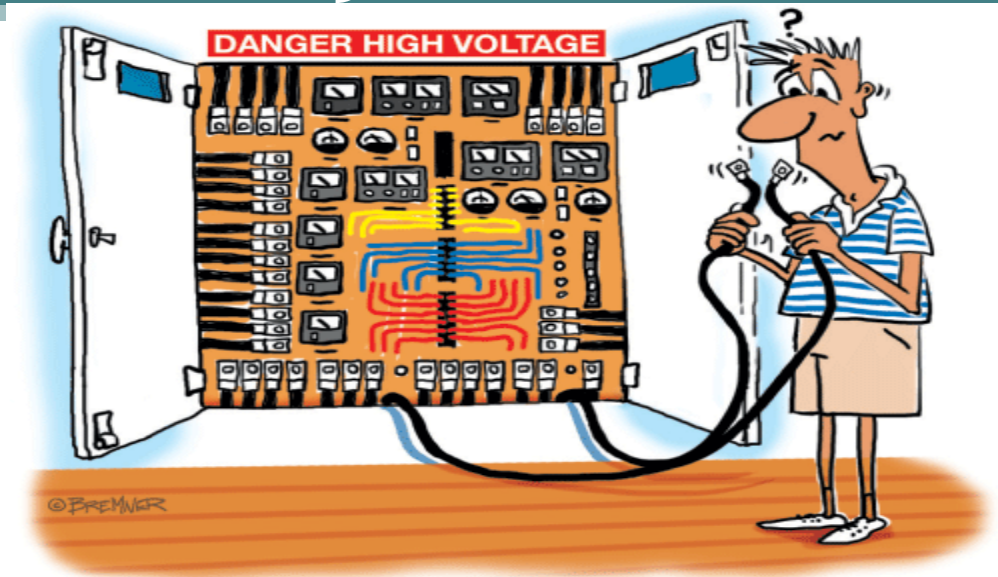


Safety in Welding



SAFETY

!!Always report an accident regardless of how slight it may be!! Even a little scratch might lead to an infection, or a minute particle could result in a serious eye injury!!

!!Prompt attention to any injury usually will minimize what may become serious if neglected!!

!!Any form of horse play in a shop is dangerous and can lead to an accident!!

!!Be careful and obey all safety regulations at all times

Body protection

Personal protective equipment required when welding includes;

- ✓ Eye protection
- ✓ Ear protection
- ✓ Gloves
- ✓ Welding cap
- ✓ Leathers/Coveralls
- ✓ Boots



✓Welding helmet

Arc Welding

- ❑ Shade #10---75 Amps to 200Amps
- ❑ Shade #12---200Amps to 400Amps
- ❑ Shade #14---over 400Amps

✓Goggles

Oxyacetylene Welding or cutting

- ❑ Shade #5 goggles

!!No welding equipment of any kind should ever be used until exact instructions on how to operate has been received.!

!!Attempting to operate equipment without instruction may not only damage the equipment but also result in serious injury!





Fires often occur in a cutting operation simply because proper precautions were not taken.

SAFETY IN CUTTING

- Never use oxygen to dust off clothing or work!
- Never use oxygen as a substitute for compressed air!
- Never use a cutting torch where sparks will be a hazard, such as:
(Near flammable liquids-wood-paper-grease-oxygen cylinders and hoses)
- Always open valves slowly to prevent sudden pressure to regulators!
 - Never use grease to lube any parts to a cutting torch!
 - Dust is flammable always purge lines/bottles!
- The gas is only opened a few turns so that in case of a fire it is quicker to
shut off!
 - Always remember GAS on 1st GAS off 1st!






Five basic rules in safe handling of oxy-fuel equipment

- 1. Keep oxyacetylene equipment clean, free of oil, and in good condition.**
- 2. Avoid oxygen and acetylene leaks.**
- 3. Open cylinders and valves slowly.**
- 4. Purge oxygen and acetylene lines before lighting torch.**
- 5. Keep heat, flame and sparks away from combustibles.**

Fire



extinguisher classes

A		Common Combustibles	Wood, paper, cloth etc.
B		Flammable liquids and gases	Gasoline, propane and solvents
C		Live electrical equipment	Computers, fax machines
D		Combustible metals	Magnesium, lithium, titanium
K		Cooking media	Cooking oils and fats

ventilation

All welding should be done in well-ventilated areas.

- There must be a sufficient movement of air to prevent accumulation of toxic fumes or possible oxygen deficiency.
- Where considerable welding is to be done, an exhaust system is necessary to keep toxic gasses below the prescribed health limits.
- OSHA is a federal agency that requires all employers to provide a safe environment for their employees.



- Even with proper ventilation a respirator should be used when welding metals giving off toxic fumes.



- When cutting or welding zinc, brass, bronze, lead, cadmium, or beryllium bearing metals.
- This includes galvanized steel and metal painted with lead-bearing paint.
- When welding in a confined space a permit is required to enter.

Some general rules to follow:

1. **Be sure a welding machine has a power disconnect switch;**

So the machine can be shut off quickly!

2. **Never change switches under a load;**

Switching the current while the machine is under a load will cause an arc inside the machine between contact surfaces.

3. **Never make repairs to welding equipment unless...**

The power TO the machine is off!

4. **make sure your ground is securely attached to work.**

Do not ground to any pipelines which may be carrying gasses or flammable liquids.

5. **don't use electrode holders with loose cable connections.**

Or the use of a welder that is not properly grounded.

Keep connections tight at all times failure to do so may result in severe shock!

6. Don't weld in damp areas and keep hands and clothing dry at all times.

Dampness on the body may cause an electric shock.

7. Don't strike an arc if someone without proper eye protection is nearby.

Arc rays are harmful to the eyes and skin.

8. Never pick up pieces of metal which have just been welded or cut.

9. Always wear safety glasses.

**A face shield is necessary when chipping or grinding.
A small particle of slag or metal can cause severe injury!**

**10. When welding is complete,
Turn OFF the machine and hang the electrode holder in its designated place.**



Material

M
S
D
S

Material

Safety

Data

Sheets

MSDS provides information about **every** hazardous component of a material's content.

Welding and Cutting Containers

- **WARNING:** Explosions, fires, and health hazards may result if welding, cutting, or other hot work is performed on containers that are not free of hazardous substances such as combustible or toxic solids, liquids, vapors, dusts, and gases. **NO SUCH CONTAINER SHOULD BE PRESUMED TO BE CLEAN OR SAFE;** but these containers can be made safe for such work provided the necessary steps and precautions are followed.



If It Seems Unsafe...
IT PROBABLY IS!

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Only general safety measures can be indicated for these areas because arc welding equipment varies considerably in size and type, from a small portable shielded metal arc welder to highly mechanized production spot or gas shielded arc welders.