

# **EAP, Fire Safety, Workplace Violence, Housekeeping, Walking/Working Surfaces, Ladder Safety, Accident Prevention, PPE, Machine Safe Guarding, Bloodborne Pathogens, Hazardous Communication, Combustible Dust, Hoist Safety, Dock and Warehouse Safety**

## **Emergency Preparedness:**

An emergency action plan (EAP) is a written document that acts as a blueprint or guide to help facilitate and organize both employer and employee actions during workplace emergencies. Well-developed emergency plans, along with proper employee training (to understand their roles and responsibilities) will result in fewer and less severe injuries/illnesses and less damage to the facility during emergencies. A poorly prepared plan and/or no employee training, will likely lead to a disorganized emergency response, resulting in confusion, injury, and damage.

This training session will help employees better understand how to prepare for and respond to emergencies in the workplace. Employees will learn about evacuation routes, emergency alarms, responding to fire or smoke, responding to a chemical spill, responding to natural disasters, etc.

Every employee needs to be prepared for emergencies and know how to safely respond to various workplace emergencies. Examples of potential workplace emergencies that may require preparation and action, such as evacuation, include:

### **When to sound the alarm:**

Every employee needs to be prepared for emergencies and know how to safely respond to various workplace emergencies. Examples of some workplace incidents that will cause for alarm, and have emergency protocol take place are:

- Experience or anticipate an explosion
- Chemical spills or gas leaks
- Natural disasters
  - Tornado, Earthquake, Severe Weather
- Human Threats
- Workplace violence or terrorism
- Most common cause for emergency:
  - Fire
  - Smoke

### **Evacuation Procedures:**

- Understand emergency alarm
- Listen for any specific instructions
- Follow the nearest exit route
- Know locations of fire extinguishers
- Proceed to the designated assembly area
- Assist others that may be in need of assistance

### **Emergency Alarms:**

- Manual fire alarm box
- Public address system
- Phones or radios
- Air horn
  - One continuous blast means outside evacuation
  - Intermittent blasts mean inside collection
- Word of mouth/Intercom system

### **Emergency Routes:**

- Should be unobstructed
- Keep dangerous items away
- Exit should be clearly visible and distinctive
- Non-Exit doors or passages need to be marked "Not an Exit"
- If they can be mistaken as an exit or passageway
- Be sure there is nothing obstructing the exit door from opening, like snow

## Collection Points:

### *Outside Collection Points*

- Ensure collection point does not block emergency vehicles
- Proceed directly to your designated meeting area
- Make sure you are accounted for

### *Inside Collection Points*

- Should be a central location
- Should not be exposed to windows
- Management should bring a weather radio and phone access with them

## Emergency Contacts:

- Emergency reporting procedures (who reports emergencies)
- Emergency contact information o 911 vs 9-911
  - Employee contact information
- List of employees for head count

## What a Fire Needs to Burn:

- Fuel Source
  - Flammable liquids
  - Gasoline/Kerosene
- Ignition Source
  - Heat, flames, sparks, static electricity
- Oxygen
  - Present at all times in air

## Fire Prevention:

- Keep dust under control
- Dispose of oily rags appropriately
  - Store in closed approved containers
- Don't allow combustibles to accumulate
- Keep emergency exits clear

## Different Fires Need Different Treatment:

The National Fire Protection Association has classified fires into four main types. Remember to determine which type of fire/fuel source you're dealing with before you choose an extinguisher. All fire extinguishers are labeled to tell you which classes of fire they're designed to be used for.

### *Classes of Fires*

- Class A – fires are the most common. They involve wood, cloth, paper, rubber, and plastics. Water or dry chemicals should be used to extinguish these fires. Do not use carbon dioxide extinguishers or those containing sodium or potassium bicarbonate.
- Class B – fires involve flammable liquids, gases, and greases. Foam, carbon dioxide, and dry chemical extinguishers should be used. Water fog and vaporizing liquid extinguishers may also be used.
- Class C – fires involve electrical equipment. Carbon dioxide and dry chemical extinguisher should be used. Do not use foam or water extinguishers.
- Class D – fires involve combustible metals, such as magnesium, titanium, zirconium, and sodium. These fires require special techniques to control. None of the extinguishers mentioned should be used.

Multi-purpose extinguishers (ABC) will handle all A, B, and C fires. **All fire extinguishers are labeled with either ABC, or A, or B, or C, so be sure to read the label.**

## **How to Use a Fire Extinguisher:**

*Remember the word PASS*

- Pull the pin
- Aim the extinguisher nozzle at base of fire
- Squeeze the trigger while holding extinguisher upright
- Sweep the nozzle side to side, cover the area of the fire

Remember, fire extinguishers are for small fires only or to be used to help you escape the building. 10-pound fire extinguishers last between 7-15 seconds.

## **New Employee Question List:**

When a new hire comes on board it is imperative that we are answering a few questions for them in how we conduct our EAP. After discussing this try frequently quizzing them as it will help if an emergency ever comes up. Examples of some new hire questions are:

- What are our alarms and where are they located?
- Where are the fire extinguishers?
- Where are our emergency exit doors in my area?
- Where are our collection points?
- Who is my direct supervisor for future questions?

## **Housekeeping:**

Although machinery, production, and the motion of industry are what are typically pictured as the most lethal aspect of an average workday, poor housekeeping is what can truly make a near miss turn into an accident in a matter of seconds. While the hazards seem minimal and unimportant, as smaller issues in work areas grow and are ignored, the greater the risk grows for a larger more catastrophic accident to occur.

## **What Is At Risk?**

- Limited means of escape during an emergency.
- Increase chance of slips, trips, and falls.
- Greater chance of accidents, injury, or death.

*What Is Really At Risk?*

- Inability to perform job comfortably due to injury
- Pain and potentially suffering
- Becoming temporarily or permanently disabled
- Losing your life abruptly or dying slowly

## **Maintaining Aisle: The Basics**

In the grand scheme of things, following these basic rules will have the greatest positive impact in your daily work areas.

- Need to remain well lit.
- Dry and clean with no debris.
- Need to prevent conditions that could cause a slip, trip, or fall.
- Maintain a 28" path for aisle, this includes:
  - Electrical panels
  - Disconnects
  - Fire extinguishers

## **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:

- Nothing can be stored on top or below them.
- 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.

### **Around Machinery:**

Even with proper guarding, a cluttered area around machinery can just as easily cause an accident. Making sure these issues are managed will allow for a greater chance at remaining safe.

- Ensure no emergency stops are blocked.
- Make sure the work area around the machinery is open with clear access.
- Take time to regularly clean-up processing byproducts such as:
  - Sawdust
  - Oil
  - Metal shavings
  - Spilled plastic beads

### **Fire Prevention:**

As projects and task call for flammable materials, it is important to make sure they are use and stored properly once finished. In order to prevent unnecessary emergencies, employees should focus on the following:

- Do not store flammable or compressed canisters next to exit routes or doors
- Do not allow potentially flammable material to accumulate
- If possible, store flammable products in fire cabinets
- Keep flammable products and materials away from ignition sources.
  - Disconnects and electrical panels
  - Heat sources
  - Spark hazards

### **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.

- Can become a trip hazard
- Extension cords are not to be used for temporary wiring
  - Permissible up to 90 days
- Must have grounding pin or be polarized
  - Polarized has one blade wider than the other
- Damaged cords should not be used
  - Cuts, crushed, exposed wires, spiraling etc.

### **Daisy Chains and Multi-plugging:**

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.

- 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

### **Walking and Working Surfaces:**

Slips, trips, and falls are usually minor and don't typically result in permanent injury. But sometimes these accidents are serious, causing permanently disabling injuries or even death. The best way to put oneself in the right mindset to constantly be vigilant inspecting walking and working surfaces is by asking ourselves three simple questions:

- Where am I working
- How am I working?
- Is there a better option?

### *The Purpose and Goal:*

- To identify the hazards around us prior to starting the job and finding a better solution.
- Many walking and working surface injuries are completely preventable.

### **Where Am I Working?:**

At a height greater than 4 feet, employees must have some sort of fall protection. This includes:

- Knowing how to use a ladder correctly
- A proper and sturdy railing system
  - Top and mid-rail with a toe board
- Personal fall arrest system
  - This would be a last resort and would need to include further training

### **How Am I Working?:**

Voluntarily working in cluttered, mismanaged, or messy conditions can increase your chance of a slip, trip, or fall.

Examples:

- Slips - A buildup of saw dust on concrete floors or simply wet floors.
- Trips - Hoses and extension cords across walkways.
- Falls - Working near an open drop-dock without a safety-chain.

### *Slips:*

Too little friction or traction between feet and walking/working surface, resulting in loss of balance.

Common Causes:

- Water
- Mud
- Grease
- Oil

### *Slips - Controlling Slip Hazards:*

- Keep walking/working surfaces as clean and dry as possible
- Make sure your footwear is as slip resistant as possible
- Require drainage for wet operations
- Clean up or mark and report spills
- Remove ice and snow frequently and regularly

### *Trips:*

Foot or lower leg hits object and upper body continues to move, resulting in loss of balance.

- Stepping down to lower surface and losing balance
- Common Causes:
  - Uncovered hoses, cables, or wires across walkways
  - Clutter, obstacles in aisles, walkway and work area
  - Open cabinet, file or desk drawers, and doors
  - Changes in elevation or unlevel walking surfaces

### *Trips - Controlling Trip Hazards:*

- Aisles and passageways should be well-lit, clean, and marked
- Material storage and work-related scraps should not create trip hazards (cluttered work spaces)
- Trip hazards, such as loose flooring, carpeting, uneven surfaces, and protrusion hazards, should be repaired or reported
- Hoses and cables should be routed away from active work zones and walkways

### *Falls:*

Occurs when too far off center of balance.

Two types:

- Fall same level
  - Fall to same walking or working surface, or fall into or against objects above same surface.
- Fall to lower level
  - Fall to level below walking or working surface.
  - Results from trip or lack of fall protection guarding.

### *Falls - Controlling Fall Hazards:*

- Elevated surfaces: Tanks, towers, machines, and other surfaces
  - It is best to engineer out the need to go up in the first place
  - Guardrails should be properly installed
  - Use safe practices when using a ladder
  - Clearly mark and cover holes or openings
  - As a last resort, use a Personal Fall Arrest System (PFAS)

### **Is There A Better Option?:**

The best way to prevent any accident is assess and prep any walking and working surface prior to starting a task or project.

- If working at heights, see if the project can be moved to the ground or hazards engineered out.
- Make maintaining walking and working surfaces a major priority in your daily housekeeping.
- Recognize when managing a hazard is out of your control and seek help when needed.

### **Ladder Safety:**

Every year many injuries and deaths are tied to ladders. Injuries can be serious, even from a short height. It is important to understand how to use a ladder safely, how to inspect a ladder for safety, and how to store a ladder properly.

Basic Types of Ladders:

- Step Ladders (A-Frame Ladders)
- Wheeled Ladders
- Fixed Ladders (Part of building structure)

### *Controlling Hazards:*

The use of ladders is one of the leading causes of fatalities and injuries. Fortunately, ladder accidents can be prevented. You don't have to suffer a painful, possibly disabling injury. You have the power to prevent ladder accidents by taking three simple steps:

- Use the right ladder for the right job
- Use ladder that is free from defects
- Use the ladder in the way it was designed to be used.
  - The Right Ladder:
    - Use the right type, length, and rating for the job
    - Never use the top two steps of a ladder
    - Tell your supervisor if you need a longer ladder

### *Free from Defects:*

All ladders should be inspected before each use. It doesn't take long to check out a ladder to make sure it's safe to use. But those few minutes could be the most important of your life.

- Regardless of ladder type, inspect the ladder before each use
- Do NOT use the ladder if it is bent or there are missing parts
- Tell your supervisor about the defective ladder

### *Ladder Inspection:*

When you do a ladder inspection, check to make sure that:

- Steps or rungs are in good repair and free of mud, grease, oil, or sticky substances;
- Side rails have no cracks or splits;
- Metal parts are lubricated;
- Rope is not worn or frayed;
- Spreaders or other locking devices are in place and working properly;
- Splinters or sharp edges have been filed down;
- Safety feet are solid and in place; and
- Metal ladders are free of dents and bent parts.

You should also inspect ladders following any tip-overs or possible damage to a ladder that has been struck by something, hit something, or been dropped.

### *Proper Use:*

- Ladders must be used according to the manufacturer
- Take the time to read the information
- Read and follow all informational stickers and warning labels
  - Replace missing stickers or warning labels
- Maintain 3 points of contact
- Maintain proper positioning
- Do NOT lean away from the ladder to carry out our task
- Always keep your weight centered between the side rails
- Move the ladder as necessary
- When using ladders to access another level, secure and extend the ladder at least 3 feet above the landing point
- Angle ladder so the horizontal distance of the bottom is  $\frac{1}{4}$  the working length of the ladder

### *Fixed Ladders:*

- Must be equipped with a:
  - Personal fall arrest system, ladder safety system (if installed on/after 12-19-2018)
  - Personal fall arrest system, ladder safety system, cage, or well (if installed before 12-19-2018)
- PFAS or ladder safety system must provide protection throughout entire vertical distance of ladder

### *Wheeled Ladders:*

Although similar to a regular staircase, the fact that it is mobile adds new hazards and as a result further safety precautions that need to be followed such as:

- Must be equipped with a:
  - Properly functioning wheels/tires
  - Brake/ wheel locking system
  - Chain/barrier at the top of the stairway
  - When working at the top of the ladder, a chain or guard must be in place for fall protection.
  - Positioned on a level surface.
  - Ensure the wheels are locked in place before climbing.
  - Know the maximum capacity and don't overload.
  - Before moving it to a new position, make sure nothing has been left on the ladder that could fall off and hurt someone.

## **Accident Prevention**

The main goal of an accident prevention program is to prevent workplace injuries, illnesses and deaths, the suffering these events cause employees, and the financial hardship they cause both employees and employers. Workplace accidents and incidents can cause a huge amount of physical and financial hardship for individual employees and their families.

### **In an Average Year:**

Let's begin by looking at some statistics about workplace accidents in General Industry.

- 5,147 workers died due to largely preventable fatalities
- Weekly average: 99 workers
- Daily average: 14 workers

### **Causes of Death:**

- 39.2% - Falls
- 8.2% - Struck by Object
- 7.3% - Electrocution
- 5.1% - Caught-in/between

### **Employee Participation:**

Since you know your equipment and work area better than anyone else, your actions could be the difference between preventing an accident and not preventing it. The following knowledge can help you prevent accidents:

- No amount of money or managers can create a safety conscious environment without employee involvement
- Communication is key to solving:
  - Safety issues
  - Preventing future accidents
- Know that your actions set an example other employees likely will mirror.
  - Both Good and Bad

### **How could you be affected if you don't take safety seriously...**

#### **Affects Go Beyond Work...**

- Retirement
- Vacations
- Hunting
- Camping
- Riding a motorcycle/ATV
- Playing with your kids/grandkids
- Spending time with your spouse or partner
- Simply sleeping comfortably

#### **Who May No Longer Be Able to Count On You?**

- Spouse or Partner?
- Children or Grandchildren?
- Parents or Grandparents?
- Friends?
- Dogs or pets?
- Your church or community group?

#### **Help Find the Solution:**

- Fix issues within your control
- Notify maintenance and management of safety concerns
- Report ALL accidents and near misses to management immediately
- Practice good housekeeping
- **Speak up before it is too late**

#### **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.

#### **Your Personal Bodyguard:**

- Best defense against exposure to job related hazards
- Can significantly reduce your risk of injury
- Most PPE needs to be American National Standard Institute (ANSI) approved
- PPE should be inspected before each use

#### **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
  - Flying particles, molten metal, hazardous liquids, acid or corrosives, gases, light radiation
- Examples of Eye and Face Protection
  - Safety glasses, goggles, face shields, shaded filter lenses, prescription eyewear

**Foot Protection (ANSI Z41):**

- Examples of Hazards
  - Falling/rolling/sharp objects, electrical hazards, slippery surfaces, hazardous materials, cold weather
- conditions
- 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 work

#### **Clothing Protection:**

- Examples of Hazards
  - Hot or cold materials/objects, hazardous materials, welding hazards, moving machinery
- Examples of Clothing Protection
  - Apron, sleeves, fire-resistant clothing

#### **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.

#### **Machine Guarding**

Guards are installed on machines to protect operators and others in the area from injury. Today, most machines at most worksites are equipped with guards. The dramatic improvement in guarding over the past dozen or so years has meant fewer employees sustaining the crushing injuries that used to occur all too frequently.

Yet even today some operators find ways of putting themselves in danger by removing or bypassing machine guards or tampering with interlocks so they can operate their machines faster. *In this company, failure to use the guards provided is cause for disciplinary action.*

Here are some facts to show why it is important to properly guard your machine.

- 92,000 injuries per year from unguarded machines
- 18,000 serious injuries every year
- More than 3,000 amputations occurred between 2019-2020
- 800 deaths per year still occur on average by those who operate and maintain machinery

#### **Potential Injuries Possible:**

These are some examples of potential injuries that can come from improper guarding. All of these could have major factors with your quality of life, and personal life activities.

- Amputations
- Fractures
- Lacerations
- Crushing injuries
- Pinching injuries
- Cuts
- Burns
- Abrasions

#### **Where Are The Hazards?:**

Listed below are the main areas where contact with a piece of machinery can cause the most harm or potential death to a person. Recognizing these areas before starting work and making sure they are properly guarded will be the best way to keep yourself and others safe from unnecessary harm.

##### Point of operation

- Where work is performed on a material to shape or manipulate it to its desired form.

##### Mechanical power transmission

- The components of the mechanical system that transmit energy to the part of the machine performing the work.

##### Other moving parts

- Any exposed moving component that could cause injury.

## Where Hazards Occur:

There seem to be as many hazards created by moving machine parts as there are types of machines. Safeguards are essential for protecting workers from needless and preventable injuries.

A good rule to remember is, any machine part, function, or process which may cause an injury must be safeguarded. When the operation of a machine or accidental contact with it can injure the operator or others in the vicinity, the hazards must be either controlled or eliminated. Some examples of basic machine hazards that require safeguarding include:

- Point of operation
  - Rotating parts
    - Shafts, including shaft ends
    - Gears and pulleys
    - Collars, couplings, and cams
  - Nip/Pinch points
    - Rotating cylinders
    - Chains and sprockets
    - Belts and pulleys
  - Shear points
    - Hedge trimmers
    - Grain augers
    - Rotary mower blades
  - Crushing points
    - Presses
    - Unsecured materials and equipment
    - Heavy objects
  - Cutting actions
    - Band saws
    - Circular saws
    - Drill presses
    - Lathes and mills
    - Flying chips, scrap metals, or sparks
- Mechanical power transmission
- Other moving parts

## Most Common Safety Measures:

- Permanent guard - These guards should only be removed by lockout tagout authorized employees.
- Interlocking guard - The machine will not run unless all guards are placed in their proper position for operation.
- Palm Press – A device forcing an employee to use both hands to press two buttons simultaneously to operate a machine.
- Distancing guards and Tools - Forces employees to stay out of the area in which work is being performed by the machine, thus preventing contact.

Rules to remember:

1. Do not operate without a guard
2. Do not bypass a guard
3. Shutdown during service
4. Never reach into operating equipment
5. Use appropriate protective equipment such as distancing guards or PPE
6. Maintain machinery properly

7. Give yourself “An O.U.T.” by never reaching  
**A**round, **O**ver, **U**nder, or **T**hrough guards

### **Best Practice for Operation (Machine Operation Check List):**

Breakdowns, jammed work, and broken parts sometimes cause us to forget ordinary safety procedures. Very often, to remedy these conditions it is necessary to get into out-of-the-way places. During these situations, use extreme caution. Use a push stick or block to help remove pieces.

Guards are there to prevent injuries and should never be tampered with. It is to everyone's advantage to make sure all guards are placed properly—and it pays to double-check; hands, arms, and lives are saved that way. If you see a piece of equipment without a guard, or any other unsafe condition, report it to your supervisor immediately, whether the equipment is in your work area or elsewhere. When working with machinery, you should also do the following:

- Before turning on the machine, check that guards are in place at:
  - Exposed points of operation
  - Ingoing nip points
  - Blades
  - Rotating parts including drive components (chains, belts, pulleys, etc.)
  - Any operating points that send off flying chips or sparks
- Never remove or defeat safeguards. Majority of amputations are the result of operators removing or defeating safeguards.
- Never operate a machine that is missing a guard. Never operate a machine that is not equipped with adequate point-of-operation safety guards or safety devices.
- Never leave machines unattended with parts still moving. Never leave a machine that is still on or has been turned off but is still coasting.
- No loose clothing, long hair, or jewelry. Confine or tie back all loose clothing, long hair, and jewelry.
- Never reach around or under a guard. You are defeating the guard's purpose!
- Don't use gloves. They can interfere with a precise grip or get caught in pinch points or the point of operation.
- Check machines before use. If anything seems to be missing or not working properly, report it.
- Lock out the machine if a guard or safety device needs to be removed.

### **Abrasive Grinding Wheels:**

A common piece of equipment that's used throughout many facilities in general industry is the abrasive grinding wheel. When it comes to properly guarding abrasive grinding wheels, the guarding must meet the following minimum general requirements:

- Resting Guard
  - Set at an 1/8 inch from the wheel
- Tongue Guard
  - Set at a 1/4 inch from the wheel
- Adjustable shields do not replace or substitute for a mandatory tongue guard

### **Lockout/Tagout**

When a machine requires maintenance or repair, energy (pneumatic, hydraulic, electrical, or mechanical) must be turned off and locked and tagged with a label to protect workers from accidental machine start-up or unexpected energy release. Lockout and tagout procedures are used to warn employees and ensure that the electrical power is properly disconnected. Only qualified, authorized employees can disconnect the source of power and lock and tag it. There are two types of employees when you are talking about lockout/tagout:

- Authorized – is that employee who can physically lockout a piece of equipment (usually a set-up person or a maintenance person). Unless you have been trained in proper lockout procedures you are not authorized to lockout equipment.

- Affected – is the employee that is affected by the equipment being lockout (machine operator).

Locks and tags are used for everyone’s protection against electrical dangers. **For your safety and others, never remove or ignore a lock or tag.**

**Responsibilities of Being Lockout/Tagout Affected:**

If you operate or use machinery or equipment on which servicing, or maintenance is being performed under Lockout/Tagout, or you work in an area in which such servicing or maintenance is being performed, your job qualifies you as “affected”. As an “affected employee”, it’s your primary responsibility to report any machinery or equipment issues and leave the machinery/equipment alone while it’s being serviced or repaired. Some of your main responsibilities include:

- Notifying maintenance of issues
- Leaving locks, tags, and equipment alone

**Lockout Affected:**

As an “affected employee”, you also understand how to respond:

- Stay clear of the area and wait for further commands
  - If possible, vacate the area entirely
- Talk with management about what to do while your machine is under lockout tagout
- Do not touch locks, tags, or place any other lock on machinery
  - Do not assist lockout tagout authorized employees with any part of the lockout tagout process
- If you are not trained, you are not allowed to be involved

**Lockout Authorized Procedures:**

To safely apply energy control (Lockout/Tagout) procedures to machinery or equipment (using Lockout/Tagout devices), “authorized employees” must perform certain procedures, in a specific order, before servicing or performing maintenance on the machinery/equipment. These procedures are:

1. Notification of employees: “Affected employees” should be notified of the planned lockout or tagout before controls are applied.
2. Preparation for shutdown: Before an “authorized” or “affected employee” turns off a machine or equipment, the “authorized employee” must have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy.
3. Machine or equipment shutdown: The machine or equipment must be turned off or shut down using the procedures established for it to avoid any additional or increased hazards to employees as a result of the machine or equipment stoppage.
4. Machine or equipment isolation: All energy-isolating devices that are needed to control the machine's energy source must be located. These devices must then be used to isolate the machine or equipment from its energy source.
5. Lockout or tagout device application: Lockout or tagout devices must be affixed to each energy-isolating device by “authorized employees”. Lockout devices where used, must be affixed in a manner that will hold the energy isolating devices in a "safe" or "off" position. Where tagout devices are used, it must be affixed in a manner that will clearly indicate that the operation or movement of energy isolating devices from the "safe" or "off" position is prohibited.
6. Stored energy: After the energy-isolating device has been locked out or tagged out, all potentially hazardous stored or residual energy must be relieved, disconnected, restrained, or otherwise rendered safe.
7. Verification of isolation: Before any work begins on machines or equipment that have been locked out or tagged out, an “authorized employee” must verify that the machine or equipment has been properly isolated and deenergized.
8. Release from Lockout/Tagout

**Bloodborne Pathogens:**

When most people think about bloodborne pathogens, the HIV virus that causes AIDS, immediately comes to mind. What they don't realize is that the hepatitis B and C viruses, causing deadly diseases of the liver, are transmitted much more

easily.

A pathogen is a specific cause of disease, such as a virus or bacteria, and "bloodborne" means it is carried by or in blood. Remember to use the proper PPE when dealing with bloodborne pathogens.

#### **HIV and Aids:**

- HIV can lead to Aids
- HIV attacks and depletes the human immune system
  - Attacks white blood cells
- Early HIV symptoms resemble the flu virus
- HIV antibody test is the only way to know for sure
- HIV does not survive outside the body
  - When bodily fluid is dried, the risk of transmission is virtually zero
- No known cure

#### **Hepatitis B Virus (HBV):**

- 1.4 million people infected
  - Roughly 100,000 infected each year in U.S.
- Can lead to chronic liver disease, cancer, and death
- Symptoms include
  - Fatigue and abdominal pain
  - No appetite, nausea, and vomiting
- Vaccine is available
  - Last roughly 20 years
- HBV can survive outside the body
  - Can survive for at least 1 week in dried blood

#### **Hepatitis C Virus (HCV):**

- Most common Bloodborne infection
  - 3.2 million infections
- Can lead to chronic liver disease, cancer, and death
- Symptoms can take years to manifest
  - Flu-like symptoms, dark urine, and fatigue
  - Loss of appetite, nausea/vomiting, and abdominal pain
- Treatment is marginally effective

#### **Routes of Exposure:**

- Contaminated sharp objects or needles
- Broken skin, including rashes
- Mucous membranes
  - Eyes, mouth, and nose

#### **Take Universal Precautions:**

- Treat all blood and bodily fluids as if infected
- Use barrier protection to avoid contact with infected bodily fluids
- Immediately clean up and decontaminate surfaces and equipment
- Wear proper PPE
  - Gloves, mask, eye protection, protective clothing

#### **Biohazard Disposal:**

- Do not dispose contaminated items into trash or dumpsters
- All items containing bodily fluid should be disposed in bio-bag
  - Contaminated sharp objects
  - Bandages
  - Clothes
  - Clothes/Paper towels
- Take Biohazard bag to facility that will dispose of it
  - Hospital
  - Clinic
  - Fire stations

- Outside agency

#### **Decontamination:**

- Remove glass or other sharp materials
- Do not use your hands
- Wear appropriate gloves, glasses, and masks to protect your eyes, nose, and mouth
- Use paper/absorbent towels to soak up the residual liquids
- Disinfect all surfaces, and allow time to dry before using again
- Use a ratio of 1:10 bleach to water to disinfect

#### **Facts:**

If you are exposed to HIV you have a 1 in 300 chance of contacting that virus

If you are exposed to Hepatitis C you have a 1 in 50 chance of contacting that virus

If you are exposed to Hepatitis B you have a 1 in 3 chance of contacting that virus

#### **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:

<u>Physical Hazards</u>	<u>Health Hazards</u>
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 sought. 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:

<u>Short-Term "Acute"</u>	<u>Long-Term "Chronic"</u>
- 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 safely 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

#### **Compressed Gases:**

Compressed gases can be very useful in both industry and at home; however, they can also be very dangerous. In this session we will learn how to safely handle, transport, and store compressed gases. Following these easy procedures can help keep yourself and your coworkers safe in the work environment.

#### **What are compressed gases?**

- There are an endless variety of compressed gases available, such as: oxygen, argon, nitrogen, helium, acetylene, hydrogen, nitrous oxide, carbon dioxide, ammonia, chlorine. Compressed gas cylinders might contain only one type of compressed gas or special blend with multiple types of gases.
- Compressed gases can be used in bulk forms (i.e., large storage tanks) or brought on-site in portable cylinders.
- Industry uses compressed gases in many ways, including welding, cutting, operating tools (i.e., shop air), transferring liquids, blowing agents, and laboratories.

#### **Risks of working with compressed gases:**

If cylinders are not handled properly, they can become very dangerous to work environments, such as:

- A valve is knocked off a cylinder causing it to shoot across the facility like a rocket
- A leaky cylinder can cause harm, such as struggling to breathe, to employees
- Improperly handled cylinders can spark a fire or even explosion

- Be unaware of the risks working with compressed gas can lead to burning yourself or other around you

### **Handling Cylinders:**

- Whenever moving a cylinder, always make sure the valve is closed and the cap is on. This means that the cylinder must be detached from any equipment, and the regulator must be removed.
- Do not walk a cylinder (i.e., rock it back and forth or roll it along the bottom edge) while holding onto the valve cap. The cap could come loose, causing you to drop the cylinder, and the exposed valve could be knocked off. Now your cylinder has been converted into a rocket.
- Never roll a cylinder on its side. Not only could this damage the cylinder, it also exposes the valve and cap to the hazard of striking a solid object while the cylinder is rolling.
- Use a hand truck that has a proper securing system such as a chain.

### **Storing Cylinders:**




- The cylinder storage area must be dry, well ventilated, and protected from weather such as rain, snow, and direct sunlight.
- Keep combustibles (i.e., wood, paper, cardboard) away from the storage area. Remove any heat sources such as machinery or welding practices. Do not allow a cylinder to become part of an electrical current.
- Do not store cylinders in elevators, staircases, hallways, etc., where people are often traveling. This will increase the risk of knocking over a cylinder.
- Oxygen needs to be stored away from fuel, because if ignited, the oxygen will make the fire spread quickly. Oxygen cylinders must be 20 feet away from fuel sources or separated by a 5-foot-tall, 1/2-hour fire wall.
- Store cylinders in an upright position.
- Secure cylinders with straps, chains, cords or other ways to prevent them from tipping or falling over.
- Make sure cylinders are stored with the valve cap on.
- Sparks, open flames, and smoking are not allowed near cylinder storage areas.
- Cylinder storage areas have various sign requirements depending on the type of gas being stored. Most storage areas will have “No Smoking” signs along with general “Danger,” “Caution,” or “Warning” signs

### **Using Cylinders:**

- When using a cylinder, keep it upright and secure to prevent it from being knocked over.
- Always keep flames, sparks, and electricity away from cylinders. When welding nearby, protect the cylinders with heat-resistant blankets or tarps.
- Do not work with cylinders when your hands or gloves are greasy, oily, or contaminated with flammable substances.
- Open the valves by hand only. If the valve requires a tool, do not use the cylinder. You may accidentally put too much stress on the valve and cause it to break off.
- Open the valve slowly with your hand to the side, not above, the valve. Opening the valve quickly might put undue pressure on the regulator or other systems. Serious injury could occur if the valve were to fail when your hand is above it. Turn the valve with your hand to the side, because the valve handle could become a projectile if the valve were to fail.
- Never tamper with cylinder safety devices. You are putting yourself and others in danger.

### **General Cylinder Safety**

- Only accept and use DOT-approved cylinders.
- Never drop a cylinder.
- Protect cylinders from cuts or abrasions that might be caused by banging into equipment or machinery.
- Never use a cylinder for any purpose other than its intended function of containing a compressed gas. Do not use the cylinder as a roller or some sort of support, such as a sawhorse.
- Never tamper with a cylinder’s safety valves.
- Keep the valve stem caps on when cylinders are not in use

Health Hazards:	
Physical Hazards:	
Environmental Hazards:	

### **Combustible Dust**

Any combustible material can burn rapidly when in a finely divided form. If such a dust is suspended in air in the right concentration, under certain conditions, it can become explosible. Even materials that do not burn in larger pieces (such as aluminum or iron), given the proper conditions, can be explosible in dust form.

The force from such an explosion can cause employee deaths, injuries, and destruction of entire buildings. For example, 3 workers were killed in a 2010 titanium dust explosion in West Virginia, and 14 workers were killed in a 2008 sugar dust explosion in Georgia. The U.S. Chemical Safety and Hazard Investigation Board (CSB) identified 281 combustible dust incidents between 1980 and 2005 that led to the deaths of 119 workers, injured 718, and extensively damaged numerous industrial facilities. (OSHA, osha.gov)

### **What Dusts are Combustible?**

As mentioned above, any combustible material can burn rapidly when in a finely divided form. For example:

- Some metal dusts
- Cosmetics
- Dyes
- Grain and other foods
- Wood dust
- Coal and other carbon dusts
- Plastic dust
- Biosolids
- Organic dust such as sugar, paper, soap, and dried blood
- Certain textile materials

### **Combustible Dust Fires:**

For a combustible dust explosion, it requires the presence of all these factors:

- Confinement
- Dispersion
- Fuel (dust)
- Oxidant
- Ignition Source

### **Dust Control:**

- Design of facility and process equipment
- Contain combustible dust
- Clean fugitive dust
  - Regular program
  - Access to hidden areas
  - Safe cleaning methods
  - No blow down, unless all electrical power and processes have been shutdown
- Maintenance

### **Dust Control – 1/32” Accumulation:**

- Clean immediately whenever a dust layer of 1/32-inch thickness accumulates:
  - Over a surface area of at least 5% of the floor area of the facility or any given room
  - NOT to exceed 1,000 square feet

### **Dock and Warehouse Safety**

Warehouses and loading docks can be dangerous places for employees and equipment. In these areas, being aware of your surroundings and keeping up with the area will help prevent and remove hazards by keeping the work area in good condition continually, not on an occasion when there is nothing to do.

#### **Why It's Important:**

- 1/4<sup>th</sup> of warehouse injuries happen at the loading dock
- Injuries range from minor cuts and bruises to death
- Many of these injuries could have been prevented

#### **What You Can Do:**

- Be alert of your surroundings
  - Workers, material, and machinery
- Practice good housekeeping
  - Walking and working surfaces
- Inspect dock plates and chock blocks and how they're stored
  - Used, absent, or damaged

#### **Racking:**

- Make sure items are not stored on broken pallets.
- Items are stored as deep as possible on a rack or shelving.
- Be aware of items stacked behind the pallet you are reaching for.
- Make note and report damaged or incomplete racking.
- If pallets or material are improperly stored/leaning, tell a supervisor so a plan can be made to safely correct the issue.

### **NEVER CLIMB SHELVING OR RACKING!!**

#### **Racking - Rising OSHA Trend:**

- OSHA sites ANSI standards in most racking system citations.
- Racking needs to have its weight capacity posted.
- Unknown, handmade, or retrofitted racking needs to be assessed by an engineer to identify its capacity.

#### **Dock Area:**

- Dock plates need to be stored securely.
- Keep dock areas clean, dry, and free of obstructions.
- Dock doors left open with a height greater than 48" must have a safety chain or net secured across.
- Safety chains and nets should be secured at a height roughly 42" high.
- Be aware of cargo that may have shifted during transit when opening the trailer doors.

#### **Working Around Forklifts: Pedestrians' Responsibility:**

- Check overhead mirrors and look both ways.
- Never cross in front or behind a manned vehicle.
- Be aware of the rear end swing, and never walk too close to the lift truck.
- Never cross under raised forks.
- Walk single file in aisles that a forklift is present.
- Be aware of distracted forklift drivers.
- Be aware of forklift drivers as they sound their horn.
- Take caution of the forklift forks, possibility of tripping.
- Take caution if there are leaked fluids.

### **Hoist Safety**

- Always inspect the hoist before each use
- Hoist should move freely
- Chains should be lubricated
- Check for-
  - Worn or elongated chains
  - Frayed rope/wires
  - Dirty controls
- Never let anyone stand under a raised load on a hoist
- Always check that the safety latch on the hook is in good condition
- Make sure the load is properly balanced
- Never raise a load sideways and allow it to swing to center
- Never leave a load suspended
- Never leave the hoist and carriage lowered when not in use
  - Someone could trip over it

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