MFHAP – NESHAPS Rule

40 CFR Part 63 Subpart XXXXXX
Promulgated July 23, 2008

Metal Fabrication Hazardous Air Pollutants
National Emissions Standard for Hazardous Air Pollutants Rule
Glossary of Terms

• **Area Source**: "Area" sources are those sources that emit less than 10 tons annually of a single hazardous air pollutant or less than 25 tons annually of a combination of hazardous air pollutants.

• **Major Source**: “Major" sources are those sources that emit greater than 10 tons annually of a single hazardous air pollutant or greater than 25 tons annually of a combination of hazardous air pollutants.

• **TPY**: Tons Per Year

• **HAP**: Hazardous Air Pollutant (One of 188 listed materials by EPA)

• **MFHAP**: Metal Fabrication Hazardous Air Pollutant

• **MSDS**: Material Safety Data Sheet
• **PTE**: Potential to Emit (Expressed in EPA terms as the potential a source could emit in 8760 hours/year of operation.)
• **10/25**: Refers to the HAPs tonnage limits of an area source. See “Area Source”
• **Opacity**: the degree to which light is blocked
• **EPA Method 22**: A non-certification required method of determining visual emissions coming from an egress point
• **EPA Method 9**: A certification required method of determining visual opacity of an egress point.
Who Does This Apply To?

• **From 40CFR63.11514:**
  
  – Owners and Operators of an area source that is *primarily engaged* in one of the nine source categories....(TBC)
  
  – *Primarily Engaged*: The manufacturing, fabrication, or forging of => 1 of the nine products listed, where this production represents at least 50% of the production at a facility and where production quantities are established by:
    
    - Volume, Linear foot, Square foot, or Other value suited to the specific industry.
    
  – Use previous continuous 12 months of operation.
Who Does This Apply To?

Nine Subject Operations (from 40 CFR Part 63 Subpart XXXXXX):

1. Electrical and electronic equipment finishing operations
2. Fabricated metal product manufacturing
3. Fabricated plate work (boiler shops) manufacturing
4. Fabricated structural metal manufacturing
5. Heating equipment manufacturing, except electric
6. Industrial machinery and equipment finishing operations
7. Iron and steel forging
8. Primary metal products manufacturing, and
9. Valves and pipe fittings manufacturing
Who Does This Apply To?

- **Area Source**: "Area" sources are those sources that emit less than 10 tons annually of a single hazardous air pollutant or less than 25 tons annually of a combination of hazardous air pollutants.
- If you emit greater than this amount, you are a Major Source. Different rules apply. (EPA MACT)
Who Does This Apply To?

• ...(continued from 40CFR63.11514) Sources that use materials that contain or have the potential to emit metal fabrication or finishing metal HAP (MFHAP)
  • Compounds of cadmium, chromium, lead, manganese, and nickel, or any of these metals in the elemental form with the exception of lead
  • Defined to be greater than 1.0 percent for non-carcinogens.
  • Corresponds to materials that contain cadmium, chromium, lead, or nickel in amounts greater than or equal to 0.1 percent by weight (of the metal),
  • Materials that contain manganese in amounts greater than or equal to 1.0 percent by weight (of the metal)
  • Information supplied by manufacturer or MSDS
Who Does This Apply To?

- **The affected area sources** *(40 CFR Part 63 Subpart XXXXXX)*:
  - Dry abrasive blasting
  - Machining
  - Dry grinding and dry polishing
  - Spray painting
  - **Welding**
Who Does This Apply To?

- **Welding affected source:** Collection of all equipment and activities necessary to perform welding operations which use materials that contain MFHAP, or have the potential to emit MFHAP.
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<th>NAICS Code</th>
<th>NAICS Description</th>
<th>EPA Source Category</th>
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<td>332111 Iron and Steel Forging</td>
<td>Iron and Steel Forging</td>
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<td>2</td>
<td>332117 Powder Metallurgy Part Manufacturing</td>
<td>Fabricated Metal Products, NEC</td>
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<td>3</td>
<td>332312 Fabricated Structural Metal Manufacturing</td>
<td>Fabricated Structural Metal Manufacturing</td>
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<td>4</td>
<td>332313 Plate Work Manufacturing</td>
<td>Fabricated Plate Work (Boiler Shops)</td>
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<td>332410 Power Boiler and Heat Exchanger Manufacturing</td>
<td>Fabricated Plate Work (Boiler Shops)</td>
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<td>6</td>
<td>332420 Metal Tank (Heavy Gauge) Manufacturing</td>
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<td>7</td>
<td>332618 Other Fabricated Wire Product Manufacturing</td>
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<td>332919 Other Metal Valve and Pipe Fitting Manufacturing</td>
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<tr>
<td>9</td>
<td>332999 All Other Miscellaneous Fabricated Metal Product Mfg</td>
<td>Fabricated Metal Products, NEC</td>
</tr>
<tr>
<td>10</td>
<td>333120 Construction Machinery Manufacturing</td>
<td>Industrial Machinery &amp; Equipment: Finishing Ops</td>
</tr>
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<td>11</td>
<td>333132 Oil and Gas Field Machinery and Equipment Mfg</td>
<td>Industrial Machinery &amp; Equipment: Finishing Ops</td>
</tr>
<tr>
<td>12</td>
<td>333414 Heating Equipment (except Warm Air Furnaces) Mfg</td>
<td>Heating Equipment, except electric</td>
</tr>
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<td>13</td>
<td>333911 Pump and Pumping Equipment Manufacturing</td>
<td>Industrial Machinery &amp; Equipment: Finishing Ops</td>
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<tr>
<td>14</td>
<td>335312 Motor and Generator Manufacturing</td>
<td>Electrical &amp; Electronic Equipment Finishing Ops</td>
</tr>
<tr>
<td>15</td>
<td>335999 All Other Misc. Electrical Equipment &amp; Component Mfg</td>
<td>Electrical &amp; Electronic Equipment Finishing Ops</td>
</tr>
</tbody>
</table>

Source: US EPA Website
What Do I Have to Do?

• Submit notification of applicability to the EPA.

Required Notifications

(1) **Initial Notification:** If you operate an area source in one of the nine metal fabrication and finishing source categories, you must submit an initial notification, whether or not you operate a metal fabrication and finishing affected process. Existing Sources must submit this notification no later than July 23, 2011. New Sources must submit this notification no later than November 20, 2008 or 120 days after start-up, whichever is later.

(2) **Notification of Compliance Status:** If you operate a metal fabrication and finishing affected process, you must submit a notification of compliance status. Existing Sources must submit this notification not later than November 20, 2011. New Sources must submit this notification no later than November 20, 2008 or 120 days after start-up, whichever is later.

Source: 40 CFR Part 63 Subpart XXXXXX
What Do I Have to Do?

- Develop a **Welding Management Practice** Plan.

**Welding Management Practice:**

1. Operate equipment according to manufacturer’s instructions; and (2) implement one or more of the following management practices to minimize emissions of MFHAP, as practicable, while maintaining the required welding quality through the application of sound engineering judgment:

   i. Use welding processes with reduced fume generation capabilities (e.g. gas metal arc welding (GMAW) – also called metal inert gas welding (MIG):

   ii. Use welding process variations (e.g. pulsed current GMAW), which can reduce fume generation rates;

   iii. Use welding filler metals, shielding gases, carrier gases, or other process materials which are capable of reduced welding fume generation;

   iv. Optimize welding process variables (e.g. electrode diameter, voltage, amperage, welding angle, shield gas flow rate, travel speed) to reduce the amount of welding fume generated; and

   v. Use a welding fume capture and control system, operated according to the manufacturer’s specifications.

Source: 40 CFR Part 63 Subpart XXXXXX
What Do I Have to Do?

• Does your facility use more than 2000 lbs of MFHAP-containing welding consumable per year?
  – Yes: Must perform visual inspections of the primary vent, stack, or opening from the building which contains the welding operations.
  – See Handout on EPA Method 22. No certification is needed to perform this inspection.

Source: 40 CFR Part 63 Subpart XXXXXX
What Do I Have to Do?

- What you see during this visual inspection decides on what you do next.
  - If emissions are noted more than once in 12 months, you may have to do more stringent monitoring.
  - Method 9 is a Certification-required opacity inspection.
  - Any time visible emissions are noted, corrective actions must be performed (i.e. update your Welding Management Practice.)

Source: 40 CFR Part 63 Subpart XXXXXX
What Do I Have to Do?

• If a Method 9 opacity reading shows >20% opacity at any time, a notification must be made, in writing, to the EPA.

• A Site Specific Welding Emissions Management Plan must be created within 30 days.

Source: 40 CFR Part 63 Subpart XXXXXX
What Do I Have to Do?

- This regulation has many facets and can get confusing
- Can it be simplified?
Determination of Applicability

How do I know? Get help on Slide 5

Is the Company Primarily Engaged in 1 or more areas?

Yes

Does the company have the PTE of less than 10/25 TPY?

Yes

Does the Company use a welding consumable that has the PTE MFHAP?

Yes

No

No

No

Go to Slide 2.

Regulation does not apply. State your rationale and keep on file per 63 Code of Federal Regulations 63.10(b)(3).

Regulation does not apply. You are a large source. Please get assistance in following the MACT regulations.

Regulation does not apply. State your rationale and keep on file per 63 Code of Federal Regulations 63.10(b)(3).

Subject Operations:
(1) Electrical and electronic equipment finishing operations
(2) Fabricated metal products manufacturing
(3) Fabricated plate work (boiler shops) manufacturing
(4) Fabricated structural metal manufacturing
(5) Heating equipment manufacturing, except electric
(6) Industrial machinery and equipment finishing operations
(7) Iron and steel forging
(8) Primary metal products manufacturing and
(9) Valves and pipe fittings manufacturing

Source: 40 CFR Part 63 Subpart XXXXXX
Company is primarily engaged in 1 or more subject areas, has a PTE <10/25TPY and uses welding electrode with PTE MFHAP.

Welding Management Practice is required (See Below).

Does facility use >2000 lb MFHAP rod or wire annually?

Yes

Emissions Monitoring Requirement:
Tier 1: Visible Emissions – EPA Method 22 (See Slide 3)
Tier 2: Opacity Testing – EPA Method 9 (See Slide 4)
Tier 3: Site Specific Welding Management Plan (See Slide 8)

Tier 1 is required for ALL facilities performing monitoring.
Tiers 2 and 3 are required only when exceedence occurs in the previous tier.

No

You have certain recordkeeping requirements: See Slide 7

Welding Management Practice:
(1) Operate equipment according to manufacturer’s instructions; and (2) implement one or more of the following management practices to minimize emissions of MFHAP, as practicable, while maintaining the required welding quality through the application of sound engineering judgment:

(i) Use welding processes with reduced fume generation capabilities (e.g. gas metal arc welding (GMAW) – also called metal inert gas welding (MIG)):

(ii) Use welding process variations (e.g. pulsed current GMAW), which can reduce fume generation rates;

(iii) Use welding filler metals, shielding gases, carrier gases, or other process materials which are capable of reduced welding fume generation;

(iv) Optimize welding process variables (e.g. electrode diameter, voltage, amperage, welding angle, shield gas flow rate, travel speed) to reduce the amount of welding fume generated; and

(v) Use a welding fume capture and control system, operated according to the manufacturer’s specifications.

Source: 40 CFR Part 63 Subpart XXXXXX
Emissions Monitoring Requirement: Tier 1

From Slide 4


- Visible Emissions detected in ten days of Daily tests?
  - Yes: Corrective Action and Follow Up Method 22 Test (See Slide 6)
  - No: Weekly VE Testing (EPA Method 22 See Slide 6)

Weekly VE Testing (EPA Method 22 See Slide 6)

- Visible Emissions detected in four weeks of Weekly tests?
  - Yes: Corrective Action and Follow Up Method 22 Test (See Slide 6)
  - No: Monthly VE Testing (EPA Method 22 See Slide 6)

Monthly VE Testing (EPA Method 22 See Slide 6)

- Visible Emissions detected in three months of Monthly tests?
  - Yes: Corrective Action and Follow Up Method 22 Test (See Slide 6)
  - No: Quarterly VE Testing (EPA Method 22 See Slide 6)

Quarterly VE Testing (EPA Method 22 See Slide 6)

- Visible Emissions detected in quarterly test?
  - Yes: Corrective Action and Follow Up Method 22 Test (See Slide 6)
  - No: Go To Slide 4

Source: 40 CFR Part 63 Subpart XXXXXX
Emissions Monitoring Requirement: Tiers 2&3

Daily Opacity Testing (EPA Method 9 with Correction Action if Opacity >0%)

Ten days of daily tests: any opacity > 20%?

Yes

Weekly Opacity Testing (EPA Method 9 with Correction Action if Opacity >0%)

Four Weeks of weekly tests: any opacity > 20%?

Yes

Monthly Opacity Testing (EPA Method 9 with Correction Action if Opacity >0%)

Two Months of monthly tests: any opacity > 20%?

Yes

Quarterly Opacity Testing (EPA Method 9 with Correction Action if Opacity >0%)

Yes

Option: Return to monthly/ quarterly VE testing Tier 1 (See Slide 3)

No

Yes

(1) Corrective Action
(2) Develop / Revise & Implement site Specific Welding Emissions Management Plan (SWMP)
(3) Continue Method 9 Testing Return to Daily Schedule

(1) Corrective Action
(2) Develop / Revise & Implement site Specific Welding Emissions Management Plan (SWMP)
(3) Continue Method 9 Testing Return to Weekly Schedule

(1) Corrective Action
(2) Develop / Revise & Implement site Specific Welding Emissions Management Plan (SWMP)
(3) Continue Method 9 Testing Return to Monthly Schedule

No

Opacity >20%?

Yes

No

Month of monthly tests: any opacity > 20%?

Yes

No

From Slide 3: Tier 1

Source: 40 CFR Part 63 Subpart XXXXXX
What Do I Have to Do?

• This regulation has many facets and can get confusing
• Can it be simplified?
NATIONAL EMISSIONS STANDARD FOR HAZARDOUS AIR POLLUTANTS

MFHAP
Interactive Guide for Determination of Applicability
This list was developed by Lincoln Electric, not the EPA. Please note that some consumables in each of these specifications meet the applicability requirements of this regulation. Please carefully check each specific consumable you are using.

- A5.1/A5.1M:2004 Carbon Steel Electrodes for Shielded Metal Arc Welding
- A5.2/A5.2M:2007 Carbon and Low Allow Steel Rods for Oxyfuel Gas Welding
- A5.4/A5.4M:2006 Stainless Steel Electrodes for Shielded Metal Arc Welding
- A5.5/A5.5M:2006 Low Alloy Steel Electrodes for Shielded Metal Arc Welding
- A5.6/A5.6M:2008 Copper & Copper-Alloy Electrodes for Shielded Metal Arc Welding
- A5.7/A5.7M:2007 Copper and Copper-Alloy Bare Welding Rods and Electrodes
- A5.8/A5.8M:2004 Filler Metals for Brazing and Braze Welding
- A5.9/A5.9M:2006 Bare Stainless Steel Welding Electrodes and Rods
- A5.13:2000 Surfacing Electrodes for Shielded Metal Arc Welding
- A5.14/A5.14M:2009 Nickel and Nickel-Alloy Bare Welding Electrodes and Rods
<table>
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<th>Standard</th>
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<tr>
<td>A5.15-90</td>
<td>Welding Electrodes and Rods for Cast Iron</td>
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<tr>
<td>A5.16/A5.16M:2007</td>
<td>Titanium and Titanium-Alloy Welding Electrodes and Rods</td>
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<td>A5.17/A5.17M-97</td>
<td>Carbon Steel Electrodes &amp; Fluxes for Submerged Arc Welding</td>
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<td>A5.18/A5.18M:2005</td>
<td>Carbon Steel Filler Metals for Gas Shielded Arc Welding</td>
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<td>A5.20/A5.20M:2005</td>
<td>Carbon Steel Electrodes for Flux Cored Arc Welding</td>
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<td>A5.21:2001</td>
<td>Bare Electrodes and Rods for Surfacing</td>
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<td>A5.22-95</td>
<td>Stainless Steel Electrodes for Flux Cored Welding &amp; Stainless Steel Electrodes for Gas Tungsten Arc Welding</td>
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<td>A5.23/A5.23M:2007</td>
<td>Low Allow Steel Electrodes &amp; Fluxes -Submerged Arc Welding</td>
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<td>A5.25/A5.25M-97</td>
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<td>A5.26/A5.26M-97</td>
<td>Carbon and Low Alloy Steel Electrodes for Electrogaws Welding</td>
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<td>A5.28/A5.28M:2005</td>
<td>Low Alloy Steel Filler Metals for Gas Shielded Arc Welding</td>
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<td>A5.29/A5.29M:2005</td>
<td>Low Alloy Steel Electrodes for Flux Cored Arc Welding</td>
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<td>A5.30/A5.30M:2007</td>
<td>Consumable Inserts</td>
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<tr>
<td>A5.34/A5.34M:2007</td>
<td>Nickel-Alloy Electrodes for Flux Cored Arc Welding</td>
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</table>
EPA Method 22

• Method 22 is a simple procedure that uses the human eye to determine the total time an industrial activity causes visible emissions.
• No certification is required because it is a simple method that just requires you to record the amount of time you see emissions.

Source: US EPA
• You need two stopwatches. They must be the accumulative type and must measure to at least ½ of a second.
• Choose a location with a clear view of the building or operation you are supposed to observe. Make sure it is safe - not in the way of moving equipment -- and does not pose any other safety hazard.
• Use one stopwatch (SW1) to time the entire observation period.
• During the observation period, continuously watch the source, and if you see any emissions, start the second stopwatch (SW2) and then stop it when the emissions stop. Restart it without resetting it if emissions occur again, and stop it if the emissions stop. Continue doing this throughout the observation period.
• When the observation period is over, record the total time on the second stopwatch, which is the total time that emissions were visible.
Required Notifications

(1) Initial Notification: If you operate an area source in one of the nine metal fabrication and finishing source categories, you must submit an initial notification, whether or not you operate a metal fabrication and finishing affected process. Existing Sources must submit this notification no later than July 23, 2011. New Sources must submit this notification no later than November 20, 2008 or 120 days after start-up, whichever is later.

(2) Notification of Compliance Status: If you operate a metal fabrication and finishing affected process, you must submit a notification of compliance status. Existing Sources must submit this notification not later than November 20, 2011. New Sources must submit this notification no later than November 20, 2008 or 120 days after start-up, whichever is later.

Annual Certification and Compliance Report: You must submit (no later than January 31) an annual certification and compliance report containing the following (as applicable):

- Facility Information
- Statement by Responsible Official
- Report of visual determinations of fugitive emissions (EPA Method 22 tests)
- Report of visual determinations of emissions opacity (EPA Method 9 tests)
- Reports of any exceedences (VE or Opacity >20 percent) which occurred during the year
- Reports related to site-specific welding emissions management plan

Records Maintenance: You must maintain records containing the following (as applicable):

- Copies of all notifications and reports, and supporting documentation
- Records of applicability determinations
- Records associated with visual determinations of fugitive emissions (EPA Method 22 tests)
- Records associated with visual determinations of emissions opacity (EPA Method 9 tests)
- Manufacturer’s specifications for control devices
- Records associated with visual determinations of emissions opacity performed during development or revision of a site-specific welding emissions management plan.
- Copy of any site-specific welding emissions management plan
- Copy of the manufacturer’s instructions for equipment used for compliance
- Records of welding rod usage, if used to demonstrate that monitoring is not required for a welding affected source

Records must be maintained for five years. The first two years of records must be maintained on-site. Older records may be maintained off site.
Site Specific Welding Management Plan

**Requirements:**

- Company Name and Address
- List and Description of all welding operations which comprise the welding affected source
- Description of all management practices and/or fume control methods in place at the time of the opacity exceedence.
- List and description of all management practices and/or fume control methods currently employed for the welding affected source.
- Description of additional management practices and/or fume control methods to be implemented pursuant to [the requirement to revise this Plan], and the projected date of the implementation
- Any revisions to a Site-Specific Welding Emissions Management Plan must contain copies of all previous plan entries.
- The Site-Specific Welding Emissions Management Plan must be updated annually to contain current information, and submitted with your annual certification and compliance report, according to the “Notification, Recordkeeping, and Reporting” requirements.
- You must maintain a copy of the current Site-Specific Welding Emissions Management Plan in your records in a readily-accessible location for inspector review.

*Source: 40 CFR Part 63 Subpart XXXXXX*
Where Can I Get More Information?

- http://www.epa.gov/EPA-AIR/2008/April/Day-03/a6411.htm
- http://www.epa.gov/ttn/atw/area/metfabb.pdf
- http://www.epa.gov/ttn/atw/area/met-fab-6x-applicability.xls
- http://www.epa.gov/ttn/atw/area/metalfabbs.doc