Facility ID: 1431370923 Issuance type: Final State Permit To Operate

This version of facility specific terms and conditions was converted from a database format to an HTML file during an upgrade of the Ohio EPA, Division of Air Pollution Control's permitting software. Every attempt has been made to convert the terms and conditions to look and substantively conform to the permit issued or being drafted in STARS. However, the format of the terms may vary slightly from the original. In addition, although it is not expected, there is a slight possibility that a term and condition may have been inadvertently "left out" of this reproduction during the conversion process. Therefore, if this version is to be used as a starting point in drafting a new version of a permit, it is imperative that the entire set of terms and conditions be reviewed to ensure they substantively mimic the issued permit. The official version of any permit issued final by Ohio EPA is kept in the Agency's Legal section. The Legal section may be contacted at (614) 644-3037.

In addition to the terms and conditions, hyperlinks have been inserted into the document so you may more readily access the section of the document you wish to review.

Finally, the term language under "Part II" and before "A. Applicable Emissions Limitations..." has been added to aid in document conversion, and was not part of the original issued permit.

Go to Part II for Emissions Unit P002
Go to Part II for Emissions Unit P004
Go to Part II for Emissions Unit P005
Go to Part II for Emissions Unit P006
Go to Part II for Emissions Unit P007

THIS IS NOT AN OFFICIAL VERSION OF THE PERMIT. SEE PAGE 1 FOR ADDITIONAL INFORMATION

Facility ID: 1431370923 Emissions Unit ID: P002 Issuance type: Final State Permit To Operate

Go to the top of this document

Part II - Special Terms and Conditions

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

   (a) None.

2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

   (a) None.

A. **Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P002 - Decorative Chrome Electroplating Tank	40 CFR Part 63, Subpart N	See term A.2.a.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed 20 percent opacity, as a six-minute average, except as specified by rule.
	OAC rule 3745-17-11(B)	Particulate emissions shall not exceed 0.551 pound per hour.

2. **Additional Terms and Conditions**

   (a) The permittee, using a chemical fume suppressant containing a wetting agent, shall not allow the surface tension of the decorative chromium electroplating or anodizing bath(s), emissions unit P002, to exceed 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer at any time during tank operation. This limitation also applies during startup and shutdown operations, but not during periods of malfunction where work practice standards address and correct any malfunction event.

   [40 CFR 63.342(d)(2)]

B. **Operational Restrictions**

1. The permittee shall implement the following operational, maintenance, and work practices standards for the chromium electroplating and anodizing tanks, excluding those using a trivalent chromium bath containing a wetting agent as a component ingredient in the bath:

   a. At all times, including periods of startup, shutdown, and malfunction, the permittee shall operate and maintain the chromium electroplating or anodizing tank(s), including the associated air pollution control device(s) and monitoring equipment, in a manner consistent with the operation and maintenance plan required by these terms and conditions.

   b. Malfunctions shall be corrected as soon as practicable after their occurrence in accordance with the operation and maintenance plan.

   c Determination of whether acceptable operation and maintenance procedures are being used shall be based on the facility records, which shall be made available to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) upon request, and which may include, but not be limited to: monitoring results; review of the operation and maintenance plan, procedures, and records; and inspection of the emissions unit. Based on this information, the regulating agency may require that the permittee make changes to the operation and maintenance plan if that plan:

   i. does not address a malfunction that has occurred;

   ii. fails to provide for the proper operation of the emissions unit, the air pollution control techniques, or the

control system and process monitoring equipment during a malfunction in a manner consistent with good air pollution practices; or

iii. does not provide adequate procedures for correcting malfunctioning process equipment, air pollution control equipment, and/or monitoring equipment as quickly as practicable.
d. The standards and limitations that apply to chromic acid baths shall not be met by using a reducing agent to change the form of chromium from hexavalent to trivalent.

[40 CFR 63.342(f)(1) and (2)] & [40 CFR 63.342(g)]

2. The permittee shall prepare an operation and maintenance plan to be implemented no later than the startup of the unit or the compliance date. The plan shall include the following elements:

a. The plan shall specify the operation and maintenance criteria for the affected source, the add-on air pollution control device, and the process and control system monitoring equipment, and shall include a standardized checklist to document the operation and maintenance of the equipment.

b. The plan shall incorporate the work practice standards for the add-on air pollution control device and monitoring equipment required to demonstrate compliance with the standard.

c. The plan shall specify procedures to be followed to ensure that equipment or process malfunctions due to poor maintenance or other preventable conditions do not occur.

d. The plan shall include a systematic procedure for identifying malfunctions of process equipment, add-on air pollution control device(s), and process and control system monitoring equipment, and for implementing corrective actions to address any malfunctions.

e. If the operation and maintenance plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the permittee shall revise the operation and maintenance plan within 45 days after such an event occurs. The revised plan shall include procedures for operating and maintaining the process equipment, add-on air pollution control device, or monitoring equipment during similar malfunction events, and a program for corrective action for such events.
f. If actions taken by the permittee during periods of malfunction are inconsistent with the procedures specified in the operation and maintenance plan, the permittee shall record the actions taken for that event and shall report such actions by phone to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) within 2 working days following the actions performed inconsistent with the plan. This verbal report shall be followed by a letter within 7 working days following the event, unless the permittee makes alternative reporting arrangements, in advance, with the regulating agency.

g. The permittee shall maintain the written operation and maintenance plan on record at the facility; and it shall be made readily available for inspection, at the request of the regulating agency and for the life of the emissions unit. If the operation and maintenance plan is revised, the permittee shall maintain previous versions of the plan at the facility for a period of five years following each revision; the superceded version(s) of the plan shall also be made available for inspection, if so requested by the regulating agency.

h. The permittee may use applicable standard operating procedure (SOP) manuals, Occupational Safety and Health Administration (OSHA) plans, or other existing plans to meet the operation and maintenance plan requirements as long as the alternative plans meet the requirements of 40 CFR 63.342(f)(3).

[40 CFR 63.342(f)(3)]

3. The operation and maintenance plan shall incorporate the maintenance and operational practices recommended by the manufacturer of the stalagmometer or tensiometer, which shall be used to measure surface tension of the electroplating or anodizing bath. Until performance testing is conducted and an alternative parameter limitation is established, the surface tension of the electroplating or anodizing bath shall not to exceed 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer at any time during tank operation.

[40 CFR 63.342 Table 1] & [40 CFR 63.342(c) and (d)]

C. **Monitoring and/or Record Keeping Requirements**

1. In addition to fulfilling all record keeping requirements contained in the General Provisions to 40 CFR Part 63, Subpart A, as they apply to the emissions unit, the permittee shall also maintain the following records:

a. inspection records for the add-on air pollution control device and monitoring equipment, to document that the inspection and maintenance required by the work practice standards contained in this permit have been performed. The record can take the form of a checklist and should identify the device inspected, the date of inspection, a brief description of the working condition of the device during the inspection, and any actions taken to correct deficiencies found during the inspection;

b. records of all maintenance performed on the emissions unit, add-on air pollution control device, and monitoring equipment;

c. records of the occurrence, duration, and cause (if known) of each malfunction of process, add-on air pollution control device, and monitoring equipment;

d. records of actions taken during periods of malfunction when such actions are inconsistent with the operation and maintenance plan;

e. other records, which may take the form of checklists, necessary to demonstrate consistency with the provisions of the operation and maintenance plan;

f. test reports documenting results of all performance tests;

g. all measurements as may be necessary to determine the conditions of performance tests;

h. records of monitoring data that are used to demonstrate compliance with the standard including the date and time the data are collected;
i. the specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions, as indicated by monitoring data, that occurs during malfunction of the process, add-on air pollution control device, or monitoring equipment;

j. the specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions, as indicated by monitoring data, that occurs during periods other than malfunction of the process, add-on air pollution control device, or monitoring equipment;

k. the total process operating time of the emissions unit during the reporting period;

l. all documentation supporting the notifications and reports as outlined in the "Reporting Requirements" section of this permit and the general reporting requirements in 40 CFR 63.9 and 40 CFR 63.10, from subpart A; and

m. records of the date and time that fume suppressants are added to the electroplating or anodizing bath.

All records shall be maintained for a period of five years.

[40 CFR 63.346(b)]

2. The permittee shall perform the following monitoring and record keeping requirements in order to demonstrate compliance through the use of the wetting agent or combination wetting agent/foam blanket fume suppressant:

a. During the initial performance test, the permittee shall determine the outlet chromium concentration using Method 306 or 306A as required in the "Testing Requirements" section of this permit, to demonstrate compliance with the emission limitation through the use of a wetting agent or combination wetting agent/foam blanket fume suppressant. The surface tension of the bath, measured as specified in Method 306B (from 40 CFR Part 63, Appendix A of Subpart N), shall be established as the site-specific operating parameter, setting the maximum value as that established during the compliant performance test.

b. In lieu of establishing the maximum surface tension during the performance test for chromium emissions, the permittee may instead establish 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer as the maximum surface tension value that corresponds to compliance with the applicable emission limitation using only Method 306B, as allowed per 40 CFR 63.342(c)(1)(iii), (c)(2)(iii) or (d)(2).
c. On and after the date on which the initial performance test is or was required to be completed under 40 CFR 63.7, the permittee shall monitor the surface tension of the electroplating or anodizing bath according to the schedule in paragraph "d" below. Operation of the emissions unit at a surface tension less than or equal to the value established during the performance test, or no greater than 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer, if the permittee is using this value as the maximum surface tension value, shall constitute compliance with the standard.

d. The surface tension shall be monitored using either a stalagmometer or a tensiometer as specified in Method 306B of 40 CFR Part 63, Appendix A of Subpart N and according to the following schedule:

i. Following the compliance date, the surface tension shall be measured once every four hours during tank operation.

ii. The time between monitoring can be increased if there have been no exceedances. If there are no exceedances during 40 hours of tank operation, surface tension measurement may be conducted once every 8 hours of tank operation. Again if there are no exceedances during 40 hours of tank operation, surface tension measurement may be conducted once every 40 hours of tank operation on an ongoing basis, until an exceedance occurs. The minimum frequency of surface tension measurements shall be once in every 40 hours of tank operation.

iii. Once an exceedance has occurred, as indicated through surface tension monitoring, the original monitoring schedule of once every four hours must be resumed and a subsequent decrease in frequency shall follow the schedule in paragraph (ii) above.

iv. Once a bath solution is drained from the affected tank and a new solution added, the original monitoring schedule of once every four hours must be resumed, with a decrease in monitoring frequency allowed as in paragraph (ii) above.

[40 CFR 63.343(c)(5)]

D. **Reporting Requirements**

1. The permittee shall submit a "Notification of Performance Test" or "Intent to Test" to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) at least 60 calendar days before the performance test is scheduled. The permittee shall notify the regulating agency as soon as practicable if the performance test cannot be conducted as scheduled, and shall specify the date it will be rescheduled (provisions of 40 CFR 63.7(b)(2)).

[40 CFR 63.347(d)]

2. The permittee shall report, to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency), the results of any performance test conducted within 30 days of completion of such test. Reports of performance test results shall also be submitted in the "Notification of Compliance Status Report", no later than 90 days following the completion of the performance test. Performance test results shall be documented in complete test reports that contain the following information:

a. a brief description of the process;

b. a description of the sampling location(s);

c. a description of sampling and analytical procedures and any modifications to standard procedures;

d. the test results;

e. quality assurance procedures and results;

f. records of operating conditions during testing, preparation of standards, and calibration procedures;

g. raw data sheets for field sampling and field and laboratory analyses;

h. documentation of calculations; and

i. any other information required by the test method.

The permittee shall have sufficient data to establish the operating parameter value(s) that corresponds to compliance as required for continuous compliance monitoring.

[40 CFR 63.347(e) and (f)] & [40 CFR 63.344(a) and (b)] & [OAC 3745-15-04(A)]

3. The permittee, qualifying as an area source, shall prepare an annual "Summary Report" ("Ongoing Compliance Status Report") to document ongoing compliance. The "Summary Report" shall be maintained onsite and made available to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) upon request. This report shall include the following:

a. the company name and address of the emissions unit;

b. a description of the source, type of process performed, and the air pollution control method and monitoring device(s) that is/are/shall be used to demonstrate continuous compliance;

c. an identification of the operating parameter(s) that is/are/shall be monitored for compliance determination;

d. the relevant emission limitation for the emissions unit, and the operating parameter value(s), or range of values, established during compliance testing and reported in the notification of compliance status report(s);

e. the beginning and ending dates of the reporting period;

f. the total operating time of the emissions unit during the reporting period;

g. a summary of operating parameter values, including the total duration of excess emissions during the reporting period as indicated by those values, the total duration of excess emissions expressed as a percent of the total emissions unit operating time during that reporting period; and a breakdown of the total duration of excess emissions during the reporting period into those that are due to process upsets, control equipment malfunctions, other known causes, and unknown causes;
h. a certification by a responsible official that the work practice standards in this permit were followed in accordance with the operation and maintenance plan for the emissions unit;

i. if the operation and maintenance plan required by this permit was not followed, an explanation of the reasons for not following the provisions, an assessment of whether any excess emission and/or parameter monitoring exceedances are believed to have occurred, and a copy of the reports required by the work practices in this permit;

j. a description of any changes in monitoring, processes, or controls since the last reporting period;

k. the date of the report;

l. the name, title, and signature of the responsible official who is certifying the accuracy of the report; and

m. the report shall be completed annually and retained on site, and made available to the regulating agency upon request.

The "Summary Report" shall be prepared annually, unless it is determined that more frequent reporting is required; semiannual reports shall be prepared and submitted to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) if both of the following conditions are met:

a. the total duration of excess emissions is one percent or greater of the total operating time for the reporting period; and

b. the total duration of malfunctions of the add-on air pollution control device and/or monitoring equipment is 5 percent or greater of the total operating time.

Once the permittee reports an exceedance or malfunction meeting these conditions, ongoing compliance status reports shall be submitted semiannually until a request to reduce reporting frequency is approved.

[40 CFR 63.347(h)(1) and (2)]

4. The regulating agency may determine, on a case-by-case basis, if the "Summary Report" ("Ongoing Compliance Status Report") shall be completed more frequently than annually or if to require it be submitted (rather than retained onsite), if these measures are necessary to accurately assess the compliance status of the emissions unit(s).

[40 CFR 63.347(h)(2)]

5. The permittee, who qualifies as an area source but has been required to submit "Summary Reports" on a semiannual (or more frequent) basis, or is required to submit its annual report instead of retaining it on site, may reduce the frequency of reporting to annual (or semi-annual if quarterly) and/or may be permitted to maintain the report on site, rather than submit the annual or semi-annual report, if all of the following conditions are met:

   a. for 1 full year (e.g., 2 semiannual or 4 quarterly reporting periods), the ongoing compliance status reports demonstrate that the affected emissions unit is in compliance with the relevant emission limit;

   b. the permittee continues to comply with all applicable record keeping and monitoring requirements of 40 CFR Part 63, subpart A and this permit; and

   c. the regulating agency does not object to a reduced reporting frequency.

   The frequency of completing and/or submitting the "Summary Reports" may be reduced or the report maintained on site (not required to be submitted) only after the permittee notifies the regulating agency in writing of the intention to make the change and the same agency does not object. In deciding whether to approve a reduced reporting frequency or to allow the report to be retained on site, the Ohio EPA regulating agency may request to review information concerning the facility's previous performance history during the 5-year record keeping period prior to the intended change in reporting frequency, or the record keeping period since the emissions unit's compliance date, whichever is shorter. Records subject to review include performance test results, monitoring data, and evaluations of the permittee's conformance with emission limitations and work practice standards. If the permittee's request is disapproved, the regulating agency will notify the permittee in writing within 45 days after receiving notice.
   This notification will specify the grounds on which the disapproval is based. In the absence of a notice of disapproval within 45 days, approval is automatically granted.

   As soon as the monitoring data show that the facility is not in compliance with the relevant emission limit, the frequency of reporting shall revert to semiannually, and the permittee shall document this exceedance in the "Ongoing Compliance Status/Summary Report", for the next reporting period. After demonstrating ongoing compliance with the relevant emission limit for another full year, the permittee may again request approval to reduce the reporting frequency.

   [40 CFR 63.347(h)(3)]

E. **Testing Requirements**

1. The permittee, using a wetting agent in the electroplating or anodizing bath to inhibit chromium emissions, shall conduct, or have conducted, the following testing in order to demonstrate continuous compliance with the surface tension limitation established in this permit:

   a. Method 306B, "Surface Tension Measurement and Record keeping for Tanks Used at Decorative Chromium Electroplating and Anodizing Facilities," shall be used to measure the surface tension of the electroplating and/or anodizing bath.

   b. The stalagmometer or tensiometer shall be operated such that representative measurements of the surface tension are obtained. The manufacturer's written accuracy specifications or recommendations for operation and calibration of the instrument shall be used to verify the operational status of the equipment.

   c. A representative from the regulating agency shall be permitted to witness the measurement(s), upon request.

   If the permittee accepts a surface tension limit of 45 dynes/cm as measured by a stalagmometer or 35 dynes/cm as measured by a tensiometer and conducts continuous compliance monitoring as required in 40 CFR 63.343(c)(5)(ii) and this permit, by reading and recording the surface tension once every 4 hours for the first 40 hours of tank operation; then once every 8 hours of tank operation for an additional 40 hours of tank operations if there are no exceedances during the first 40 hours; and if there are still no exceedances, the minimum frequency of surface tension monitoring shall be once every 40 hours of tank operation. Once an exceedance occurs, the "once every 8 hour" frequence resumes, and a reduction of the monitoring frequence shall follow the requirements contained in this permit.

   [40 CFR 63.343(b)(2)], [40 CFR 63.343(c)(5)] & [40 CFR 63.344(c)(3)]

2. Compliance shall be determined through visible emission observations performed in accordance with 40 CFR Part 60, Appendix A, Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

   [OAC 3745-17-07(A)(1)]

3. Compliance with the emission limitations in Section A of these terms and conditions shall be determined in accordance with the following method(s):

   Emission Limitation:
   Particulate emissions shall not exceed 0.551 pound per hour.

   Applicable Compliance Method:
   Compliance shall be determined based upon the following emission caluclations:

   0.069 grains/Amp-hour(AP-42 Table 12.20-1) x 500 amps (maximum rectifier capacity) = 34.5 grains/hour

   34.5 grains/hour x pound/7000 grains = 0.0049 pound/hour

F. **Miscellaneous Requirements**

1. None

THIS IS NOT AN OFFICIAL VERSION OF THE PERMIT. SEE PAGE 1 FOR ADDITIONAL INFORMATION

Go to the top of this document

Part II - Special Terms and Conditions

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

(a) None.

2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

(a) None.

A. **Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P004 - Black Chrome Decorative Electroplating Tank #1	40 CFR Part 63, Subpart N	See term A.2.a.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed 20 percent opacity, as a six-minute average, except as specified by rule.
	OAC rule 3745-17-11(B)	Particulate emissions shall not exceed 0.551 pound per hour.

2. **Additional Terms and Conditions**

(a) The permittee, using a chemical fume suppressant containing a wetting agent, shall not allow the surface tension of the decorative chromium electroplating or anodizing bath(s), emissions unit P004, to exceed 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer at any time during tank operation. This limitation also applies during startup and shutdown operations, but not during periods of malfunction where work practice standards address and correct any malfunction event.

[40 CFR 63.342(d)(2)]

B. **Operational Restrictions**

1. The permittee shall implement the following operational, maintenance, and work practices standards for the chromium electroplating and anodizing tanks, excluding those using a trivalent chromium bath containing a wetting agent as a component ingredient in the bath:

a. At all times, including periods of startup, shutdown, and malfunction, the permittee shall operate and maintain the chromium electroplating or anodizing tank(s), including the associated air pollution control device(s) and monitoring equipment, in a manner consistent with the operation and maintenance plan required by these terms and conditions.

b. Malfunctions shall be corrected as soon as practicable after their occurrence in accordance with the operation and maintenance plan.

c Determination of whether acceptable operation and maintenance procedures are being used shall be based on the facility records, which shall be made available to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) upon request, and which may include, but not be limited to: monitoring results; review of the operation and maintenance plan, procedures, and records; and inspection of the emissions unit. Based on this information, the regulating agency may require that the permittee make changes to the operation and maintenance plan if that plan:

i. does not address a malfunction that has occurred;

ii. fails to provide for the proper operation of the emissions unit, the air pollution control techniques, or the control system and process monitoring equipment during a malfunction in a manner consistent with good air pollution practices; or

iii. does not provide adequate procedures for correcting malfunctioning process equipment, air pollution control equipment, and/or monitoring equipment as quickly as practicable.
d. The standards and limitations that apply to chromic acid baths shall not be met by using a reducing agent to change the form of chromium from hexavalent to trivalent.

[40 CFR 63.342(f)(1) and (2)] & [40 CFR 63.342(g)]

2. The permittee shall prepare an operation and maintenance plan to be implemented no later than the startup of the unit or the compliance date. The plan shall include the following elements:

a. The plan shall specify the operation and maintenance criteria for the affected source, the add-on air pollution

control device, and the process and control system monitoring equipment, and shall include a standardized checklist to document the operation and maintenance of the equipment.

b. The plan shall incorporate the work practice standards for the add-on air pollution control device and monitoring equipment required to demonstrate compliance with the standard.

c. The plan shall specify procedures to be followed to ensure that equipment or process malfunctions due to poor maintenance or other preventable conditions do not occur.

d. The plan shall include a systematic procedure for identifying malfunctions of process equipment, add-on air pollution control device(s), and process and control system monitoring equipment, and for implementing corrective actions to address any malfunctions.

e. If the operation and maintenance plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the permittee shall revise the operation and maintenance plan within 45 days after such an event occurs. The revised plan shall include procedures for operating and maintaining the process equipment, add-on air pollution control device, or monitoring equipment during similar malfunction events, and a program for corrective action for such events.
f. If actions taken by the permittee during periods of malfunction are inconsistent with the procedures specified in the operation and maintenance plan, the permittee shall record the actions taken for that event and shall report such actions by phone to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) within 2 working days following the actions performed inconsistent with the plan. This verbal report shall be followed by a letter within 7 working days following the event, unless the permittee makes alternative reporting arrangements, in advance, with the regulating agency.

g. The permittee shall maintain the written operation and maintenance plan on record at the facility; and it shall be made readily available for inspection, at the request of the regulating agency and for the life of the emissions unit. If the operation and maintenance plan is revised, the permittee shall maintain previous versions of the plan at the facility for a period of five years following each revision; the superceded version(s) of the plan shall also be made available for inspection, if so requested by the regulating agency.

h. The permittee may use applicable standard operating procedure (SOP) manuals, Occupational Safety and Health Administration (OSHA) plans, or other existing plans to meet the operation and maintenance plan requirements as long as the alternative plans meet the requirements of 40 CFR 63.342(f)(3).

[40 CFR 63.342(f)(3)]

3. The operation and maintenance plan shall incorporate the maintenance and operational practices recommended by the manufacturer of the stalagmometer or tensiometer, which shall be used to measure surface tension of the electroplating or anodizing bath. Until performance testing is conducted and an alternative parameter limitation is established, the surface tension of the electroplating or anodizing bath shall not to exceed 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer at any time during tank operation.

[40 CFR 63.342 Table 1] & [40 CFR 63.342(c) and (d)]

C. **Monitoring and/or Record Keeping Requirements**

1. In addition to fulfilling all record keeping requirements contained in the General Provisions to 40 CFR Part 63, Subpart A, as they apply to the emissions unit, the permittee shall also maintain the following records:

a. inspection records for the add-on air pollution control device and monitoring equipment, to document that the inspection and maintenance required by the work practice standards contained in this permit have been performed. The record can take the form of a checklist and should identify the device inspected, the date of inspection, a brief description of the working condition of the device during the inspection, and any actions taken to correct deficiencies found during the inspection;

b. records of all maintenance performed on the emissions unit, add-on air pollution control device, and monitoring equipment;

c. records of the occurrence, duration, and cause (if known) of each malfunction of process, add-on air pollution control device, and monitoring equipment;

d. records of actions taken during periods of malfunction when such actions are inconsistent with the operation and maintenance plan;

e. other records, which may take the form of checklists, necessary to demonstrate consistency with the provisions of the operation and maintenance plan;

f. test reports documenting results of all performance tests;

g. all measurements as may be necessary to determine the conditions of performance tests;

h. records of monitoring data that are used to demonstrate compliance with the standard including the date and time the data are collected;
i. the specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions, as indicated by monitoring data, that occurs during malfunction of the process, add-on air pollution control device, or monitoring equipment;

j. the specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions, as indicated by monitoring data, that occurs during periods other than malfunction of the process, add-on air pollution control device, or monitoring equipment;

k. the total process operating time of the emissions unit during the reporting period;

l. all documentation supporting the notifications and reports as outlined in the "Reporting Requirements" section of this permit and the general reporting requirements in 40 CFR 63.9 and 40 CFR 63.10, from subpart A; and

m. records of the date and time that fume suppressants are added to the electroplating or anodizing bath.

All records shall be maintained for a period of five years.

[40 CFR 63.346(b)]

2. The permittee shall perform the following monitoring and record keeping requirements in order to demonstrate compliance through the use of the wetting agent or combination wetting agent/foam blanket fume suppressant:

a. During the initial performance test, the permittee shall determine the outlet chromium concentration using Method 306 or 306A as required in the "Testing Requirements" section of this permit, to demonstrate compliance with the emission limitation through the use of a wetting agent or combination wetting agent/foam blanket fume suppressant. The surface tension of the bath, measured as specified in Method 306B (from 40 CFR Part 63, Appendix A of Subpart N), shall be established as the site-specific operating parameter, setting the maximum value as that established during the compliant performance test.

b. In lieu of establishing the maximum surface tension during the performance test for chromium emissions, the permittee may instead establish 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer as the maximum surface tension value that corresponds to compliance with the applicable emission limitation using only Method 306B, as allowed per 40 CFR 63.342(c)(1)(iii), (c)(2)(iii) or (d)(2).
c. On and after the date on which the initial performance test is or was required to be completed under 40 CFR 63.7, the permittee shall monitor the surface tension of the electroplating or anodizing bath according to the schedule in paragraph "d" below. Operation of the emissions unit at a surface tension less than or equal to the value established during the performance test, or no greater than 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer, if the permittee is using this value as the maximum surface tension value, shall constitute compliance with the standard.

d. The surface tension shall be monitored using either a stalagmometer or a tensiometer as specified in Method 306B of 40 CFR Part 63, Appendix A of Subpart N and according to the following schedule:

i. Following the compliance date, the surface tension shall be measured once every four hours during tank operation.

ii. The time between monitoring can be increased if there have been no exceedances. If there are no exceedances during 40 hours of tank operation, surface tension measurement may be conducted once every 8 hours of tank operation. Again if there are no exceedances during 40 hours of tank operation, surface tension measurement may be conducted once every 40 hours of tank operation on an ongoing basis, until an exceedance occurs. The minimum frequency of surface tension measurements shall be once in every 40 hours of tank operation.

iii. Once an exceedance has occurred, as indicated through surface tension monitoring, the original monitoring schedule of once every four hours must be resumed and a subsequent decrease in frequency shall follow the schedule in paragraph (ii) above.

iv. Once a bath solution is drained from the affected tank and a new solution added, the original monitoring schedule of once every four hours must be resumed, with a decrease in monitoring frequency allowed as in paragraph (ii) above.

[40 CFR 63.343(c)(5)]

D. **Reporting Requirements**

1. The permittee shall submit a "Notification of Performance Test" or "Intent to Test" to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) at least 60 calendar days before the performance test is scheduled. The permittee shall notify the regulating agency as soon as practicable if the performance test cannot be conducted as scheduled, and shall specify the date it will be rescheduled (provisions of 40 CFR 63.7(b)(2)).

[40 CFR 63.347(d)]

2. The permittee shall report, to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency), the results of any performance test conducted within 30 days of completion of such test. Reports of performance test results shall also be submitted in the "Notification of Compliance Status Report", no later than 90 days following the completion of the performance test. Performance test results shall be documented in complete test reports that contain the following information:

a. a brief description of the process;

b. a description of the sampling location(s);

c. a description of sampling and analytical procedures and any modifications to standard procedures;

d. the test results;

e. quality assurance procedures and results;

f. records of operating conditions during testing, preparation of standards, and calibration procedures;

g. raw data sheets for field sampling and field and laboratory analyses;

h. documentation of calculations; and

i. any other information required by the test method.

The permittee shall have sufficient data to establish the operating parameter value(s) that corresponds to compliance as required for continuous compliance monitoring.

[40 CFR 63.347(e) and (f)] & [40 CFR 63.344(a) and (b)] & [OAC 3745-15-04(A)]

3. The permittee, qualifying as an area source, shall prepare an annual "Summary Report" ("Ongoing Compliance Status Report") to document ongoing compliance. The "Summary Report" shall be maintained onsite and made available to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) upon request. This report shall include the following:

a. the company name and address of the emissions unit;

b. a description of the source, type of process performed, and the air pollution control method and monitoring device(s) that is/are/shall be used to demonstrate continuous compliance;

c. an identification of the operating parameter(s) that is/are/shall be monitored for compliance determination;

d. the relevant emission limitation for the emissions unit, and the operating parameter value(s), or range of values, established during compliance testing and reported in the notification of compliance status report(s);

e. the beginning and ending dates of the reporting period;

f. the total operating time of the emissions unit during the reporting period;

g. a summary of operating parameter values, including the total duration of excess emissions during the reporting period as indicated by those values, the total duration of excess emissions expressed as a percent of the total emissions unit operating time during that reporting period; and a breakdown of the total duration of excess emissions during the reporting period into those that are due to process upsets, control equipment malfunctions, other known causes, and unknown causes;
h. a certification by a responsible official that the work practice standards in this permit were followed in accordance with the operation and maintenance plan for the emissions unit;

i. if the operation and maintenance plan required by this permit was not followed, an explanation of the reasons for not following the provisions, an assessment of whether any excess emission and/or parameter monitoring exceedances are believed to have occurred, and a copy of the reports required by the work practices in this permit;

j. a description of any changes in monitoring, processes, or controls since the last reporting period;

k. the date of the report;

l. the name, title, and signature of the responsible official who is certifying the accuracy of the report; and

m. the report shall be completed annually and retained on site, and made available to the regulating agency upon request.

The "Summary Report" shall be prepared annually, unless it is determined that more frequent reporting is required; semiannual reports shall be prepared and submitted to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) if both of the following conditions are met:

a. the total duration of excess emissions is one percent or greater of the total operating time for the reporting period; and

b. the total duration of malfunctions of the add-on air pollution control device and/or monitoring equipment is 5 percent or greater of the total operating time.

Once the permittee reports an exceedance or malfunction meeting these conditions, ongoing compliance status reports shall be submitted semiannually until a request to reduce reporting frequency is approved.

[40 CFR 63.347(h)(1) and (2)]

4. The regulating agency may determine, on a case-by-case basis, if the "Summary Report" ("Ongoing Compliance Status Report") shall be completed more frequently than annually or if to require it be submitted (rather than retained onsite), if these measures are necessary to accurately assess the compliance status of the emissions unit(s).

[40 CFR 63.347(h)(2)]

5. The permittee, who qualifies as an area source but has been required to submit "Summary Reports" on a semiannual (or more frequent) basis, or is required to submit its annual report instead of retaining it on site, may reduce the frequency of reporting to annual (or semi-annual if quarterly) and/or may be permitted to maintain the report on site, rather than submit the annual or semi-annual report, if all of the following conditions are met:

a. for 1 full year (e.g., 2 semiannual or 4 quarterly reporting periods), the ongoing compliance status reports demonstrate that the affected emissions unit is in compliance with the relevant emission limit;

b. the permittee continues to comply with all applicable record keeping and monitoring requirements of 40 CFR Part 63, subpart A and this permit; and

c. the regulating agency does not object to a reduced reporting frequency.

The frequency of completing and/or submitting the "Summary Reports" may be reduced or the report maintained on site (not required to be submitted) only after the permittee notifies the regulating agency in

writing of the intention to make the change and the same agency does not object. In deciding whether to approve a reduced reporting frequency or to allow the report to be retained on site, the Ohio EPA regulating agency may request to review information concerning the facility's previous performance history during the 5-year record keeping period prior to the intended change in reporting frequency, or the record keeping period since the emissions unit's compliance date, whichever is shorter. Records subject to review include performance test results, monitoring data, and evaluations of the permittee's conformance with emission limitations and work practice standards. If the permittee's request is disapproved, the regulating agency will notify the permittee in writing within 45 days after receiving notice.
This notification will specify the grounds on which the disapproval is based. In the absence of a notice of disapproval within 45 days, approval is automatically granted.

As soon as the monitoring data show that the facility is not in compliance with the relevant emission limit, the frequency of reporting shall revert to semiannually, and the permittee shall document this exceedance in the "Ongoing Compliance Status/Summary Report", for the next reporting period. After demonstrating ongoing compliance with the relevant emission limit for another full year, the permittee may again request approval to reduce the reporting frequency.

[40 CFR 63.347(h)(3)]

E. **Testing Requirements**

1. The permittee, using a wetting agent in the electroplating or anodizing bath to inhibit chromium emissions, shall conduct, or have conducted, the following testing in order to demonstrate continuous compliance with the surface tension limitation established in this permit:

a. Method 306B, "Surface Tension Measurement and Record keeping for Tanks Used at Decorative Chromium Electroplating and Anodizing Facilities," shall be used to measure the surface tension of the electroplating and/or anodizing bath.

b. The stalagmometer or tensiometer shall be operated such that representative measurements of the surface tension are obtained. The manufacturer's written accuracy specifications or recommendations for operation and calibration of the instrument shall be used to verify the operational status of the equipment.

c. A representative from the regulating agency shall be permitted to witness the measurement(s), upon request.

If the permittee accepts a surface tension limit of 45 dynes/cm as measured by a stalagmometer or 35 dynes/cm as measured by a tensiometer and conducts continuous compliance monitoring as required in 40 CFR 63.343(c)(5)(ii) and this permit, by reading and recording the surface tension once every 4 hours for the first 40 hours of tank operation; then once every 8 hours of tank operation for an additional 40 hours of tank operations if there are no exceedances during the first 40 hours; and if there are still no exceedances, the minimum frequency of surface tension monitoring shall be once every 40 hours of tank operation. Once an exceedance occurs, the "once every 8 hour" frequence resumes, and a reduction of the monitoring frequence shall follow the requirements contained in this permit.

[40 CFR 63.343(b)(2)], [40 CFR 63.343(c)(5)] & [40 CFR 63.344(c)(3)]

2. Compliance shall be determined through visible emission observations performed in accordance with 40 CFR Part 60, Appendix A, Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

[OAC 3745-17-07(A)(1)]

3. Compliance with the emission limitations in Section A of these terms and conditions shall be determined in accordance with the following method(s):

Emission Limitation:
Particulate emissions shall not exceed 0.551 pound per hour.

Applicable Compliance Method:
Compliance shall be determined based upon the following emission caluclations:

0.069 grains/Amp-hour(AP-42 Table 12.20-1) x 500 amps (maximum rectifier capacity) = 34.5 grains/hour

34.5 grains/hour x pound/7000 grains = 0.0049 pound/hour

F. **Miscellaneous Requirements**

1. None

THIS IS NOT AN OFFICIAL VERSION OF THE PERMIT. SEE PAGE 1 FOR ADDITIONAL INFORMATION

Facility ID: 1431370923 Emissions Unit ID: P005 Issuance type: Final State Permit To Operate

Go to the top of this document

Part II - Special Terms and Conditions

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

(a) None.

2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law

only with the exception of those listed below which are federally enforceable.

(a) None.

A. **Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P005 - Black Chrome Decorative Electroplating Tank #2	40 CFR Part 63, Subpart N	See term A.2.a.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed 20 percent opacity, as a six-minute average, except as specified by rule.
	OAC rule 3745-17-11(B)	Particulate emissions shall not exceed 0.551 pound per hour.

2. **Additional Terms and Conditions**

(a) The permittee, using a chemical fume suppressant containing a wetting agent, shall not allow the surface tension of the decorative chromium electroplating or anodizing bath(s), emissions unit P005, to exceed 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer at any time during tank operation. This limitation also applies during startup and shutdown operations, but not during periods of malfunction where work practice standards address and correct any malfunction event.

[40 CFR 63.342(d)(2)]

B. **Operational Restrictions**

1. The permittee shall implement the following operational, maintenance, and work practices standards for the chromium electroplating and anodizing tanks, excluding those using a trivalent chromium bath containing a wetting agent as a component ingredient in the bath:

a. At all times, including periods of startup, shutdown, and malfunction, the permittee shall operate and maintain the chromium electroplating or anodizing tank(s), including the associated air pollution control device(s) and monitoring equipment, in a manner consistent with the operation and maintenance plan required by these terms and conditions.

b. Malfunctions shall be corrected as soon as practicable after their occurrence in accordance with the operation and maintenance plan.

c Determination of whether acceptable operation and maintenance procedures are being used shall be based on the facility records, which shall be made available to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) upon request, and which may include, but not be limited to: monitoring results; review of the operation and maintenance plan, procedures, and records; and inspection of the emissions unit. Based on this information, the regulating agency may require that the permittee make changes to the operation and maintenance plan if that plan:

i. does not address a malfunction that has occurred;

ii. fails to provide for the proper operation of the emissions unit, the air pollution control techniques, or the control system and process monitoring equipment during a malfunction in a manner consistent with good air pollution practices; or

iii. does not provide adequate procedures for correcting malfunctioning process equipment, air pollution control equipment, and/or monitoring equipment as quickly as practicable.
d. The standards and limitations that apply to chromic acid baths shall not be met by using a reducing agent to change the form of chromium from hexavalent to trivalent.

[40 CFR 63.342(f)(1) and (2)] & [40 CFR 63.342(g)]

2. The permittee shall prepare an operation and maintenance plan to be implemented no later than the startup of the unit or the compliance date. The plan shall include the following elements:

a. The plan shall specify the operation and maintenance criteria for the affected source, the add-on air pollution control device, and the process and control system monitoring equipment, and shall include a standardized checklist to document the operation and maintenance of the equipment.

b. The plan shall incorporate the work practice standards for the add-on air pollution control device and monitoring equipment required to demonstrate compliance with the standard.

c. The plan shall specify procedures to be followed to ensure that equipment or process malfunctions due to poor maintenance or other preventable conditions do not occur.

d. The plan shall include a systematic procedure for identifying malfunctions of process equipment, add-on air pollution control device(s), and process and control system monitoring equipment, and for implementing corrective actions to address any malfunctions.

e. If the operation and maintenance plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the permittee shall revise the

operation and maintenance plan within 45 days after such an event occurs. The revised plan shall include procedures for operating and maintaining the process equipment, add-on air pollution control device, or monitoring equipment during similar malfunction events, and a program for corrective action for such events.

f. If actions taken by the permittee during periods of malfunction are inconsistent with the procedures specified in the operation and maintenance plan, the permittee shall record the actions taken for that event and shall report such actions by phone to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) within 2 working days following the actions performed inconsistent with the plan. This verbal report shall be followed by a letter within 7 working days following the event, unless the permittee makes alternative reporting arrangements, in advance, with the regulating agency.

g. The permittee shall maintain the written operation and maintenance plan on record at the facility; and it shall be made readily available for inspection, at the request of the regulating agency and for the life of the emissions unit. If the operation and maintenance plan is revised, the permittee shall maintain previous versions of the plan at the facility for a period of five years following each revision; the superceded version(s) of the plan shall also be made available for inspection, if so requested by the regulating agency.

h. The permittee may use applicable standard operating procedure (SOP) manuals, Occupational Safety and Health Administration (OSHA) plans, or other existing plans to meet the operation and maintenance plan requirements as long as the alternative plans meet the requirements of 40 CFR 63.342(f)(3).

[40 CFR 63.342(f)(3)]

3. The operation and maintenance plan shall incorporate the maintenance and operational practices recommended by the manufacturer of the stalagmometer or tensiometer, which shall be used to measure surface tension of the electroplating or anodizing bath. Until performance testing is conducted and an alternative parameter limitation is established, the surface tension of the electroplating or anodizing bath shall not to exceed 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer at any time during tank operation.

[40 CFR 63.342 Table 1] & [40 CFR 63.342(c) and (d)]

C. **Monitoring and/or Record Keeping Requirements**

1. In addition to fulfilling all record keeping requirements contained in the General Provisions to 40 CFR Part 63, Subpart A, as they apply to the emissions unit, the permittee shall also maintain the following records:

a. inspection records for the add-on air pollution control device and monitoring equipment, to document that the inspection and maintenance required by the work practice standards contained in this permit have been performed. The record can take the form of a checklist and should identify the device inspected, the date of inspection, a brief description of the working condition of the device during the inspection, and any actions taken to correct deficiencies found during the inspection;

b. records of all maintenance performed on the emissions unit, add-on air pollution control device, and monitoring equipment;

c. records of the occurrence, duration, and cause (if known) of each malfunction of process, add-on air pollution control device, and monitoring equipment;

d. records of actions taken during periods of malfunction when such actions are inconsistent with the operation and maintenance plan;

e. other records, which may take the form of checklists, necessary to demonstrate consistency with the provisions of the operation and maintenance plan;

f. test reports documenting results of all performance tests;

g. all measurements as may be necessary to determine the conditions of performance tests;

h. records of monitoring data that are used to demonstrate compliance with the standard including the date and time the data are collected;

i. the specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions, as indicated by monitoring data, that occurs during malfunction of the process, add-on air pollution control device, or monitoring equipment;

j. the specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions, as indicated by monitoring data, that occurs during periods other than malfunction of the process, add-on air pollution control device, or monitoring equipment;

k. the total process operating time of the emissions unit during the reporting period;

l. all documentation supporting the notifications and reports as outlined in the "Reporting Requirements" section of this permit and the general reporting requirements in 40 CFR 63.9 and 40 CFR 63.10, from subpart A; and

m. records of the date and time that fume suppressants are added to the electroplating or anodizing bath.

All records shall be maintained for a period of five years.

[40 CFR 63.346(b)]

2. The permittee shall perform the following monitoring and record keeping requirements in order to demonstrate compliance through the use of the wetting agent or combination wetting agent/foam blanket fume suppressant:

a. During the initial performance test, the permittee shall determine the outlet chromium concentration using Method 306 or 306A as required in the "Testing Requirements" section of this permit, to demonstrate

compliance with the emission limitation through the use of a wetting agent or combination wetting agent/foam blanket fume suppressant. The surface tension of the bath, measured as specified in Method 306B (from 40 CFR Part 63, Appendix A of Subpart N), shall be established as the site-specific operating parameter, setting the maximum value as that established during the compliant performance test.

b. In lieu of establishing the maximum surface tension during the performance test for chromium emissions, the permittee may instead establish 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer as the maximum surface tension value that corresponds to compliance with the applicable emission limitation using only Method 306B, as allowed per 40 CFR 63.342(c)(1)(iii), (c)(2)(iii) or (d)(2).
c. On and after the date on which the initial performance test is or was required to be completed under 40 CFR 63.7, the permittee shall monitor the surface tension of the electroplating or anodizing bath according to the schedule in paragraph "d" below. Operation of the emissions unit at a surface tension less than or equal to the value established during the performance test, or no greater than 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer, if the permittee is using this value as the maximum surface tension value, shall constitute compliance with the standard.

d. The surface tension shall be monitored using either a stalagmometer or a tensiometer as specified in Method 306B of 40 CFR Part 63, Appendix A of Subpart N and according to the following schedule:

i. Following the compliance date, the surface tension shall be measured once every four hours during tank operation.

ii. The time between monitoring can be increased if there have been no exceedances. If there are no exceedances during 40 hours of tank operation, surface tension measurement may be conducted once every 8 hours of tank operation. Again if there are no exceedances during 40 hours of tank operation, surface tension measurement may be conducted once every 40 hours of tank operation on an ongoing basis, until an exceedance occurs. The minimum frequency of surface tension measurements shall be once in every 40 hours of tank operation.

iii. Once an exceedance has occurred, as indicated through surface tension monitoring, the original monitoring schedule of once every four hours must be resumed and a subsequent decrease in frequency shall follow the schedule in paragraph (ii) above.

iv. Once a bath solution is drained from the affected tank and a new solution added, the original monitoring schedule of once every four hours must be resumed, with a decrease in monitoring frequency allowed as in paragraph (ii) above.

[40 CFR 63.343(c)(5)]

D. **Reporting Requirements**

1. The permittee shall submit a "Notification of Performance Test" or "Intent to Test" to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) at least 60 calendar days before the performance test is scheduled. The permittee shall notify the regulating agency as soon as practicable if the performance test cannot be conducted as scheduled, and shall specify the date it will be rescheduled (provisions of 40 CFR 63.7(b)(2)).

[40 CFR 63.347(d)]

2. The permittee shall report, to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency), the results of any performance test conducted within 30 days of completion of such test. Reports of performance test results shall also be submitted in the "Notification of Compliance Status Report", no later than 90 days following the completion of the performance test. Performance test results shall be documented in complete test reports that contain the following information:

a. a brief description of the process;

b. a description of the sampling location(s);

c. a description of sampling and analytical procedures and any modifications to standard procedures;

d. the test results;

e. quality assurance procedures and results;

f. records of operating conditions during testing, preparation of standards, and calibration procedures;

g. raw data sheets for field sampling and field and laboratory analyses;

h. documentation of calculations; and

i. any other information required by the test method.

The permittee shall have sufficient data to establish the operating parameter value(s) that corresponds to compliance as required for continuous compliance monitoring.

[40 CFR 63.347(e) and (f)] & [40 CFR 63.344(a) and (b)] & [OAC 3745-15-04(A)]

3. The permittee, qualifying as an area source, shall prepare an annual "Summary Report" ("Ongoing Compliance Status Report") to document ongoing compliance. The "Summary Report" shall be maintained onsite and made available to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) upon request. This report shall include the following:

a. the company name and address of the emissions unit;

b. a description of the source, type of process performed, and the air pollution control method and monitoring device(s) that is/are/shall be used to demonstrate continuous compliance;

c. an identification of the operating parameter(s) that is/are/shall be monitored for compliance determination;

d. the relevant emission limitation for the emissions unit, and the operating parameter value(s), or range of values, established during compliance testing and reported in the notification of compliance status report(s);

e. the beginning and ending dates of the reporting period;

f. the total operating time of the emissions unit during the reporting period;

g. a summary of operating parameter values, including the total duration of excess emissions during the reporting period as indicated by those values, the total duration of excess emissions expressed as a percent of the total emissions unit operating time during that reporting period; and a breakdown of the total duration of excess emissions during the reporting period into those that are due to process upsets, control equipment malfunctions, other known causes, and unknown causes;
h. a certification by a responsible official that the work practice standards in this permit were followed in accordance with the operation and maintenance plan for the emissions unit;

i. if the operation and maintenance plan required by this permit was not followed, an explanation of the reasons for not following the provisions, an assessment of whether any excess emission and/or parameter monitoring exceedances are believed to have occurred, and a copy of the reports required by the work practices in this permit;

j. a description of any changes in monitoring, processes, or controls since the last reporting period;

k. the date of the report;

l. the name, title, and signature of the responsible official who is certifying the accuracy of the report; and

m. the report shall be completed annually and retained on site, and made available to the regulating agency upon request.

The "Summary Report" shall be prepared annually, unless it is determined that more frequent reporting is required; semiannual reports shall be prepared and submitted to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) if both of the following conditions are met:

a. the total duration of excess emissions is one percent or greater of the total operating time for the reporting period; and

b. the total duration of malfunctions of the add-on air pollution control device and/or monitoring equipment is 5 percent or greater of the total operating time.

Once the permittee reports an exceedance or malfunction meeting these conditions, ongoing compliance status reports shall be submitted semiannually until a request to reduce reporting frequency is approved.

[40 CFR 63.347(h)(1) and (2)]

4. The regulating agency may determine, on a case-by-case basis, if the "Summary Report" ("Ongoing Compliance Status Report") shall be completed more frequently than annually or if to require it be submitted (rather than retained onsite), if these measures are necessary to accurately assess the compliance status of the emissions unit(s).

[40 CFR 63.347(h)(2)]

5. The permittee, who qualifies as an area source but has been required to submit "Summary Reports" on a semiannual (or more frequent) basis, or is required to submit its annual report instead of retaining it on site, may reduce the frequency of reporting to annual (or semi-annual if quarterly) and/or may be permitted to maintain the report on site, rather than submit the annual or semi-annual report, if all of the following conditions are met:

a. for 1 full year (e.g., 2 semiannual or 4 quarterly reporting periods), the ongoing compliance status reports demonstrate that the affected emissions unit is in compliance with the relevant emission limit;

b. the permittee continues to comply with all applicable record keeping and monitoring requirements of 40 CFR Part 63, subpart A and this permit; and

c. the regulating agency does not object to a reduced reporting frequency.

The frequency of completing and/or submitting the "Summary Reports" may be reduced or the report maintained on site (not required to be submitted) only after the permittee notifies the regulating agency in writing of the intention to make the change and the same agency does not object. In deciding whether to approve a reduced reporting frequency or to allow the report to be retained on site, the Ohio EPA regulating agency may request to review information concerning the facility's previous performance history during the 5-year record keeping period prior to the intended change in reporting frequency, or the record keeping period since the emissions unit's compliance date, whichever is shorter. Records subject to review include performance test results, monitoring data, and evaluations of the permittee's conformance with emission limitations and work practice standards. If the permittee's request is disapproved, the regulating agency will notify the permittee in writing within 45 days after receiving notice.
This notification will specify the grounds on which the disapproval is based. In the absence of a notice of disapproval within 45 days, approval is automatically granted.

As soon as the monitoring data show that the facility is not in compliance with the relevant emission limit, the frequency of reporting shall revert to semiannually, and the permittee shall document this exceedance in the "Ongoing Compliance Status/Summary Report", for the next reporting period. After demonstrating ongoing

compliance with the relevant emission limit for another full year, the permittee may again request approval to reduce the reporting frequency.

[40 CFR 63.347(h)(3)]

E. **Testing Requirements**

1. The permittee, using a wetting agent in the electroplating or anodizing bath to inhibit chromium emissions, shall conduct, or have conducted, the following testing in order to demonstrate continuous compliance with the surface tension limitation established in this permit:

a. Method 306B, "Surface Tension Measurement and Record keeping for Tanks Used at Decorative Chromium Electroplating and Anodizing Facilities," shall be used to measure the surface tension of the electroplating and/or anodizing bath.

b. The stalagmometer or tensiometer shall be operated such that representative measurements of the surface tension are obtained. The manufacturer's written accuracy specifications or recommendations for operation and calibration of the instrument shall be used to verify the operational status of the equipment.

c. A representative from the regulating agency shall be permitted to witness the measurement(s), upon request.

If the permittee accepts a surface tension limit of 45 dynes/cm as measured by a stalagmometer or 35 dynes/cm as measured by a tensiometer and conducts continuous compliance monitoring as required in 40 CFR 63.343(c)(5)(ii) and this permit, by reading and recording the surface tension once every 4 hours for the first 40 hours of tank operation; then once every 8 hours of tank operation for an additional 40 hours of tank operations if there are no exceedances during the first 40 hours; and if there are still no exceedances, the minimum frequency of surface tension monitoring shall be once every 40 hours of tank operation. Once an exceedance occurs, the "once every 8 hour" frequence resumes, and a reduction of the monitoring frequence shall follow the requirements contained in this permit.

[40 CFR 63.343(b)(2)], [40 CFR 63.343(c)(5)] & [40 CFR 63.344(c)(3)]

2. Compliance shall be determined through visible emission observations performed in accordance with 40 CFR Part 60, Appendix A, Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

[OAC 3745-17-07(A)(1)]

3. Compliance with the emission limitations in Section A of these terms and conditions shall be determined in accordance with the following method(s):

Emission Limitation:
Particulate emissions shall not exceed 0.551 pound per hour.

Applicable Compliance Method:
Compliance shall be determined based upon the following emission caluclations:

0.069 grains/Amp-hour(AP-42 Table 12.20-1) x 500 amps (maximum rectifier capacity) = 34.5 grains/hour

34.5 grains/hour x pound/7000 grains = 0.0049 pound/hour

F. **Miscellaneous Requirements**

1. None

THIS IS NOT AN OFFICIAL VERSION OF THE PERMIT. SEE PAGE 1 FOR ADDITIONAL INFORMATION

Facility ID: 1431370923 Emissions Unit ID: P006 Issuance type: Final State Permit To Operate

Go to the top of this document

Part II - Special Terms and Conditions

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

(a) None.

2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

(a) None.

A. **Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control

		Measures
P006 - Black Chrome Decorative Electroplating Tank #3	40 CFR Part 63, Subpart N	See term A.2.a.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed 20 percent opacity, as a six-minute average, except as specified by rule.
	OAC rule 3745-17-11(B)	Particulate emissions shall not exceed 0.551 pound per hour.

2. **Additional Terms and Conditions**

(a) The permittee, using a chemical fume suppressant containing a wetting agent, shall not allow the surface tension of the decorative chromium electroplating or anodizing bath(s), emissions unit P006, to exceed 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer at any time during tank operation. This limitation also applies during startup and shutdown operations, but not during periods of malfunction where work practice standards address and correct any malfunction event.

[40 CFR 63.342(d)(2)]

B. **Operational Restrictions**

1. The permittee shall implement the following operational, maintenance, and work practices standards for the chromium electroplating and anodizing tanks, excluding those using a trivalent chromium bath containing a wetting agent as a component ingredient in the bath:

a. At all times, including periods of startup, shutdown, and malfunction, the permittee shall operate and maintain the chromium electroplating or anodizing tank(s), including the associated air pollution control device(s) and monitoring equipment, in a manner consistent with the operation and maintenance plan required by these terms and conditions.

b. Malfunctions shall be corrected as soon as practicable after their occurrence in accordance with the operation and maintenance plan.

c Determination of whether acceptable operation and maintenance procedures are being used shall be based on the facility records, which shall be made available to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) upon request, and which may include, but not be limited to: monitoring results; review of the operation and maintenance plan, procedures, and records; and inspection of the emissions unit. Based on this information, the regulating agency may require that the permittee make changes to the operation and maintenance plan if that plan:

i. does not address a malfunction that has occurred;

ii. fails to provide for the proper operation of the emissions unit, the air pollution control techniques, or the control system and process monitoring equipment during a malfunction in a manner consistent with good air pollution practices; or

iii. does not provide adequate procedures for correcting malfunctioning process equipment, air pollution control equipment, and/or monitoring equipment as quickly as practicable.
d. The standards and limitations that apply to chromic acid baths shall not be met by using a reducing agent to change the form of chromium from hexavalent to trivalent.

[40 CFR 63.342(f)(1) and (2)] & [40 CFR 63.342(g)]

2. The permittee shall prepare an operation and maintenance plan to be implemented no later than the startup of the unit or the compliance date. The plan shall include the following elements:

a. The plan shall specify the operation and maintenance criteria for the affected source, the add-on air pollution control device, and the process and control system monitoring equipment, and shall include a standardized checklist to document the operation and maintenance of the equipment.

b. The plan shall incorporate the work practice standards for the add-on air pollution control device and monitoring equipment required to demonstrate compliance with the standard.

c. The plan shall specify procedures to be followed to ensure that equipment or process malfunctions due to poor maintenance or other preventable conditions do not occur.

d. The plan shall include a systematic procedure for identifying malfunctions of process equipment, add-on air pollution control device(s), and process and control system monitoring equipment, and for implementing corrective actions to address any malfunctions.

e. If the operation and maintenance plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the permittee shall revise the operation and maintenance plan within 45 days after such an event occurs. The revised plan shall include procedures for operating and maintaining the process equipment, add-on air pollution control device, or monitoring equipment during similar malfunction events, and a program for corrective action for such events.
f. If actions taken by the permittee during periods of malfunction are inconsistent with the procedures specified in the operation and maintenance plan, the permittee shall record the actions taken for that event and shall report such actions by phone to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) within 2 working days following the actions performed inconsistent with the plan. This verbal report shall be followed by a letter within 7 working days following the event, unless the permittee makes alternative reporting arrangements, in advance, with the regulating agency.

g. The permittee shall maintain the written operation and maintenance plan on record at the facility; and it shall be made readily available for inspection, at the request of the regulating agency and for the life of the emissions

unit. If the operation and maintenance plan is revised, the permittee shall maintain previous versions of the plan at the facility for a period of five years following each revision; the superceded version(s) of the plan shall also be made available for inspection, if so requested by the regulating agency.

h. The permittee may use applicable standard operating procedure (SOP) manuals, Occupational Safety and Health Administration (OSHA) plans, or other existing plans to meet the operation and maintenance plan requirements as long as the alternative plans meet the requirements of 40 CFR 63.342(f)(3).

[40 CFR 63.342(f)(3)]

3. The operation and maintenance plan shall incorporate the maintenance and operational practices recommended by the manufacturer of the stalagmometer or tensiometer, which shall be used to measure surface tension of the electroplating or anodizing bath. Until performance testing is conducted and an alternative parameter limitation is established, the surface tension of the electroplating or anodizing bath shall not to exceed 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer at any time during tank operation.

[40 CFR 63.342 Table 1] & [40 CFR 63.342(c) and (d)]

C. **Monitoring and/or Record Keeping Requirements**

1. In addition to fulfilling all record keeping requirements contained in the General Provisions to 40 CFR Part 63, Subpart A, as they apply to the emissions unit, the permittee shall also maintain the following records:

a. inspection records for the add-on air pollution control device and monitoring equipment, to document that the inspection and maintenance required by the work practice standards contained in this permit have been performed. The record can take the form of a checklist and should identify the device inspected, the date of inspection, a brief description of the working condition of the device during the inspection, and any actions taken to correct deficiencies found during the inspection;

b. records of all maintenance performed on the emissions unit, add-on air pollution control device, and monitoring equipment;

c. records of the occurrence, duration, and cause (if known) of each malfunction of process, add-on air pollution control device, and monitoring equipment;

d. records of actions taken during periods of malfunction when such actions are inconsistent with the operation and maintenance plan;

e. other records, which may take the form of checklists, necessary to demonstrate consistency with the provisions of the operation and maintenance plan;

f. test reports documenting results of all performance tests;

g. all measurements as may be necessary to determine the conditions of performance tests;

h. records of monitoring data that are used to demonstrate compliance with the standard including the date and time the data are collected;
i. the specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions, as indicated by monitoring data, that occurs during malfunction of the process, add-on air pollution control device, or monitoring equipment;

j. the specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions, as indicated by monitoring data, that occurs during periods other than malfunction of the process, add-on air pollution control device, or monitoring equipment;

k. the total process operating time of the emissions unit during the reporting period;

l. all documentation supporting the notifications and reports as outlined in the "Reporting Requirements" section of this permit and the general reporting requirements in 40 CFR 63.9 and 40 CFR 63.10, from subpart A; and

m. records of the date and time that fume suppressants are added to the electroplating or anodizing bath.

All records shall be maintained for a period of five years.

[40 CFR 63.346(b)]

2. The permittee shall perform the following monitoring and record keeping requirements in order to demonstrate compliance through the use of the wetting agent or combination wetting agent/foam blanket fume suppressant:

a. During the initial performance test, the permittee shall determine the outlet chromium concentration using Method 306 or 306A as required in the "Testing Requirements" section of this permit, to demonstrate compliance with the emission limitation through the use of a wetting agent or combination wetting agent/foam blanket fume suppressant. The surface tension of the bath, measured as specified in Method 306B (from 40 CFR Part 63, Appendix A of Subpart N), shall be established as the site-specific operating parameter, setting the maximum value as that established during the compliant performance test.

b. In lieu of establishing the maximum surface tension during the performance test for chromium emissions, the permittee may instead establish 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer as the maximum surface tension value that corresponds to compliance with the applicable emission limitation using only Method 306B, as allowed per 40 CFR 63.342(c)(1)(iii), (c)(2)(iii) or (d)(2).
c. On and after the date on which the initial performance test is or was required to be completed under 40 CFR 63.7, the permittee shall monitor the surface tension of the electroplating or anodizing bath according to the schedule in paragraph "d" below. Operation of the emissions unit at a surface tension less than or equal

to the value established during the performance test, or no greater than 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer, if the permittee is using this value as the maximum surface tension value, shall constitute compliance with the standard.

d. The surface tension shall be monitored using either a stalagmometer or a tensiometer as specified in Method 306B of 40 CFR Part 63, Appendix A of Subpart N and according to the following schedule:

i. Following the compliance date, the surface tension shall be measured once every four hours during tank operation.

ii. The time between monitoring can be increased if there have been no exceedances. If there are no exceedances during 40 hours of tank operation, surface tension measurement may be conducted once every 8 hours of tank operation. Again if there are no exceedances during 40 hours of tank operation, surface tension measurement may be conducted once every 40 hours of tank operation on an ongoing basis, until an exceedance occurs. The minimum frequency of surface tension measurements shall be once in every 40 hours of tank operation.

iii. Once an exceedance has occurred, as indicated through surface tension monitoring, the original monitoring schedule of once every four hours must be resumed and a subsequent decrease in frequency shall follow the schedule in paragraph (ii) above.

iv. Once a bath solution is drained from the affected tank and a new solution added, the original monitoring schedule of once every four hours must be resumed, with a decrease in monitoring frequency allowed as in paragraph (ii) above.

[40 CFR 63.343(c)(5)]

D. **Reporting Requirements**

1. The permittee shall submit a "Notification of Performance Test" or "Intent to Test" to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) at least 60 calendar days before the performance test is scheduled. The permittee shall notify the regulating agency as soon as practicable if the performance test cannot be conducted as scheduled, and shall specify the date it will be rescheduled (provisions of 40 CFR 63.7(b)(2)).

[40 CFR 63.347(d)]

2. The permittee shall report, to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency), the results of any performance test conducted within 30 days of completion of such test. Reports of performance test results shall also be submitted in the "Notification of Compliance Status Report", no later than 90 days following the completion of the performance test. Performance test results shall be documented in complete test reports that contain the following information:

a. a brief description of the process;

b. a description of the sampling location(s);

c. a description of sampling and analytical procedures and any modifications to standard procedures;

d. the test results;

e. quality assurance procedures and results;

f. records of operating conditions during testing, preparation of standards, and calibration procedures;

g. raw data sheets for field sampling and field and laboratory analyses;

h. documentation of calculations; and

i. any other information required by the test method.

The permittee shall have sufficient data to establish the operating parameter value(s) that corresponds to compliance as required for continuous compliance monitoring.

[40 CFR 63.347(e) and (f)] & [40 CFR 63.344(a) and (b)] & [OAC 3745-15-04(A)]

3. The permittee, qualifying as an area source, shall prepare an annual "Summary Report" ("Ongoing Compliance Status Report") to document ongoing compliance. The "Summary Report" shall be maintained onsite and made available to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) upon request. This report shall include the following:

a. the company name and address of the emissions unit;

b. a description of the source, type of process performed, and the air pollution control method and monitoring device(s) that is/are/shall be used to demonstrate continuous compliance;

c. an identification of the operating parameter(s) that is/are/shall be monitored for compliance determination;

d. the relevant emission limitation for the emissions unit, and the operating parameter value(s), or range of values, established during compliance testing and reported in the notification of compliance status report(s);

e. the beginning and ending dates of the reporting period;

f. the total operating time of the emissions unit during the reporting period;

g. a summary of operating parameter values, including the total duration of excess emissions during the reporting

period as indicated by those values, the total duration of excess emissions expressed as a percent of the total emissions unit operating time during that reporting period; and a breakdown of the total duration of excess emissions during the reporting period into those that are due to process upsets, control equipment malfunctions, other known causes, and unknown causes;
h. a certification by a responsible official that the work practice standards in this permit were followed in accordance with the operation and maintenance plan for the emissions unit;

i. if the operation and maintenance plan required by this permit was not followed, an explanation of the reasons for not following the provisions, an assessment of whether any excess emission and/or parameter monitoring exceedances are believed to have occurred, and a copy of the reports required by the work practices in this permit;

j. a description of any changes in monitoring, processes, or controls since the last reporting period;

k. the date of the report;

l. the name, title, and signature of the responsible official who is certifying the accuracy of the report; and

m. the report shall be completed annually and retained on site, and made available to the regulating agency upon request.

The "Summary Report" shall be prepared annually, unless it is determined that more frequent reporting is required; semiannual reports shall be prepared and submitted to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) if both of the following conditions are met:

a. the total duration of excess emissions is one percent or greater of the total operating time for the reporting period; and

b. the total duration of malfunctions of the add-on air pollution control device and/or monitoring equipment is 5 percent or greater of the total operating time.

Once the permittee reports an exceedance or malfunction meeting these conditions, ongoing compliance status reports shall be submitted semiannually until a request to reduce reporting frequency is approved.

[40 CFR 63.347(h)(1) and (2)]

4. The regulating agency may determine, on a case-by-case basis, if the "Summary Report" ("Ongoing Compliance Status Report") shall be completed more frequently than annually or if to require it be submitted (rather than retained onsite), if these measures are necessary to accurately assess the compliance status of the emissions unit(s).

[40 CFR 63.347(h)(2)]

5. The permittee, who qualifies as an area source but has been required to submit "Summary Reports" on a semiannual (or more frequent) basis, or is required to submit its annual report instead of retaining it on site, may reduce the frequency of reporting to annual (or semi-annual if quarterly) and/or may be permitted to maintain the report on site, rather than submit the annual or semi-annual report, if all of the following conditions are met:

a. for 1 full year (e.g., 2 semiannual or 4 quarterly reporting periods), the ongoing compliance status reports demonstrate that the affected emissions unit is in compliance with the relevant emission limit;

b. the permittee continues to comply with all applicable record keeping and monitoring requirements of 40 CFR Part 63, subpart A and this permit; and

c. the regulating agency does not object to a reduced reporting frequency.

The frequency of completing and/or submitting the "Summary Reports" may be reduced or the report maintained on site (not required to be submitted) only after the permittee notifies the regulating agency in writing of the intention to make the change and the same agency does not object. In deciding whether to approve a reduced reporting frequency or to allow the report to be retained on site, the Ohio EPA regulating agency may request to review information concerning the facility's previous performance history during the 5-year record keeping period prior to the intended change in reporting frequency, or the record keeping period since the emissions unit's compliance date, whichever is shorter. Records subject to review include performance test results, monitoring data, and evaluations of the permittee's conformance with emission limitations and work practice standards. If the permittee's request is disapproved, the regulating agency will notify the permittee in writing within 45 days after receiving notice.
This notification will specify the grounds on which the disapproval is based. In the absence of a notice of disapproval within 45 days, approval is automatically granted.

As soon as the monitoring data show that the facility is not in compliance with the relevant emission limit, the frequency of reporting shall revert to semiannually, and the permittee shall document this exceedance in the "Ongoing Compliance Status/Summary Report", for the next reporting period. After demonstrating ongoing compliance with the relevant emission limit for another full year, the permittee may again request approval to reduce the reporting frequency.

[40 CFR 63.347(h)(3)]

E. **Testing Requirements**

1. The permittee, using a wetting agent in the electroplating or anodizing bath to inhibit chromium emissions, shall conduct, or have conducted, the following testing in order to demonstrate continuous compliance with the surface tension limitation established in this permit:

a. Method 306B, "Surface Tension Measurement and Record keeping for Tanks Used at Decorative Chromium Electroplating and Anodizing Facilities," shall be used to measure the surface tension of the electroplating

and/or anodizing bath.

b. The stalagmometer or tensiometer shall be operated such that representative measurements of the surface tension are obtained. The manufacturer's written accuracy specifications or recommendations for operation and calibration of the instrument shall be used to verify the operational status of the equipment.

c. A representative from the regulating agency shall be permitted to witness the measurement(s), upon request.

If the permittee accepts a surface tension limit of 45 dynes/cm as measured by a stalagmometer or 35 dynes/cm as measured by a tensiometer and conducts continuous compliance monitoring as required in 40 CFR 63.343(c)(5)(ii) and this permit, by reading and recording the surface tension once every 4 hours for the first 40 hours of tank operation; then once every 8 hours of tank operation for an additional 40 hours of tank operations if there are no exceedances during the first 40 hours; and if there are still no exceedances, the minimum frequency of surface tension monitoring shall be once every 40 hours of tank operation. Once an exceedance occurs, the "once every 8 hour" frequence resumes, and a reduction of the monitoring frequence shall follow the requirements contained in this permit.

[40 CFR 63.343(b)(2)], [40 CFR 63.343(c)(5)] & [40 CFR 63.344(c)(3)]

2. Compliance shall be determined through visible emission observations performed in accordance with 40 CFR Part 60, Appendix A, Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

[OAC 3745-17-07(A)(1)]

3. Compliance with the emission limitations in Section A of these terms and conditions shall be determined in accordance with the following method(s):

Emission Limitation:
Particulate emissions shall not exceed 0.551 pound per hour.

Applicable Compliance Method:
Compliance shall be determined based upon the following emission caluclations:

0.069 grains/Amp-hour(AP-42 Table 12.20-1) x 1500 amps (maximum rectifier capacity) = 103.5 grains/hour

103.5 grains/hour x pound/7000 grains = 0.015 pound/hour

F. **Miscellaneous Requirements**

1. None

THIS IS NOT AN OFFICIAL VERSION OF THE PERMIT. SEE PAGE 1 FOR ADDITIONAL INFORMATION

Facility ID: 1431370923 Emissions Unit ID: P007 Issuance type: Final State Permit To Operate

Go to the top of this document

Part II - Special Terms and Conditions

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

(a) None.

2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

(a) None.

A. **Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P007 - Black Chrome Decorative Electroplating Tank #4	40 CFR Part 63, Subpart N	See term A.2.a.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed 20 percent opacity, as a six-minute average, except as specified by rule.
	OAC rule 3745-17-11(B)	Particulate emissions shall not exceed 0.551 pound per hour.

2. **Additional Terms and Conditions**

(a) The permittee, using a chemical fume suppressant containing a wetting agent, shall not allow the surface

tension of the decorative chromium electroplating or anodizing bath(s), emissions unit P007, to exceed 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer at any time during tank operation. This limitation also applies during startup and shutdown operations, but not during periods of malfunction where work practice standards address and correct any malfunction event.

[40 CFR 63.342(d)(2)]

B. **Operational Restrictions**

1. The permittee shall implement the following operational, maintenance, and work practices standards for the chromium electroplating and anodizing tanks, excluding those using a trivalent chromium bath containing a wetting agent as a component ingredient in the bath:

a. At all times, including periods of startup, shutdown, and malfunction, the permittee shall operate and maintain the chromium electroplating or anodizing tank(s), including the associated air pollution control device(s) and monitoring equipment, in a manner consistent with the operation and maintenance plan required by these terms and conditions.

b. Malfunctions shall be corrected as soon as practicable after their occurrence in accordance with the operation and maintenance plan.

c Determination of whether acceptable operation and maintenance procedures are being used shall be based on the facility records, which shall be made available to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) upon request, and which may include, but not be limited to: monitoring results; review of the operation and maintenance plan, procedures, and records; and inspection of the emissions unit. Based on this information, the regulating agency may require that the permittee make changes to the operation and maintenance plan if that plan:

i. does not address a malfunction that has occurred;

ii. fails to provide for the proper operation of the emissions unit, the air pollution control techniques, or the control system and process monitoring equipment during a malfunction in a manner consistent with good air pollution practices; or

iii. does not provide adequate procedures for correcting malfunctioning process equipment, air pollution control equipment, and/or monitoring equipment as quickly as practicable.
d. The standards and limitations that apply to chromic acid baths shall not be met by using a reducing agent to change the form of chromium from hexavalent to trivalent.

[40 CFR 63.342(f)(1) and (2)] & [40 CFR 63.342(g)]

2. The permittee shall prepare an operation and maintenance plan to be implemented no later than the startup of the unit or the compliance date. The plan shall include the following elements:

a. The plan shall specify the operation and maintenance criteria for the affected source, the add-on air pollution control device, and the process and control system monitoring equipment, and shall include a standardized checklist to document the operation and maintenance of the equipment.

b. The plan shall incorporate the work practice standards for the add-on air pollution control device and monitoring equipment required to demonstrate compliance with the standard.

c. The plan shall specify procedures to be followed to ensure that equipment or process malfunctions due to poor maintenance or other preventable conditions do not occur.

d. The plan shall include a systematic procedure for identifying malfunctions of process equipment, add-on air pollution control device(s), and process and control system monitoring equipment, and for implementing corrective actions to address any malfunctions.

e. If the operation and maintenance plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the permittee shall revise the operation and maintenance plan within 45 days after such an event occurs. The revised plan shall include procedures for operating and maintaining the process equipment, add-on air pollution control device, or monitoring equipment during similar malfunction events, and a program for corrective action for such events.
f. If actions taken by the permittee during periods of malfunction are inconsistent with the procedures specified in the operation and maintenance plan, the permittee shall record the actions taken for that event and shall report such actions by phone to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) within 2 working days following the actions performed inconsistent with the plan. This verbal report shall be followed by a letter within 7 working days following the event, unless the permittee makes alternative reporting arrangements, in advance, with the regulating agency.

g. The permittee shall maintain the written operation and maintenance plan on record at the facility; and it shall be made readily available for inspection, at the request of the regulating agency and for the life of the emissions unit. If the operation and maintenance plan is revised, the permittee shall maintain previous versions of the plan at the facility for a period of five years following each revision; the superceded version(s) of the plan shall also be made available for inspection, if so requested by the regulating agency.

h. The permittee may use applicable standard operating procedure (SOP) manuals, Occupational Safety and Health Administration (OSHA) plans, or other existing plans to meet the operation and maintenance plan requirements as long as the alternative plans meet the requirements of 40 CFR 63.342(f)(3).

[40 CFR 63.342(f)(3)]

3. The operation and maintenance plan shall incorporate the maintenance and operational practices recommended by the manufacturer of the stalagmometer or tensiometer, which shall be used to measure surface tension of

the electroplating or anodizing bath. Until performance testing is conducted and an alternative parameter limitation is established, the surface tension of the electroplating or anodizing bath shall not to exceed 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer at any time during tank operation.

[40 CFR 63.342 Table 1] & [40 CFR 63.342(c) and (d)]

C. **Monitoring and/or Record Keeping Requirements**

1. In addition to fulfilling all record keeping requirements contained in the General Provisions to 40 CFR Part 63, Subpart A, as they apply to the emissions unit, the permittee shall also maintain the following records:

a. inspection records for the add-on air pollution control device and monitoring equipment, to document that the inspection and maintenance required by the work practice standards contained in this permit have been performed. The record can take the form of a checklist and should identify the device inspected, the date of inspection, a brief description of the working condition of the device during the inspection, and any actions taken to correct deficiencies found during the inspection;

b. records of all maintenance performed on the emissions unit, add-on air pollution control device, and monitoring equipment;

c. records of the occurrence, duration, and cause (if known) of each malfunction of process, add-on air pollution control device, and monitoring equipment;

d. records of actions taken during periods of malfunction when such actions are inconsistent with the operation and maintenance plan;

e. other records, which may take the form of checklists, necessary to demonstrate consistency with the provisions of the operation and maintenance plan;

f. test reports documenting results of all performance tests;

g. all measurements as may be necessary to determine the conditions of performance tests;

h. records of monitoring data that are used to demonstrate compliance with the standard including the date and time the data are collected;
i. the specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions, as indicated by monitoring data, that occurs during malfunction of the process, add-on air pollution control device, or monitoring equipment;

j. the specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions, as indicated by monitoring data, that occurs during periods other than malfunction of the process, add-on air pollution control device, or monitoring equipment;

k. the total process operating time of the emissions unit during the reporting period;

l. all documentation supporting the notifications and reports as outlined in the "Reporting Requirements" section of this permit and the general reporting requirements in 40 CFR 63.9 and 40 CFR 63.10, from subpart A; and

m. records of the date and time that fume suppressants are added to the electroplating or anodizing bath.

All records shall be maintained for a period of five years.

[40 CFR 63.346(b)]

2. The permittee shall perform the following monitoring and record keeping requirements in order to demonstrate compliance through the use of the wetting agent or combination wetting agent/foam blanket fume suppressant:

a. During the initial performance test, the permittee shall determine the outlet chromium concentration using Method 306 or 306A as required in the "Testing Requirements" section of this permit, to demonstrate compliance with the emission limitation through the use of a wetting agent or combination wetting agent/foam blanket fume suppressant. The surface tension of the bath, measured as specified in Method 306B (from 40 CFR Part 63, Appendix A of Subpart N), shall be established as the site-specific operating parameter, setting the maximum value as that established during the compliant performance test.

b. In lieu of establishing the maximum surface tension during the performance test for chromium emissions, the permittee may instead establish 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer as the maximum surface tension value that corresponds to compliance with the applicable emission limitation using only Method 306B, as allowed per 40 CFR 63.342(c)(1)(iii), (c)(2)(iii) or (d)(2).
c. On and after the date on which the initial performance test is or was required to be completed under 40 CFR 63.7, the permittee shall monitor the surface tension of the electroplating or anodizing bath according to the schedule in paragraph "d" below. Operation of the emissions unit at a surface tension less than or equal to the value established during the performance test, or no greater than 45 dynes per centimeter (3.1 x 10-3 pound-force/foot) as measured by a stalagmometer or 35 dynes per centimeter (2.4 x 10-3 pound-force/foot) as measured by a tensiometer, if the permittee is using this value as the maximum surface tension value, shall constitute compliance with the standard.

d. The surface tension shall be monitored using either a stalagmometer or a tensiometer as specified in Method 306B of 40 CFR Part 63, Appendix A of Subpart N and according to the following schedule:

i. Following the compliance date, the surface tension shall be measured once every four hours during tank operation.

ii. The time between monitoring can be increased if there have been no exceedances. If there are no exceedances during 40 hours of tank operation, surface tension measurement may be conducted once

every 8 hours of tank operation. Again if there are no exceedances during 40 hours of tank operation, surface tension measurement may be conducted once every 40 hours of tank operation on an ongoing basis, until an exceedance occurs. The minimum frequency of surface tension measurements shall be once in every 40 hours of tank operation.

iii. Once an exceedance has occurred, as indicated through surface tension monitoring, the original monitoring schedule of once every four hours must be resumed and a subsequent decrease in frequency shall follow the schedule in paragraph (ii) above.

iv. Once a bath solution is drained from the affected tank and a new solution added, the original monitoring schedule of once every four hours must be resumed, with a decrease in monitoring frequency allowed as in paragraph (ii) above.

[40 CFR 63.343(c)(5)]

D. **Reporting Requirements**

1. The permittee shall submit a "Notification of Performance Test" or "Intent to Test" to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) at least 60 calendar days before the performance test is scheduled. The permittee shall notify the regulating agency as soon as practicable if the performance test cannot be conducted as scheduled, and shall specify the date it will be rescheduled (provisions of 40 CFR 63.7(b)(2)).

[40 CFR 63.347(d)]

2. The permittee shall report, to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency), the results of any performance test conducted within 30 days of completion of such test. Reports of performance test results shall also be submitted in the "Notification of Compliance Status Report", no later than 90 days following the completion of the performance test. Performance test results shall be documented in complete test reports that contain the following information:

a. a brief description of the process;

b. a description of the sampling location(s);

c. a description of sampling and analytical procedures and any modifications to standard procedures;

d. the test results;

e. quality assurance procedures and results;

f. records of operating conditions during testing, preparation of standards, and calibration procedures;

g. raw data sheets for field sampling and field and laboratory analyses;

h. documentation of calculations; and

i. any other information required by the test method.

The permittee shall have sufficient data to establish the operating parameter value(s) that corresponds to compliance as required for continuous compliance monitoring.

[40 CFR 63.347(e) and (f)] & [40 CFR 63.344(a) and (b)] & [OAC 3745-15-04(A)]

3. The permittee, qualifying as an area source, shall prepare an annual "Summary Report" ("Ongoing Compliance Status Report") to document ongoing compliance. The "Summary Report" shall be maintained onsite and made available to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) upon request. This report shall include the following:

a. the company name and address of the emissions unit;

b. a description of the source, type of process performed, and the air pollution control method and monitoring device(s) that is/are/shall be used to demonstrate continuous compliance;

c. an identification of the operating parameter(s) that is/are/shall be monitored for compliance determination;

d. the relevant emission limitation for the emissions unit, and the operating parameter value(s), or range of values, established during compliance testing and reported in the notification of compliance status report(s);

e. the beginning and ending dates of the reporting period;

f. the total operating time of the emissions unit during the reporting period;

g. a summary of operating parameter values, including the total duration of excess emissions during the reporting period as indicated by those values, the total duration of excess emissions expressed as a percent of the total emissions unit operating time during that reporting period; and a breakdown of the total duration of excess emissions during the reporting period into those that are due to process upsets, control equipment malfunctions, other known causes, and unknown causes;
h. a certification by a responsible official that the work practice standards in this permit were followed in accordance with the operation and maintenance plan for the emissions unit;

i. if the operation and maintenance plan required by this permit was not followed, an explanation of the reasons for not following the provisions, an assessment of whether any excess emission and/or parameter monitoring exceedances are believed to have occurred, and a copy of the reports required by the work practices in this permit;

j. a description of any changes in monitoring, processes, or controls since the last reporting period;

k. the date of the report;

l. the name, title, and signature of the responsible official who is certifying the accuracy of the report; and

m. the report shall be completed annually and retained on site, and made available to the regulating agency upon request.

The "Summary Report" shall be prepared annually, unless it is determined that more frequent reporting is required; semiannual reports shall be prepared and submitted to the regulating agency (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) if both of the following conditions are met:

a. the total duration of excess emissions is one percent or greater of the total operating time for the reporting period; and

b. the total duration of malfunctions of the add-on air pollution control device and/or monitoring equipment is 5 percent or greater of the total operating time.

Once the permittee reports an exceedance or malfunction meeting these conditions, ongoing compliance status reports shall be submitted semiannually until a request to reduce reporting frequency is approved.

[40 CFR 63.347(h)(1) and (2)]

4. The regulating agency may determine, on a case-by-case basis, if the "Summary Report" ("Ongoing Compliance Status Report") shall be completed more frequently than annually or if to require it be submitted (rather than retained onsite), if these measures are necessary to accurately assess the compliance status of the emissions unit(s).

[40 CFR 63.347(h)(2)]

5. The permittee, who qualifies as an area source but has been required to submit "Summary Reports" on a semiannual (or more frequent) basis, or is required to submit its annual report instead of retaining it on site, may reduce the frequency of reporting to annual (or semi-annual if quarterly) and/or may be permitted to maintain the report on site, rather than submit the annual or semi-annual report, if all of the following conditions are met:

a. for 1 full year (e.g., 2 semiannual or 4 quarterly reporting periods), the ongoing compliance status reports demonstrate that the affected emissions unit is in compliance with the relevant emission limit;

b. the permittee continues to comply with all applicable record keeping and monitoring requirements of 40 CFR Part 63, subpart A and this permit; and

c. the regulating agency does not object to a reduced reporting frequency.

The frequency of completing and/or submitting the "Summary Reports" may be reduced or the report maintained on site (not required to be submitted) only after the permittee notifies the regulating agency in writing of the intention to make the change and the same agency does not object. In deciding whether to approve a reduced reporting frequency or to allow the report to be retained on site, the Ohio EPA regulating agency may request to review information concerning the facility's previous performance history during the 5-year record keeping period prior to the intended change in reporting frequency, or the record keeping period since the emissions unit's compliance date, whichever is shorter. Records subject to review include performance test results, monitoring data, and evaluations of the permittee's conformance with emission limitations and work practice standards. If the permittee's request is disapproved, the regulating agency will notify the permittee in writing within 45 days after receiving notice.
This notification will specify the grounds on which the disapproval is based. In the absence of a notice of disapproval within 45 days, approval is automatically granted.

As soon as the monitoring data show that the facility is not in compliance with the relevant emission limit, the frequency of reporting shall revert to semiannually, and the permittee shall document this exceedance in the "Ongoing Compliance Status/Summary Report", for the next reporting period. After demonstrating ongoing compliance with the relevant emission limit for another full year, the permittee may again request approval to reduce the reporting frequency.

[40 CFR 63.347(h)(3)]

E. **Testing Requirements**

1. The permittee, using a wetting agent in the electroplating or anodizing bath to inhibit chromium emissions, shall conduct, or have conducted, the following testing in order to demonstrate continuous compliance with the surface tension limitation established in this permit:

a. Method 306B, "Surface Tension Measurement and Record keeping for Tanks Used at Decorative Chromium Electroplating and Anodizing Facilities," shall be used to measure the surface tension of the electroplating and/or anodizing bath.

b. The stalagmometer or tensiometer shall be operated such that representative measurements of the surface tension are obtained. The manufacturer's written accuracy specifications or recommendations for operation and calibration of the instrument shall be used to verify the operational status of the equipment.

c. A representative from the regulating agency shall be permitted to witness the measurement(s), upon request.

If the permittee accepts a surface tension limit of 45 dynes/cm as measured by a stalagmometer or 35 dynes/cm as measured by a tensiometer and conducts continuous compliance monitoring as required in 40 CFR 63.343(c)(5)(ii) and this permit, by reading and recording the surface tension once every 4 hours for the first 40 hours of tank operation; then once every 8 hours of tank operation for an additional 40 hours of tank operations if there are no exceedances during the first 40 hours; and if there are still no exceedances, the

minimum frequency of surface tension monitoring shall be once every 40 hours of tank operation. Once an exceedance occurs, the "once every 8 hour" frequence resumes, and a reduction of the monitoring frequence shall follow the requirements contained in this permit.

[40 CFR 63.343(b)(2)], [40 CFR 63.343(c)(5)] & [40 CFR 63.344(c)(3)]

2. Compliance shall be determined through visible emission observations performed in accordance with 40 CFR Part 60, Appendix A, Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

[OAC 3745-17-07(A)(1)]

3. Compliance with the emission limitations in Section A of these terms and conditions shall be determined in accordance with the following method(s):

Emission Limitation:
Particulate emissions shall not exceed 0.551 pound per hour.

Applicable Compliance Method:
Compliance shall be determined based upon the following emission caluclations:

0.069 grains/Amp-hour(AP-42 Table 12.20-1) x 500 amps (maximum rectifier capacity) = 34.5 grains/hour

34.5 grains/hour x pound/7000 grains = 0.0049 pound/hour

F. **Miscellaneous Requirements**

1. None