Welding Meeting Kit

What’s At Stake

Welding is a fabrication process that joins materials, usually metals or thermoplastics, by using high heat to melt the parts together and allowing them to cool, causing fusion. Welding is distinct from lower temperature techniques such as brazing and soldering, which do not melt the base metal (parent metal).

What’s the Danger

WELDING AND CUTTING HAZARDS

Welding safety involves identifying hazards before proceeding with job tasks in order to remove them, reduce safety risks, and maintain a safe work environment. The 4 most common health and safety hazards of welding include:

1. **Exposure to Fumes and Gases.** Overexposure to welding fumes and gases can cause severe health problems like respiratory illnesses, cancer, and impaired speech and movement.
2. **Physical Hazards.** Physical hazards that can cause burns, eye damage, cuts, and crushed toes and fingers are ever-present when welding.
3. **Electric Shock.** Electrocution is the most immediate and serious risk for a welder. The sudden discharge of electricity to the human body can cause serious injury and even death.
4. F**ire and Explosion.** Flammable materials around the working area are the number one cause of a fire. This can be prevented by maintaining a clean working area before proceeding to weld and these other safety controls.

HOW TO PROTECT YOURSELF

SAFETY RECOMMENDATIONS FOR WELDERS

- Always check for fire hazards before starting to weld. Wood, paper and other flammable materials should be removed from the area. Flammable liquids should be removed as well. Never weld or cut in areas with a lot of trees or dry grasses.
- Clean away any debris on the floor or ground before welding over it. Then cover the ground or floor with metal or some other material that will not burn. It may also be a good idea to wet the floor or ground, though this can cause an added shock hazard.
- Seal cracks so that sparks or slag cannot fall through them, and never allow these hot materials to fall into machine pits.
- If welding near combustible materials, a fire extinguisher, pail of water, fire hose or a pail of sand should be at hand. It may be necessary to have a worker stand by with a fire extinguisher to put out sparks as well.
- If welding or cutting a tank or drum containing flammable liquids or gas, do not start your operation until an approved test shows that there is no dangerous vapour present. Do not rely on another employee’s word that the tank or drum was tested previously; insist on a new test before starting work.
- If working in a confined space at the worksite, make sure the work area is properly ventilated. Many welding and cutting operations produce fumes that are harmful in heavy concentrations, and good ventilation is one of the best methods of protecting against this hazard.
- Wear face and eye protection such as goggles and a helmet to protect against hazards. Workers dealing with metal, chipping and cleaning should always have their helmets lowered to prevent throw particles of metal from coming into the eyes. Eye protection, such as goggles, are worn to protect against sparks, slag and molten metal, and flash burns caused by radiation from the welding equipment.
- Welding activities such as air arc gouging and flame cutting can produce hazardous noise of over 100 dB(A). Hazardous noise is damaging to the ear, which can result in hearing impairment. When you have regular exposure to this loud

noise, it can cause hearing loss. Wear protective earbuds that block loud noise.
- Welders are at risk of electrocution from the live electrical circuits that create a pool of molten metal.

To avoid electric shock, welders must:

- Not work in damp conditions
- Not wear wet clothes
- Wear insulated gear when around metal flooring or structures

BEST GENERAL SAFE WORK PRACTICES FOR WELDERS

Basic welding safety guidelines and practices should be practiced by welders which include:

- Welding operators should always wear an approved respirator unless exposure assessments are below applicable exposure limits.
- Inspect welding equipment and electrode holder before proceeding to work.
- Welders should not touch the metal parts of the electrode holder with skin or wet clothing.
- Wear appropriate PPE like welding helmet and goggles to protect workers' eyes and head from hot slag, sparks, intense light, and chemical burns.
- Welding workers should remain in the work area for at least 30 minutes after finishing welding to ensure there are no smoldering fires.

PRECAUTIONS AND TIPS FOR WELDERS

In order to eliminate or reduce the most common welding hazards, welders should practice the following safety precautions and tips accordingly:

- Provide adequate ventilation and local exhaust to keep fumes and gases from the breathing zone and the general area.
- Report concerns to a supervisor so your exposure to substances of the welding fumes can be checked.
- Fire and electricity resistant clothing, hand shields,

welding gloves, aprons, and boots can be worn to protect workers from heat, fires, electrocution, and burns. Take note that flame retardant treatments become less effective with repeated laundering. Pant legs must not have cuffs and must cover the tops of the boots. Cuffs can collect sparks.

- Earmuffs and earplugs can also protect workers against noise.
- Perform lockout and tag out procedures when performing repairs. Only qualified repair technicians should service or repair welding equipment.
- Keep a suitable Class ABC fire extinguisher nearby while welding. Make sure the extinguisher gauge is full. If an extinguisher is not available, be sure to have access to fire hoses, sand buckets, or other equipment that houses a fire.
- If welding within 35 feet of flammable materials, put a piece of sheet metal or fire-resistant blanket over the flammable material and have a fire watcher nearby to keep track of sparks.

FINAL WORD

Welding safety measures are designed to protect workers from hazards present during welding procedures. To minimize health issues and safety injuries at worksites, training sessions and the regular inspection of welding equipment are important.