RULE 334. CONTROL OF HEXAVALENT CHROMIUM EMISSIONS FROM CHROME PLATING AND CHROMIC ACID ANODIZING. (Adopted 7/11/1989)

A. Applicability

This rule applies to any chrome plating or chromic acid anodizing process which uses hexavalent chromium.

B. Definitions

For the purpose 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, approved by the Air Pollution Control Officer, 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 containing chromic acid, (H_2CrO_4) dichromic acid ($H_2Cr_2O_7$, or trichromic acid ($H_2Cr_3O_{10}$).

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 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. "**Existing facility**" means any facility complete and in operation or which will be complete and ready for use by September 11, 1989.

13. "**Facility**" means any equipment or group of equipment used in chrome plating or chromic acid anodizing located on the same stationary source.

14. "**Facility-wide emissions from hard chrome plating or chromic acid anodizing**" means the total emissions from all hard chrome plating and 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.

15. "**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).

16. "**Tank**" means any container used to hold a chromium or chromic acid solution for the purposes of chrome plating or chromic acid anodizing.

17. "**Uncontrolled chromium emissions**" means the chromium emissions from hard chrome plating or chromic acid anodizing tanks collected by an emissions collection system 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 milligrams of chromium per ampere-hour, whichever is less.

18. "**Under construction**" means that onsite physical construction has started but the facility will not be completed and ready for use by September 11, 1989.

C. Requirements - Decorative Chrome Plating Facilities

No person shall operate or permit the operation of 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 - Hard Chrome Plating and Chromic Acid Anodizing Facilities

1. No person shall operate or permit the operation of a tank for hard chrome plating or chromic acid anodizing unless the tank has an emissions collection system.

2. No person shall operate or permit the operation of a tank or group of tanks for hard chrome plating or chromic acid anodizing unless a continuous recording ampere-hour meter is installed and operating on the electrical power lines connected to each tank or group of tanks served by an emissions collection system. A separate meter shall be installed for each emissions collection system.

3. No person shall operate or permit the operation of a tank for hard chrome plating or chromic acid anodizing unless:

   a. The chromium emissions from the emissions collection system serving the 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 of chromium per ampere-hour of electrical charge applied to the plating tank.

4. No person shall operate or permit the operation of a tank for hard chrome plating or chromic acid anodizing at a facility if facility-wide chromium emissions from hard chrome plating and chromic acid anodizing are equal to or greater than 2 pounds per year, but less than 10 pound per year, unless:

a. The chromium emissions from each emissions collection system serving the plating tanks have been reduced by at least 99 percent of the uncontrolled chromium emissions; or,

b. The chromium emissions from each emissions collection system are reduced to less than 0.03 milligrams of chromium per ampere-hour of electrical charge applied to the tanks.

5. No person shall operate or permit the operation of a tank for hard chrome plating or chromic acid anodizing at a facility if facility-wide chromium emissions from hard chrome plating and chromic acid anodizing are 10 pounds per year or greater, unless:

a. The chromium emissions from each emissions collection system serving the plating tanks have been reduced by at least 99.8 percent of the uncontrolled chromium emissions; or,

b. The chromium emissions from each emissions collection system are reduced to less than 0.006 milligrams of chromium per ampere-hour electrical charge applied to the tanks.

E. Requirement - Recordkeeping

1. The owner or operator of any decorative plating tank shall maintain a record of anti-mist additive concentrations or any other measurements recommended by the manufacturer's specification or the Air Pollution Control Officer.

2. The owner or operator of any hard chrome plating or chromic acid anodizing facility shall maintain a continuous record of current, integrated over time (ampere-hours), for each group of tanks, used in the hard chrome plating or chromic acid anodizing operations, whose emissions are collected by an emissions collections system. A separate record shall be maintained for each emissions control system.

3. The records required under Sections E.1 and E.2 shall be submitted to the District not later than 60 days after the close of each calendar year starting with Calendar Year 1989.

F. Test Methods

Emission testing shall be conducted in accordance with ARB Test Method 425.

G. Compliance Schedule

1. The owner or operator of any new or modified chromic acid plating or chromic acid anodizing facility shall comply with this rule when the facility is first operated or the appropriate compliance date, whichever occurs last.

2. The owner or operator of any chrome plating or chromic acid anodizing facility under construction at the time of rule adoption shall apply for an Authority to Construct not later than September 11, 1989.

3. The owner or operator of any existing decorative chrome plating facility, in compliance with Section C on September 11, 1989, shall apply for a Permit to Operate not later than September 11, 1989.

4. The owner or operator of any existing decorative chrome plating tank shall comply with the provisions of Section C not later than January 11, 1990. In addition, if not in compliance at the time of application, the owner or operator shall comply with the following schedule:

a. Apply for an Authority to Construct for alterations necessary to comply with Section C not later than September 11, 1989.

b. Complete alterations not later than December 11, 1989.

c. Arrange for any required District approved performance testing and District inspection not later than December 11, 1989.

d. Apply for a Permit to Operate not later than January 11, 1990.

5. The owner or operator of any existing hard chrome plating or chromic acid anodizing facility subject to Section D.2 shall comply with the requirements of Section D.2 not later than September 11, 1989.

6. The owner or operator of any existing hard chrome plating or chromic acid anodizing facility shall apply for a Permit to Operate not later than September 11, 1989.

7. The owner or operator of any existing hard chrome plating or chromic acid anodizing facility subject to Sections D.3 or D.5 shall meet the requirements of Sections D.1 and D.3 not later than January 11, 1991. In addition, the owner or operator shall comply with the following schedule:

a. Apply for an Authority to Construct for alterations necessary to comply with Sections D.1 and D.3 not later than April 11, 1990.

b. Complete construction not later than September 11, 1990.

c. Arrange for District approved performance testing and District inspection not later than October 11, 1990.

d. Apply for a Permit to Operate not later than November 11, 1990.

8. The owner or operator of any existing hard chrome plating or chromic acid anodizing facility subject to Section D.4 shall meet the requirements of Sections D.1 and D.4 not later than July 11, 1991. In addition, the owner or operator shall comply with the following schedule:

a. Apply for an Authority to Construct for necessary alterations to comply with Sections D.1. and D.4 not later than July 11, 1990.

b. Complete construction not later than March 11, 1991.

c. Arrange for District approved performance testing and District inspection not later than April 11, 1991.

d. Apply for a Permit to Operate not later than May 11, 1991.

9. The owner or operator of any existing hard chrome plating or chromic acid anodizing facility subject to Section D.5 shall meet the requirements of Section D.5 not later than July 11, 1993. In addition, the owner or operator shall comply with the following schedule:

a. Apply for an Authority to Construct for necessary alterations to attain compliance with Section D.5 not later than January 11, 1992.

b. Complete construction not later than March 11, 1993.

c. Arrange for District approved performance testing and District inspection not later than April 11, 1993.

~~d. Apply for a Permit to Operate not later than May 11, 1993.~~