



**FG-MACT N-CHROME ELECTROPLATING
FLEXIBLE GROUP CONDITIONS**
40 CFR Part 63, Subpart N covers major and area sources of HAPs.

Red text identifies options. Select the option that applies to the source and change the text to black. Delete red text that does not apply and renumber conditions if necessary.

Blue text is guidance or notes on the use of the template. Delete all blue text prior to issuing the final permit or submitting it with a permit application. Read through all conditions. Select the appropriate conditions for the existing, (or future if the permittee wants the option to change) control equipment.

If this template is being used for an ROP Reopening or Renewal, and the MACT conditions were established in a PTI, the appropriate footnotes which reference enforceability must be added to each applicable condition in the template.

DESCRIPTION

Each chromium electroplating or chromium anodizing tank at facilities performing hard chromium electroplating, decorative chromium electroplating, or chromium anodizing as defined in Title 40 of the Code of Federal Regulations (CFR) Part 63, Subpart N, 63.341. Affected sources include equipment covered by other permits, grandfathered equipment, and exempt equipment.

NOTE: This template does not cover the requirements for decorative chrome plating using a trivalent chromium bath. These are very rare. If a trivalent chromium bath is used, review 40 CFR 63.342(e) and add a separate flexible group. Refer to 40 CFR 63.347(i) for reports associated with trivalent chromium baths.

Emission Units: Identify Emission Units in this Flexible Group

POLLUTION CONTROL EQUIPMENT

Identify specific control equipment used by the facility.

EMISSION LIMIT(S) Select the appropriate limits for the facility

Pollutant	Limit *	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Total Chromium	0.015 milligram per dry standard cubic meter	Continuous	All Hard Chrome Electroplating Tank(s) (except those located at small facilities)	SC V.1	40 CFR 63.342(c)(1)(i)
2. Total Chromium	0.03 milligram per dry standard cubic meter	Continuous	Existing Hard Chrome Electroplating Tank(s) Located at Small Facilities	SC V.1	40 CFR 63.342(c)(1)(ii)
3. Total Chromium	0.01 milligram per dry standard cubic meter	Continuous	All Decorative Chrome Electroplating Tank(s) This requirement is only for tanks using a chromic acid bath and chromium anodizing tanks	SC V.1	40 CFR 63.342(d)(1)

Pollutant	Limit *	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
<p>* All emission limits are corrected to 70°F and 29.92 inches Hg.</p> <p>If a facility chooses to comply with 40 CFR Part 63, Subpart N by use of a fume suppressant and maintaining the surface tension per 40 CFR 63.342(c)(1)(iii), (c)(2)(iii), or (d)(2), then the facility is not subject to these emission limits. Use SC III.5.</p> <p>Hard chrome electroplating tanks are both open surface and enclosed tanks. For enclosed hard chrome electroplating tanks, an alternate mass emission rate of total chromium may be determined by calculations in 40 CFR 63.344(f)(1)(i) and (ii). See 40 CFR 63.342(c)(2)(iv) and (c)(2)(v)</p> <p>NOTE: If a group of tanks is controlled with a common add-on air pollution control device, emission limitations apply to each tank. See 40 CFR 63.342(b)(2) for specifics and 40 CFR 63.344(e) for special compliance provisions.</p>					

- The affected source shall be in compliance with the applicable emission limits in 40 CFR 63.342 during tank operation and during periods of startup and shutdown. **(40 CFR 63.342(b)(1))**

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

- At all times, including periods of startup, shutdown, and malfunction, owners or operators shall operate and maintain any affected source, including associated monitoring equipment, in a manner consistent with good air pollution control practices, consistent with the operation and maintenance plan. **(40 CFR 63.342(f)(1)(i))**
- The permittee shall implement an approved operation and maintenance plan. The plan, which shall be kept on site and made available upon request, shall include the following elements: **(40 CFR 63.342(f)(3)(i))**
 - Operation and maintenance criteria for the **DECORATIVE CHROME/HARD CHROME** tank(s), the add-on control device(s), and for the process and control device(s) monitoring equipment as well as a standardized checklist to document the operation and maintenance of the equipment. **(40 CFR 63.342(f)(3)(i)(A))**
 - For sources using an add-on control device or monitoring equipment to comply with 40 CFR 63.342, the plan shall incorporate the operation and maintenance practices for that device or monitoring equipment as identified in Table 1 of 40 CFR 63.342 if the specific equipment used is identified in Table 1. **(40 CFR 63.342(f)(3)(i)(B))** NOTE: Special Conditions VI.3, 4 or 6 cover the monitoring requirements for different control options.
 - If the specific equipment used is not identified in Table 1 of 40 CFR 63.342, the plan shall incorporate proposed operation and maintenance practices. **(40 CFR 63.342(f)(3)(i)(C))**
 - Procedures to be followed to ensure that equipment or process malfunctions due to poor maintenance or other preventable conditions do not occur. **(40 CFR 63.342(f)(3)(i)(D))**
 - A systematic procedure for identifying process equipment, add-on control device(s) and monitoring equipment malfunctions and for implementing corrective actions to address such malfunctions. **(40 CFR 63.342(f)(3)(i)(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 owner or operator 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, or monitoring equipment during similar malfunction events, and a program for corrective action for such events. If the plan is revised, the permittee shall keep previous versions of the plan available upon request, for a period of 5 years after each revision to the plan. **(40 CFR 63.342(f)(3)(ii) and (v))**

4. 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 by phone such actions within 2 working days after commencing actions inconsistent with the plan. This report shall be followed by a letter within 7 working days after the end of the event. **(40 CFR 63.342(f)(3)(iv))**

If a facility uses a wetting agent as a control technique:

5. The permittee shall not operate DECORATIVE CHROME/HARD CHROME tank(s) unless the chemical fume suppressant containing a wetting agent is applied in quantities and at a frequency to ensure the surface tension of The TANK does not exceed, at any time during operation, 45 dynes/cm (3.1x10⁻³ pound-force per foot) as measured by a stalagmometer or does not exceed 35 dynes/cm (2.4x10⁻³ pound-force per foot) as measured by a tensiometer or the maximum surface tension that corresponds to compliance with the applicable emission limit (0.015 OR 0.03 MG/DSCM FOR HARD CHROME/0.01 MG/DSCM FOR DECORATIVE CHROME), as determined during compliance testing. **(40 CFR 63.342(c)(1)(iii), or (c)(2)(iii) or (d)(2), 40 CFR 63.343(c)(5))**

If a facility uses a foam blanket-type fume suppressant:

6. The permittee shall not operate the decorative chrome or hard chrome electroplating tank unless the foam blanket-type fume suppressant is applied in quantities and at a frequency to maintain a minimum blanket thickness of 2.54 cm (1 inch) or the minimum thickness required to comply with the applicable emission limit (0.015 OR 0.03 MG/DSCM FOR HARD CHROME/0.01 MG/DSCM FOR DECORATIVE CHROME), as determined during compliance testing. **(40 CFR 63.343(c)(6))**

If a packed bed scrubber system is used:

7. The permittee shall use fresh water for any make-up water, and shall supply this water to the unit at the top of the packed bed scrubber. **(40 CFR 63.342(f)(3)(B))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate DECORATIVE CHROME/HARD CHROME tank(s) that use add-on air pollution control equipment unless the COMPOSITE MESH PAD SYSTEM, PACKED-BED SCRUBBER SYSTEM, PACKED-BED SCRUBBER/COMPOSITE MESH PAD SYSTEM, OR FIBER BED MIST ELIMINATOR is installed, maintained, and operated in a satisfactory manner. Applies to decorative or hard chrome only if using emission limit, does not apply when using surface tension unless additional control is necessary to meet Rule 225 requirements **(40 CFR 63.342)**
2. The permittee shall equip and maintain the COMPOSITE MESH PAD SYSTEM, PACKED-BED SCRUBBER SYSTEM, PACKED-BED SCRUBBER/COMPOSITE MESH PAD SYSTEM, OR FIBER BED MIST ELIMINATOR with a differential pressure monitoring device. **(40 CFR 63.343(c))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Except as provided in 40 CFR 63.343(b)(2) and (3), the permittee shall conduct an initial performance test as required by 40 CFR 63.7, using the test methods identified in 40 CFR 63.344(c), and shall establish site-specific operating parameters that correspond to compliance with the applicable emission limitation. **40 CFR 63.343(b) and (c))**
2. Within 180 days after commencement of trial operation, the permittee shall verify the total outlet chromium concentration from DECORATIVE CHROME/HARD CHROME tank(s), by testing for either total chromium or hexavalent chromium, at owner's expense, in accordance with 40 CFR Part 63, Subparts A and N. The permittee shall notify the AQD District Supervisor in writing of the intention to conduct a performance test, at least 60 calendar days before the test is scheduled to begin, in accordance with 40 CFR 63.347(d). Stack testing procedures and the location of stack testing ports shall be in accordance with the applicable federal Reference Methods, 40 CFR Part 63, Appendix A. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 90 days following the last date of the test. **(40 CFR Part 63, Subparts A & N)**

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii), 40 CFR 63.346(c))**

1. The permittee shall comply with the emission limitations in 40 CFR 63.342 according to the compliance dates specified in 40 CFR 63.343(a). **(40 CFR 63.343(c))**
2. The permittee shall monitor FG-MACT N-CHROME ELECTROPLATING to demonstrate continuous compliance with the emission limitations of 40 CFR 63.342 as described in 40 CFR 63.343(c). **(40 CFR 63.343(c))**

Select the appropriate monitoring condition(s) based on the type of pollution control used.

For a composite mesh pad system or CMP/packed bed scrubber combined system:

3. The permittee shall perform inspections of the COMPOSITE MESH PAD (CMP) SYSTEM / CMP / PACKED BED COMBINED SYSTEM as follows: **(40 CFR 63.343(c)(1)or(3))**
 - a. Determine pressure drop across the CMP SYSTEM/CMP/PACKED BED COMBINED SYSTEM once each day that the affected source is operating. If the pressure drop across the control varies by more than ± 2 inch of water gauge, from the pressure drop determined during compliance testing, the permittee shall document the variation, and review the operation and maintenance procedures. The permittee shall document any corrective action.
 - b. Visually inspect the CMP SYSTEM/CMP/PACKED BED COMBINED SYSTEM, on a quarterly basis, to ensure there is proper drainage, no chromic acid build up on the pads, and no evidence of chemical attack on the structural integrity of the control device.
 - c. Visually inspect the back portion of the mesh pad closest to the fan, on a quarterly basis, to ensure there is no breakthrough of chromic acid mist.
 - d. Visually inspect ductwork from tanks to the CMP SYSTEM/CMP/PACKED BED COMBINED SYSTEM, on a quarterly basis, to ensure there are no leaks.
 - e. Perform wash-down of composite mesh pads in accordance with manufacturer's recommendations.

For a packed bed scrubber system:

4. The permittee shall perform inspections of the packed bed scrubber system as follows: **(40 CFR 63.342(f)(3) and 63.343(c)(2))**
 - a. Determine velocity pressure at the inlet of the packed bed scrubber once each day that the affected source is operating. If the velocity pressure varies ± 10 percent of the average velocity pressure determined during compliance testing, the permittee shall document the variation, and review operation and maintenance procedures. The permittee shall document any corrective action.
 - b. Determine pressure drop across the packed bed scrubber once each day that the affected source is operating. If the pressure drop across the control varies by more than ± 1 inch of water gauge, from the pressure drop determined during compliance testing, the permittee shall document the variation, and review the operation and maintenance procedures. The permittee shall document any corrective action.
 - c. Visually inspect the packed bed scrubber, on a quarterly basis, to ensure there is proper drainage, no chromic acid build up on packed beds, and no evidence of chemical attack on the structural integrity of the control device.
 - d. Visually inspect the back portion of the mist eliminator (chevron blade), on a quarterly basis, to ensure that it is dry and there is no breakthrough of chromic acid mist.
 - e. Visually inspect ductwork from tanks to the packed bed scrubber, on a quarterly basis, to ensure there are no leaks.
 - f. Add fresh make-up water as needed.

For a fiber-bed mist eliminator:

5. The permittee shall perform inspections of the fiber-bed mist eliminator system as follows: **(40 CFR 63.342(f)(3) and 63.343(c)(4))**

- a. Determine pressure drop across the fiber-bed mist eliminator and pressure across the upstream control used to prevent plugging once each day that the affected source is operating. If the pressure drop across the control varies by more than ± 1 inch of water gauge, from the pressure drop determined during compliance testing, the permittee shall document the variation, and review the operation and maintenance procedures. The permittee shall document any corrective action.
- b. Visually inspect fiber-bed unit and pre-filtering device, on a quarterly basis, to ensure there is proper drainage, no chromic acid buildup in the units, and no evidence of chemical attack on the structural integrity of the devices.
- c. Visually inspect ductwork from tank or tanks to the control device, on a quarterly basis, to ensure there are no leaks.
- d. Perform wash down of fiber elements in accordance with manufacturer's recommendations.

If a facility uses a wetting agent:

6. The permittee shall monitor the surface tension of the DECORATIVE CHROME/HARD CHROME tank(s) once every 4 hours during tank operation for the first 40 hours of tank operation. If there are no exceedances during the first 40 hours of tank operation, then surface tension measurements may be conducted once every 8 hours of tank operation for the next 40 hours of tank operation. If there are no exceedances during the 40 hours of tank operation when surface tension measurements are being conducted every 8 hours, then surface tension measurements may be conducted once every 40 hours of tank operation on an ongoing basis, until an exceedance occurs. Once an exceedance occurs as indicated through surface tension monitoring, the original monitoring schedule of once every 4 hours must be resumed and the subsequent decrease in frequency shall follow the schedule as laid out above. The minimum frequency of monitoring allowed is once every 40 hours of tank operation. An example of monitoring frequency is available at 40 CFR 63.343(c)(5)(ii)(C). The surface tension shall be monitored with a stalagmometer or tensiometer as specified in Method 306B, Appendix A of 40 CFR Part 63. **(40 CFR 63.343(c)(5))**

If a facility uses a foam blanket-type fume suppressant:

7. The permittee shall monitor the foam blanket thickness of the DECORATIVE CHROME/HARD CHROME tank(s) once every hour of tank operation for the first 40 hours of tank operation. If there are no exceedances during the first 40 hours of tank operation, then the foam blanket measurements may be conducted once every 4 hours of tank operation for the next 40 hours of tank operation. If there are no exceedances during the 40 hours of tank operation when foam blanket measurements were being conducted every 4 hours, then the measurements may be conducted once every 8 hours of tank operation on an ongoing basis, until an exceedance occurs. Once an exceedance occurs as indicated by the foam blanket measurements, the original monitoring schedule of once every hour must be resumed and the subsequent decrease in frequency shall follow the schedule as outlined above. The minimum frequency of monitoring allowed is once every 8 hours of tank operation. **(40 CFR 63.343(c)(6))**

If a facility uses either a foam blanket-type fume suppressant or a wetting agent:

8. Once a tank bath solution is drained from an affected tank and a new solution added, the original monitoring schedule of once every HOUR/4 HOURS must be resumed, with a decrease in monitoring frequency as allowed by 40 CFR 63.343(c)(5)(ii)(B) and (C) or 40 CFR 63.343(c)(6)(ii)(B) and (C). **(40 CFR 63.343(c)(5)(iii) or 63.343(c)(6)(iii))** NOTE: frequency depends on which type of control is being used.
9. The permittee shall keep at a minimum, the following records required by 40 CFR 63.346, as of the applicable compliance date, in the format and timeframes outlined in 40 CFR 63.346.
 - a. Records of inspections required to comply with applicable work practice standards of 40 CFR 63.342(f), identifying the device inspected, the date, approximate time of inspection, and a brief description of the working condition of the device during the inspection, including a record of any actions taken to correct the deficiencies found during the inspection. **(40 CFR 63.346(b)(1))**
 - b. Records of all maintenance performed on the HARD CHROME/DECORATIVE CHROME electroplating process tank(s), control device, and monitoring equipment. **(40 CFR 63.346(b)(2))**
 - c. Records of the occurrence, duration, and cause (if known) of each malfunction of the HARD CHROME/DECORATIVE CHROME electroplating process, control device, and monitoring equipment. **(40 CFR 63.346(b)(3))**

- d. Records of actions taken during periods of malfunction when such actions are inconsistent with the operation and maintenance plan for the **HARD CHROME/DECORATIVE CHROME** electroplating tank. **(40 CFR 63.346(b)(4))**
- e. Other records necessary to demonstrate consistency with provisions of the operation and maintenance plan required by 40 CFR 63.342(f)(3). **(40 CFR 63.346(b)(5))**
- f. Test reports documenting results of all performance tests. **(40 CFR 63.346(b)(6))**
- g. All measurements necessary to determine the conditions of performance tests, including measurements necessary to determine compliance with the special compliance procedures of 40 CFR 63.344(e). **(40 CFR 63.346(b)(7))**
- h. Records of monitoring data that are used to demonstrate compliance with the standard for a **HARD CHROME/DECORATIVE CHROME** electroplating tank(s), including the date and time the data are collected. **(40 CFR 63.346(b)(8))**
- i. A record of 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 **HARD CHROME/DECORATIVE CHROME** electroplating process or monitoring equipment. **(40 CFR 63.346(b)(9))**
- j. A record of 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 **HARD CHROME/DECORATIVE CHROME** electroplating process or monitoring equipment. **(40 CFR 63.346(b)(10))**
- k. A record of the total **HARD CHROME/DECORATIVE CHROME** electroplating tank(s) operating time. **(40 CFR 63.346(b)(11))**
- l. If the permittee is using the actual cumulative rectifier capacity to determine facility size in accordance with 40 CFR 63.342(c)(3), records of the actual cumulative rectifier capacity of hard chromium electroplating tanks located at a small hard chrome plating facility as defined in 40 CFR Part 63.341(a). **(40 CFR 63.346(b)(12))** Use only for hard chrome facilities that are meeting the definition of a small hard chrome plating facility.
- m. Records of the surface tension of the **HARD CHROME/DECORATIVE CHROME** tank(s), the amount of chemical fume suppressant added to the **HARD CHROME/DECORATIVE CHROME** tank(s) and the date and time of each addition. **(40 CFR 63.346(b)(13))** For facilities using a foam blanket-type fume suppressant, change "surface tension" to "foam blanket measurements".
- n. Records of the bath components purchased for the decorative chrome plating tank(s) using a trivalent chromium bath, with the wetting agent clearly identified as a bath constituent contained in one of the components for the tank. **(40 CFR 63.346(b)(14))** This is the only monitoring/recordkeeping condition that applies to decorative chrome plating tanks using a trivalent bath.
- o. All documentation supporting the notification and reports required by 40 CFR 63.9, 40 CFR 63.10, and 40 CFR 63.347. **(40 CFR 63.346(b)(16))**

See Appendices {Enter 3, 4, and/or 7}

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall document all performance test results in complete test reports that contain the information required by 40 CFR 63.344(a)(1) through (9). **(40 CFR 63.344)**

5. The permittee shall fulfill all applicable reporting requirements outlined in 40 CFR 63.347 and the General Provisions to 40 CFR Part 63, according to the applicability of Subpart A, as identified in Table 1 of 40 CFR Part 63, Subpart N. The notifications and reports include: initial notifications, notification of performance test, notification of compliance status, reports of performance test results, and ongoing compliance status reports. **(40 CFR 63.347(a) through (h))**
6. The permittee is subject to the preconstruction review requirements of 40 CFR 63.5(a), (b)(1), (b)(5), (b)(6) and (f)(1) as well as the provisions of 40 CFR 63.345, for a new or reconstructed source. **(40 CFR 63.345)**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVCHROME(x)			

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart N for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks by the initial compliance date. **(40 CFR Part 63, Subparts A and N)**

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).