

Plating and Polishing Operations

40 Code of Federal Regulations (CFR) Part 63 Subpart WWWWWW (6W)

General Summary of Requirements

The *Plating and Polishing Operations - Area Source*^a NESHAP^b (6W NESHAP) regulations apply to plating and polishing facilities that meet **all** of the following criteria:

- Facilities that are engaged in one or more of the following operations:
 - (1) Electroplating other than chromium electroplating;
 - (2) Electroless or non-electrolytic plating;
 - (3) Other non-electrolytic metal coating processes such as chromate conversion coating, nickel acetate sealing, sodium dichromate sealing and manganese phosphate coating, and thermal spraying;
 - (4) Dry mechanical polishing of finished metal and formed products after plating;
 - (5) Electroforming, or
 - (6) Electropolishing
- Facilities that
 - have the **potential to emit a plating and polishing metal HAP (PPMHAP)**. A PPMHAP includes **cadmium (Cd), chromium (Cr), lead (Pb), manganese (Mn), and nickel (Ni)**, or include any of these metals in the elemental form with the exception of lead.

Or
 - use materials that contain a PPMHAP in an electroplating or electroforming tank**. These are materials that contain **cadmium (Cd), chromium (Cr), lead (Pb), and nickel (Ni)** in amounts **greater than or equal to 0.1 percent by weight of the metal**, and materials that contain **manganese (Mn)** in amounts **greater than or equal to 1.0 percent by weight of the metal**.
- Facilities that have one of the following processes:
 - (1) **Tanks** that contain a PPMHAP, including:
 - Non-cyanide electroplating, electroforming, or electropolishing tanks with a pH of less than 12;
 - Short-term or “flash” electroplating tanks used for less than 1 cumulative hour per day or 3 cumulative minutes per hour;
 - Tanks used both for short-term electroplating and for electrolytic processing for more than 1 cumulative hour per day or 3 cumulative minutes per hour;
 - Electroplating using cyanide in plating bath with a pH greater than or equal to 12;
 - Other non-electrolytic metal coating operations
 - (2) **Permanent or Temporary Thermal Spraying**; or
 - (3) **Dry Mechanical Polishing**

NOTE: The specific standards and management practices for each process covered under the 6W NESHAP are described on individual, supplemental fact sheets.

- Sources that are **EXEMPT** from the 6W NESHAP include:
 - (1) Process units subject to 40 CFR part 63, Subpart N – National Emission Standards for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks*;
 - (2) Research and development process units as defined in §63.11511;
 - (3) Process units used only for educational purposes;
 - (4) Thermal spraying conducted to repair surfaces;
 - (5) Dry mechanical polishing conducted to restore the original finish.

***NOTE: Facilities may be subject to other area source NESHAP, such as the NESHAP for Metal Fabrication and Finishing (40 CFR Part 63 Subpart XXXXXX), and may also be subject to 6W.**

^a An Area Source is a source of Hazardous Air Pollutants (HAPs) that is not a major source. An area source of HAPs emits or has the potential to emit less than 10 tons of any single HAP and less than 25 tons of any combination of HAPs per 12 months.

^b NESHAP – National Emissions Standards for Hazardous Air Pollutants.

AFFECTED SOURCE AND COMPLIANCE DATES

- New** – commenced construction **after** March 14, 2008
 - Startup date between March 14, 2008 and July 1, 2008; 6W NESHAP compliance no later than July 1, 2008.
 - Startup date on or after July 2, 2008; 6W NESHAP compliance upon initial startup.
- Existing** – commenced construction **on** or **before** March 14, 2008
 - Startup date before March 14, 2008; 6W NESHAP compliance by July 1, 2010.

GENERAL NOTIFICATION AND REPORTING REQUIREMENTS

Facilities subject to the 6W NESHAP must submit the following notifications to the Iowa Department of Natural Resources (DNR Air Quality Bureau, attn: NESHAP Coordinator, 7900 Hickman Road, Suite 1, Windsor Heights, Iowa, 50324).

Initial Notification:

- Sources that **start up after July 1, 2008** submit no later than 120 days after start up.*
- Sources that **started up on or before July 1, 2008**, submit by October 29, 2008.*
**The DNR will accept notifications after the due date and encourages facilities to submit past-due notifications as soon as possible.*
- Must include the following information:
 - Name, address, phone number, and e-mail address of the owner/operator.
 - Address of the affected source.
 - Statement indicating the facility is subject to this standard (40 CFR Part 63, Subpart WWWW).
 - Brief description of facility operations.
 - Emission unit description, I.D. number and list of HAP emitted from or used on the equipment.
 - Description of the compliance method for each affected source. (refer to fact sheets for specific processes for examples).

Notification of Compliance Status:

- Existing Sources** submit no later than **July 1, 2010**.
- New Sources:**
 - Startup date between March 14, 2008 -and July 1, 2008; submit no later than July 1, 2008.*
 - Startup date on or after July 2, 2008; submit upon initial startup.***The DNR will accept notifications after the due date and encourages facilities to submit past-due notifications as soon as possible.*
- Must include the following information:
 - Company name and address.
 - A statement by a responsible official with that official's name, title, address, phone number, e-mail address , and signature certifying the truth, accuracy, and completeness of the notification and a statement of whether the source has complied with all relevant standards and requirements of this rule.
 - List of affected sources and the PPMHAP used in or emitted by those sources
 - Statement that applicable management practices are implemented.
 - Methods used to comply with the applicable management practices and equipment standards.
 - Description of the capture and emissions control systems used to comply with any equipment standards.

Annual Certification of Compliance

NOTE: Refer to the supplemental fact sheets for the specific processes for additional information that must be included in the Annual Certification of Compliance.

- Prepared no later than **January 31 of each year**.
 - Cover the period from January 1 (or day after compliance date) to December 31 of the previous year.
 - Must be kept in a readily-accessible location for inspector review.
- If a deviation from a compliance requirement occurred during the year, a copy of the report must be submitted to the Iowa DNR.
- Report should include the following information:
 - Facility's name and address.
 - Statement by responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.
 - Date of report and of beginning and ending dates of reporting period.
 - A statement that you have followed the specific required control requirements for each affected 6W source.

Deviation Reports

- Cover the period from January 1 (or day after compliance date) to December 31 of the previous year.
- Submit to Iowa DNR with postmark date of **January 31 of each year**.
- Report should include the following information:
 - Any deviations occurred during the previous year and the corrective action taken.

Record Keeping

- The following records must be maintained in a form suitable and readily available for expeditious review.
 - Copies of all notifications and reports, and supporting documentation.
 - Records that show you meet the management practices.
 - The occurrence and duration of each startup, shutdown and malfunction of the operation.
 - The occurrence and duration of each malfunction of the required air pollution control and monitoring equipment.
 - All required maintenance performed on air pollution control and monitoring equipment.

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.

Please refer to the full rule text of 40 CFR Part 63, Subpart WWWW (available at <http://www.epa.gov/ttn/atw/area/compilation.html>) to determine all applicable equipment requirements, management practices, monitoring requirements, recordkeeping requirements and reporting requirements necessary to be in compliance with this rule.

Additional information is available at <http://www.iowadnr.gov/air/prof/NESHAP/>

For more information or questions please contact:

Iowa Department of Natural Resources: **1-877-AIR-IOWA**

Iowa Waste Reduction Center: **1-800-422-3109**

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Plating and Polishing Operations

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Summary of Requirements - Process Tanks

The following requirements shall be followed in addition to the general summary of requirements, if the facility owns or operates affected **PROCESS TANKS** that **contain** one or more of the **PPMHAP**.

Process tanks include tanks that perform batch or continuous non-cyanide electroplating, electroforming or electro polishing (referred to collectively as electrolytic process tanks), “flash” or short-term electroplating and electroplating tanks that have cyanide as major constituent in the plating bath.

GENERAL MANAGEMENT PRACTICES

- Minimize bath agitation when removing parts, except when necessary to meet part quality requirements.
- Maximize the draining of bath solution back into the tank, as practicable, by extending drip time when removing parts; using drain boards (or drip shields); or withdrawing parts slowly from the tank.
- Optimize the design of barrels, racks, and parts to minimize drag out of bath solution, as practicable.
- Use tank covers, if already owned and available.
- Minimize or reduce heating of process tanks when doing so would not interrupt production or affect part quality.
- Perform regular repair, maintenance, and preventive maintenance of racks, barrels, and other equipment associated with affected sources.
- Minimize bath contamination by prevention or quick recovery of dropped parts, pre-cleaning of parts to be plated, use of distilled/de-ionized water, and thorough rinsing of pretreated parts prior to plating.
- Maintain quality control of chemicals, and chemical and other bath ingredient concentrations in the tanks.
- Perform general good housekeeping and periodic wash downs.
- Minimize spills and overflow of tanks.
- Use squeegee rolls in continuous or reel-to-reel plating tanks.
- Perform regular inspections to identify leaks and other opportunities for pollution prevention.

Electroless plating and other non-electrolytic metal coating processes such as chromate conversion, nickel acetate sealing, sodium dichromate sealing and manganese phosphate coating are only required to comply with the general management practices (these processes do not need to comply with the specific management practices below).

SPECIFIC MANAGEMENT PRACTICES

“Electrolytic” Process Tanks:

- Includes new and existing non-cyanide electroplating, electroforming, or electropolishing tanks that operate at a pH less than 12
- Choose one of the following three management options:
 - 1) **Use a wetting agent/fume suppressant (WAFS) in the bath of the tank.** WAFS is any chemical agent that reduces or suppresses fumes or mists from a plating and polishing tank by reducing the surface tension of the tank bath.
 - Must initially add the WAFS in the amounts recommended by the manufacturer for the specific type of process; and
 - Continue to add WAFS in proportion to the other bath chemistry ingredients that are added to replenish the tank bath.
 - If a WAFS is included in the electrolytic bath chemicals used in the affected tank according to the manufacturer’s instructions, it is not necessary to add additional WAFS to comply with this rule.
 - 2) **Capture and exhaust emissions from the tank to one of the following emission control devices: composite mesh pad, packed bed scrubber, or mesh pad mist eliminator.**
 - Operate all capture and control devices according to the manufacturer’s specifications and operating instructions.
 - Keep the manufacturer’s specifications and operating instructions at the facility at all times in a location where they can be easily accessed by the operators.
 - 3) **Install a tank cover.**
 - Batch electrolytic process tanks:** Cover all of the effective surface area of the tank for at least **95%** of the electrolytic process operating time.
A batch tank is a tank in which parts, typically mounted on a rack or placed in a barrel, are immersed as a single unit for a predetermined period of time during which none of the parts are removed from the tank.
 - Continuous electrolytic process tanks:** Cover at least **75%** of the surface of the tank whenever the electrolytic process tank is in operation.
A continuous tank is a tank in which a continuous metal strip or other type of continuous substrate is fed into and removed from the tank continuously.

“Flash” or Short-Term Electroplating Tank:

- Includes new and existing tanks
- Must choose one of the two following management options:
 - 1) **Limit short-term or “flash” electroplating**
 - The tank shall operate no more than 1 cumulative hour per day **OR** 3 cumulative minutes per hour of plating time.
 - 2) **Install a tank cover**
 - Use a tank cover over all of the effective surface area of the tank for at least **95%** of the plating time.

Note: If your short-term electroplating tank is ever used for more than 1 cumulative hour per day or 3 cumulative minutes per hour of plating time, during those periods you must meet the one of the specific management options for “Electrolytic” Process Tanks above.

Electroplating Tanks that use Cyanide in the Plating Bath:

- Includes new and existing tanks that operate at pH **greater than or equal to 12**
- Measure and record the pH of the tank upon start-up. No additional pH measurements are required.

COMPLIANCE DEMONSTRATION

Initial Compliance

- Demonstrate initial compliance with the following requirements:
 - Comply with both the general and specific management practices for your tank type(s);
 - Submit Notification of Compliance Status stating that the general management practices are being followed and the specific management option(s) for your tank(s) have been implemented;
 - Follow the manufacturer's specifications and operating instructions at all times;
 - Statement that manufacturer's specifications have been followed on WAFS or control equipment usage.

Continuous Compliance

- Demonstrate continuous compliance with the following requirements:
 - Comply with both the general and specific management practices for your tank(s);
 - Always maintain and operate your affected source, including air pollution control equipment.
 - Prepare an annual compliance certification and keep it readily accessible.
 - Follow the additional compliance demonstrations below for your tank management practice(s):
 - WAFS being used:**
 - Record each time WAFS is added to the tank bath
 - Or**
 - Record that the WAFS was added in the original make-up of the tank;
 - Certify annually that WAFS was added to bath according to the manufacturer's specifications and instructions.
 - Control Equipment used** (i.e. composite mesh pad, packed bed scrubber, or mesh pad mist eliminator):
 - Take immediate corrective action following any malfunction of the control equipment or capture system;
 - Certify annually that manufacturer's specifications and instructions have been followed;
 - Record results of all control system inspections, deviations from proper operation, and corrective actions.
 - Plating Time Limited:**
 - Record the times the tank(s) is operated each day.
 - Certify annually that you have limited electroplating to no more than 1 cumulative hour per day or 3 cumulative minutes per hour of plating time.
 - Tank Cover on a Batch Operation or a "Flash" or Short Term Electroplating Tank:**
 - Keep daily records of time(s) the tank is operated and the time(s) the cover is in place.
 - Certify annually that you have operated the tank with the cover in place at least 95% of the electrolytic process or plating time.
 - Tank Cover on a Continuous Operation:**
 - Certify annually that you have operated the tank with at least 75% of the surface covered during all periods of electrolytic process operation.

Please refer to the full rule text of 40 CFR Part 63, Subpart WWWW (available at <http://www.epa.gov/ttn/atw/area/compilation.html>) to determine all applicable equipment requirements, management practices, monitoring requirements, recordkeeping requirements and reporting requirements necessary to be in compliance with this rule.

Additional information is available at <http://www.iowadnr.gov/air/prof/NESHAP/>

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Summary of Requirements: Dry Mechanical Polishing

The following requirements shall be followed in addition to the general summary of requirements, if the facility owns or operates affected new or existing **DRY MECHANICAL POLISHING EQUIPMENT** that has the **potential to emit** one or more PPMHAP.

Dry Mechanical Polishing is defined as a process used for removing defects from and smoothing the surface of finished metals and formed products after plating with any of the PPMHAP using hard-faced abrasive wheels or belts and where no liquids or fluids are used to trap the removed metal particles.

MANAGEMENT PRACTICES

- Operate a capture system for PM emissions from the polishing operation **and** exhaust them to a cartridge, fabric filter or High Efficiency Particulate Air (HEPA) filter according to the following guidelines:
 - Operate all capture and control devices according to the manufacturer's specifications and operating instructions.
 - Keep the manufacturer's specifications and operating instructions at the facility at all times in a location where they can be easily accessed by the operators.

COMPLIANCE DEMONSTRATION

Initial Compliance

- Demonstrate initial compliance with the following requirements:
 - Comply with the management practices;
 - Submit Notification of Compliance Status stating that you have installed and are operating the control system according to the manufacturer's specification and instructions;
 - Follow the manufacturer's specifications and operating instructions at all times;

Continuous Compliance

- Demonstrate continuous compliance with the following requirements:
 - Comply with the management practices;
 - Operate and maintain air pollution control equipment
 - Take immediate corrective action following any malfunction of the control equipment or capture system;
 - Prepare an annual compliance report and certify that manufacturer's specifications and instructions have been followed;
 - Record results of all control system inspections, deviations from proper operation, and corrective actions.

Please refer to the full rule text of 40 CFR Part 63, Subpart WWWWWW (available at <http://www.epa.gov/ttn/atw/area/compilation.html>) to determine all applicable equipment requirements, management practices, monitoring requirements, recordkeeping requirements and reporting requirements necessary to be in compliance with this rule.

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Summary of Requirements: Process – Thermal Spraying

The following requirements shall be followed in addition to the general summary of requirements, if the facility owns or operates affected **THERMAL SPRAYING EQUIPMENT** that applies one or more PPMHAP.

Thermal spraying (a.k.a. metal spraying or flame spraying) operations are divided into two categories: permanent and temporary. A temporary thermal spraying operation is defined as a thermal spraying operation that lasts no more than 1 hour in duration during any one day and is conducted in situ. Thermal spraying that is conducted in a dedicated thermal spray booth or structure is not considered to be temporary.

MANAGEMENT PRACTICES

Permanent Thermal Spraying Operation:

- Operate a capture system for PM emissions from the thermal spraying operation and exhaust them to a fabric filter, or HEPA filter.
- PM emissions can be exhausted to a water curtain ONLY if the thermal spraying operation is existing.
- Operate all capture and control devices according to the manufacturer's specifications and operating instructions; and
- Keep the manufacturer's specifications and operating instructions at the facility at all times in a location where they can be easily accessed by the operators.

Temporary Thermal Spraying Operation:

- Document the amount of time the thermal spraying occurs each day, and where it is conducted.
- Perform regular repair, maintenance, and preventive maintenance of equipment associated with affected sources;
- Perform general good housekeeping;
- Perform regular inspections to identify opportunities for pollution prevention.

COMPLIANCE DEMONSTRATION - Permanent Thermal Spraying Operation

Initial Compliance:

- Demonstrate initial compliance with the following requirements:
 - Comply with the management practices;
 - Submit Notification of Compliance Status stating that you have installed and are operating the control system according to the manufacturer's specification and instructions;
 -
 - Follow the manufacturer's specifications and operating instructions at all times.

Continuous Compliance:

- Comply with the management practices;
- Operate and maintain the control system according to the manufacturer's specification and instructions;
- Take immediate corrective action following any malfunction of the control equipment or capture system;
- Prepare an annual compliance report and certify that manufacturer's specifications and instructions have been followed;
- Record results of all control system inspections, deviations from proper operation, and corrective actions;

COMPLIANCE DEMONSTRATION - Temporary Thermal Spraying Operation

Initial Compliance:

- Demonstrate initial compliance with the following requirements:
 - Comply with the management practices;
 - Submit Notification of Compliance Status stating that you have implemented the above management practices.

Continuous Compliance:

- Implement the management practices during all times the process is in operation;
- Prepare an annual compliance report and certify annually that you have implemented the management practices.

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