

Department of Environmental Quality  
Air Quality Program

**GENERAL  
AIR CONTAMINANT DISCHARGE PERMIT  
ASSESSMENT REPORT**

**PLATING AND POLISHING**

SOURCE DESCRIPTION AND QUALIFICATION

1. This General Permit is designed to regulate air contaminant emissions from plating and polishing operations subject to the Plating and Polishing Operations NESHAP (40 C.F.R. part 63 subpart WWWW). The Plating and Polishing Operations NESHAP regulates facilities engaged in one or more of the following operations that uses, or has emissions of, compounds of one or more plating and polishing metal HAP. Plating and polishing metal HAP means any compound of the following metals: cadmium, chromium, lead, manganese, and nickel. With the exception of lead, plating and polishing metal HAP also include any of these metals in the elemental form.
  - Electroplating other than chromium electroplating (i.e., non-chromium electroplating)
  - Electroless or non-electrolytic plating
  - Other non-electrolytic metal coating processes, such as chromate conversion coating, nickel acetate sealing, sodium dichromate sealing, and manganese phosphate coating; and thermal spraying
  - Dry mechanical polishing of finished metals and formed products after plating
  - Electroforming
  - Electropolishing
2. This General Permit does not apply to:
  - Process units that are subject to the requirements of 40 C.F.R. part 63, subpart N (National Emission Standards for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks).
  - Research and development process units, as defined in 40 C.F.R. §63.11511.
  - Process units that are used strictly for educational purposes.
  - Thermal spraying conducted to repair surfaces; dry mechanical polishing conducted to restore the original finish to a surface to apply to restoring the original finish.
  - Any plating or polishing process that does not use any material that contains cadmium, chromium, lead, or nickel in amounts of 0.1 percent or more by weight, or that contains manganese in amounts of 1.0 percent or more by weight, as reported on the Material Safety Data Sheet for the material.
3. Facilities eligible for assignment to this permit have not experienced recurring or serious compliance problems.

4. If this General Permit does not cover all requirements applicable to the facility, the other applicable requirements must be covered by assignment to one or more General Permit Attachments in accordance with OAR 340-216-0062, otherwise the facility must obtain a Simple or Standard Permit.
5. A facility requesting to be assigned to a General Permit Attachment, in accordance with OAR 340-216-0062, for a source category in a higher annual fee class, must be reassigned to the General Permit for the source category in the higher annual fee class.

#### ASSESSMENT OF EMISSIONS

6. Facilities assigned to this General Permit may be sources of particulate matter (PM) and hazardous air pollutant (HAP) emissions.
7. DEQ has assessed the level of emissions from these facilities and determined that facilities complying with the operational limits and monitoring requirements of this permit will remain area sources of emissions.

#### SPECIFIC AIR PROGRAM APPLICABILITY

8. Facilities assigned to this General Permit are subject to the general visible emissions standards and nuisance requirements (control of fugitive dust and odors) in OAR Chapter 340, Division 208. The permit contains requirements and limitations to ensure compliance with these standards.
9. This permit incorporates the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations in 40 C.F.R. Part 63, Subpart WWWW, for Plating and Polishing Operations. EPA promulgated the NESHAP on July 1, 2008. The NESHAP is adopted as state rule in OAR 340-244-0220.
10. DEQ conducted a general activity-based risk screening for plating and polishing sources. This permit requires that sources with nickel-emitting tanks install tank covers on a specified timeline, unless otherwise approved by DEQ. Approval to not install tank covers will be limited to permittees that demonstrate that all nickel-containing tanks are controlled by a composite mesh pad, packed bed scrubber, or mesh pad mist eliminator. Additionally, permittees must not use any wetting agent or fume suppressants that contain per- or polyfluoroalkyl substances. Permittees can use existing purchased inventory of these fume suppressants until they are exhausted.

#### COMPLIANCE ASSURANCE

11. Permittees are required to maintain records of notifications, startup and shutdowns, malfunctions, maintenance activities, production, compliance, work practice activities, equipment manufacturer documentation, and complaints received at the facility that relate to air pollution concerns. These items are reported to DEQ annually, as applicable.

12. DEQ staff members review annual report submittals and perform site inspections of the permitted facilities on a routine basis; inspections may be performed more frequently if complaints are received.

#### REVOCAATION OF ASSIGNMENT

13. Any facility that fails to demonstrate compliance or fails to conform to the requirements and limitations contained in the permit may have its assignment to the General Permit revoked. The facility would then be subject to a more stringent level of permitting.

#### PUBLIC NOTICE

14. General Air Contaminant Discharge Permits are authorized by Oregon Administrative Rules and are part of the State Implementation Plan. As part of the General ACDP issuance process under OAR chapter 340 division 209, the public was provided at least 30 days to submit written comments. DEQ reviewed all comments received within the comment period and modified the permit in response to the comments.

#### DEFINITIONS

The terms in the permit not defined below use the definitions found in OAR 340-200-0020, OAR 340-244-0030, 40 C.F.R. part 63 subpart A (General Provisions §63.2), or 40 C.F.R. part 63 subpart WWWWWW (§63.11511).

**Batch electrolytic process tank** means a tank used for an electrolytic process in which a part or group of parts, typically mounted on racks or placed in barrels, is placed in the tank and immersed in an electrolytic process solution as a single unit (i.e., as a batch) for a predetermined period of time, during which none of the parts are removed from the tank and no other parts are added to the tank, and after which the part or parts are removed from the tank as a unit.

**Bench-scale** means any operation that is small enough to be performed on a bench, table, or similar structure so that the equipment is not directly contacting the floor.

**Composite mesh pad** means a type of control device similar to a mesh pad mist eliminator except that the device is designed with multiple pads in series that are woven with layers of material with varying fiber diameters, which produce a coalescing effect on the droplets or PM that impinge upon the pads.

**Continuous electrolytic process tank** means a tank that uses an electrolytic process and in which a continuous metal strip or other type of continuous substrate is fed into and removed from the tank continuously. This process is also called reel-to-reel electrolytic plating.

**Cyanide plating** means plating processes performed in tanks that use cyanide as a major bath ingredient and that operate at pH of 12 or more, and use or emit any of the plating and polishing metal HAP. The cyanide in the bath works to dissolve the HAP metal added as a cyanide compound (e.g., cadmium cyanide) and creates free cyanide in solution, which helps to corrode the anode. These tanks are self-regulating to a pH of 12 due to the caustic nature of the cyanide bath chemistry.

**Deviation** means any instance in which an affected source fails to meet any Condition of the permit. This includes but is not limited to, any equipment standard (including emissions and operating limits), management practice, or operation and maintenance requirement. Deviation also includes failing to meet any Condition of this permit during startup, shutdown, or malfunction.

**Dry mechanical polishing** means a process used for removing defects from and smoothing the surface of finished metals and formed products after plating or thermal spraying with any of the plating and polishing metal HAP using automatic or manually-operated machines that have hard-faced abrasive wheels or belts and where no liquids or fluids are used to trap the removed metal particles. The affected process does not include polishing with use of pastes, liquids, lubricants, or any other added materials.

**Electroless plating** means a non-electrolytic process that uses or emits any of the plating and polishing metal HAP in which metallic ions in a plating bath or solution are reduced to form a metal coating at the surface of a catalytic substrate without the use of external electrical energy. Electroless plating is also called non-electrolytic plating. Examples include, but are not limited to, chromate conversion coating, nickel acetate sealing, sodium dichromate sealing, and manganese phosphate coating.

**Electrolytic plating processes** means electroplating and electroforming that use or emit any of the plating and polishing metal HAP where metallic ions in a plating bath or solution are reduced to form a metal coating on the surface of parts and products using electrical energy.

**Electroplating** means an electrolytic process that uses or emits any of the plating and polishing metal HAP in which metal ions in solution are reduced onto the surface of the work piece (the cathode) via an electrical current. The metal ions in the solution are usually replenished by the dissolution of metal from solid metal anodes fabricated of the same metal being plated, or by direct replenishment of the solution with metal salts or oxides; electroplating is also called electrolytic plating.

**Electropolishing** means an electrolytic process performed in a tank after plating that uses or emits any of the plating and polishing metal HAP in which a work piece is attached to an anode immersed in a bath, and the metal substrate is dissolved electrolytically, thereby removing the surface contaminant; electropolishing is also called electrolytic polishing. For the purposes of this permit, electropolishing does not include bench-scale operations.

**Flash electroplating (or short-term electroplating)** means an electrolytic process performed in a tank that uses or emits any of the plating and polishing metal HAP and that is used no more than 3 cumulative minutes per hour or no more than 1 cumulative hour per day.

**Mesh pad mist eliminator** means a type of control device, consisting of layers of interlocked filaments densely packed between two supporting grids that remove liquid droplets and PM from the gas stream through inertial impaction and direct interception.

**Metal HAP content of material used in plating and polishing** means either 1) for plating, metal coating, or electropolishing this is the HAP content as determined from an analysis or engineering estimate of the HAP contents of the tank bath or solution; or 2) for thermal spraying this is the HAP content of the metal coating being applied. Safety data sheet (SDS) information may be used in lieu of testing or engineering estimates.

**Non-cyanide electrolytic plating and electropolishing processes** means electroplating, electroforming, and electropolishing that uses or emits any of the plating and polishing metal HAP performed without cyanide in the tank. These processes do not use cyanide in the tank and operate at pH values less than 12. These processes use electricity and add or remove metals such as metal HAP from parts and products used in manufacturing. Both electroplating and electroforming can be performed with cyanide as well.

**Non-electrolytic plating** means a process that uses or emits any of the plating and polishing metal HAP in which metallic ions in a plating bath or solution are reduced to form a metal coating at the surface of a

catalytic substrate without the use of external electrical energy. Non-electrolytic plating is also called electroless plating. Examples include chromate conversion coating, nickel acetate sealing, electroless nickel plating, sodium dichromate sealing, and manganese phosphate coating.

**Plating and polishing facility** means a facility engaged in one or more of the following processes that uses or emits any of the plating and polishing metal HAP: electroplating processes other than chromium electroplating (i.e., non-chromium electroplating); electroless plating; other non-electrolytic metal coating processes performed in a tank, such as chromate conversion coating, nickel acetate sealing, sodium dichromate sealing, and manganese phosphate coating; thermal spraying; and the dry mechanical polishing of finished metals and formed products after plating or thermal spraying. Plating is performed in a tank or thermally sprayed so that a metal coating is irreversibly applied to an object. Plating and polishing does not include any bench-scale processes.

**Plating and polishing metal HAP** means any compound of any of the following metals: cadmium, chromium, lead, manganese, and nickel, or any of these metals in the elemental form, with the exception of lead. Any material that contains cadmium, chromium, lead, or nickel in amounts greater than or equal to 0.1 percent by weight (as the metal), and contains manganese in amounts greater than or equal to 1.0 percent by weight (as the metal), as reported on the Material Safety Data Sheet for the material, is considered to be a plating and polishing metal HAP.

**Plating and polishing process tanks** means any tank in which a process is performed at an affected plating and polishing facility that uses or has the potential to emit any of the plating and polishing metal HAP. This term does not include tanks containing solutions that are used to clean, rinse or wash parts prior to placing the parts in a plating and polishing process tank, or subsequent to removing the parts from a plating and polishing process tank. This term also does not include any bench-scale operations.

**Repair** means any process used to return a finished object or tool back to its original function or shape.

**Short-term electroplating:** (see flash electroplating).

**Startup of the tank bath** is when the components or relative proportions of the various components in the bath have been altered from the most recent operating period. Startup of the bath does not include events where only the tank's heating or agitation and other mechanical operations are turned back on after being turned off for a period of time.

**Temporary thermal spraying** means a thermal spraying operation that uses or emits any of the plating and polishing metal HAP and 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 thermal spraying.

**Thermal spraying (also referred to as metal spraying or flame spraying)** is a process that uses or emits any of the plating and polishing metal HAP in which a metallic coating is applied by projecting heated, molten, or semi-molten metal particles onto a substrate. Commonly-used thermal spraying methods include high velocity oxy-fuel (HVOF) spraying, flame spraying, electric arc spraying, plasma arc spraying, and detonation gun spraying. This operation does not include spray painting at ambient temperatures.

COMMENTS AND RESPONSES

Comment	Temporary Thermal Spraying is defined in Condition 16 but refers incorrectly to ‘as defined in this section’.
Response	The definition of ‘temporary thermal spraying’ in Condition 16 has been revised to refer to the description of plating and polishing HAP in Condition 1.1.b.
Comment	Condition 8.1.a. states “the permittee must operate and maintain all control devices...” The language under 40 CFR 63.11507(e)(1) includes “...operate and maintain all <b>capture and</b> control devices...”
Response	Condition 8.1a has been revised to include ‘capture and’ to better align with the language of the NESHAP.
Comment	Condition 10.0 deviates from the language under 40 CFR 63.11507(g). The Condition should read: “The requirements within this section apply to each affected new or existing plating and polishing process unit identified within Conditions 4.0 through 9.0 that contains, applies, or emits one or more of the plating and polishing metal HAP.”
Response	Condition 10.0 has been revised as suggested to align with the NESHAP language more closely.
Comment	Condition 10.1 does not include several “as practicable” qualifiers and substitutes “possible” for “practicable” in one case. The ‘as practicable’ qualifiers are missing on Conditions 10.1.b.-k.
Response	Condition 10.1 has been modified to remove the language ‘as applicable’ to clearly state the intent of the permit Condition. DEQ has determined that these work practices are required to be implemented and complied with for a source to remain in compliance with the permit; DEQ has also determined that they are reasonable work practices for each facility subject to NESHAP WWWW and which has elected to apply for assignment to a General ACDP. DEQ has removed the language ‘whenever possible’ regarding tank lids.
Comment	Condition 12.2.a requires a submittal of an amended Notification of Compliance Status for changes to 12.2.a.ii and not for 12.2.a.vi. This is opposite of what the NESHAP language states.
Response	The Notification of Compliance Status permit Conditions have been modified to remove the reference to a 30-day notification required for 12.a.ii and has been added to 12.2.a.vi to align with the NESHAP.

Comment	The permit appears to not have a recordkeeping or reporting requirement for tank ampere-hours. DEQ should include this requirement.
Response	DEQ agrees that tank ampere hours are a necessary component to calculate facility emissions. DEQ has modified the draft permit to include tank ampere hours for plating and polishing facilities under recordkeeping and reporting. To account for existing permitted facilities that may not yet have necessary equipment, DEQ has provided permittees who have applied for reassignment an option to request additional time to procure and install this equipment, to be no later than July 1, 2022.
Comment	Manufacturer instructions may not be available if the equipment is very old.
Response	As there may be situations in which facilities are automatically out of compliance with the permit if manufacturer instructions are not available, DEQ has revised the recordkeeping Condition regarding manufacturer documentation to provide sources with an avenue to create Standard Operating Procedures that must be based on available manufacturer documentation of similar equipment.

AQGP-026r, plating and polishing. 03/02/2010. 2/4/2021: DRD.