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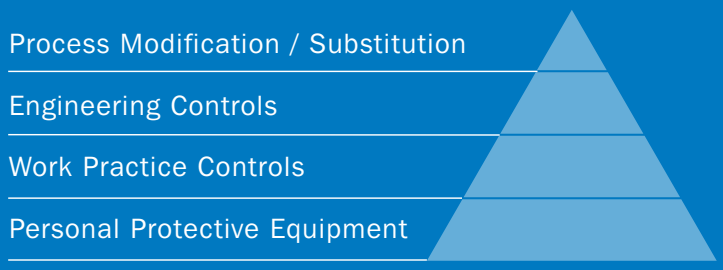

OSHA Controls for Weld Fume Management

Navigate OSHA's Hierarchy of Controls and discover which weld fume solutions play a critical role in achieving compliance in your environment

OSHA Respiratory Protection Standard

#2 Respiratory Protection

OSHA's 2021 Top Ten Most Cited Violations
is 1910.134(c)(1) - Establishing and implementing a written respiratory protection program.[1]

The purpose of the OSHA Respiratory Protection Standard 29 CFR 1910.134 is to provide a guideline in establishing an effective, written respiratory program. Currently listed as #2 on OSHA's Top 10 most frequently cited violations, over 2,527 businesses were cited for respiratory protection violations in 2021.

Providing a clean and compliant workplace doesn't need to be complicated. Following OSHA's standard allows you to establish and implement an effective respiratory program. Let's walk you through how you can create a compliant work environment while also increasing worker comfort and productivity.

[1] Report from OSHA and Safety+Health magazine.

Learn more about the OSHA Hierarchy and ways to implement each level
MillerWelds.com/fumecontrol

Is Your Welding Facility Fume Exposure Compliant?

To maintain a compliant work environment, it's necessary to know if exposure to airborne concentrations of chemical substances are exceeding acceptable limits. If exposure levels reach OSHA PELs, or another applicable government occupational exposure limit, there are methods to reduce the exposure and provide a clean, comfortable and compliant workplace. Get started using the two-step process outlined below – starting with assessing your air quality and then determining a customized action plan.

STEP 1: Exposure Assessment

Have the air in your facility tested by a certified Industrial Hygienist to determine airborne concentrations of chemical substances, ensuring exposure levels do not exceed limits as outlined in the chart below, or other applicable government occupational exposure limits, whichever is lower.

Common Substances Related to Welding[1]		Exposure Limits	
Substance	**Prevalent In**	**OSHA - Permissible Exposure Limits (Enforceable)[2]**	**ACGIH® - Threshold Limit Value (Recommended)**
Aluminum	Aluminum Alloys, Steel Additive, Electrode Coatings	5.0 mg/m^3 TWA	1.0 mg/m^3 TWA
Beryllium	Copper, Magnesium & Aluminum Alloys	0.002 mg/m^3 TWA, 0.025 mg/m^3 Ceiling	0.00005 mg/m^3 TWA
Cadmium	Coatings of Electrodes	0.005 mg/m^3 TWA	0.1 mg/m^3 TWA
Copper	Copper Metals, Electrodes	0.1 mg/m^3 TWA	0.2 mg/m^3 TWA
Hexavalent Chromium	Stainless, High Alloy Steels, Some Non-Alloy Sheets	0.005 mg/m^3 TWA, 0.1 mg/m^3 TWA	0.05 mg/m^3 TWA
Iron (Iron Oxide)	Most Welding Fumes	5.0 mg/m^3 TWA	5.0 mg/m^3 TWA
Lead	Solder, Brass & Bronze Alloys, Steel Coatings	0.05 mg/m^3 TWA	0.05 mg/m^3 TWA
Manganese	Most Welding Fumes: Electrodes & Steels	5.0 mg/m^3 Ceiling[3]	0.02 mg/m^3 TWA
Nickel	Stainless, Nickel Alloys	0.5 mg/m^3 TWA	0.2 mg/m^3 TWA
Zinc (Zinc Oxide)	Galvanized Metal Coatings	5.0 mg/m^3 TWA	2.0 mg/m^3 TWA

For more information on how to have an assessment performed, please contact your S.J. Smith Account Manager, or call 563-324-5237 and ask for your local S.J. Smith branch location

[1] https://www.osha.gov/dsg/annotated-pels/tablez-1.html
[2] More strict regulations may apply. Be sure to understand the relevant regulations in your area
[3] OSHA limit is 0.2 and only applies to the state of CA.

STEP 2: Determine an Action Plan

Based on air sampling results, you may need to implement control measures to manage fume exposure within your facility. When determining an action plan, start at the top and work your way down OSHA's Hierarchy of Controls – selecting the controls that are the most feasible, effective and permanent for your workplace. It may be necessary to implement multiple solutions to achieve the desired results.

Follow the steps below to reduce exposure levels and help gain compliance:

1. **Process Modification & Substitution: Eliminates the exposure before it can occur** using low manganese wire, advanced welding processes or equipment
2. **Engineering Controls: Requires a physical change in the workplace** such as implementing local exhaust ventilation or fume extraction systems
3. **Work Practice Controls: Requires a change in workplace procedures** such as training and education on best practices for weld processes and position
4. **Personal Protective Equipment: Requires the worker to wear personal protective equipment** when engineering controls are not feasible, respiratory protection may be required to reduce weld fume exposure

New source capture methods like ZoneFlow™ technology create a larger capture area – keeping environments cleaner and improving productivity through fewer arm interactions so weld operators can focus on welding.

Traditional System:
up to 12 to 18-inch capture

ZoneFlow™ Technology:
up to 5-foot capture

Watch ZoneFlow™ in action
bit.ly/3GLtQ51

STEP 3: Implementation

Once the hazard has been identified and an action plan is determined, the next step is to implement the best solution(s) that will eliminate or control the hazard in the workplace. Different applications may require multiple solutions to reach your compliance goals. A collaborative effort from all levels of welding process/management ensures the best results for success.

S.J. Smith offers Miller® respiratory and weld fume solutions when exploring considerations within the OSHA Hierarchy of Controls, helping to ensure that your workplace safety is maximized and compliance is maintained.

For further assistance in assessing your specific fume management needs, please feel free to reach out to your local S.J. Smith Account Manager to coordinate an on-site meeting with the Miller District Manager and Regional Safety Solutions Manager to help provide an overview of the potential solutions available to you.

STEP 4: Evaluate Controls

We recommend that employers track progress, inspect and evaluate controls once they are installed or are in use to ensure that the control measures remain effective and are properly being used. This is an ongoing process, as the workplace changes, testing should be done to validate the efficiency of change in achieving compliance.

Visit MillerWelds.com/safety
to view all Miller® safety solutions
for weld fume management

Weld Fume Solutions

Miller® fume extractors and personal protective equipment are designed specifically to help improve the air quality in welding environments and increase worker comfort, productivity and compliance. With proper weld fume management, you can positively impact retention and improve your bottom line. Stay ahead of weld fume regulations with innovative equipment by Miller® from S.J. Smith.

View our Welding Safety & Health Guide to learn more about the OSHA Hierarchy of Controls, ways to implement each level and review available personal protective equipment offerings.

bit.ly/3nQSB7b

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