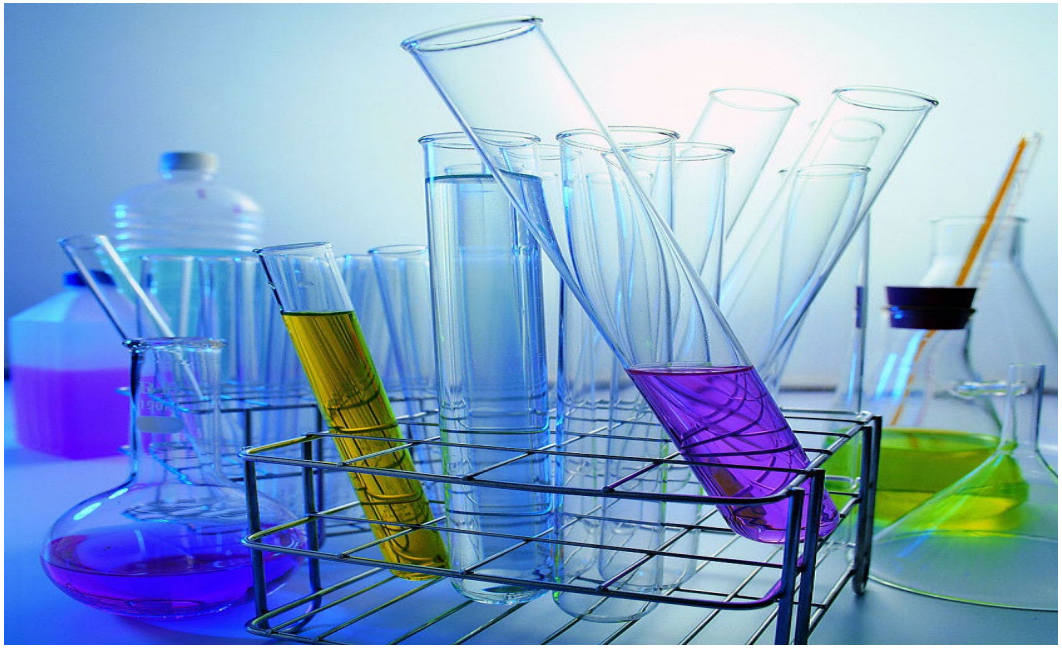
Oklahoma State University Hazard Communications



Your Right to Understand

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

Current as of August 2022

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, OHSA 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.

Why is Hazcom Important Cont.

- Saves approximately 43 people from dying each year and nearly 585 injuries and illnesses.

- Because of the decrease in sickness and injuries, companies have increased productivity by $475.2M and in cost savings $32.2M.

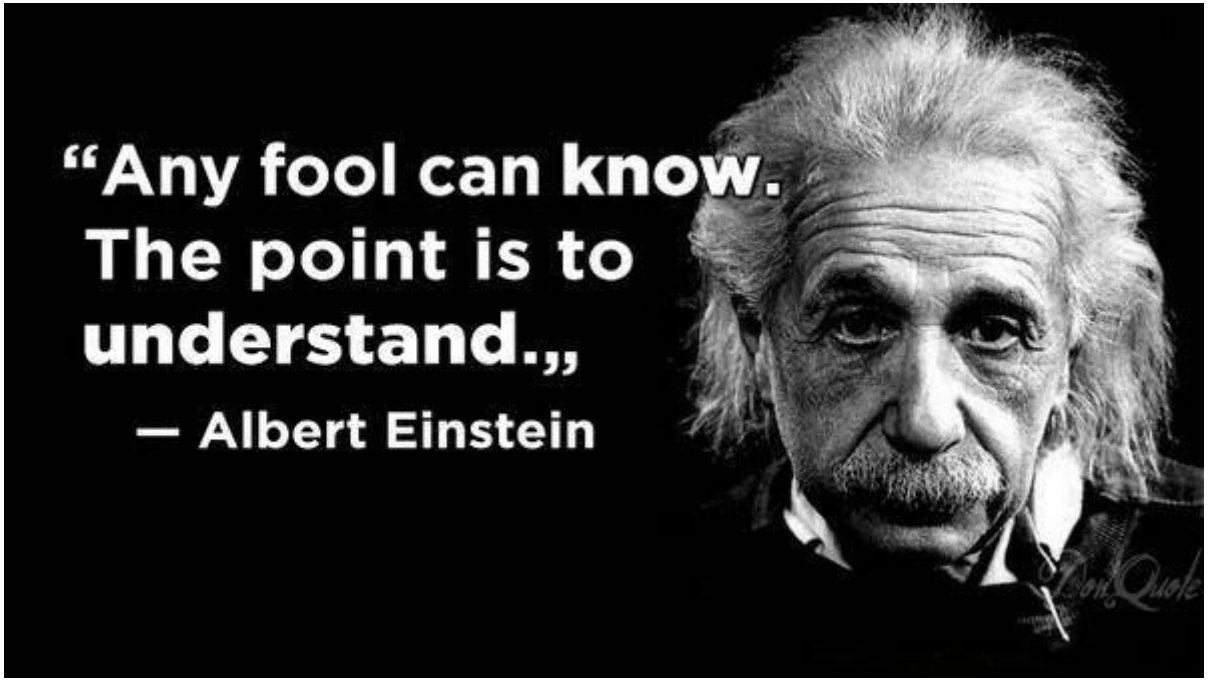
Right to ~~Know~~ Understand

- 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



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

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

Reviewed by EHS December 2014

Chemical Inventory List

Chemical Inventory Lists (CILs) will also be required from your department and each laboratory.

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.
  - To start a new CIL or give someone access, please use the link below.

  - 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

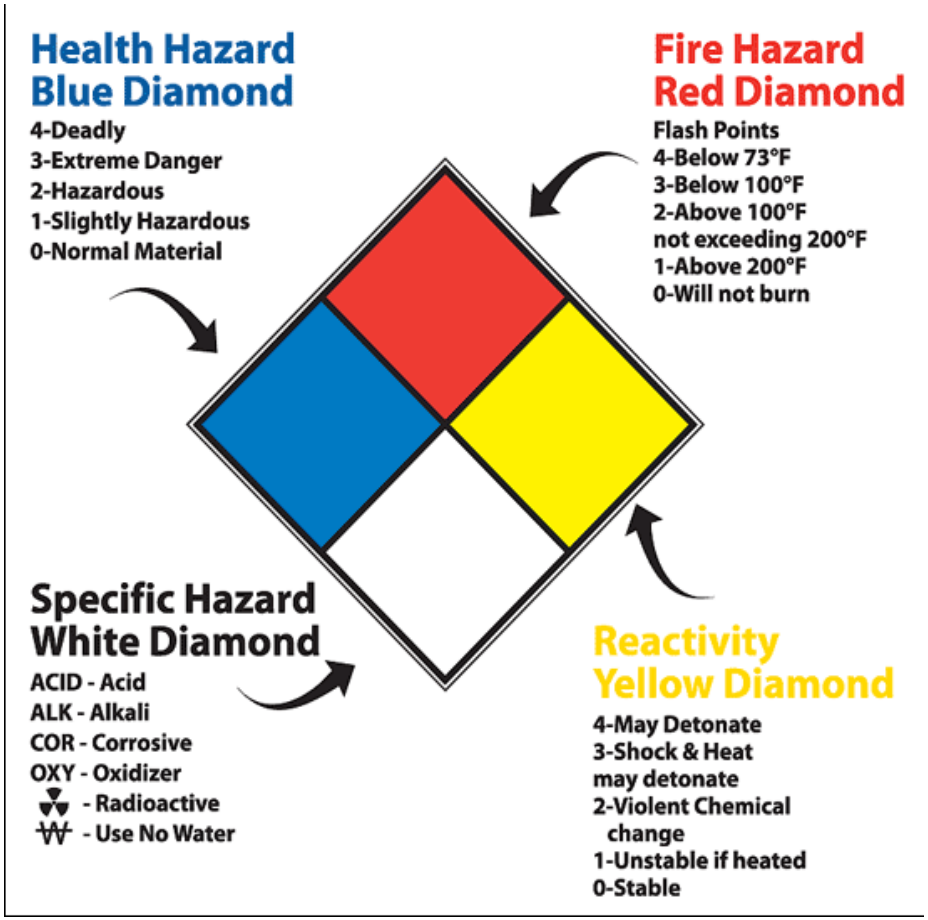
True

Hazard Communications 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. **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.

Sample label courtesy of Weber Packaging Solutions • www.weberpackaging.com

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!

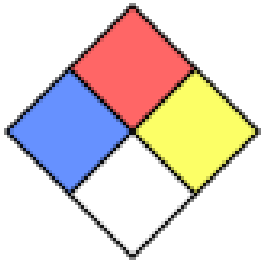
- Under the NFPA system, the most dangerous rating is 4 , while 0 would pose a minimal hazard.

- 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

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



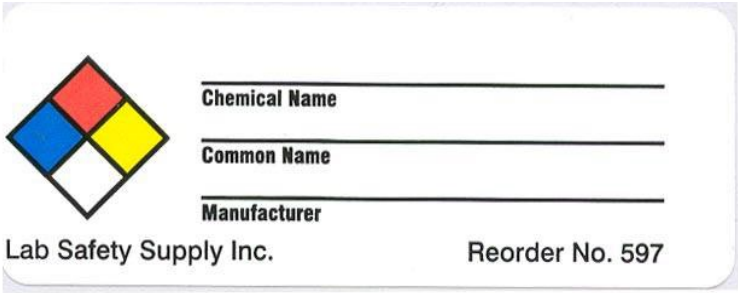
HAZCOM: CHEMICAL STORAGE SIGNAGE

- 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 manufactures 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

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 HMIS 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.

Hazcom: Minimal Chemical Labeling Challenge

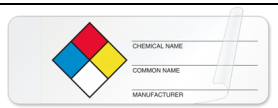
- Try and determine which bottle contains the beverage on the label (without opening)

- Why should you always package and label properly?

Hazcom: Minimal Chemical Labeling Challenge

- Pale Green
  - 1 = Ginger Ale with Lemonade
  - 4 = Husky veterinary antimicrobial
- Dark Brown
  - 2 = Iodine solution
  - 5 = Tea
- Orange
  - 15 = Windshield Bug Remover
  - 11 = Peach Tangerine
- Dark Blue
  - 13 = Grape Gatorade
  - 16 = Nolvasan Solution (disinfectant)
- Red
  - 14 = Automatic Transmission Fluid
  - 7 = Fruit Shoot, kids fruit drink

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”		http://www.grainger.com http://www.mysafetylabels.com/
NFPA 704	Laboratory Entrance Placard	Size ≥ 4” for both height and width		http://www.grainger.com http://www.mysafetylabels.com/
Required Personal Protective Equipment	Laboratory Entrance Placard	≥ 2” placard or Font ≥ 1/2”		http://www.mysafetylabels.com/
Safety Shower and Eyewash	Safety equipment in or near laboratory	Size ≥ 6” for both height and width		http://www.grainger.com http://www.mysafetylabels.com/
Storage Labels	Storage Areas	Font ≥ 1” in height		http://www.grainger.com
Pure chemical secondary storage bottle label	Laboratory	Size varies with bottle		http://www.mysafetylabels.com/
Mixture storage bottle label	Laboratory	Size varies with bottle		http://www.mysafetylabels.com/

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 1

- Which symbol would be used for flammables?

A

B

C

Quiz 1

B

Quiz 2

- Which symbol would be used for a carcinogen?

A

B

C

Quiz 2

A

Quiz 3

- Which symbol would be used for a corrosives?

A

B

C

Quiz 3

C

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):

- 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 (cont.)

Identify the following from an SDS:

1. Product name
2. Signal word
3. Hazard Statement(s)
4. Pictogram
5. How to store
6. First aid for skin contact
7. Flammable or explosive
8. Types of recommended PPE

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

Questions?

HazCom

29 CFR 1910.1200