RULE 1201. HEXAVALENT CHROMIUM - CHROME PLATING AND CHROMIC ACID ANODIZING (Rev. Effective 5/28/91)

(a) APPLICABILITY

This rule shall apply to any stationary source which operates chrome plating or chromic acid anodizing equipment using hexavalent chromium compounds.

(b) EXEMPTIONS

The provisions of Sections (d) and (e) of this rule shall not apply to non-immersion plating or anodizing operations in which the plating or anodizing solution is applied to the part being plated or anodized by use of a brush or stylus for the purposes of touch-up or repair.

(c) DEFINITIONS (Rev. Effective 5/28/91)

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

(1) "**Ampere-Hour"** 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 of hexavalent chromium when added to and maintained in a chrome plating tank.

(3) **"Chrome Plating"** means hard chrome plating or decorative chrome plating.

(4) **"Chromic Acid**" means an aqueous solution of chromium trioxide (CrO_3) or a commercial solution containing chromium trioxide, dichromic acid ($H_2Cr_2O_7$) or trichromic acid ($H_2Cr_3O_{10}$).

(5) **"Chromic Acid Anodizing**" means the electrolytic process by which a metal surface is converted to an oxide surface coating by the action of a solution containing chromic acid.

(6) **"Chromium"** means hexavalent chromium. Hexavalent chromium refers to the valence state of +6 for the chromium in the aqueous solution.

(7) **"Control Equipment"** means any device which reduces chromium air contaminant emissions from an emissions collection system and which has been approved by the Air Pollution Control Officer.

(8) **"Decorative Chrome Plating"** means the process by which chromium is electrodeposited from a solution containing compounds of chromium onto an object resulting in a metallic chromium layer less than or equal to 1 micron (0.00004 inch).

(9) **"Emission Factor"** means the mass of chromium emitted to the atmosphere during a test conducted on an emissions collection system and any associated control equipment, as determined in accordance with ARB Method 425, divided by the ampere-hours consumed during the testing by the tanks being served by the tested emissions collection system.

(10) **"Emissions Collection System"** means a device or apparatus, approved by the Air Pollution Control Officer, used to gather the chromium emissions from the surface of a chrome plating or chromic acid anodizing tank or tanks. An emissions collection system typically consists of hoods, ducting and fan and may collect emissions from one or more plating or anodizing tanks.

(11) **"Facility-Wide Emissions from Hard Chrome Plating or Chromic Acid Anodizing"** means the total chromium emissions from all hard chrome plating or chromic acid anodizing at the stationary source over a calendar year. Emissions shall be calculated as the sum of emissions from all hard chrome plating and chromic acid anodizing at the stationary source. The emissions from each emissions collection system and associated control equipment shall be calculated by multiplying the emission factor for that emissions collection system and associated control equipment by the sum of ampere-hours consumed during that year for all of the tanks served by the emissions collection system.

(12) **"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 greater than 1 micron (0.00004 inch) thick.

(13) **"New Hard Chrome Plating and Chromic Acid Anodizing Equipment"** means any equipment installed after February 14, 1989 and used to conduct either hard chrome plating or chromic acid anodizing.

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

(15) **"Stationary Source"** means a unit or an aggregation of units of non-vehicular air contaminant emitting articles, machines, equipment or other contrivances, all of which are located on one property or adjoining properties under the same ownership or entitlement to use and operate, and all of which are determined by the Air Pollution Control Officer to be related to one another through a similar product, raw material or function. This includes units or aggregation of units in the California Coastal Waters off San Diego County.

(16) "**Uncontrolled Chromium Emissions"** means the chromium emissions from the emissions collection systems at the stationary source calculated as if no control equipment is in use. The uncontrolled chromium emissions shall be calculated using an emission factor based on tests conducted in accordance with ARB Method 425, or an emission factor of 14 milligrams per ampere-hour, whichever is less.

(d) **STANDARDS** (Rev. Effective 5/28/91)

(1) Requirements for Decorative Chrome Plating Operations. No person shall operate a decorative chrome plating tank unless one of the following control techniques is applied:

(i) An anti-mist additive is continuously maintained in the plating tank in a manner which has been demonstrated, to the satisfaction of the Air Pollution Control Officer, as reducing chromium emissions by at least 95% when compared to emissions when the anti-mist additive is not used; or,

(ii) An equivalent method approved by the Air Pollution Control Officer.

(2) Requirements for Hard Chrome Plating and Chromic Acid Anodizing Operations. No person shall operate a hard chrome plating tank or chromic acid anodizing tank unless:

(i) The tank has an emissions collection system which is designed and operated to capture and contain the chromium emissions discharged to the air from the tank; and

(ii) The chromium emissions from the emissions collection system serving the tank have been reduced as follows:

(A) if facility-wide chromium emissions from hard chrome plating and chromic acid anodizing are less than or equal to 2 pounds per year, chromium emissions shall be reduced by at least 95% when compared to uncontrolled chromium emissions from the emissions collection system or reduced to less than 0.15 milligrams of chromium per ampere-hour of electrical charge applied to the tank(s) served by the emissions collection system;

(B) if facility-wide chromium emissions from hard chrome plating and chromic acid anodizing are greater than 2 pounds per year, but less than 10 pounds per year, emissions shall be reduced by at least 99% when compared to uncontrolled chromium emissions from the emissions collection system or reduced to less than 0.03 milligrams of chromium per ampere-hour of electrical charge applied to the tank(s) served by the emissions collection system; or

(C) if facility-wide chromium emissions from hard chrome plating and chromic acid anodizing are greater than or equal to 10 pounds per year, emissions shall be reduced by at least 99.8% when compared to uncontrolled chromium emissions from the emissions collection system or reduced to less than 0.006 milligrams of chromium per ampere-hour of electric current applied to the tank(s) served by the emissions collection system.

(3) Usage Records. Any person subject to Subsection (d)(2) of this rule shall keep written records of the total monthly usage of electricity in units of ampere-hours for all plating tanks served by each emissions collection system. These records shall be

maintained at the stationary source for at least two years and shall be made available to the Air Pollution Control Officer upon request.

(4) Reporting. Electricity usage information shall be submitted to the District on an annual basis. The reports shall contain that information determined by the Air Pollution Control Officer to be necessary and sufficient to allow a separate determination of compliance for each emissions collection system. Reports shall be submitted in accordance with the format and schedule specified by the Air Pollution Control Officer.

(e) **COMPLIANCE SCHEDULE** (Rev. Effective 5/28/91)

Any person subject to this rule shall comply with the following increments of progress:

(1) For decorative chrome plating stationary sources:

(i) On or before June 6, 1990, any person subject to Subsection (d)(1) shall submit an application for an Authority to Construct and Permit to Operate with a detailed description of the methods to be used to achieve compliance. The description shall include operating parameters such as chemical concentrations, bath temperatures, additive depths, and any other information deemed necessary by the Air Pollution Control Officer; and

(ii) On or before September 6, 1990, any person subject to Subsection (d)(1) shall demonstrate compliance with the requirements of this rule.

(2) For hard chrome plating and/or chromic acid anodizing stationary sources having emissions less than or equal to 2 pounds per year:

(i) On or before September 6, 1990, any person subject to Subsection (d)(2)(ii)(A) shall submit an application for an Authority to Construct and Permit to Operate for equipment to meet the requirements of Subsections (d)(2)(i) and (d)(2)(ii)(A); and

(ii) On or before September 6, 1991, any person subject to Subsection (d)(2)(ii)(A) shall demonstrate compliance with the requirements of this rule.

(3) For hard chrome plating and/or chromic acid anodizing stationary sources having emissions more than 2 pounds per year but less than 10 pounds per year.

(i) On or before March 6, 1991, any person subject to Subsection (d)(2)(ii)(B) shall submit an application for an Authority to Construct and Permit to Operate for equipment to meet the requirements of Subsections (d)(2)(i) and (d)(2)(ii)(B); and

(ii) On or before March 6, 1992, any person subject to Subsection (d)(2)(ii)(B) shall demonstrate compliance with the requirements of this rule.

(4) For hard chrome plating and/or chromic acid anodizing stationary sources having emissions greater than or equal to 10 pounds per year.

(i) On or before September 6, 1990, any person subject to Subsection (d)(2)(ii)(C) shall submit a compliance plan outlining the method of compliance with Subsection (d)(2)(ii)(C). The plan shall contain the following:

(A) a description of the steps the person intends to take to identify the process changes and emission control devices necessary to achieve compliance;

(B) a schedule for the steps identified above;

(C) an estimate of facility-wide emissions from hard chrome plating or chromic acid anodizing;

(D) the emission factor and annual ampere-hour values used to estimate facility-wide emissions; and

(E) any other information deemed necessary by the Air Pollution Control Officer to ensure compliance with the requirements of this rule.

In addition, any person subject to the requirements of Subsection (d)(2)(ii)(C) shall, on or before September 6, 1990, submit an application for an Authority to Construct and Permit to Operate for equipment to meet the requirements of Subsections (d)(2)(i) and (d)(2)(ii)(A); and,

(ii) On or before September 6, 1991, any person subject to Subsection (d)(2)(ii)(C) shall submit an application for an Authority to Construct and Permit to Operate for equipment to meet the requirements of Subsection (d)(2)(ii)(C) and shall demonstrate compliance with the requirements of Subsections (d)(2)(i) and (d)(2)(ii)(A); and,

(iii) On or before March 6, 1994, any person subject to Subsection (d)(2)(ii)(C) shall demonstrate compliance with the requirements of Subsection (d)(2)(ii)(C).

(5) For new hard chrome plating and/or chromic acid anodizing equipment.

New hard chrome plating and chromic acid anodizing equipment shall demonstrate compliance with the provisions of Subsection (d)(2)(ii)(B) upon initial installation and startup. New equipment and associated emissions collection systems and control equipment shall be installed pursuant to a District Authority to Construct. If uncontrolled chromium emissions from the hard chrome plating or chromic acid anodizing stationary source are greater than or equal to 10 pounds per year, the stationary source shall also comply with the requirements of Subsections (d)(2)(ii)(C) and (e)(4)(iii).

(f) **TEST METHODS** (Effective 5/28/91)

Measurements of chromium emissions subject to Subsection (d)(2) of this rule shall be conducted in accordance with ARB Method 425 as it exists on May 28, 1991.