Chromium Electroplating MACT

SBCA-CRM-0700

In January 1995, the U.S. Environmental Protection Agency (EPA) issued the Maximum Achievable Control Technology (MACT) standard regulating air pollution from chromium electroplating operations. The pollutants addressed in this federal standard are hexavalent chromium and trivalent chromium -- hazardous air pollutants known to cause harm to the lungs. Chromium electroplating and anodizing tanks are one of the largest sources of these pollutants in the United States. EPA plans to reduce chromium emissions by 99 percent through this new standard.

How Does this Standard Affect My Chromium Electroplating Operation?

All hard or decorative chromium electroplating or chromium anodizing activities, regardless of size, are affected by this rule. There are a few exceptions:

✘ Process tanks containing low concentrations of chromium but are not used for chromium electroplating or chromium anodizing, such as rinse tanks, etching tanks and cleaning tanks;

✘ Tanks containing a chromium solution but are not used with an electrolytic process, such as chrome conversion coating tanks where no electrical current is applied; and

✘ Tanks that are used for research and laboratory operations.

To comply with this rule, you will need to meet each of these requirements in the following order:

1. Initial Notification
2. Emission Limits
3. Work Practice Standards
4. Initial Performance Test
5. Notification of Compliance Status
6. Ongoing Monitoring

Decorative chrome plating operations using a trivalent chromium bath only have to comply only with the Initial Notification, Notification of Compliance Status, and the Process Records requirements under Ongoing Monitoring.

1. Initial (or Construction/ Reconstruction) Notification

All existing chromium electroplaters should already have submitted an Initial Notification Report to the Department of Natural Resources (DNR). For construction or reconstruction of a tank, you must:

✔ File an Initial Notification before you start your project (acknowledgment or approval of the Notice is not necessary);
✔ Notify your local DNR air inspector of the actual date construction/reconstruction began within 30 days after that date; and
✔ Notify your local DNR air inspector of the actual startup date of the tank within 30 days after that date.

The Initial Notification Report form is available from DNR or the Small Business Clean Air Assistance Program (SBCAAP).

2. Emission Limits

You are required to reduce your chromium emissions to the limit(s) listed in Table I of Attachment 1. The emission limits are based on the use of specified air pollution control techniques. However, you may use any pollution control technique, as long as it provides the same level of air pollution control or better.

Emission limit deadlines:

❖ Existing tanks (those for which operation began on or before December 16, 1993):

① Decorative chrome plating operations: **1/25/96**
② Hard chrome plating & chrome anodizing: **1/25/97**

❖ Tanks that started operation between December 16, 1993 and January 25, 1995: **1/25/95**

❖ Tanks that started operation after January 25, 1995 must comply with emission limits immediately upon startup.

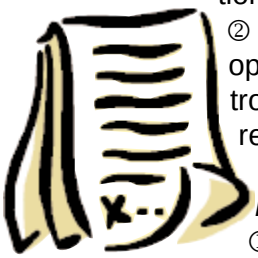
If you have missed any of these deadlines, contact your DNR air inspector or the SBCAAP to arrange a compliance schedule.

3. Work Practice Standards

To ensure that your required pollution control and monitoring equipment are properly maintained, you will need to perform the Work Practice Standards listed in Table II of the Attachment. This is required starting the date you must comply with the Emission Limits and is usually performed quarterly.

In addition, you must keep records. Although none of these records need to be submitted to the DNR, you must have them available at your facility for five years in the event of an inspection.

A. Inspection and Maintenance Records
✔Checklist of appropriate Work Practice Standards and dates performed (forms are available from DNR or the SBCAAP).



✔ Record of all maintenance performed on your process, air pollution control system, and monitoring equipment. Dated, handwritten descriptions and/or a contractor's invoice that describes the work will suffice.

B. Operation and Maintenance (O&M) Plan
✔ An equipment manual should suffice if it contains:

① Description of the pollution control device and monitoring equipment you use.
② Procedures to prevent equipment or process malfunctions due to poor maintenance or other preventable conditions.
③ Procedures for identifying malfunctions and for implementing corrective actions

✔ The records required for inspection and maintenance, identified above, should suffice for the other O&M requirements:

① A checklist to document the operation and maintenance of your equipment
② A list of the Work Practice Standards from Table II that apply to your facility.

✔ Your O&M Plan may include all or parts of: any standard operating procedure manual, vendor operation and maintenance manual, Occupational Safety and Health Administration (OSHA) plan or other existing plans.

C. Malfunction Records
✔ Record of the date, duration and cause ofany malfunction(s) of the process, air pollution control device and/or monitoring equipment.

If the action taken to correct the malfunction is different than what is described in your O&M Plan, then you also must record the corrective action taken and revise your O&M Plan accordingly.

4. Initial Performance Test

An Initial Performance Test is required for two reasons:

① to demonstrate that you are meeting the Emission Limit for your type of chromium electroplating operation, and
② to establish values, or ranges of values, as operating parameters for your air pollution control system (necessary for Ongoing Monitoring requirements).

Performance test deadlines:
① Decorative chrome plating operations: **7/23/96**
② Hard chrome plating and chrome anodizing: **7/24/97**

Exemptions:
You are not required to conduct an Initial Performance Test if you use a trivalent chrome (Cr^{+3}) bath, you use a wetting agent and meet the emission limit, or if you conducted the EPA test methods identified below in a performance test after December 1991 to obtain an air operating permit. (If you meet one of these exemptions, you still need to submit a Notification of Compliance Status.)

Test Methods:
If you have to conduct an Initial Performance test, you must use EPA Test Method 306 or 306A, "Determination of Chromium Emissions from Decorative and Hard Chromium Electroplating and Anodizing Operations." If you do not have to conduct an Initial Performance Test because you are using a wetting agent, you must use Test Method 306B, "Surface Tension Measurement and Recordkeeping for Tanks used at Decorative Chromium Electroplating and Anodizing Facilities," to demonstrate that you are meeting the emission limit.

Description of these test methods are available from DNR or the SBCAAP along with a list of testing consultants.

A. Notice of Performance Test
Sixty days before the scheduled date of your test, you must send a written notice of the date and time of the test to your local DNR air inspector, in case he/she wants to be present for the testing. The notice must include: the number and type of tank(s) you are testing; the type of air pollution control technique you have chosen; and the date of the test.

If the scheduled date of your test changes, you must notify your air inspector and give him/her the new scheduled date within five calendar days of the original test date.

Notice of Performance Test forms are available from DNR or the SBCAAP.

B. Test Plan
Also before the test, you must have a test plan that may be requested by your air inspector. The test plan should describe the process to be tested, the conditions under which testing is to be conducted, the sampling locations, and the test method to be used.

C. Performance Test Report
During the Initial Performance Test, results need to be documented so a Test Report can be written and submitted to DNR along with a Notification of Compliance Status form.

The Test Report must contain:
✔ Description of process;
✔ Description of pollution sampling locations;
✔ Description of sampling and analysis procedures; and
✔ Any modifications to standard procedures ;
✔ Test results;
✔ Quality Assurance (QA) procedures and results;
✔ Records of:
1. Operating conditions during testing
2. Preparation of standards
3. Calibration procedures

✔ Raw data sheets for:
1. Field sampling
2. Field and laboratory analyses

✔ Documentation of calculations; and
✔ Any additional information required by the given test method.

Operating Parameters:
Through the Initial Performance Test, you must establish operating parameters for your air pollution control system. You will use these parameters as a guide to stay in continual compliance. See Table III in Attachment 1 for acceptable methods to establish these parameters.

5. Notification of Compliance Status

All chromium electroplaters must submit a Notification of Compliance Status. If you are required to conduct an Initial Performance Test, then you must submit the Notification and a Test Report within 90 days of completing your Initial Performance Test. If you are not required to conduct an Initial Performance Test, you need to submit a Notification of Compliance Status within 30 days after your Emission Limit deadline.

Notification of Compliance Status forms are available from DNR or the SBCAAP.

6. Ongoing Monitoring

After your Initial Performance Test (or your Emission Limit deadline if you do not have to conduct an Initial Performance Test) you must begin to monitor your operation each day to demonstrate that your chromium electroplating operation continues to comply with the Emission Limit. See Table IV in Attachment 1 for these requirements.

In addition, you need to maintain the following records:

A. Monitoring Data Records
Simple chart that identifies: your pollution control technique, the monitored parameter(s), the value of the monitored parameter(s), and the date and time when the parameter was monitored.

B. Excess Emissions Records
Record of the start and end times, and dates of each exceedence when the values of the monitored parameters exceed the value, or range of values, established during the Initial Performance Test.

C. Process Records
Record of the operating time of each chromium electroplating tank.

✔ If you use a fume suppressant, record the date and time of each addition of fume suppressant.
✔ For small, hard chromium tanks using the actual rectifier capacity to demonstrate
✔ their size, record the actual rectifier capacity expended by month and the total capacity expended for the reporting period.

✔ For decorative chromium tanks using a trivalent chromium bath, record the bath components purchased. A wetting agent must be clearly identified as a bath constituent. Invoices showing the bath components, quantities purchased, and date of purchase will suffice.

D. Ongoing Compliance Status Reports
If you are a major source (see definition in Attachment 1), you need to submit an Ongoing Compliance Status Report to DNR generally every six months after you receive an air operating permit. If your facility ever has an exceedence of the emission standard, then you need to submit this report quarterly.

However, most chromium electroplaters are area sources (see definitions section). If you are an area source, you need to prepare a Compliance Status Report annually. Although you do not have to submit it, you need to make the Report available to the DNR or the EPA anytime upon request for up to five years. If your facility ever has an exceedence of the emission standard, then you will need to prepare this report semiannually and submit it to the DNR. An exceedence for an area source is when:

① the length of time of excess emissions is one percent greater than the total operating time for the reporting period, and
② the length of time of malfunctions of the add-on air pollution control equipment and monitoring equipment is five percent or greater of the total operating time.

Reducing Frequency of Compliance Status Reporting:
The increased quarterly frequency for major sources or the semi-annual frequency for area sources can be reduced if the following three criteria are met:

① you do not have an exceedence for a full year,
② you comply with all applicable record keeping and reporting requirements, and
③ you notify your air inspector of your intent to change your reporting frequency.

Reporting Forms:
Ongoing Compliance Status Report forms are available from the DNR or the SBCAAP. The Report incorporates all other records listed in this section that you must keep for Ongoing Monitoring.

Contacts for More Information or Assistance.

The Small Business Clean Air Assistance Program helps smaller businesses understand and comply with the Clean Air Act regulations. Contact one of the program's Clean Air Specialists for more assistance: Renée Lesjak Bashel at 608/264-6153 or Tom Coogan at 608/267-9214.

For further information on the Chromium MACT contact your DNR Regional or Service Center office shown on the **DNR Contact Fact Sheet**.