

RULE 426. CHROME PLATING AND CHROMIC ACID ANODIZING

Adopted: 09/05/74

A. PURPOSE

To comply with the Air Resource Board's Hexavalent Chromium Airborne Toxic Control Measure for Decorative and Hard Chrome Plating and Chromic Acid Anodizing Facilities, as required by California Health and Safety Code Section 39666.

B. DEFINITIONS

For the purposes of this rule, the following definitions shall apply:

1. "Ampere-hours" means the integral of electrical current applied to a plating tank (amperes) over a period of time (hours).
2. "Anti-mist additive" means a chemical which reduces the emission rate from the tank when added to and maintained in the plating tank.
3. "Chrome" means metallic chrome.
4. "Chrome plating" means either hard or decorative chrome plating.
5. "Chromic acid" means an aqueous solution of chromium trioxide (CrO_3) or a commercial solution contain in chromic acid, dichromic acid (H_2CrO_7) or trichomic acid ($\text{H}_2\text{Cr}_3\text{O}_{10}$).
6. "Chromic acid anodizing" means the electrolytic process by which a metal surface is converted to an oxide surface coating in a solution containing chromic acid.
7. "Chromium" means hexavalent chromium.
8. "Control equipment" means any device which reduces emissions from the emissions collection system.
9. "Decorative chrome plating" means the process by which chromium is electrodeposited from a solution containing compounds of chromium onto an object resulting in a chrome layer 1 micron (0.04 mil) thick or less.
10. "Emission factor" means the mass of chromium emitted during a test conducted in the emissions collection system in accordance with ARB Test Method 425, divided by the ampere-hours consumed by the tanks in the tested emissions collection system, expressed as the mass of chromium emitted per ampere-hour of electrical current consumed.
11. "Emissions collection system" means a device or apparatus used to gather chromium emissions from the surface of a chrome plating or chromic acid anodizing tank or tanks.

12. "Facility" means a business or businesses engaged in chrome plating or chromic acid anodizing which are owned or operated by the same person or persons and are located on the same parcel or on contiguous parcels.
13. "Facilitywide emissions from hard chrome plating or chromic acid anodizing" means the total emissions from all hard chrome plating or chromic acid anodizing at the facility over a calendar year. Emissions shall be calculated as the sum of emissions from the emissions collection system at the facility. The emissions from an emissions collection system shall be calculated by multiplying the emission factor for that emissions collection system by the sum of ampere-hours consumed during that year for all of the tanks served by the emissions collection system.
14. "Hard chrome plating" means the process by which chromium is electrodeposited from a solution containing compounds of chromium onto an object resulting in a chrome layer thicker than 1 micron (0.04 mil).
15. "Plating tank" means any container used to hold a chromium or chromic acid solution for the purposes of chrome plating or chromic acid anodizing.
16. "Uncontrolled chromium emissions from the hard chrome plating or chromic acid anodizing facility" means the chromium emissions from the emissions collection systems at the facility calculated as if no control equipment is in use. For the purpose of determining compliance with this rule, the uncontrolled chromium emissions shall be calculated using an emission factor based on tests conducted in accordance with ARB Test Method 425 or 14 mg/ampere-hour, whichever is less.

C. REQUIREMENTS FOR DECORATIVE CHROME PLATING FACILITIES

1. No person shall operate a decorative chrome plating tank unless an anti-mist additive is continuously maintained in the plating tank, or control equipment is installed and used, in a manner which has been demonstrated to and approved by the Air Pollution Control Officer as reducing chromium emissions by 95 percent or more relative to chromium emissions when an anti-mist additive is not maintained, or control equipment is not installed and used.

D. REQUIREMENTS FOR HARD CHROME PLATING AND CHROMIC ACID ANODIZING FACILITIES

1. The owners or operators of all hard chrome plating and chromic acid anodizing facilities shall maintain a continuous record of current integrated over time (ampere-hours) for all plating tanks for each collection system used in the hard chrome plating or chromic acid anodizing operations and shall, by December 19, 1989, and upon request thereafter, submit the information to the Air Pollution Control Officer.
2. No person shall operate a plating tank for hard chrome plating or chromic acid anodizing unless the tank has an emissions collection system.

3. No person shall operate a hard chrome plating or chromic acid anodizing tank unless:
 - a. the chromium emissions from the emissions collection system serving the plating tank have been reduced by 95 percent or more of the uncontrolled chromium emissions or
 - b. the chromium emissions from the emissions collection system serving the plating tank have been reduced to less than 0.15 milligrams (mg) of chromium per ampere-hour of electrical charge applied to the plating tank.
4. No person shall operate a hard chrome plating tank or chromic acid anodizing tank at a facility if facilitywide chromium emissions from hard chrome plating or chromic acid anodizing are greater than 2 pounds per year, but less than 10 pounds per year, unless:
 - a. the chromium emissions from the emissions collection systems serving the plating tanks have been reduced by at least 99 percent of the uncontrolled chromium emissions from the hard chrome plating or chromic acid anodizing facility or
 - b. the chromium emissions from the emissions collection systems are reduced to less than 0.03 mg of chromium per ampere-hour of electrical charge applied to the tanks.
5. No person shall operate a hard chrome plating or chromic acid anodizing tank at a facility if facilitywide chromium emissions from hard chrome plating or chromic acid anodizing are 10 pounds per year or greater, unless:
 - a. the chromium emissions from the emissions collection systems serving the plating tanks have been reduced by at least 99.8 percent of the uncontrolled chromium emissions from the hard chrome plating or chromic acid anodizing facility or
 - b. the chromium emissions from the emissions collection systems are reduced to less than 0.006 mg of chromium per ampere-hour electrical charge applied to the tanks.

E. COMPLIANCE SCHEDULE - DECORATIVE CHROME PLATING FACILITIES

1. No later than December 19, 1989, the owners or operators of decorative chrome plating tanks must comply with the provisions of C (1).

F. COMPLIANCE SCHEDULE - HARD CHROME PLATING AND CHROMIC ACID ANODIZING FACILITIES

1. No later than June 19, 1990, the owner or operator of a hard chrome plating or chromic acid anodizing facility subject to Sections D (3) or D (5) shall submit to the Air Pollution Control Officer an application for an Authority to Construct the equipment necessary to meet the requirements of D (2) and D (3) and no later

than December 19, 1990, the facility shall be in compliance with the requirements of D (2) and D (3).

2. No later than December 19, 1990, the owner or operator of a hard chrome plating or chromic acid anodizing facility subject to D (4) shall submit to the Air Pollution Control Officer an application for an Authority to Construct the equipment necessary to meet the requirements of D (2) and D (4) and no later than June 19, 1991 the facility shall be in compliance with the requirements of D (2) and D (4).
3. No later than December 19, 1991 the owner or operator of a hard chrome plating or chromic acid anodizing facility subject to D (5) shall submit to the Air Pollution Control Officer an application for an Authority to Construct the equipment necessary to meet the requirements of D (5) and no later than June 19, 1993 the facility shall be in compliance with the requirements of D (5).

[Intentionally left blank.]