

Electroplating (non-cyanide), Electroforming, or Electropolishing Tanks containing Plating and Polishing Metal HAP and Operating at a pH of less than 12

Cadmium, Chromium, Lead, Manganese, and Nickel
Generally Available Control Technology (GACT)
73 FR 37741, July 1, 2008; as amended at 76 FR 57919, Sept. 19, 2011
<http://ecfr.gpoaccess.gov/>

Control Practices

Option 1: Utilization of a wetting agent/fume suppressant in the bath of the affected tank in amounts as recommended by the manufacturer.

1. Initially add the wetting agent/fume suppressant unless it is part of the original bath chemistry.
2. Add wetting agent/fume suppressant in proportion to the other bath chemistry ingredients to replenish the tank bath as needed.

Option 2: Capture and exhaust emissions to a composite mesh pad, packed bed scrubber, or mesh pad mist eliminator.

1. Operate capture and control devices according to the manufacturer's specifications and operating instructions.
2. Maintain and make available the manufacturer's specifications and operating instructions.

Option 3: Cover the tanks.

1. Regarding *batch electrolytic process tanks*, use a tank cover over the effective surface area of the tank at least 95 percent of operating time.
2. Regarding *continuous electrolytic process tanks*, cover at least 75 percent of the surface of the tank during operation.

Management practices, as practicable

1. Minimize bath agitation when removing parts except as necessary to meet part quality requirements.
2. Maximize drip time when removing parts using drain boards and drip shields or withdrawing parts slowly.
3. Minimize the drag-out of bath solution through the design of barrels, racks, and parts such as slotted barrels, tilted racks, and flow-through holes.
4. Use tank covers if available.
5. Minimize tank heating without adversely affecting production or part quality.
6. Repair and maintain racks, barrels, and other equipment.
7. Minimize bath contamination.
 - a. Preventing or quickly recovering dropped parts
 - b. Utilization of distilled/de-ionized water

- c. Water filtration
 - d. Pre-cleaning parts to be plated
 - e. Thorough rinsing of pretreated parts to be plated
8. Maintain bath chemistry through process control.
 9. Perform good housekeeping including sweeping, vacuuming, and periodic wash-downs as necessary.
 10. Minimize spills and tank overflows.
 11. Use squeegee rolls in continuous or reel-to-reel plating tanks.
 12. Conduct leak detection inspections.
 13. Identify opportunities for pollution prevention.

Exclusions from this Regulation

This regulation exempts the following operations:

- Hard and decorative chromium electroplating
- Chromium anodizing
- Plating and polishing conducted for:
 - Research and development
 - Education
 - Repair of surfaces or equipment
 - Restoration of the original finish
- Dry mechanical polishing prior to plating
- Trace quantities of any one of the five (5) metals

Applicable Definitions

Batch electrolytic process tank means a tank utilized 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.

Bath means the liquid contents of a tank utilized for electroplating, electroforming, electropolishing, or other metal coating processes at a plating and polishing facility.

Capture system means the collection of components used to capture gases and fumes released from one (1) or more emissions points and then convey the captured gas stream to a control device, as part of a complete control system. A capture system may include, but is not limited to, the following components as applicable to a given capture system design: duct intake devices, hoods, enclosures, ductwork, dampers, manifolds, plenums, and fans.

Cartridge filter means a type of control device utilizing perforated metal cartridges containing a pleated paper or non-woven fibrous filter media to remove particulate matter (PM) from a gas stream by sieving and other mechanisms. Cartridge filters can be designed with single use cartridges which are removed and disposed after reaching capacity, or continuous use cartridges which typically are cleaned by means of a pulse-jet mechanism.

Composite mesh pad means a type of control device similar to a mesh pad mist eliminator except 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 impinging upon the pads.

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

Control device means equipment that is part of a control system collecting and/or reducing the quantity of a pollutant emitted to the air. The control device receives emissions transported from the process by the capture system.

Control system means the combination of a capture system and a control device. The capture system is designed to collect and transport air emissions from the affected source to the control device. The overall control efficiency of any control system is a combination of the ability of the system to capture the air emissions (*i.e.*, the capture efficiency) and the control device efficiency. Consequently, it is important to achieve good capture to ensure good overall control efficiency. Capture devices known to provide high capture efficiencies include hoods, enclosures, or any other duct intake devices with ductwork, dampers, manifolds, plenums, or fans.

Electrolytic plating processes means electroplating and electroforming operations using or emitting any of the plating and polishing metal HAP, as defined in this section, 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.

Packed-bed scrubber means a type of control device including a single or double packed bed containing packing media on which PM and droplets impinge and are removed from the gas stream. The packed-bed section of the scrubber is followed by a mist eliminator to remove any water entrained from the packed-bed section.

Tank cover for batch process units means a solid structure made of an impervious material designed to cover the entire open surface of a tank or process unit that is used for plating or other metal coating processes.

Tank cover for continuous process units means a solid structure or combination of structures, made of an impervious material designed to cover at least 75 percent of the open surface of the tank or process unit that is used for continuous plating or other continuous metal coating processes.

Wetting agent/fume suppressant means any chemical agent reducing or suppressing fumes or mists from a plating and polishing tank by reducing the surface tension of the tank bath.