

**REGULATION IX
TOXIC AIR CONTAMINANTS**

RULE 901

**AIRBORNE CHROMIUM CONTROL MEASURE
HEXAVALENT CHROMIUM FROM CHROME PLATING
AND
CHROMIC ACID ANODIZING OPERATIONS**

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RULE 901 **Airborne Chromium Control Measure** Emissions of Hexavalent Chromium from Chrome Plating and Chromic Acid Anodizing Operations.

PART 1 **General**

1.1 **Purpose**

To comply with Health and Safety Code Section 39666 by reducing hexavalent chromium emissions from plating and acid anodizing operations.

1.2 **Applicability**

This regulation shall apply to any new or existing chrome plating or chromic acid anodizing operation located in the Northern Sierra Air Quality Management District.

PART 2 **Definitions**

- A. **Ampere-Hours**: The integral of electrical current applied to a plating tank (amperes) over a period of time (hours).
- B. **Anti-Mist Additive**: A chemical which reduces the emission rate from the tank when added to and maintained in the plating tank.
- C. **Chrome**: Metallic chrome.
- D. **Chrome Plating**: Either hard or decorative chrome plating.
- E. **Chromic Acid**: An aqueous solution of chromium trioxide (CrO₃) or a commercial solution containing chromic acid, dichromic acid (H₂CrO₇) or trichromic acid (H₂Cr₃O₁₀).
- F. **Chromic Acid Anodizing**: The electrolytic process by which a metal surface is converted to an oxide surface coating in a solution containing chromic acid.

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- G. **Chromium**: Hexavalent chromium.
- H. **Control Equipment**: Any device which reduces emissions from the emissions collection system.
- I. **Decorative Chrome Plating**: 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.
- J. **Emission Factor**: 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.
- K. **Emissions Collection System**: A device or apparatus used to gather chromium emissions from the surface of a chrome plating or chromic acid anodizing tank or tanks.
- L. **Facility**: 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.
- M. **Facility-wide Emissions from Hard Chrome Plating or Chromic Acid Anodizing**: The total emissions from all 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.
- N. **Hard Chrome Plating**: 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).
- O. **Plating Tank**: Any container used to hold a chromium or chromic acid solution for the purposes of chrome plating or chromic acid anodizing.

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- P. **Uncontrolled Chromium Emissions from the Hard Chrome Plating or Chromic Acid Anodizing Facility:** 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.

PART 3 **STANDARDS**

3.1 **Requirements for Decorative Chrome Plating Facilities**

- A. 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 District 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.

3.2 **Requirements for Hard Chrome Plating and Chromic Acid Anodizing Facilities**

- A. The owner 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, within six months after District adoption of regulations enacting this control measure (10/27/90), and upon request thereafter, submit the information to the District Air Pollution Control Officer.
- B. No person shall operate a plating tank for hard chrome plating or chromic acid anodizing unless the tank has an emissions collection system.
- C. No person shall operate a hard chrome plating or chromic acid anodizing tank unless:
1. 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;

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2. 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.
- D. No person shall operate a hard chrome plating tank or chromic acid anodizing tank at a facility, if facility-wide 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:
1. 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;
 2. 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.
- E. No person shall operate a hard chrome plating tank or chromic acid anodizing tank at a facility, if facility-wide chromium emissions from hard chrome plating or chromic acid anodizing are 10 pounds per year or greater, unless:
1. 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;
 2. The chromium emissions from the emissions collection systems are reduced to less than 0.006 mg of chromium per ampere-hour of electrical charge applied to the tanks.

PART 4 **Administrative Requirements**

4.1 **Compliance Schedule - Decorative Chrome Plating Facilities**

- A. No later than six months after District adoption of regulations enacting this control measure (10/27/90), the owners or operators of existing decorative chrome plating tanks must comply with the provisions of Section 3.1.A.

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4.2 **Compliance Schedule - Hard Chrome Plating and Chromic Acid Anodizing Facilities**

- A. No later than twelve months after District adoption of regulations enacting this control measure (04/27/91), the owner or operator of a hard chrome plating or chromic acid anodizing facility subject to section of 3.2.C. shall submit to the District Air Pollution Control Officer an application for an Authority to Construct the equipment necessary to meet the requirements of 3.2.C.1 or 3.2.C.2, and no later than eighteen months after District adoption of regulations on enacting this control measure (10/27/91), the facility shall be in compliance with the requirements of 3.2.C.1 or 3.2.C.2.

- B. No later than eighteen months after District adoption of regulations enacting this control measure (10/27/91), the owner or operator of a hard chrome plating or chromic acid anodizing facility subject to sections of 3.2.D.1 shall submit to the District Air Pollution Control Officer an application for an Authority to Construct the equipment necessary to meet the requirements of 3.2.B. or 3.2.D., and no later than twenty-four months after District adoption of regulations enacting this control measure (04/27/92), the facility shall be in compliance with the requirements of 3.2.B or 3.2.D.

- C. No later than thirty months after District adoption of regulations enacting this control measure (10/25/92), the owner or operator of a hard chrome plating or chromic acid anodizing facility subject to sections of 3.2.E. shall submit to the District Air Pollution Control Officer, an application for an Authority to Construct the equipment necessary to meet the requirements of 3.2.E., and no later than forty-eight months after District adoption of regulations on enacting this control enacting this control measure (04/27/94), the facility shall be in compliance with the requirements of 3.2.E.