

TOOLBOX TALK · WELDING

Welding Fume

About 9 minutes to deliver

The plume is not smoke, galvanized steel is its own problem, and the standard says what to do about both.

The plume coming off a weld is not smoke. It is metal that boiled, condensed into particles small enough to reach the deepest part of your lungs, and is now sitting in the air at head height.

KEEP YOUR HEAD OUT OF IT

The simplest control on this list and the one that gets ignored. The plume rises straight up, and a welder leaning over the work puts their face directly in it.

- Position yourself so the plume goes past you, not through you. Move the work, move yourself, or use a fan to cross-draught it away — never blowing across the arc itself.
- Local exhaust as close to the work as practicable. 1926.353(a)(3) describes exactly this: freely movable hoods placed by the welder as close as possible to the arc.

THE METALS THE STANDARD SINGLES OUT

1926.353(c) requires ventilation, and in several cases airline respirators, for welding, cutting or heating in enclosed spaces on:

- zinc-bearing metals or zinc coatings — that is galvanized steel
- lead base metals or lead-bearing coatings
- cadmium-bearing filler
- chromium-bearing metals or coatings — stainless

Galvanized is the one that comes up daily. Burning zinc gives you metal fume fever: flu symptoms, chills, aching, a metallic taste, hours after the shift, gone by morning, back the next time. It is unpleasant rather than permanent — but it is a signal that you have been breathing the plume, and the other metals on that list do not let you off so lightly. Grind the coating back from the weld area first, and ventilate.

Stainless and chrome-plated produce hexavalent chromium, which is a carcinogen with a very low limit and no warning symptom at all.

CONFINED SPACES

Welding in a confined space is a different job. Ventilation is required by 1926.353(b), and if it cannot be provided without blocking the way out, you need airline respirators and an attendant outside maintaining communication and able to help in an emergency. Oxygen is never used for ventilation, cooling or blowing dust off clothing — an oxygen-enriched space ignites from a spark that would do nothing in air.

BEFORE YOU STRIKE AN ARC

Know the base metal, know the coating, know what the rod or wire is. And never weld or cut on a drum, tank or pipe that has held anything until somebody qualified has certified it clean.

ASK THE CREW

- Is anything we are welding today galvanized, painted, plated or stainless?
- Where is the extraction, and is it close enough to the arc to do anything?
- Has anyone had the chills and aches after a shift on galv?

29 CFR 1926.353 · 29 CFR 1910.252

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ATTENDANCE RECORD

Welding Fume

About 9 minutes to deliver · 29 CFR 1926.353 · 29 CFR 1910.252

Date

Job / site

Delivered by

Company

#	Print name	Signature	Date
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I delivered this talk and determined it was suitable for this crew and this work.

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