

SAFE WORK PRACTICES

PLASMA ARC CUTTING & WELDING *Page 1 of 2*

**This information does not take precedence over OH&S. All employees should be familiar with the Saskatchewan Employment Act and the OH&S Regulations.*

General: Read and follow all instruction in the Operating Manual.

1. **Gases and Fumes:** Gases and fumes produced during the plasma cutting process can be dangerous and hazardous to your health.

- Keep all fumes and gases from the breathing area. Keep your head out of the welding plume.
- Use an air supplied respirator if ventilation is not adequate to remove all fumes and gases.
- The kinds of fumes and gases from the plasma arc depend on the kind of metal being used, coatings on the metal and the different processes. You must be very careful when cutting or welding any metals which may contain one or more of the following:

Antimony	Chromium	Mercury
Arsenic	Cobalt	Nickel
Barium	Copper	Selenium
Beryllium	Lead	Silver
Cadmium	Manganese	Vanadium

- Always read the MSDS that should be supplied with the material you are using. These MSDS's will give you the information regarding the kind and amount of fumes and gases that may be dangerous to your health.
- Use special equipment, such as water or down draft cutting tables, to capture fumes and gases.
- Do not use the plasma torch in an area where combustible or explosive gases or materials are located.
- Phosgene, a toxic gas, is generated from the vapors of chlorinated solvents and cleansers. Remove all sources of these vapors.

2. **Electric Shock:** Electric shock can injure or kill. The plasma arc process uses and produces high voltage electrical energy. This electric energy can cause severe or fatal shock to the operator or others in the workplace.

- Never touch any parts that are electrically "live" or "hot".
- Wear dry gloves and clothing. Insulate yourself from the work piece or other parts of the welding circuit.
- Repair or replace all worn or damaged parts.

SAFE WORK PRACTICES

PLASMA ARC CUTTING & WELDING *Page 2 of 2*

- Extra care must be taken when the workplace is moist or damp.
 - Install and maintain equipment according to manufacturer's instructions.
 - Disconnect the power source before performing any service or repairs.
3. **Fire and Explosion:** Fire and explosion can be caused by hot slag, sparks or the plasma arc.
- Be sure any combustible or flammable materials in the workplace are removed or protected.
 - Ventilate all flammable or explosive vapors from the workplace.
 - Do not cut or weld on containers that may have held combustibles.
 - Provide a fire watch when working in an area where fire hazards may exist.
 - Hydrogen gas may be formed and trapped under aluminum work pieces when they are cut underwater or while using a water table. **DO NOT** cut aluminum alloys underwater or on a water table unless the hydrogen gas can be eliminated or dissipated. Trapped hydrogen gas that is ignited will cause an explosion.
4. **Noise:** Noise can cause permanent hearing loss. Plasma arc processes can cause noise levels to exceed safe limits. Use hearing protection to prevent permanent hearing loss.
- Wear protective ear plugs and/or ear muffs. Protect others in the workplace.
 - Noise levels should be monitored to be sure the decibels do not exceed safe levels.
5. **Plasma Arc Rays:** The plasma arc process produces very bright ultra violet and infra red light, which will damage your eyes and burn your skin if you are not properly protected.
- Always wear a welding helmet or shield, as well as other protective eye wear.
 - Wear welding gloves and other suitable clothing to protect your skin from the arc rays and sparks.
 - Keep helmet and safety glasses in good condition. Replace lenses when cracked, chipped or dirty.
 - Protect others in the workplace from arc rays. Use protective booths, screens or shields.
 - Use the shade of lenses recommended in the "Eye & Face Protection" Safe Work Practice.