Hazardous Communication Program (HAZCOM), PPE, General Electrical Safety, Safety Mentality, Deadly Dozen

Hazardous Communication (HazCom)

A hazardous communication (HazCom) program is a written document that helps ensure chemical and hazardous material safety in the workplace by providing information about the identities and hazards of the chemicals/materials and making sure they're available and understandable to employees. OSHA's Hazard Communication Standard (HCS) requires the development and distribution of:

- Chemical manufacturers and importers are required to evaluate the hazards of the chemicals they produce or import, and prepare labels and safety data sheets to convey the hazard information to their downstream customers;
- All employers with hazardous chemicals in their workplaces must have labels and safety data sheets for their exposed workers, and train them to handle the chemicals appropriately. (OSHA, osha.gov)

This training session will help employees better understand how to prepare for and safely work with hazardous chemicals they may be "exposed" to in the workplace. Employees will learn about the hazards and protective measures through written labels and safety data sheets, how to read and understand such information, and determine how to acquire and use the information in their own workplace.

Chemicals And You:

- When handling any chemical, certain questions should be asked:
    - What is this product?
    - How do I handle it?
    - What is at risk if I am exposed?

Reminder: Safety Data Sheet (SDS)

Due to continued transportation of chemicals amongst countries, the United Nation has come up with a system to standardize the classification and labeling of chemicals. This system or standard is known as the Globally Harmonized System of Classification and Labeling of Chemicals or GHS. A part of this system includes a new 16 section standardized format for Safety Data Sheets (SDS's), formally known as Material Safety Data Sheets (MSDS's). It will also include a new 6 section labeling system, to be used as a quick summary of a chemical. (OSHA, osha.gov) Here are some key points to remember:

- OSHA requires the use of Globally Harmonized System (GHS)
- GHS is implemented through HazCom
- It provides a universal approach
- More thorough information is mandated for all chemical products
- All MSDSs should already be replaced by SDSs
- All shipping labels will follow a new 6 section format

Workers Right to Know:

Chemicals are necessary to perform many jobs. However, if they are not handled properly, they can present a hazard to your health and safety. The Hazard Communication Standard (HazCom) has been developed by OSHA to inform employees of workplace chemical hazards. Under the HazCom rule, you have the right to know about the hazards in your workplace and how to protect yourself against them. (OSHA, osha.gov) These rights include:

- Right to understand specific hazards
- Right to information, knowledge, and equipment to prevent safety and health problems
- Right to access safety data sheets (SDSs)
- Right to recognize, understand, and use labels

The Absolute Musts for Employers:

- Provide a written hazard communication program
- Access to all material safety data sheets (SDSs)
- Provide training on Hazard Communication, which includes:
    - Rules and how materials are used in workplace.
    - How to recognize, understand, and use labels and safety data sheets (SDSs).
    - Safety procedures to follow when working with hazardous materials.

The Responsibilities of Employees:

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

Forms of Hazardous Chemicals:

- Solids
    - Dust, powder, or fumes
- Liquids
    - Vapors, mists, gasoline, cleaners, or solvents
- Gases
    - Aerosols, propane

Two Types of Chemical Hazards:

Under the Hazard Communication Standard (HCS), any chemical that presents a physical hazard or a health hazard is considered a hazardous chemical. The HCS defines physical and health hazards as:

- Physical hazard - there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.
- Health hazard - there is statistically significant evidence that acute or chronic health effects may occur in exposed employees.

Basically, physical hazards are hazards that happen to the chemical itself. If present during a physical hazard, you can be at risk or become injured. Health hazards are hazards that impact your personal health. Based on your exposure to the chemical, you could encounter short-term or long-term health effects. (OSHA, osha.gov)

The following are the different types of hazards identified in the HCS:

Physical Hazards	Health Hazards
Explosive	Acute toxicity
Flammable (gasses, aerosols)	Skin Corrosion or irritation
Oxidizer	Serious eye damage or eye irritation
Self-Reactive	Respiratory or skin sensitization
Pyrophoric	Germ cell mutagenicity
Self-Heating	Carcinogenicity
Corrosive to metal	Reproductive toxicity
Gas under pressure	Specific target organ toxicity

Health Hazards: Effects of Exposure:

Health hazards are hazards that impact your personal health. They can be divided into two categories, short-term and long-term. Short-term (or acute) effects can be noticed quickly and medical assistance should be seeked. Long-term (or chronic) can be harder to define. It often takes long periods of time to see the effects of long-term health hazards. It can often take months, years, or decades. (OSHA, osha.gov) For example:

Short-Term "Acute"	**Long-Term "Chronic"**
- Results of brief exposure	- Exposed over a long period of time
- A few times over a short period	- Effects are usually permanent
- Effects generally occur soon after exposure	- Can also occur from brief exposure if exposed to high concentration
- Symptoms might include:	- Symptoms might include:
* Rash	* Chronic illness
* Dizziness	* Lung and liver damage
* Headache	* Cancer
* Respiratory irritation	
* Eye irritation	

Health Hazards: Exposure:

- Skin and eye contact
    - Especially with liquids
- Inhalation
    - Fumes, vapors, mists, dust
- Ingestion
    - Eating, drinking, consumption
- Absorption
    - Through skin contact

Workplace Labeling:

Workplace labels are a group of written, printed, or graphic information relating to a chemical/hazardous material that are written on or attached to the container of the chemical, or to the outside packaging.

Hazard Communication labeling requirements include:

- All containers must be labeled with what contents are inside
- Must be able to read and understand label
- If removed or damaged, must be replaced immediately
- Labels must follow the GHS standard or cooperate with the product's SDS

Potential Exposure:

- Know where eyewash stations are located
    - Corrosives require a station within 20 feet
    - Some chemicals may require immediate contact of emergency services
- Understand the routes of exposure for the chemical being used
    - Inhalation, ingestion, absorption, injection
- Educate yourself on exposure symptoms
    - May be found in the SDS
    - May require further training to stay safe

Cleaning Up Chemical Spills:

In the event of a spill of any kind, cleaning up in a timely manor is necessary. However, there is a certain process that must be followed to ensure it is cleaned up properly.

1. Immediately tell others to stay clear
    - Inform management if required
2. Limit access or cordon off the area if needed
3. Refer to SDS on how to safety clean up the product
4. Apply appropriate PPE
5. Clean up entire affected area
6. Dispose of material used to absorb or clean up spilled chemical according the SDS recommendations
7. Inform those around you that the area is open

Personal Protective Equipment (PPE)

Personal protective equipment (PPE) is one of the best defenses against exposure to job related hazards. When you use the appropriate PPE, and use it correctly, you can significantly reduce your risk of injury. Most PPE needs to be American National Standard Institute (ANSI) approved. Your company will provide you with the appropriate personal protective equipment.

Employers Must Protect Employees:

- Assess the workplace
- Eliminate and reduce the hazards found using engineering and administrative controls
- Use appropriate personal protective equipment
- Personal Protective Equipment is the last level of control

Hierarchy of Controls:

- Your company should select the controls that are the most feasible, effective, and permanent.
- Elimination (most effective) – Physically remove the hazard. Eliminate or control all hazards (hazards that cause death or physical harm) immediately.
- Substitution – Replace the hazard. Substitute to less hazardous material or reduce energy (e.g., lower speed, force, amperage, pressure, temperature, and noise).
- Engineering Controls – Isolate people from the hazard. Develop controls to prevent exposure to the hazard (e.g., machine guards, ventilation systems, etc.).
- Administrative Controls and Procedures – Change the way people work. Utilize trainings, other employees and shifts, machinery and equipment, and aids to change how the job or task is performed.
- PPE (least effective) – Protect the employee with Personal Protective Equipment (PPE). Utilize PPE to create a barrier between the employee and the hazard.

What PPE are you required to wear?

- Eye and Face Protection?
- Foot Protection?
- Respiratory Protection?
- Hearing Protection?
- Hand Protection?
- Clothing Protection?

Hazard Assessment:

OSHA requires employers to conduct a written hazard assessment to determine the type of PPE needed for each job or task within the workplace. This assessment needs to:

- Evaluate every job function
- Determine if hazards are present
- Check for hazards to all parts of the body
- Determine appropriate PPE
    - If hazards cannot be removed

Selecting the Right PPE:

OSHA requires that you use the correct PPE to protect you from injuring your head, eyes, face, respiratory system, hands, and feet. When using PPE, be sure it:

- Fits properly each time you use it
- Provides you with the protection you need
- Is comfortable enough so you can move and perform your job.

Eye and Face Protection (ANSI Z87.1):

- Examples of Hazards
    - Chemical splashes, Blood or OPIM splashes or sprays, Intense light, Dust and other flying particles, Molten metal splashes
- Eye and face protection – must comply with
    - ANSI Z87.1-2003, ANSI Z87.1-1989 (R-1998)

Foot Protection (ANSI Z41):

- Causes of foot injuries:
    - Falling or rolling of heavy objects, Crushing or penetrating materials, Sharp objects that can penetrate the sole, Exposure to molten metal , Working on, or around, hot, wet, or slippery surfaces , Working when electrical hazards are present.
- Examples of Foot Protection
    - Steel-toed boots, slip-resistant soles, chemical resistance, waterproof

Respiratory Protection:

- Examples of Hazards
    - Airborne dusts, vapors/fumes, lack of oxygen
- Examples of Respiratory Protection
    - Filtering face piece (dust mask), air purifying respirator, air supplied, self-contained breathing apparatus (SCBA)

Hearing Protection:

- Examples of Hazards
    - Employees need to be aware when Time Weighted Average is at or above 85dB, and protection is made available.
- Hearing protection is required when TWA is at or above 90dB or one time max at or above 129dB.
    - Annual exams must be conducted at this point
- Examples of Hearing Protection
    - Earplugs, canal caps, and earmuffs

Hand Protection:

- Examples of Hazards
    - Skin absorption of harmful substance, severe cuts or lacerations, severe abrasions, frostbite
- Examples of Hand Protection
    - Chemical-resistant, Kevlar, metal mesh, cut-resistant, leather, extreme temperature, and electrical wor

Clothing Protection:

- Examples of Hazards
    - Hot or cold materials/objects, hazardous materials, welding hazards, moving machinery
- Examples of Clothing Protection
    - Laboratory coats, Coveralls, Vests, Jackets, Aprons, Surgical gowns, Full-body suits

Care for your PPE:

In order for your PPE to work properly to protect you, you must keep it in good condition. Here are a few general rules:

- Always check PPE for damage after you use it
- Clean PPE before putting it away
- Disposal of any single-use or damaged PPE only in the proper manner
- Store PPE carefully in its assigned place. Avoid conditions that could damage it, like heat, light, moisture, etc.

Electrical Safety

Electricity is an essential part of modern life, both at home and at the workplace; however, working with electricity can be dangerous. Some employees, such as engineers, electricians, and power line workers, work with electricity directly. Other employees, such as office staff and machine operators, work with it indirectly. Regardless of whether employees work with electricity directly or indirectly, each type can be exposed to serious electrical hazards. OSHA's electrical standards/requirements are designed to protect employees exposed to the dangers of working with electricity, such as electric shock, electrocution, fires, and explosions.

Electrical Panels:

Electrical panels and disconnects are our access points to control electrical energy. It is important that we always have access to them. Electrical panel and disconnect requirements include:

- Ensure there is clearance to electrical panels and disconnects
    - Mandatory clearance of 3 feet (36 X 30 inches)
    - Must have a clear path to access (28” path)
- We need to replace missing blanks or knockouts
- Electrical panels need to be labeled with voltage

Electrical Cords:

Electrical cords are used in almost every part of our lives. It is important that they are in good condition prior to each use. Electrical cord requirements include:

- Can become a trip hazard
- Extension cords are to be used for temporary wiring only
    - Permissible up to 90 days
- Must have grounding pin or be polarized
    - Polarized has one blade wider than the other
- Damaged cord should not be used
    - Cut, crushed, exposed wires, etc.
- Only the plug of an extension cord can be repaired
    - The cord cannot be repaired

Daisy Chains & Multi-plugs:

When we are in need of more electrical outlets, we often resort to extension cord and power strips. When doing so, there are a few things we need to keep in mind. For example:

- Extension cords and multiplugs should not be plugged into each other
    - Power strip into power strip
    - Extension cord into extension cord
    - Power strip or extension combined together

- You will need the proper equipment for the job
- Can lead to overloading, failure, and/or fire
- Only power strips with equipped internal fuses are acceptable as permanent wiring

Safety Mentality

Having a safety mentality is a major reason for keeping safe in the workplace and producing a safe work environment. Starting with a proper way of thinking is one of the best ways to help you as a working group to make a difference in your work culture. Simply by standing back and understanding how you can be safe isn't the fullest proof way of keep you and others as safe as possible. Understanding the dangers and creating solutions yourself is all what makes a safety mentality so important.

It Won't Happen To Me:
This is a simple mindset that most people come to instinctually. Keeping this mindset breeds grounds for hazards known and unknown to creep up and cause an accident eventually.

- Safety mindsets helps to work safer
- Accident prevention
- Know the facts and risks
- Seniority doesn't stop accidents
- Common Excuses
    - I didn't know
    - I didn't have time
    - Nothing will happen

Why Change Your Mentality?
Complacency and distraction breeds instances of issues in the workplace. We want to avoid these thought processes for a better understanding of the hazards at place. Work with these for a better chance of avoiding injuries.

- Complacency and Distraction
- Avoid Injuries and Accidents
- Provides a scenes of comfort
- Workspace atmosphere improves
- Not a luxury but a necessity
- Lower Turnover
- Better Efficiencies

How to Get Ahead of Experience
Experience is the main reason for people to avoid a new safety procedure or mentality. It is the thought process of it hasn't happened yet so why do it now? We don't want to start safety procedures after someone gets hurt. We want to be proactive and start well before and prevent.

- Experience shouldn't dictate when we should be safe
    - Get ahead of the curve
    - Keep others accountable
    - Prevent injuries don't make them
- Newer employees are twice as likely to get injured
    - Same mentality means less accidents

Safety In Numbers

- Safety works best when:
    - It starts at the top

- Communication is top priority
- Consistent Training
- It would involve everyone
- Issues are responded quickly

Deadly Dozen

The deadly dozens are 12 major accidents that happen in the workspace. These cultivate together to bring the highest amount of non-fatal injuries in the workspace. They are the best ways to learn about what not to do in the workplace. These are all straightforward things to accomplish for safety, but they would mean that changing your culture is necessary. With a little bit of work you can take these items and lower the amount of injuries to a bare minimum.

What are the Deadly Dozen?

- 12 common unsafe acts
- Manufacturing (nonfatal)
  - 395,300 workplace injuries
  - 35,000 workplace illnesses
- Construction (nonfatal)
  - 195,600 workplace injuries
  - 3,600 workplace illnesses

Operating Equipment too Fast

Dangers of Rushing:

- Rushing seems natural and instinctual
- Mistakes are easier to make
- Over confidence
- Jams more likely
- Higher probability of accident occurring
- Do:
  - Think about the consequences of hurrying
  - Know the consequences
  - Always take the time to put on safety first
  - Identify hazardous situations in advance
- Don't
  - Assume it won't happen to you
  - Have the attitude that you can hurry "just this one time"
  - Put other people at risk

Unauthorized use of Equipment

- Reasons for unauthorized use of equipment
  - Inadequate Training
  - Misplaced Confidence
  - Pressure to get ahead
- Complication with the equipment
- Secret Hazards

Failure to Secure Materials

- Inspect all holding equipment
  - Straps, Ropes, Chains
  - Fasteners and Connectors
  - Replace Damaged Equipment
- Loose material during transport

    - Compressed Gas Cylinders
    - Gasoline Canisters
    - Hazardous Chemicals

Failure to Post Required Safety Warnings and Procedures

- Missing labels and stickers on ladders and tools
- Missing awareness barriers on guards
- Missing or nonupdated SDSs
- Lack of LOTO procedures
- Failure to evaluate motorized material handling operation

Removing Machine Guarding

- Highest Rate of Amputations
- Rules for Machine Guarding
    - Prevent Contact
    - Keep secured in place
    - Needs to be in place before operations
    - LOTO needed for removal
- Communicate if guard interferes with job

Using Damaged Tools

- Inspect Before Each Use
    - Loose, Cracked, Broken Handles
    - Split, Chipped, Cracked Ends
    - Flattened or Mushroomed Heads
- Defective Tools Need Replaced

Using Tools or Equipment Improperly

- Misuse of tools causing damage
    - Use of excessive strength
- Using the wrong tool for the job
    - Breaks Tools
    - Breaks Equipment
    - Potential Injury
- Tools Should be Comfortable

Standing in an Unsafe Location

- What are these areas?
    - Moving Machinery
    - Blind Spots/Corners
    - Under a Suspended Load
    - Overhead Hazards
    - Welding Spaces
    - Power Industrial Truck Movement
- How to Prevent?
    - Prohibit Breaks on Production Floor
    - Restrict Access in Dangerous Areas
    - Prevent Distraction While Working
    - Provide Awareness of Dangers

Servicing Equipment That is Powered

- Why Do IT?
    - Improper LOTO

    - Lack of Preparation
    - Blocked Power Sources
- What's at Risk?
    - Electrocution
    - Burns
    - Crushing
    - Fatality

Riding on Equipment that is Moving

- Moving equipment increases chance for injury
- Injuries:
    - Falling
    - Crushing
    - Unexpected Machine Failure
- Only designated vehicles are allowed to be ridden
    - No passengers on single rider vehicles

Failure to Wear Required PPE

- PPE is the last line of defense
- Inspect Before Each Use
    - Damaged PPE Needs Replace
    - Do Not Repair PPE
- Be careful around rotating parts
- Expect the unexpected

Horseplay

- Horseplay can escalate situations
    - Physical injuries
    - Psychological injuries
    - Damage to company property
- Leads to distraction
- Horseplay is strictly prohibited
- Examples of Horseplay
    - Wrestling
    - Boxing
    - Throwing objects
    - Using vehicles as a threat
    - Jumping over objects and holes
    - Pushing people
    - Threatening others with an air hose

Resources

- (OSHA, osha.gov)