

WELDING EXPOSURES

ALLIANZ RISK CONSULTING

WELDING, CUTTING AND BRAZING HEALTH HAZARDS

An estimated 562,000 employees are at risk for exposure to chemical and physical hazards of welding, cutting and brazing. For the construction industry, welders flash (burns to the eyes) accounts for 5.6% of all construction eye injuries. Fifty-eight deaths from welding and cutting incidents, including explosions, electrocutions, asphyxiation, falls and crushing injuries were reported by the Bureau of Labor Statistics in 1993.

There are numerous health hazards associated with exposure to fumes, gases and ionizing radiation formed or released during welding, cutting and brazing, including:

- Heavy metal poisoning
- Lung Cancer
- Metal fume fever (symptoms include respiratory disturbances, infection – influenza, fever – acute bronchitis, pneumonia, chills, shivering, trembling nausea, vomiting).
- Flash burns

PROTECTIVE CLOTHING AND EQUIPMENT

Welders should consider using appropriate clothing. W K L V should include:

- Shield or helmet with a properly selected filtered lens.
- Fire resistant gloves & leather apron.
- Heavy work boots
- Leather spats
- Felt skull-cap or beret and preferably overalls.
- Unless a special welding cart is provided, cylinders should have their regulators removed and valve protection caps in place before cylinders are moved.

DANGERS

- The arc itself –the temperature can reach 6 000 degrees Fahrenheit (3 315.556 degrees Celsius)
- The intense ultraviolet and infra-red rays can be harmful to both the welder and anyone else nearby
- It is not unusual for welders who are not wearing overalls to suffer symptoms similar to extreme sunburn.
- Volatile combination of heat and gas. Fatalities have resulted where drums and other containers have exploded as a result of some welding or cutting work.
- The nature of the previous contents should be established to ensure that any heating does not liberate toxic fumes or cause an explosion.

- When cylinders are in use they should be secured by chain, cart or other steadying device.

TRANSPORTING, MOVING & STORING GAS CYLINDERS

- Valve protection caps should be in place and secure.
- Cylinders should be hoisted on cradle, slingboard or pallet only.
- No magnets or choker slings.
- Move by tilting and rolling on the edge.
- Transport by powered vehicle in secured and upright position only.

- When work is finished, when cylinders are empty, or when cylinders are moved at any time, the cylinder valve should be closed.
- Cylinders should be secured in an upright position at all times except for hoisting or carrying.
- A distance of 20' should be maintained between oxygen and fuel cylinders when not on carts, or a one hour rated non-combustible wall at least 5 feet high.

TRAINING

THE EMPLOYER SHOULD INSTRUCT EMPLOYEES ON THE SAFE USE OF FUEL GAS FOLLOWS:

- Pressure should be reduced through the use of regulators before fuel gas can be burned.
- Before connecting a regulator the cylinder should be opened slightly and closed (cracking the cylinder) to clear the valve of dirt. This prevents dirt or foreign objects from entering the regulator.
- **NEVER CRACK THE CYLINDER IN THE PRESENCE OF OPEN FLAMES, OR WHERE THE GAS COULD REACH WELDING WORK OR SPARKS.**
- Stand to the side when cracking cylinders.
- Open the cylinder slowly to prevent damage to the regulator.
- Only open the cylinder 1 and 1/2 turns so it can be closed quickly.
- Leave the valve wrench in place when the cylinder is in use.
- Close cylinder valve, and bleed the regulator before removing the regulator.

ARC WELDING

- Manual electrode holders should be designed for that purpose and capable of carrying the maximum rate

Design: [Graphic Design Centre](#)

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