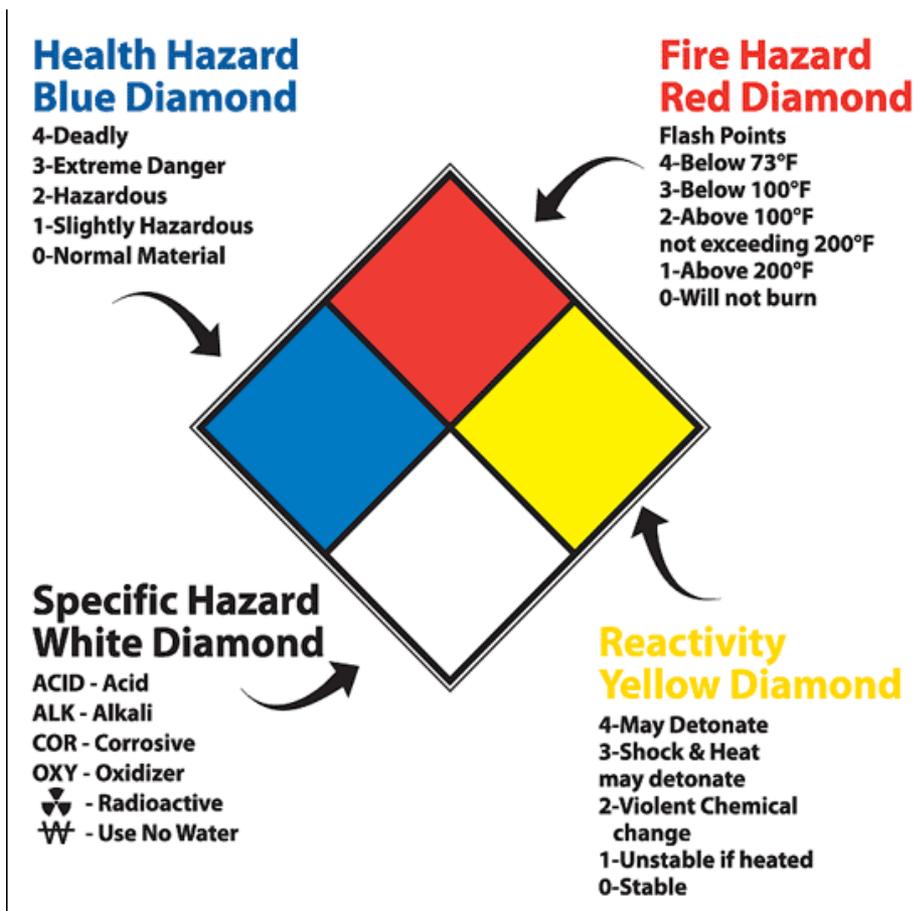
- NFPA Diamonds
- GHS Labels





# NFPA DIAMONDS

- 4= Deadly Hazard
- 3= Severe Hazard
- 2= Moderate Hazard
- 1= Slight Hazard
- 0= No Hazard





# WHAT'S ON THE GHS LABEL?

## Labels must have five things:

1. Product Identifier (what is this chemical)
2. Signal words:

### “DANGER”

identifies chemicals and products that present, relatively speaking, a greater or more immediate hazard to the worker

### “WARNING”

identifies chemicals and products that present a lesser (although still potentially harmful) degree of hazard





# WHAT'S ON THE GHS LABEL? (CONT.)

3. Hazard Statement  
(what kind of harm could the chemical cause)
  
4. Pictograms  
(a symbol that tells us about the hazards)
  
5. Precautionary Statement  
(what do we need to do to be safe around this chemical)





## GHS LABELING

### The Basic Parts of A GHS-Compliant Label

1 →

**n-Propyl Alcohol**

UN No. 1274

CAS No. 71-23-8

2 →

**DANGER**

3 →

Highly flammable liquid and vapor. Causes serious eye damage.  
May cause drowsiness and dizziness.

4 →

Keep away from heat/sparks/open flames/hot surfaces. No smoking. Avoid breathing fumes/mist/vapours/spray. Wear protective gloves/protective clothing/eye protection/face protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present. Continue rinsing.

Fill Weight: 18.65 lbs.

Lot Number: B56754434

Gross Weight: 20 lbs.

Fill Date: 6/21/2013

Expiration Date: 6/21/2020

See SDS for further information.

5 →

Acme Chemical Company • 711 Roadrunner St. • Chicago, IL 60601 USA • [www.acmechem.com](http://www.acmechem.com) • 123-444-5567



1. **Product Identifier** - Should match the product identifier on the Safety Data Sheet.
2. **Signal Word** - Either use "Danger" (severe) or "Warning" (less severe)
3. **Hazard Statements** - A phrase assigned to a hazard class that describes the nature of the product's hazards
4. **Precautionary Statements** - Describes recommended measures to minimize or prevent adverse effects resulting from exposure.
5. **Supplier Identification** - The name, address and telephone number of the manufacturer or supplier.
6. **Pictograms** - Graphical symbols intended to convey specific hazard information visually.





# NFPA vs GHS

Two different purposes, so two different systems.

- The NFPA 704 diamond - first responders
  - Typically located outside buildings, on doors, or on tanks, and visible to emergency responders during spill or fire. Used on secondary & mixture laboratory containers.
- Hazcom GHS labels - workers using hazardous chemicals under normal conditions
  - On SDS and chemical containers/packaging, laboratory entrance.
- **Do not** use the Hazcom hazard category numbers as hazard ratings on the NFPA 704 label. First responders are trained in the NFPA ratings.





## NFPA vs GHS

# THE GHS NUMBERING SYSTEM IS OPPOSITE OF NFPA RATING SYSTEM!

- Under the NFPA system, the most dangerous rating is 4 , while 0 would pose a minimal hazard.
- Under GHS, the hazard categories are numbered from 1 to 5. The LOWER the number, the GREATER the severity of the hazard. So, category 1 hazards are the most dangerous.



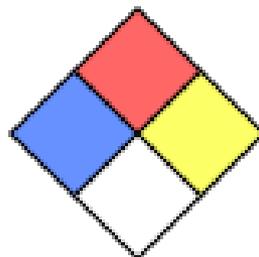


# HAZCOM: PLACARDING LABORATORY ENTRANCE

- Post required PPE
- Post Global Harmonized System (GHS) pictograms
  - Must reflect the current hazards in the laboratory
  - [https://www.osha.gov/Publications/HazComm\\_QuickCard\\_Pictogram.html](https://www.osha.gov/Publications/HazComm_QuickCard_Pictogram.html)



- National Fire Protection Association (NFPA) 704 diamond sign
- Post the Emergency Information Form
- Must be prominently displayed and unobstructed





# HAZCOM: CHEMICAL STORAGE SIGNAGE

- Clearly identify storage locations with signage prominently displayed and unobstructed
- Label storage areas by compatible chemical class such as flammables/organic solvents, oxidizers, acids, etc.





# HAZCOM: MINIMAL CHEMICAL LABELING

- Do not deface or remove manufacturer's labels on chemicals
- All labels in English
- Pure or purchased chemicals transferred to smaller bottles
  - Chemical name
  - Common name
  - NFPA or HMIS sticker
- For new synthesized chemicals or chemicals without MSDS/SDS
  - Chemical name
  - NFPA or HMIS sticker
    - Estimate hazard values based on similar chemicals

Chemical Name \_\_\_\_\_  
Common Name \_\_\_\_\_  
Manufacturer \_\_\_\_\_

Lab Safety Supply Inc. Reorder No. 597



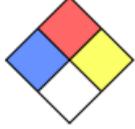


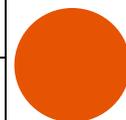
# HAZCOM: MINIMAL CHEMICAL LABELING

- Dilutions or mixtures
  - Chemical name
  - Common name
  - % or Molarity of solution
  - If dilutions are concentrated or mixtures hazardous, please include a NFPA diamond.
  
- OSU labeled Peroxide Formers
  - Chemical name
  - Common name
  - NFPA or HIMS sticker
  - Date opened
  - Expiration date (or extended expiration date)
  - Test date (if any)
    - Note, dates may have to be added to the manufactures labeling for stock bottles.



# Standardized Purchasing Guide for OSU HAZCOM Placards and Labels

Placard/Label	Location	Dimension (inches)	Example	Link
Global Harmonized Symbols/Placard	Laboratory Entrance Placard	2" x 2"		<a href="http://www.grainger.com">http://www.grainger.com</a> <a href="http://www.mysafetylabels.com/">http://www.mysafetylabels.com/</a>
NFPA 704	Laboratory Entrance Placard	Size ≥ 4" for both height and width		<a href="http://www.grainger.com">http://www.grainger.com</a> <a href="http://www.mysafetylabels.com/">http://www.mysafetylabels.com/</a>
Required Personal Protective Equipment	Laboratory Entrance Placard	≥ 2" placard or Font ≥ 1/2"		<a href="http://www.mysafetylabels.com/">http://www.mysafetylabels.com/</a>
Safety Shower and Eyewash	Safety equipment in or near laboratory	Size ≥ 6" for both height and width		<a href="http://www.grainger.com">http://www.grainger.com</a> <a href="http://www.mysafetylabels.com/">http://www.mysafetylabels.com/</a>
Storage Labels	Storage Areas	Font ≥ 1" in height		<a href="http://www.grainger.com">http://www.grainger.com</a>
Pure chemical secondary storage bottle label	Laboratory	Size varies with bottle		<a href="http://www.mysafetylabels.com/">http://www.mysafetylabels.com/</a>
Mixture storage bottle label	Laboratory	Size varies with bottle		<a href="http://www.mysafetylabels.com/">http://www.mysafetylabels.com/</a>





## QUIZ 2

- One of the two signal words is required on labels to emphasize hazard. Which communicates the greater hazard?
  - Danger
  - Warning





## QUIZ 2

# Danger





## GHS PICTOGRAMS



Oxidizers



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



Explosives, Self  
Reactives, Organic  
Peroxides



Acutely Toxic  
(severe)



Burns Skin, Damages  
Eyes, Corrosive to Metals



Gases Under Pressure



Carcinogen, Respiratory  
Sensitizer, Reproductive  
Toxicity, Target Organ  
Toxicity, Mutagenicity  
Aspiration Toxicity



Toxic to aquatic  
environment



Acutely toxic(harmful),  
Irritant to skin, eyes or  
respiratory tract, Skin  
sensitizer, Hazardous to  
the Ozone layer.





# GHS PICTOGRAMS

- Symbol for the hazards of the product.
- Product can have one or more pictograms.





# HEALTH HAZARD



- Could cause cancer
- Can impact breathing and may cause asthma
- May cause reproductive problems and birth defects
- May be toxic to organs and damage lungs
- Mutagenicity





# FLAMMABLES



- Solids, liquids and gasses
- May react with other substances to cause a fire
- Could burn on its own simply by coming in contact with air





# IRRITANT



- Indicates Irritants or Skin Sensitizers
- Can cause problems with skin, eyes and respiratory system
- Generally short-term (acute) irritations or rashes upon contact





# GASES UNDER PRESSURE



- Maybe flammable, oxidizing or reactive compressed gasses
- Accidental release causes cylinder to rocket or pinwheel





# CORROSIVES



- Can cause skin burns
- Will damage eyes
- Can damage metals or other materials





# EXPLOSIVES



- Explosive materials
- Self-reactive or self-heating
- Pyrophoric – burns if it contacts air
- Organic peroxide – burns or explodes





# OXIDIZERS



- Flame over the letter “O”
- Oxidizers can cause organic materials to combust
- Oxygen is most common





# ENVIRONMENTAL TOXICITY



- Harms plants or animals
- Impacts air or water quality
- Could contaminate soil





# ACUTE TOXICITY



- Severe hazard
- Can be fatal
- Extremely toxic





# QUIZ 3

- Which symbol would be used for flammables?



A



B



C





# QUIZ 3



B





# QUIZ 3

- Which symbol would be used for a carcinogen?



A



B



C





# QUIZ 3



A





# QUIZ 3

- Which symbol would be used for a corrosives?



A



B



C





# QUIZ 3



C





# HAZCOM EMPLOYEE TRAINING FREQUENCY

- EHS HAZCOM Training Responsibilities
  - OSU HAZCOM program details to include labeling, SDS, and how to get laboratory safety information
  - Recommend members receive this training every **three years**
  - **This training does not replace the Site/Laboratory Specific training**
  
- Site Specific Training is required:
  - Within 30 days of initial assignment
  - Whenever new hazards are introduced
  - **Annually**





# HAZCOM: TRAINING RESPONSIBILITIES

- Supervisor/Principal Investigator HAZCOM Training Responsibilities (Site/Laboratory Specific)
  - Methods and observations used to detect release of hazardous chemicals in the work area
  - Hazards of chemicals in work area
  - Measure of protection from hazards – engineering controls, PPE, emergency procedures, etc
  - Animal laboratories may have other exposures that need to be covered





# HAZCOM AT OSU

- For more details on OSU specifics reference OSU Policy and Procedures
  - Hazard Communication Program 3-0535
  - Dated November 2015

<https://stw.sp.okstate.edu/Policies/Shared%20Documents/Forms/AllItems.aspx>





# SUMMARY

- Right to ~~Know~~-Understand
- Hazcom Written Plan
- Chemical Inventory List (CIL)
- Safety Data Sheets (SDS's)
- Labeling and Marking Systems
- OSU Placarding & Labeling Requirements
- Employee Training



# Programs and Services

- Fire Protection Engineering
- Life Safety & Emergency Preparedness
- Environmental Compliance
- Laboratory Safety
- Occupational Safety
- Occupational Health and Medical Surveillance
- Materials Management
- Industrial Hygiene
- Chemical Hygiene
- Safety Training



Location: University Health Services Bldg, Room 002 (basement)

Phone number: 744-7241

Email: [EHS@okstate.edu](mailto:EHS@okstate.edu)

# Questions?



# HazCom

29 CFR 1910.1200