



Metal Fume Control Policy

Health and Safety FCX-HS33 | Release Date: April 7, 2021

POTENTIAL FATAL RISKS

Exposure to Hazardous Substances – Chronic
Exposure to Hazardous Substances – Acute

CRITICAL CONTROLS

Engineered Controls

Local Exhaust Ventilation (LEV)

PPE

Respiratory Protective Equipment (RPE)
Half/Full-Face Respirators
Powered Air-Purifying Respirator (PAPR)
Supplied Air Respirator (SAR)
Assigned Protection Factor (APF)

Handling Requirements

Surface Preparation
Process & Equipment Selection

TRAINING REQUIREMENTS

Hot Work, annual and refresher
Respiratory Protection and Fit Testing
Task and Technical Training

OCCUPATIONAL EXPOSURE LIMITS (OEL)

Substance	OEL (mg/m ³)
Antimony	0.5
Beryllium	0.00005
Cadmium	0.005
Chromium	0.003
Hexavalent Chromium	0.0002
Cobalt	0.02
Copper	0.1
Iron	5.0
Lead	0.05
Manganese	0.02
Molybdenum	0.5
Nickel	0.1
Vanadium	0.05
Zinc Oxide	2.0

POLICY

OVERVIEW

This policy outlines the requirements for protection from chronic and acute health hazards associated with metal fumes from hot work including welding, cutting, brazing, air arcing, and other processes that create metal fumes. Employees must consider the process, consumable, base metal, backing material and any surface coatings that may be present.

CONTROL REQUIREMENTS: REFERENCE CHART BELOW

- Stainless steel, high manganese alloys, galvanized or cadmium-containing material, and arc air gouging require more protective RPE, or a combination of LEV and RPE.
- Welding or cutting in confined spaces requires LEV and appropriate RPE, or RPE with an APF of 1000.
- Fume ventilation is distinct from confined space ventilation.
- Control requirements for specific tasks may be relaxed, if documented and cleared by Industrial Hygiene sampling.

ACTIONS TO STAY SAFE

- Complete a pre-task review for non-routine work.
- Position yourself to avoid the pathway of the plume.
- Consider others' exposure in the area, e.g. fire watch.
- Position LEV hoods close to fume source to capture maximum amount of fume.
- Remove surface contaminants and other hazardous materials (e.g. concentrate, solvents, lead, zinc, chromate paints, adhesives, etc.) before welding or cutting to prevent additional exposures.

CONTROL LEVEL CHART

Minimum requirements to meet OELs

	GTAW (TIG) Cutting	GMAW (MIG)	FCAW (Flux Core)	SMAW (Stick)	CAC/PAC (Carbon/plasma arc)
Carbon	Elective	Half Mask (P100 or Equivalent) (APF 10)			
Galvanized Cadmium	PAPR (APF 25)				PAPR with Shroud/SA (APF 1000)
Manganese Stainless	PAPR (APF 25)	PAPR with Shroud/Supplied Air (APF 1000)			
Enclosed or Confined	Local Exhaust Ventilation and RPE specified above - or - PAPR with Shroud/Supplied Air (APF 1000)				

Refer to site Respiratory Protection Program for additional information