As in most trades, welders are exposed to certain hazards. Hazards exist with all arc welding processes. Welding is safe when safe practices are followed.

This information is a brief outline of precautionary measures that will help avoid the hazards of arc welding. Read and understand the manufacturer’s instructions and your employer’s safe practices. Your Safety Director or Supervisor should be consulted when specific questions arise.

**WARNING:**
PROTECT YOURSELF AND OTHERS.
READ AND UNDERSTAND THIS BOOKLET.

FUMES AND GASES can be dangerous to your health.

ARC RAYS can injure eyes and burn skin.

ELECTRIC SHOCK can kill.

**DO NOT TOUCH LIVE ELECTRICAL PARTS**
electric shock can kill

» **BE SURE** you are insulated from live electrical parts.
» **BE SURE** equipment is adequate for the job.
» **BE SURE** equipment is installed according to prevailing codes.
» **BE SURE** damaged parts are repaired or replaced.
» **BE SURE** welding machine is properly grounded.
» **BE SURE** gloves have no holes.
» **BE SURE** to stay dry; do not weld when you are wet.
» **BE SURE** equipment is turned OFF when not in use.
» **DO NOT** use cables that are too small, damaged, or poorly spliced.
» **DO NOT** wrap cables around your body.

**FUMES AND GASES**
can kill, injure or blind

» **PROTECT** welder's eyes with correct protective eyewear.
» **PROTECT** welder's face and body with your choice of protective clothing, welding helmet, hand, foot, and body protection.

**ARC RAYS**
can injure eyes and burn skin.

» **BE SURE** that your eyes are protected by an approved face shield with proper shade number (See ANSI Z87.1).

**ELECTRIC SHOCK**
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» **DO NOT** weld or cut painted or plated parts unless special precautions with ventilation have been taken. They can release highly toxic fumes or gases.

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FUMES AND GASES Can Be Dangerous
5. A welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. When welding, keep your head out of the fume. Use enough ventilation and/or exhaust at the arc to keep fumes and gases away from the breathing zone. When welding, use a high level of ventilation or exhaust at the work area to keep fumes and gases away. Special ventilation equipment may be required. Additional precautions are also required when welding on galvanized steel.
6. Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations. The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.
7. Shielding gases used for arc welding can displace air and cause injury or death. Always use enough ventilation, especially in confined areas, to insure breathing air is safe.
8. Read and understand the manufacturer's instructions for this equipment and the consumables to be used, including the safety data sheet (SDS) and follow your employer's fire safety practices. SDS forms are available from your welding distributor or from the manufacturer.
9. See item 1b.

WELDING SPARKS Can Cause Fire or Explosion
6. Remove fire hazards from the welding area. If it is not possible, cover them to prevent the welding sparks from starting a fire. Remember that welding sparks and hot materials from welding can easily go through small crannies and openings to adjacent areas. Avoid welding near hydraulic lines. Have a fire extinguisher readily available.
7. Where compressed gases are to be used at the job site, special precautions should be used to prevent hazardous situations. Refer to “Safety in Welding and Cutting” (ANSI Standard Z49.1) and the operating information for the equipment being used.
8. When not welding, make certain no part of the electrode circuit is touching the work or ground. Accidental contact can cause overheating and create a fire hazard.
9. Do not heat, cut or weld tanks, drums or containers until the steps have been taken to ensure that such procedures will not cause flammable or toxic vapors from substances inside. They can cause an explosion even though they have been "vented." For information purchase "Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping That Have Held Hazardous Substances," ANSI F4.1 from the American Welding Society (see address above).
10. Vent, blowout openings or add the necessary ventilation.

CYLINDER MAY explode if damaged.
7. A use only compressed gas cylinders containing the correct shielding gas for the process used and properly operating regulators designed for the gas and pressure used. All hoses, fittings, etc. should be suitable for the application and maintained in good condition.
8. Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.
9. Cylinders should be located:
   - Away from areas where they may be struck or subjected to physical damage.
   - A safe distance from arc welding or cutting operations and any other source of heat, sparks, or flame.
10. Never allow the electrode, electrode holder or any other "electrode hot" part to touch a cylinder.
11. Keep your head and face away from the cylinder valve when opening the cylinder valve.
12. Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.

FOR ELECTRICALLY Powered Equipment
8. Turn-off input power using the disconnect switch at the fuse box/circuit breaker box before working on the equipment.
9. Install equipment in accordance with the U.S. National Electrical Code, all local codes and the manufacturer's recommendations.
10. Ground the equipment in accordance with the U.S. National Electrical Code and the manufacturer's recommendations.