Safety Training Handout

SafetyInfo Interactive

Safety Training Courses

Material Safety Data Sheets *Safety Training Handout*

Section 1: Chemical Product & Company Information - provides the chemical name on the label to the MSDS. Also listed is the name, address and the phone number of the company, manufacturer or distributor who provides the chemical.

Section 2: Composition & Ingredients - identifies all hazardous ingredients, OSHA permissible exposure limits (PEL) & ACGIH (American Conference of Governmental Industrial Hygienists) Threshold Limit Values (TLVs).

Section 3: Hazard Identification - information about the health effects of exposure. Description of the material appearance, potential symptoms & health effects, routes of entry & target organs.

Section 4: First Aid - Provides first aid procedures for each route of entry.

Section 5: Fire-Fighting - information on the explosive & fire properties, extinguishing agents and items and general fire-fighting information.

Section 6: Accidental Release - information on material spill response, containment and required spill response PPE.

Section 7: Handling and Storage - information about chemical storage & handling and measures to prevent over-exposure.

Section 8: Exposure Controls & Personal Protection - engineering controls & personal protective equipment to reduce chemical exposure.

Section 9: Physical & Chemical Properties - this section tells about the physical and chemical properties of the chemical. Characteristics include appearance, odor, physical state, pH, vapor pressure, vapor density, boiling point, freezing/melting point, solubility in water and specific gravity or density.

Section 10: Stability & Reactivity - all potentially hazardous chemical reactions are identified in this section. Includes information on chemical stability, conditions to avoid, incompatibility, hazardous decomposition and hazardous polymerization.

Section 11: Toxicological Information - provides information such as acute data, carcinogen potential, reproductive effects, target organ effects, and other physiological aspects.

Section 12: Ecological Information - information concerning the environmental impact if a chemical is released into the environment.

Section 13: Disposal Considerations - information concerning proper chemical disposal, recycling and reclamation.

Section 14: Transport Information - shipping information includes the hazardous materials description, hazard class and the identification number (UN or NA numbers).

Section 15: Regulatory Information - provides information about applicable federal regulations. Examples include OSHA, TSCA (Toxic Substance Control Act), CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act), SARA Title III (Superfund Amendments and Reauthorization Act).

Section 16: Additional Information - provides other information about the chemical such as hazard ratings, preparation and revisions of the MSDS, and label information.

Fire Extinguishers

Safety Training Handout

Extinguishers are classed by the type fire they can put out. Some extinguishers are **Combination** types that can be used on several different types of fires

Using a Fire Extinguisher

P-A-S-S

Pull the pin

Aim at base of fire

Squeeze the handle

Sweep from side to side

Types of Fires

Class A
Combustible material such as paper and wood

Class B
Fires involving flammable liquids such as gasoline, paint, diesel fuel or solvents

Class C
Fires started in electrical equipment by arching or overheating

Class D
Fires involving combustible metal powders, flakes or shavings

Smart Safety Rules

Stand 6 to 8 feet away from the fire

Use an extinguisher ONLY if you have been trained to use it.

Fire Extinguishers are for small fires in the early stages.

Know where fire extinguishers are located

Never place a pressurized fire extinguisher upright unless you are holding it - if it falls over the nozzle can break off

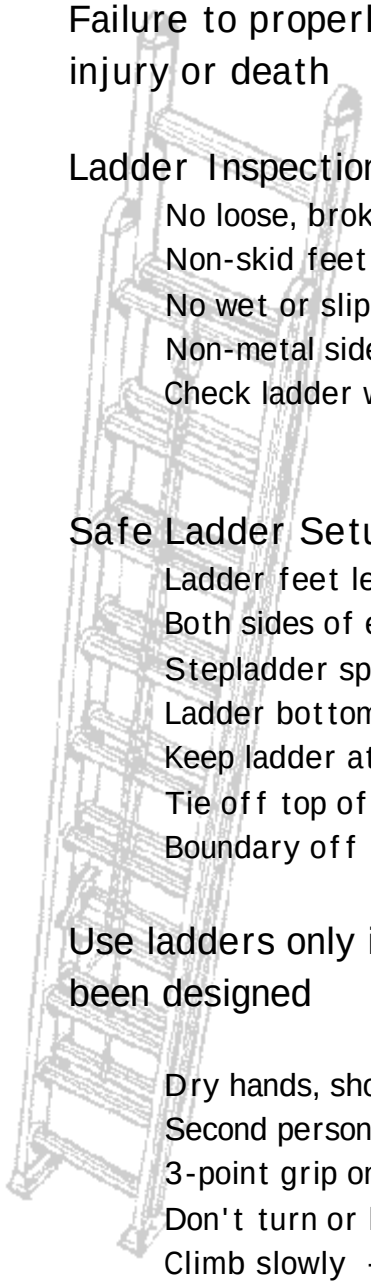
All fire extinguishers should have an inspection tag and a trigger seal and a pin

After use, do not put a fire extinguishers back on its mounting – it must be refilled before being returned to its location

Ladder Safety

Safety Training Handout

Failure to properly inspect, setup or use a ladder can cause serious injury or death



Ladder Inspection Points

- No loose, broken or missing parts
- Non-skid feet
- No wet or slippery treads or rungs
- Non-metal side-rails when working around electricity
- Check ladder weight rating

Safe Ladder Setup

- Ladder feet level & on solid surface
- Both sides of extension ladders against wall or other support
- Stepladder spread fully & locked into position
- Ladder bottom at 75 degree angle or 1/4 of ladder height from wall
- Keep ladder at least 10 feet away from power lines
- Tie off top of extension ladders
- Boundary off traffic areas & doors

Use ladders only in the manner and purpose for which they have been designed

- Dry hands, shoes and ladder rung/steps
- Second person to hold the bottom of the ladder
- 3-point grip on the ladder at all times
- Don't turn or lean away from the front of the ladder
- Climb slowly - keep your weight centered between side rails
- Stand below top two rungs of a stepladder
- Stand below top four rungs of an extension ladder
- Don’t carry tools or other items in your hands
- Don’t carry heavy or bulky items up or down a ladder
- Keep 10 feet away from all power lines

Lockout - Tagout

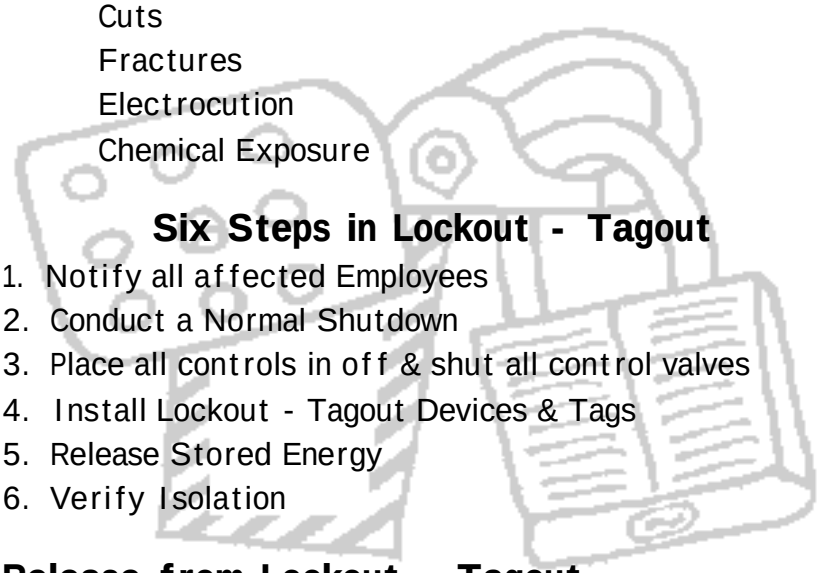
Safety Training Handout

Control of Hazardous Energy

Use Lockout Tagout to control Hazardous Energy before equipment maintenance or adjustment

Hazards of not using Lockout Tagout

Amputation
Burns
Cuts
Fractures
Electrocution
Chemical Exposure



Six Steps in Lockout - Tagout

1. Notify all affected Employees
2. Conduct a Normal Shutdown
3. Place all controls in off & shut all control valves
4. Install Lockout - Tagout Devices & Tags
5. Release Stored Energy
6. Verify Isolation

Release from Lockout - Tagout

Inspect Work Area - check for parts, tools, missing guards. Check to ensure the equipment is ready to operate

Keep Other Safe - make sure everyone is clear of the equipment before starting. Make sure they know the machine is going to be started

Remove Locks & Tags - each lockout - tagout device must be removed from each energy isolating device by the person who applied the device

Rule # 1: Know the Equipment
Rule #2: Know the Energy Sources
Rule #3: Use Lockout Tagout EVERY time

Types of Hazardous Energy

- Electrical
- Thermal
- Gravitational
- Chemical
- Stored
- Motion
- Hydraulic
- Pneumatic

Types of Lockout Devices

- Breaker Clips
- Plug Buckets
- Blank Flanges
- Threaded Pipe Caps
- Threaded Pipe Plugs
- Expansion Plugs
- Pancake Flanges
- Handwheel Caps
- Lever Locks

Venting & Draining Systems

- Vent or drain to a safety container
- Use eye protection when venting or draining
- Use chemical safety precautions

Head Protection

Safety Training Handout

Head hazards include…

- falling objects
- impact against fixed objects, such as pipes or beams
- exposed electrical conductors

Head Hazard Controls include…

Hard Hat Area Warning Signs
Toe boards on elevated areas
Avoiding work directly underneath others
Use of tool lanyards when working above someone

Types of Hard Hats

Type I - protection from impact to the top of the head

Type II - protection from top and side impact

Electrical Classifications

Class G - reduce the force of impact of falling objects - tested to 2200 volts

Class E - reduce the force of impact of falling objects - tested to 20, 000 volts

Class C - reduce the force of impact of falling objects - no electrical protection

Smart Safety Rules

For work at higher elevations, a chin strap is required to prevent your hard hat from being bumped off your head

Secure tools when not using them

Never walk or work under a suspended load

Watch for low overhead clearance hazards

Replace your hard hat if you see signs of:

- Loss of surface gloss
- Chalking
- Flaking
- Cracks
- Holes
- Dents

Replace suspension webbing if

- Cracked
- Torn
- Frayed
- Less than 1 inch between webbing & shell

Eye Protection

Safety Training Handout

Eye Hazards include

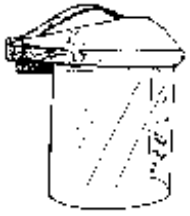
- Chemicals
- Dust
- Flying Chips
- Bright Light
- High Heat

Use the correct eye protection

- when using chemicals
- for all splash hazards
- when using hand or power tools
- for welding, or brazing
- when working above your head

Safety Glasses - impact-resistant lenses with side shields - least amount of protection

Goggles - protect from impact, dust, and splashes. Use indirect vented or non-vented type for splash hazards



Face Shields - not for eye protection. Use for face protection with chemicals or when grinding or chipping. Other eye protection is required

Welding Shields - fitted with filtered lenses. Protect face & eyes from burns when welding, brazing, soldering, and cutting

Smart Safety Rules

Any eye protective equipment should fit properly, have no cracks or breaks and be clean.

Use Splash-proof goggles **and** face shield with chemicals

Never look at welding operations without with out proper protection

Use goggle in high dust areas

Protect your eyes from direct high heat

Don't use tinted safety glasses indoors

Select to highest tint possible for high intensity light from lazars, welding & brazing

Follow all Safety Signs

Hearing Conservation

Safety Training Handout

Protect your hearing… you can never regain any hearing loss! Hearing loss not only prevents you from understanding others, it also causes physical & mental strain.

Hearing loss is a normal part of getting older. Not all hearing loss is from exposure to loud noise. You can expect to loose about one-half of your hearing by the time you reach sixty-five years of age.

Any high noise level can damage your hearing permanently. Examples of high noise sources include:

- Machinery
- Power Tools
- Firearms
- Loud Music
- Powered Lawn Equipment

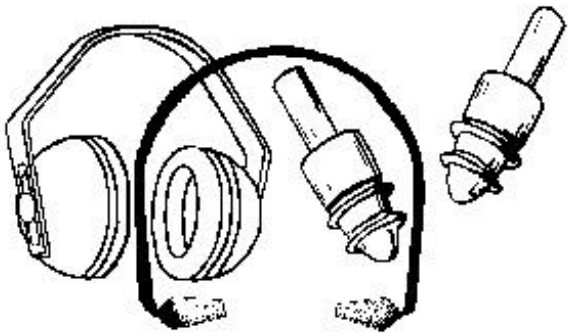
The effect of high noise levels depends on

- noise level **and**
- amount of time you are exposed

2 Basic Types of Hearing Protection

- Ear Plugs – inserted into the ear cavity to dampen loud noises

- Ear Muffs – cover the entire ear. They must provide a complete seal to be effective.



Smart Safety Rules

Use hearing protection in areas greater than 85 decibels noise

Use hearing protection with power saws, impact tools, etc.

Replace worn or broken hearing protectors immediately

Keep you hearing protection clean

Inspect hearing protectors before each use

Ask you supervisor if you need replacements

If hearing protection is uncomfortable, perhaps a different style will work better for you … ask your supervisor.

Use hearing protection off the job when shooting, using power tools, lawn equipment, etc.

To be effective, any hearing protection must be

- properly fitted
- used when needed
- free of damage
- clean

Hand Protection

Safety Training Handout

Hand hazards include…

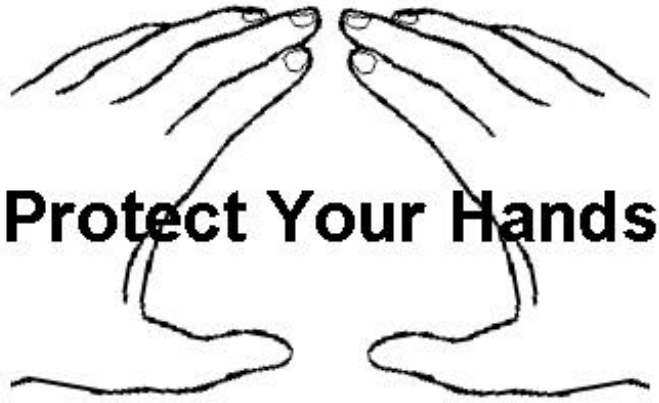
- Chemicals
- Electricity
- Machines & Equipment
- Extreme Heat or Cold
- Sharp Tools
- Vibration
- Friction
- Dampness

Hazard controls include…

- Machine Guards
- Gloves
- Chemical
- Controls
- Training
- Lockout Tagout

If you use any chemicals, wash your hands

- after using chemicals
- even if you used gloves
- if hands come in contact with chemicals
- before eating or smoking



Smart Safety Rules

Don't remove machine guards

Check gloves before each use

Never use damaged tools or equipment

Select the correct glove for the specific hazard

Don't put hands in equipment danger zones

Lock & Tag before un-jamming equipment

Wash hands after using chemicals

Get immediate first aid for all cuts & bruises

Before you put you hands where you can't see them… check for hidden hazards with an inspection mirror

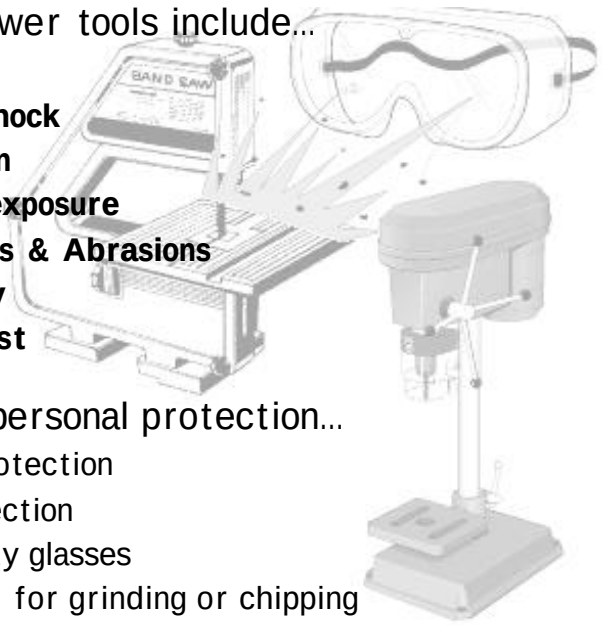
Use anti-vibration gloves for any tool that vibrates or shakes

Power Tool Safety

Safety Training Handout

Hazards of power tools include…

- **Noise**
- **Electric Shock**
- **Amputation**
- **Chemical exposure**
- **Lacerations & Abrasions**
- **Eye Injury**
- **Dust & Mist**



Use the right personal protection…

- ❑ Hearing Protection
- ❑ Hand Protection
- ❑ Clean safety glasses
- ❑ Face shield for grinding or chipping
- ❑ Respirator for dust & mists
- ❑ Foot protection for heavy work
- ❑ Anti-vibration gloves for tools that vibrate

Tool Safety Check… before you use

Bench & Floor tools securely mounted
Control switch not damaged
No exposed wires
Cords free from work area
Guards in place & adjusted
No Cracks or Breaks
Grinding wheels speed rating
No exposed wires
Cords free from work area
Guards in place & adjusted
No Cracks or Breaks
Grinding wheels speed rating
Grinder tool rest gap 1/8 inch
Ring test new grinder stones
Unplug before changing cutting tools
Power tools grounded or double insulated
Check electric cords for damage
Ensure bits and blades are sharp
Check hose connections for pneumatic tools

Operation Safety

- o Don't over-reach
- o Keep others clear
- o Pass tools handle first
- o Don't use damaged tools
- o Avoid awkward positions
- o Use tool rest - no free hand operations
- o Stand to side of equipment when starting
- o Cover all unused sharp blades & tools bits
- o Dress wheels & sharpen cutters as needed
- o Keep cords away from heat, oil, & sharp edges
- o Keep hair, sleeves and jewelry out of work area
- o Unplug before adjusting or changing accessories

Work Area Safety

- ❑ Well lighted
- ❑ Not in traffic area
- ❑ No slip or trip hazards
- ❑ No standing water
- ❑ Keep tools off the floor or ground
- ❑ Extension cords above waist level
- ❑ Don't block traffic areas with tools
- ❑ Boundary off work areas
- ❑ Minimize material & debris

Accident Prevention

Safety Training Handout

Accidents are the result of **unsafe acts** or **unsafe conditions**, or both….whatever the reasons, we want to eliminate them to keep you safe… and you can help!

Unsafe conditions are physical hazards such as missing machine guards, exposed electrical circuits, damaged equipment, slippery floors, improper storage of material, lack of supervision, and inadequate training.

Unsafe Acts are the things people do that are obviously just not safe. Some examples are:

- Horseplay
- Not using PPE
- Running
- Using damaged tools
- Not lifting properly
- Violating safety rules

Accidents can result in injury or death to you or another employee. That's why it's important to immediately report any unsafe conditions to your supervisor.

Excuses some people use

That's the way I always do it…
I can take shortcut because I'm experienced…
I was just trying to fix it…
I thought I knew how…
I was in a hurry….
Doing it safely takes too much time…
I didn't know it was loaded…

Accidents are preventable!

Smart Safety Rules

Do it the way you have been trained – follow all specific safety rules

Report all unsafe acts or unsafe conditions immediately

Encourage others to work safely

Check & use the correct Personal Protective Equipment for the specific hazard

Ask for help when you need it

Ask questions when you are not sure

Report any injuries immediately

Lock & Tag all equipment before adjusting or doing maintenance

Inspect ladders before using

Don't use chemicals unless you have been specifically trained on the hazards and protection steps

Don't create trip hazards – keep your work area neat & clean

PRCS Entry Duties

Safety Training Handout

Entry Supervisor Duties

- coordinate all entry procedures, tests, permits, equipment
- know hazards that may be faced during entry
- understand consequences of exposure
- verify entry permit information
- terminate entry & cancel permit when entry completed
- ensure rescue services are available
- remove unauthorized persons who enter or attempt to enter
- ensure entry operations remain consistent with the permit terms
- ensure acceptable entry conditions are maintained

Entry Attendant

For the duration of the entry, at least one attendant is required outside the permit space. Duties of the Attendant include:

- know hazards & consequences of exposure
- maintain count of entrants
- remain outside during entry operations
- communicate with entrants and alert of need to evacuate
- monitor activities inside and outside the space
- summon rescue and other emergency services if required
- perform non-entry rescues
- warn unauthorized persons that they must stay out

Entrant - all entrants must

- be authorized by the entry supervisor
- have received the required training
- use the proper equipment
- observe entry procedures & permit
- know the hazards that may be faced
- know consequences of exposure
- alert attendant to any dangerous situation

PRCS Entry Conditions

Safety Training Handout

Entry permits ensure that all hazards are known, controlled or removed before any person enters including:

-Entry conditions & procedures
-Monitoring procedure & equipment
-Communication procedures & equipment
-Rescue procedures & equipment

Acceptable Entry Conditions must be determined, established & maintained before any entry into a Permit Required Confined Space. Example:

- Confined Space Entry permit posted
- Oxygen 19.5 – 23.5%
- Explosive gas level less than l0% of LEL
- Toxic fumes/vapors less than PEL
- No engulfing material in space
- No hazardous chemicals or material
- Drained, flushed, Material removed
- Rescue Team available on site
- Ventilation established & maintained
- Lock & tag electrical power to components in the confined space
- Lock & tag mechanical components in the confined space
- Lock & tag all pipes to and from the confined space

Training – must be completed and current. Required training includes:

1. Duties of Entry Supervisor, Entrant and Attendants
2. Confined Space Entry permits
3. Hazards of Confined Spaces
4. Use of Air Monitoring Equipment
5. First Aid and CPR Training
6. Emergency Action & Rescue Procedures
7. Confined Space Entry & Rescue Equipment
8. Rescue training, including entry and removal from representative spaces

Confined Spaces

Safety Training Handout

Confined Spaces are
-large enough to allow entry of any body part, and
-limited or restricted entry or exit, and
-not designed for continuous employee occupancy

Permit Required Confined Spaces are confined spaces that have any of the following
-potential hazardous atmosphere
-material inside that may engulf or trap you
-internal design that could trap or asphyxiate you
-*any other serious safety or health hazard*

Entry Permits are required before you enter any "Permit Required Confined Space"

Hazards include

- Fire & Explosion
- Engulfment
- Asphyxiation
- Entrapment
- Slips & Falls
- Electric Shock
- Noise & Vibration
- Chemical Exposure
- Toxic Atmospheres
- Thermal / Chemical Burns

Engineering Controls

- ❑ Ventilation
- ❑ Locked Access
- ❑ Lighting

Administrative Controls

- ❑ Controlled Access
- ❑ Hazard Assessments
- ❑ Entry Permits & Procedures
- ❑ Signs & Lockout Tagout
- ❑ Training

Smart Safety Rules

Know what you are getting into

Know how to get out in an emergency.

Know the hazards & how they are controlled

Only authorized & trained person may enter a Confined Space or act as an attendant.

No smoking in Confined Space or near entrance or exit area

Attendant must be present at all times

Constant visual or voice communication must be maintained between the attendant and entrants

No bottom or side entry will be made or work conducted below the level any hanging material or material which could cause engulfment.

Air and oxygen Monitoring is required before entering a Permit-Required Confined Space

Ventilation & oxygen monitoring is required when welding is performed

All floor or surface openings to Confined Spaces must be protected by a barricade