Welding Safely Meeting Kit

WHAT'S AT STAKE

Welding is the most common method of joining metals in industry today. When welded, two pieces of similar metals are fused together by the use of heat, pressure, or both. Once completed, the welded joint is as strong as or stronger than the pieces from which the joint is formed.

WHAT'S THE DANGER

WELDING SAFETY HAZARDS

1. **Exposure to Fumes and Gases.** Undertaking welding activities will expose you to invisible gaseous fumes, including ozone, nitrogen oxides, chromium and nickel oxides, and carbon monoxide which can easily penetrate into your lungs. Depending on the gas or fume, the concentration, and duration of your exposure, the resultant damage can be severe.

Illnesses caused by welding fumes and gases include:

- Pneumonia.
- Occupational asthma.
- Cancer.
- Metal fume fever.
- Throat and lung irritation

1. **Fires and Explosions.** Fires and explosions are two of the main hazards associated with welding and other hot work activities. Where these are not effectively managed, severe consequences can occur, including serious or fatal injuries and destruction of property.
2. **Electric Shock.** Electric shock is the most serious hazard posed by welding and can result in serious injuries and fatalities. You are also at risk of experiencing a secondary electric shock should you touch part of the welding or electrode circuit at the same time as touching the metal you are welding. You are particularly at risk if you work in electrically hazardous conditions such as:

- In damp conditions.
- While wearing wet clothing.
- On metal flooring or structures.
- In cramped conditions
- Poor Welding Practice without eyewear

1. **Noise Hazards.** When carrying out welding activities, you are likely to be exposed to loud, prolonged noises. A loud noise is considered to be above 85 dB(A), and welding activities such as flame cutting, and air arc gouging can produce noise levels of over 100 dB(A). This can be very damaging to the ears and can result in hearing impairment. Regular or immediate exposure to loud noises can cause permanent noise-induced hearing loss.

Noise-induced hearing loss can have the following side effects:

- Ringing in the ears, known as tinnitus.
- Occasional dizziness, known as vertigo.
- Increased heart rate.
- Increased blood pressure.

1. **Exposure to UV and IR Radiation.** Looking at the intense bloom of UV light produced when welding, without appropriate PPE or welding curtains, can result in a painful and sometimes long-lasting condition called arc-eye. Many factors can affect the severity of a flash burn injury, such as distance, duration, and the angle of penetration.
2. **Burns.** The combination of high-temperature welding arcs, UV rays and molten metal means you are susceptible to severe burns when welding. These burns can affect the skin or eyes and can be very serious.

HOW TO PROTECT YOURSELF

BEST WELDING SAFETY PRACTICES

1. **Study … and Study Some More.** Welders should never assume they know how to use a piece of equipment before they've read and understood the manufacturer's guidelines for safe operation.
2. **Protect Yourself from Fumes and Gases.** Exposure to fumes and gases can be controlled by providing adequate ventilation in the work area. Some employers will provide a fan, an exhaust system or exhaust hoods to remove fumes and gases from the area welders are working in. When necessary, welders should wear a respirator to protect themselves from breathing in harmful substances.
3. **Take Precautions Against Electrocution.** To avoid electrocution, welders must always inspect the electrode holder for damage before starting their weld. They also must ensure their gloves are dry and in good condition, never touch the metal parts of the electrode holder with skin or wet clothing and keep dry insulation between their body and the ground or metal being welded.
4. **Check Your Equipment.** A good welder always checks to ensure their equipment is functioning properly and is fully grounded before using it.
5. **Avoid Clutter.** A cluttered workspace is one of the most common causes of welding fires and explosions. Sparks from the welding arc can fly up to 35 feet in distance, so it's important to keep your workspace clear.
6. **Know Your Environment.** Before starting a weld, take inventory of your environment. Knowing where tools and equipment are located not only increases your efficiency, but it's vital for your safety.
7. **Dress for the Job.** Wearing the proper attire is critical for welders. Any exposed skin is vulnerable to the harmful effects of infrared and ultraviolet rays. Pant cuffs, pockets or any loose items of clothing can catch flying sparks.
8. **Wear the Right PPE.** Selecting the proper PPE is the most important decisions for a welder.

- **Ear protection:** If readings of noise average above 85 dB for eight continuous hours, you are required to use hearing protection at all times.

- **Eye and face protection:** This includes safety glasses, face shields and depending on the project, helmets.
- **Heat and radiation protection:** In order to protect themselves from heat and radiation, welders must wear flame-resistant outerwear, gloves to protect hands and lower parts of the arms, and welding hoods and goggles.
- **Fume protection:** Fume extraction systems and respirators can help to protect welders from exposure to harmful fumes.
- **Electrical shock protection:** Welders must wear insulated clothing to protect themselves from electrocution.
- **Foot protection:** Leather shoes that are spark and heat resistant with coverage above the ankle are best for foot protection. Pant legs should go over the shoes.

1. **Avoid Stress Injuries.** In order to protect yourself, always practice safe lifting techniques. This can help to avoid repetitive stress injuries.
2. **Enforce Safety Procedures.** If you see a safety violation, report it□it□s in the best interest for everyone!
3. **Keep Learning.** As new equipment are new techniques are adopted, it□s important to continuously educate yourself on best practices.

FINAL WORD

Many worksites carry out routine welding operations. It is taken for granted despite the fact there are many hazards associated with welding operations. Welding operations deserve to have the strictest safety protocol to protect workers.