Metal Fabrication and Finishing Area Source NESHAP (subpart XXXXXX)

EPA/MARAMA Air Toxics Workshop

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Metal Fabrication and Finishing Area Source Rule (subpart XXXXXX)

- Addresses 9 area source categories that include 12 SIC's
- "Listed" 112(k) HAP (MFHAP) are:
  - Cadmium (Cd) & compounds
  - Chromium (Cr) & compounds
  - Lead (Pb) compounds
  - Manganese (Mn) & compounds
  - Nickel (Ni) & compounds
- June 13, 2008 court-ordered promulgation

9 Metal Fabrication and Finishing Area Source Categories (12 SIC's)

- Electrical and Electronic Equipment Finishing Operations
  - Electric Machinery, Equipment, and Supplies, NEC
  - Motors and Generators Manufacturing
- Fabricated Metal Products, NEC*
- Fabricated Plate Work (Boiler Shops)
- Fabricated Structural Metal Manufacturing
- Heating Equipment, except Electric
- Industrial Machinery and Equipment: Finishing Operations
  - Construction Machinery Manufacturing
  - Oil and Gas Field Machinery Manufacturing
  - Pumps and Pumping Equipment Manufacturing
- Iron and Steel Forging
- Primary Metals Products Manufacturing
- Valves and Pipe Fittings, NEC

* NEC = Not elsewhere classified.

Metal Fabrication and Finishing Area Source Rule (continued)

- Five common metal HAP-emitting (MFHAP) processes:
  - Abrasive blasting
  - Dry grinding & polishing with machines
  - Machining/metalworking
  - Painting
  - Welding
- Regulated at process level across all source categories in one rule

Metal Fabrication and Finishing Basis for Combined Regulation

- Processes appeared the same from one source category to another
- Information collected in visits to 13 facilities, 166 surveys, literature review, vendors, and from industry representatives

Metal Fabrication and Finishing Facility Size and Distribution

- >90 percent of facilities small businesses
  - Estimated from 2002 Census
- 5,800 area sources
  - Estimated from 2002 Census and 2002 NEI major/area breakdown
- 73% urban
  - Estimated from surveys and 2002 NEI

Metal Fabrication and Finishing GACT* for Final Rule

- Combination of equipment standards and management practices (MP's)
- Some operations are required to monitor visible emissions (Method 22) or opacity (Method 9)
- Unique feature of testing schedule - allows "time off for good behavior" by graduated frequency of testing from daily, to weekly, to monthly, to quarterly (D/W/M/Q), if no emissions observed (Methods 22 or 9)

* Generally available control technology

Metal Fabrication and Finishing Operations 10 GACT Requirements

(1) Abrasive Blasting

- Small enclosed unvented blast chambers
- Products in chambers vented to control devices
- Products not enclosed
  - >8 feet in size, inside as well as outside

(2) Dry grinding & polishing (large stationary machines)

(3) Machining

(4) Spray-painting (of MFHAP)

- Products in spray booths
- Products not in spray booths
  - >15 feet or at Fabricated Structural Metal facilities

(5) Welding

- Welding rod use > 2,000 lb
- Welding rod us ≤ 2,000 lb

Metal Fabrication and Finishing Operations NESHAP Requirements

- Only applies to operations that use MFHAP above levels:
  - 0.1 percent Cd, Cr, Ni, Pb*
  - 1.0 percent Mn*
- From MSDS or other similar information provided by suppliers

* As the metal on weight/weight basis

Metal Fabrication and Finishing Operations NESHAP Applicability

- Rule applies to any facility that falls into one of the 9 source categories
- Control requirements only apply to the 5 regulated operations
  - Only applies when using MFHAP at indicated levels

Metal Fabrication and Finishing GACT Abrasive Blasting Operations

(1) Small totally-enclosed blast chambers

- Good housekeeping management practices (MP's)
- No monitoring

(2) Products in chambers vented to control device

- Enclosures and filtration (expect ≥95% control)
- Good housekeeping MP's
- No monitoring

(3) Products not vented to control device (both outside and inside)

- Good housekeeping MP's
- VE monitoring (Method 22) in graduated schedule (D/W/M/Q)

Metal Fabrication and Finishing
GACT – Dry Grinding & Polishing

- Enclosures and filter devices
  - Control devices (expected 85% control)
  - Good housekeeping MP's
  - No monitoring
- Applies to large stationary machines only

Metal Fabrication and Finishing
GACT - Machining

- Management Practices (only)
  - No monitoring

Metal Fabrication and Finishing GACT – Spray Painting

- **Products in Spray Booths (any size)**
  - PM filters in spray booths (98% control MFHAP)
  - HVLP spray gun use and training
  - Management Practices
  - Same as in Miscellaneous Coating Rule (subpart HHHHHH)

- **Products >15 feet or at Fabricated Structural Metal facilities**
  - HVLP spray gun use and training (only)
  - Management Practices

Metal Fabrication and Finishing GACT - Welding

Two welding categories:

- Use **<2,000 lb** welding rod or wire*
  - MP's only
- Use **≥2,000 lb** welding rod or wire*
  - MP's
  - Monitoring for visible emissions (VE) or opacity ≤20% in graduated schedule (D/W/M/Q)
  - 3-Tier compliance monitoring (*see next page*)

* *MFHAP-containing at levels 0.1/1% of metal.*

(continued)

Metal Fabrication and Finishing Welding ≥2000 lb rod/wire -Monitoring

3-Tier Welding Monitoring

- 1st Tier
  - D/W/M/Q graduated VE testing (Method 22)
- 2nd Tier Trigger if fail second consecutive VE test
  - Must do opacity (Method 9) test in 24 hours
- 3rd Tier
  - If >20% opacity, Site-specific Welding Management Plan (SWMP) required
  - If ≤20% opacity in monthly Method 9, facility can switch to Method 22 (if desired)

Metal Fabrication and Finishing Implementation Materials

- Website location:
  - http://www.epa.gov/ttn/atw/area/arearules.html
- Brochure
- One-page summary
- Flow charts
- Example Notification forms
- List of SIC/NAICS for applicability determinations

Metal Fabrication and Finishing Appendices

- Lists of management practices (MP)
- Estimate of source category size

Metal Fabrication and Finishing GACT – Welding MP's

As practicable to the type of welding/product, while maintaining required welding quality using sound engineering judgment

- Use welding processes with reduced fume generation capabilities (*e.g.*, Gas metal arc welding (GMAW))
- Use welding process variations (*e.g.*, pulsed 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 (e.g., electrode diameter, voltage, amperage, welding angle, shield gas flow rate, travel speed) to reduce the amount of welding fume generated
- Use of fume capture and control system

(continued)

Metal Fabrication and Finishing
GACT – Welding MP's (continued)

- MP's are to reduce fumes
  - Not all facilities and all products can use all MP's all the time to the same extent
  - Bottom line - the extent of fume control variable even within one facility

Metal Fabrication and Finishing
GACT – Painting MP's

- 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

Metal Fabrication and Finishing GACT – MP's for Blasting

- Enclose abrasive material storage areas and holding bins; seal chutes and conveyors transporting abrasives

- If no control device:
  - Do not reuse blasting media unless contaminants have been removed and the blast media returns to its original size
  - Switch from high 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

Metal Fabrication and Finishing GACT – MP's for All Processes

- Minimize excess dust in surrounding areas, as practicable

- Operate all equipment associated with process according to manufacturer's instructions

Metal Fabrication and Finishing: # Area Sources Based on 2002 Census

Fabricated Structural Metal	1,988
Fabricated Metal Products NEC	1,313
Fabricated Plate	993
Electrical & Electronic Equipment	489
Industrial Machinery & Equipment	442
Heating Equipment	202
Iron and Steel Forging	195
Valves and Pipe Fittings	117
Primary Metal Products	71
Total Estimated Area Sources	5,808