VOLUME 12, ISSUE 1 JANUARY 5, 2025

Weekly Safety Meeting

Safety with Welding Fume

Hidden Dangers

Welding is a dangerous occupation, but besides the obvious dangers, hidden dangers include the production of harmful metal fumes and gas by-products. Welding-specific exposures have been connected to an increase of the risk of bladder and kidney cancers.

Factors in Exposure

Many factors influence the amount of worker exposure to welding fume, including the type of welding process, base metal and filler metals being used, welding rod composition, work location, welder work practices, air movement and ventilation controls.

Toxic Fumes Result from Welding Process

At normal temperatures, most metals are normally safe to touch and won't add to an increased risk of cancer. However, at high temperatures such as in the welding, metals reach over one thousand degrees, and many release chemicals known to cause cancer.

Metals that produce dangerous welding fume include Aluminum, Antimony, Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Molybdenum, Nickel, Silver, Tin, Titanium, Vanadium, and Zinc. One of the most highly toxic fumes that can be produced as a byproduct of welding is Hexavalent Chromium. Chromium is a component of stainless steel and is used as a metal coating, and during the welding process is converted to its hexavalent state Cr(VI).

Effects of Fume Exposure

The acute effects of breathing welding fume include eye, nose, and throat irritation, dizziness and nausea. Prolonged exposure may cause lung damage and various types of cancer. Reducing workers' exposure to welding fume is a priority for their health and safety. Welding interaction with various types of gases may result in displaced oxygen, resulting in suffocation (especially in confined spaces) or the production on deadly carbon monoxide gas.

How to Reduce Welder Exposure

It is important to look at OSHA standards applicable to the specific type of welding being performed, as well as the materials being used in each welding operation. Employers are obligated to provide specific training on the work, and to make sure proper respiratory protection and safety precautions are provided to and used by welders.

1-855-784-2677 safetyunlimited.com info@safetyunlimited.com
2139 Tapo Street, Suite 228, Simi Valley, CA 93063-3478

Other ways of reducing exposure to welding fume include cleaning off surface coatings before welding, positioning workers upwind from fume and gases, providing a ventilation system to remove fumes and gases from the welder's breathing zone, and considering other, less toxic materials. If workers must weld in confined spaces or fume cannot be reduced to safe levels, respiratory protection may be required.

Worker safety is a win-win and is of the utmost importance for everyone's benefit. Taking the time to provide the proper training and equipment to keep workers safe and healthy on the job is a wise and valuable investment.

OSHA Standards Related to Welding Safety

Visit OSHA's website to look at specific standards applicable to welding:

- Welding, Cutting & Brazing – 29 CFR 1910 Subpart Q
- Welding & Cutting – 29 CFR 1926 Subpart J
- Welding, Cutting & Heating – 29 CFR 1915 Subpart D
- Permit-required confined spaces – 29 CFR 1910.146
- Confined & Enclosed Spaces & Other Dangerous Atmospheres in Shipyard Employment – 29 CFR 1915 Subpart B
- Hazard Communication – 29 CFR 1910.1200
- Respiratory Protection – 29 CFR 1910.134
- Air Contaminants - 29 CFR 1910.1000 (general industry), 29 CFR 1915.1000 (shipyards), 29 CFR 1926.55 (construction)

BEFORE YOU WELD… KNOW THE RISKS AND TAKE PRECAUTIONS!

Safety Meeting Sign-In Sheet

Supervisor:	Subject:
Location:	Date:
Conducted By:	Trainer Signature:

Name (print clearly)	Signature	Comments / Safety Concerns / Training Requests