

Welding Safety – Personal Protective Equipment Fact Sheet

Hazard Assessment		
Hazard type	Examples of Hazard	Common Related Tasks
<u>Impact</u>	Flying objects such as large chips, fragments, particles, sand, and dirt.	Chipping, grinding, machining, masonry work, wood working, sawing, drilling, chiseling, powered fastening, riveting, and sanding.
<u>Heat</u>	Anything emitting extreme heat.	Furnace operations, pouring, casting, hot dipping, and welding.
<u>Chemicals</u>	Splash, fumes, vapors, and irritating mists.	Acid and chemical handling, degreasing, plating, and working with blood.
<u>Dust</u>	Harmful Dust.	Woodworking, buffing, and general dusty conditions.
<u>Optical Radiation</u>	Radiant energy, glare, and intense light	Welding, torch-cutting, brazing, soldering, and laser work.
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PPE Protects:

- Eyes and Face
- Head
- Hearing
- Feet
- Hands
- Body

Eye and Face Hazards:

- Flying particles: dust, dirt, metal or wood chips from chipping, grinding, sawing, hammering
- Chemical splashes: corrosive substances, hot liquids, solvents or other hazardous solutions
- Objects swinging into eye or face: chains, tools or ropes
- Light radiation: welding, lasers, other radiant light, heat, glare, sparks, splash and flying particles

Types of Eye and Face PPE which must comply with ANSI Z87.1:

- Safety glasses with side shields
- Goggles
- Face shields



- Welding hoods
- Cutting goggles

Safety Glasses and Goggles:

- Must be worn in the welding lab at all times
- If you wear glasses, you must wear goggles over them, or buy special glasses that meet ANSI Z87.1 standards



Face Shields:

- Extra protection for eyes
- Safety glasses need to be worn under face shields
- Protects the face from grinding sparks, dust, and chemical hazards (NOT impact)



Welding Helmets and Cutting Goggles:

- Must use the proper filter lens
- Arc welding: 10-11
- Oxy fuel cutting: 5
- Plasma cutting: 5-9



Skull Cap or Welding Hat:

- Welders are exposed to flying sparks that can burn your hair and skull
- Skull caps and welding hats will protect your head from sparks



Earplugs and Earmuffs:

- Grinding, machining, and some welding operations can create enough noise to damage hearing



Foot Hazards:

- Falling or rolling objects
- Sharp objects/objects piercing the sole
- Exposure to electrical hazards
- Molten metal or sparks splashing on feet
- Hot surfaces
- Slippery or wet surfaces

Shoe Precautions:

- NEVER wear open toe shoes while welding because molten metal sparks and arc rays can burn exposed skin
- Tennis shoes or open toed shoe styles are NOT recommended while welding because molten metal can easily burn through the top of the shoe and burn the foot



Safety Shoes for Welding:

- Steel toe leather safety shoes
- Steel toe safety shoes with metatarsal guards
- Safety shoes that are nonconductive with heat resistant soles



Hand Hazards:

- Cuts or lacerations
- Abrasions
- Punctures
- Thermal burns
- Harmful temperature extremes
- Potentially injurious light radiation (arc rays)

Welding Gloves:

- Leather gauntlet style, flame retardant welding gloves are ideal for welding
- Be sure to keep welding gloves dry; wet gloves can cause electrical shock or steam burn while welding



Body Hazards:

- Temperature extremes
- Potentially injurious light radiation (arc rays)
- Hot splashes from molten metals
- Impacts from tools, machinery and materials
- Hazardous chemicals
- Contact with potentially infectious materials, like blood

Types of PPE for the Body:

- Clothing made of wool
- Clothing made of 100% cotton
- Clothing that has a tag identifying it as flame retardant
- Leather welding jackets
- Flame retardant welding jackets
- Leather welding aprons
- Welding sleeves
- Heavy 100% cotton denim jeans
- Leather chaps
- 100% cotton socks
- Flame retardant 100% cotton bibs or overalls



Clothing Precautions:

- No cuffs in clothing
 - Molten metal will fall into cuffs and catch fire
 - Pant legs need to extend over the top of safety shoes
- Never weld in clothes with holes or frayed material
 - Frayed material catches fire quickly
- No pockets in the front of shirts
 - Molten metal will fall into front pockets and catch fire
- Always check the tags of your clothes:
- No clothing made of synthetic (man-made) fibers, or synthetic blends
 - Synthetic material is any material other than wool or cotton
 - Synthetic material will melt when making contact with molten metal, and can melt to the skin, causing serious burns
- Clothing should be free from grease, oil, or other combustible chemicals or materials
- Reduce exposure to oxygen
 - Exposure to oxygen can saturate clothing with oxygen, making the clothing combustible

Skin Precautions:

- Make sure all skin is covered by flame- retardant treated material, leather, wool or 100% cotton
- Any exposed skin will be burned by arc rays

Other Precautions:

- Certain products, such as flammable hairsprays, should be avoided
- Never weld under the influence of substances (drugs, alcohol, certain medications, etc.) which may make you drowsy or interfere with your coordination and reaction time

