



## Nine Metal Fabrication and Finishing Source Categories

40 CFR Part 63 Subpart XXXXXX

The U.S. EPA has requirements to reduce air pollution from metals such as **cadmium, chromium, lead, manganese and nickel**. These compounds are Hazardous Air Pollutants (HAPs) and are emitted to the air from various operations at metal fabrication and finishing plants and can pose health risks to those who breathe these fumes when present.

This is a summary of requirements that any affected facility in the nine metal fabrication and finishing source categories must do to comply with the rule. To view the rule see [40 CFR Part 63, Subpart XXXXXX \(§ 63.11514-63.11523\)](#).

### Does this rule apply to my facility?

The rule applies ONLY to area sources where the primary activity of the facility is in one of the following nine source categories:

1. Electrical and Electronic Equipment Finishing Operations (including motor and generator manufacture, and electrical machinery, equipment, and supplies, not elsewhere classified);
2. Fabricated Metal Products;
3. Fabricated Plate Work (Boiler Shops);
4. Fabricated Structural Metal Manufacturing;
5. Heating Equipment, except Electric;
6. Industrial Machinery and Equipment Finishing Operations (including construction machinery manufacturing; oil and gas field machinery manufacturing; and pumps and pumping equipment manufacturing);
7. Iron and Steel Forging;
8. Primary Metal Products Manufacturing; and
9. Valves and Pipe Fittings.

Many facilities perform the metal fabrication and finishing processes addressed by this rule, but are not subject to Subpart XXXXXX (6X) unless they are "primarily engaged" in operations which are classified in one of the listed nine source categories. "**Primarily engaged**" means that the facility production of the listed products represents at least 50 percent of the total facility production.

### Know your SIC and NAICS codes.

To check if you are subject to this rule, crosscheck your Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes with the SIC/NAICS codes that are subject to this rule and listed at this web link:

[SIC & NAICS Codes for 6X Applicability](#)

For a description of industrial activities, enter a specific code into the 2012 NAICS search field:

[NAICS Description of Industrial Activities](#)

## What are my requirements?

The requirements listed below are for five specific processes at a facility in one of the nine source categories and **only apply when a process uses materials that contain compounds of cadmium, chromium, lead, manganese, and nickel**. Shops that use abrasive blasting, machine or weld metal plate, spray paint, or use welding rods with concentrations of cadmium, chromium, lead, and/or nickel above 0.1% by weight, and/or a concentration of manganese above 1.0% by weight are required to follow this regulation.

Requirements for all five processes: Operate and maintain all process and control equipment according to the manufacturer's instructions. Records of the manufacturer's specifications for control devices must also be maintained.

1. **Dry abrasive blasting:** Management practices are required for all abrasive blasting operations. Most operations must be enclosed and either vented to a filtration control device or unvented. Large objects (greater than 8 feet in any dimension) may be blasted without control devices as long as additional management practices and monitoring are completed as required. Small "glove box" enclosed operations have the fewest requirements.
  - a. Small totally-enclosed unvented blast chambers must use the following management practice to minimize emissions:
    - Minimize dust generation during emptying of abrasive blasting enclosures
  - b. Blast chambers in vented enclosures must use the following management practices to minimize emissions:
    - Capture emissions and vent to filtration control device.
    - Minimize excess dust in the surrounding area, as practicable.
    - Enclose dusty abrasive material storage areas and holding bins, seal chutes and conveyors that transport abrasive materials.
  - c. For objects greater than 8 feet in any dimension where blasting operations are not vented to a control device, you must use management practices to minimize emissions and perform monitoring, as follows:
    - 1) Minimize excess dust in the surrounding area, as practicable.
    - 2) Enclose dusty abrasive material storage areas and holding bins, seal chutes and conveyors that transport abrasive materials.
    - 3) Do not reuse blasting media unless contaminants (i.e., any material other than the base material, such as paint residue) have been removed and the blast media returns to its original size.
    - 4) Switch from high particulate matter (PM)-emitting blast media (e.g., sand) to low PM-emitting blast media (e.g., crushed glass, specular hematite, steel shot, aluminum oxide), whenever practicable.
    - 5) Perform visible fugitive emissions monitoring (using Method 22 Visual Fugitive Emissions) in a graduated schedule (Daily/Weekly/Monthly/Quarterly). Corrective actions and follow-up inspections are required if visible emissions are detected.
    - 6) Outdoor Blasting: Visual determinations of fugitive emissions must be done at the fenceline or property border nearest to the outdoor dry abrasive blasting operation.
    - 7) Indoor Blasting: Visual determinations of fugitive emissions must be done at the primary vent, stack, exit or opening from the building containing the blasting operations.

2. **Dry grinding and dry polishing with machines:** Applies to large fixed or stationary machines only – does not apply to hand held or bench top grinding or polishing machines. Use the following management practices to minimize emissions:
  - Capture emissions and vent to a filtration control device.
  - Minimize excess dust in the surrounding area, as practicable.
3. **Dry machining:** Use the following management practice to minimize emissions:
  - Minimize excess dust in surrounding area, as practicable.
4. **Spray painting:** Except as noted below, all spray painting of objects must be performed in a spray booth and/or room. The following requirements apply (with filters to capture metal particulates):
  - Spray booths and/or rooms must have a full roof, at least two complete walls, and one or two complete side curtains or other barrier material so that all four sides are covered.
  - Spray booths and/or rooms must be fitted with paint overspray filters with at least 98% capture efficiency and where all air leaves the booth/room via the filter.
  - Regular inspections and replacement of filters according to manufacturer's instructions. Records must be kept of these activities.
  - Spray booths and/or rooms equipped with a water curtain that achieves at least 98% control of HAPs are not required to have a filter or have all four sides covered.
  - Spray painting must be performed with hi-volume, low-pressure (HVLP) spray guns, electrostatic application, airless gun, air-assisted airless gun, or equivalent transfer efficiency.

Note: Spray painting operations painting objects greater than 15 feet in any dimension, or spray painting any objects in the Fabricated Structural Metal Manufacturing (NAICS 332312) source category are not required to comply with the paint booth/room and filter requirements.

All painters must be certified to have completed initial training and refresher training every 5 years. The hands-on and classroom training may be performed by the facility operator, and must include:

- Spray gun equipment selection, set up and operation, including paint viscosity measurement, nozzle selection, spray pattern, air pressure and volume, and paint delivery rate.
- Spray techniques to improve transfer efficiency and minimize overspray.
- Routine spray booth and filter maintenance.
- Environmental compliance with this Subpart 6X.

You must also use the following management practices for spray painting operations:

- Store all materials in closed containers.
- Minimize spills.
- Convey paints in closed containers/pipes.
- Cover mixing vessels except when in use.
- Minimize emissions during cleaning.

Additionally, all cleaning of paint spray guns must be done with either non-HAP gun cleaning solvents, or in such a manner that an atomized mist of spray of gun cleaning solvent and paint residue is not created outside of a container that collects the used gun cleaning solvent.

5. **Welding:** All welding operations that use HAP containing welding rod or wire **must implement one or more of the following management practices** to minimize emissions, as practicable, and in accordance with sound welding engineering principles while maintaining weld quality:

- Use welding processes with reduced fume generation capabilities such as gas metal arc welding (GMAW), also known as metal inert gas welding (MIG).
- Use welding process variations such as pulsed current GMAW, which can reduce fume generation rates.
- Use welding filler metals, shielding gases, carrier gases, or other process materials which are capable of reduced welding fume generation.
- Optimize welding process variables such as electrode diameter, voltage, amperage, welding angle, shield gas flow rate, and travel speed to reduce the amount of welding fume generated.
- Use a welding fume capture and control system according to manufacturer's specifications.

### **Does your welding operation use 2,000 pounds or more of welding rod/wire annually?**

Additional requirements apply to welding operations that use 2,000 pounds or more of welding rod or wire per year (calculated on a rolling 12 month basis). These requirements involve emissions monitoring within a three tier system. The frequency of monitoring is determined by a graduated schedule (Daily/Weekly/Monthly/Quarterly) along with the results of emissions testing for each monitoring period.

The monitoring location is the primary vent, stack, exit, or opening from the building containing the welding operations. The following test methods are required for each tier:

- Tier 1 - Method 22 Visual Fugitive Emissions
- Tiers 2 and 3 - Method 9 Visual Opacity

A brief summary of the three tier system is described below. For more details, view the applicable sections in the 6X regulation (40 CFR 63.11516(f)(3) through (f)(8)), and EPA monitoring flowcharts 5 and 6 (see web link at: [6X Flowcharts](#)).

**Tier 1:** Perform monitoring (Method 22) on a daily, weekly, and monthly schedule. If no visible emissions are detected in the daily and weekly tests, and for three consecutive months during the monthly tests, then the frequency can be reduced to quarterly.

If emissions are detected for the first time within 12 months, then return back to the more frequent testing schedule (e.g., if emissions are detected in weekly testing, then return to daily testing).

You must also complete corrective actions that include: inspection of welding fume sources; and, evaluation of the operation/effectiveness of the management practices you chose for your operation (as listed above). A follow-up inspection is required after corrective actions are done.

**Tier 2:** If visible emissions are detected more than once in a 12 month period during Tier 1 testing, then opacity testing (Method 9) is required on a daily, weekly, and monthly schedule. If opacity tests result in 20% or less, and remains within this range for two consecutive months, then you may return to either Tier 1 testing (Method 22) on a monthly then quarterly schedule, or continue opacity testing (Method 9) on a monthly then quarterly schedule. The same corrective actions described above in Tier 1 also apply to Tier 2 when opacity is 20% or less but more than zero.

**Tier 3:** If opacity tests result in more than 20% during Tier 2 testing, then you must prepare and implement a Site Specific Welding Emissions Management Plan within 30 days of the opacity exceedance. Opacity testing also continues on a more stringent frequency, depending on which monitoring schedule the exceedance occurred in (e.g., if >20% during weekly schedule, then return to daily monitoring). Tier 3 also requires the same corrective actions as described above in Tier 1.

## How do I perform emissions monitoring using Method 9 Visual Opacity and Method 22 Visual Fugitive Emissions?'

For guidance on Method 9 visit this link: [EPA Method 9](#)

For guidance on Method 22 visit this link: [EPA Method 22](#)

### What records must I keep?

You must keep the following records for 5-years (on-site for at least 2-years, with the option of off-site for the remaining 3-years):

- 1) Copies of Initial and Compliance Status Notification forms and Annual Certification and Compliance Reports.
- 2) Information on the applicability of Subpart 6X to your facility.
- 3) Results and records associated with Method 9 Visual Opacity and Method 22 Visual Fugitive Emissions monitoring.
- 4) Manufacturer's specifications for control devices.
- 5) Manufacturer's instructions for equipment.
- 6) Spray Painting: paint booth filters efficiency tests and maintenance, water current efficiency tests, paint delivery systems efficiency, and employee training.
- 7) Welding: copies of any Site Specific Welding Emissions Management Plans and records of welding rod usage.

### Do I Need to Submit Anything?

**Yes!** All listed facilities that are *primarily engaged* in one or more of the metal fabrication and finishing categories that are sources of the metals **cadmium, chromium, lead, manganese and nickel** above the trigger concentration must submit the **Initial and Compliance Status Notification form** no later than 120 days after your initial startup date.

[6X Initial & Compliance Status Notification Form](#)

**Annual certification and compliance reports** (ACCR) must be prepared and submitted for each affected source. Each ACCR period shall be from January 1- December 31. The ACCR must be submitted (postmarked) no later than January 31 and should be kept in a location for an inspector to review.

In addition, if any exceedance(s) has occurred during the reporting year, it must be included in an exceedance report and submitted along with the ACCR. For welding, any Site Specific Welding Emissions Management Plans must be submitted along with your ACCR.

**For complete details of what the reports must include, see section 63.11519(b) at the following:** [40 CFR Part 63, Subpart XXXXXX \(§ 63.11514-63.11523\)](#).

### Do you still have questions?

Please contact the small business environmental assistance program (SBEAP) or EPA for more details and assistance.

**Air quality staff may be reached at (505) 222-9500**

EPA Region VI contacts: [http://www.epa.gov/ttn/atw/area/regional\\_contacts.pdf](http://www.epa.gov/ttn/atw/area/regional_contacts.pdf)