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DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Scheduled Inspection

A808733246

FACILITY: ARTED CHROME PLATING INC		SRN / ID: A8087
LOCATION: 38 PIQUETTE, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT: Mark Borawski, Manager		ACTIVITY DATE: 02/08/2016
STAFF: Terseer Hemben	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: Decorative Chrome Plating		
RESOLVED COMPLAINTS:		

ARTED CHROME PLATING INC.

INSPECTOR: Terseer Hemben (DEQ)

PRESENT: Mark Borawski (Manager)

Date of Inspection: February 8, 2016

SRN: A8087

Address: 38 Piquette Street, Detroit, MI 48202

Regulatory Rules: Federal-40 CFR 63, Subpart A &amp; N

State: R 336.1201 &amp; (6); General Condition 13; R336.1225; R 336.1910; R 336.1941; R 336.1901;

FACILITY BACKGROUND: ARTED CHROME PLATING, INC.

The Arted Chrome Plating, Inc. is owned by two brothers, namely Ronald and Frank Borawski. The present owners had worked at this facility from 1979 to 1983. Few years later the two brothers bought the facility. This plant has originally been in operation since 1945. The plant is housed in the building, which used to serve as the Detroit Mayor's quarters. The quarters had a horse barn attached to it. In 1989, the plant had a fire disaster. The main business line at this facility is the decorative nickel/chrome plating operation regulated under the federally rule 40 CFR 63, Subpart A & N. Basic State rules apply for hygiene, exempt status and administrative compliance. The process operates three units: EUCHROMETANK1- for decorative chrome electroplating tank with fume suppressant control (hexavalent chrome tank); EUCHROMETANK2 -for decorative chrome electroplating tank that uses a trivalent chromium bath with a fume suppressant/wetting agent added to the bath; and a EUSTRIPTANK1-a nickel stripping tank containing nitric acid. The tank has no add-on control. The facility was last inspected in 2004.

## INSPECTION NARRATIVE:

I arrived at the facility location, 38 Piquette Street, Detroit, MI 48202 on February 8, 2016 at 0820 hours. The purpose of visit was to perform a scheduled compliance inspection for quality assurance of emission compliance with rules regulating decorative chrome plating. Temperature at the hour was 38 F, and wind speed 3.5 mph coming from the West. Humidity was 76%. I was admitted into the building by Mr. Mark Borawski, the manager. We held a pre-inspection conference and went over the inspection agenda items. Mr. Borawski informed the facility was temporarily shut down for maintenance. One of the emission units was permanently discontinued and uninstalled. This was the EUSTRIPTANK1 that was used for stripping nickel. Nitric acid is used for controlling the nickel stripping reaction. We walked through the process production area and examined equipment that was idling because of the routine shut down for maintenance. We returned to the office for the post inspection conference. I left the area at 0945 hours.

## COMPLAINT/COMPLIANCE HISTORY:

Arted Chrome Plating, Inc. has not been a source of citizen air quality complaints.

**OUTSTANDING CONSENT ORDERS:**

None

**OUTSTANDING LOV'S:**

None

**OPERATING SCHEDULE/PRODUCTION RATE:**

The facility operates a regular 8-hour shift from 6:00 am to 2:00 pm. occasionally, the facility may run an evening shift if workload demands such considerations. The manager informed the facility has reduced production load and no longer operates as regularly as designed.

**PROCESS DESCRIPTION:**

Arted chrome plating facility handles decorative chrome/nickel operation as the main business line. The main service products are bolts, acorn nuts for auto industries, and Harley Davidson motor cycle parts. Operation processes are arranged in rows of baths lined in an open room. The floor plan for the process is in AQD files. On an average rating, the Arted Chrome Electroplating, Inc. currently operates on lean schedule of 40 hours or less per week. Main pollutant emission from this process is chromic acid mists. Main units of operational concerns involve chrome tanks. Emission activities in, and around, the acid tank are controlled with a fume wetting agent. According to the AP-42 theoretical description, the chrome plating process deposits a relatively thick layer of chromium directly on the base of the metal (usually steel) to provide a surface with wear resistance. Chrome plating process makes the surface to bear a low coefficient of friction, hardness, and corrosion resistance or to build up surfaces that have eroded over time. Hard plating is used for items such as hydraulic cylinders and rods, industrial rolls, zinc die castings, plastic molds, engine component, and marine hardware.

Process operations at the Arted Company initially comprise Decorative Chromium Electroplating process, and Nickel Stripping process. The decorative chromium electroplating of metals and plastics is performed in one tank. The dimensions of this tank are 56 inches in height, 44 inches wide, and 130 inches in length. Chromic acid mist generated due to the operation of the plating tank is exhausted to the ambient air via lip exhaust. The lip exhaust captures chromic acid mist and exhausts to the ambient air through a circular stack. Details regarding the exhaust stack serving the decorative chromium electroplating tank are in AQD files. Chromium emissions, which arise from operation of the decorative chromium electroplating tanks, are controlled by adding a chemical fume suppressant (CAMS-4/Tristar 300 Wetter) to the plating bath. Plating time allowed for Chrome plating is 2 min. Of course, the magnitude of the surface area of the plated item determines the plating time.

**EQUIPMENT AND PROCESS CONTROLS:**

The facility operated equipment installed for the process dating back to 1986. The AQD permitted the process under Permit To Install No. 74-02 stipulating regulatory conditions for ensuring compliance for the decorative chromium electroplating tank and nickel stripping tank. The Permit was modified in 2010 to PTI No. 74-02A to permit a trivalent chromium tank. The plating tanks are raised on a platform in such a position that drips of chromium solution on the floor are captured into the waste water treatment stream. Chrome fumes or mists inside the building are discharged into the stack's 4 strategically placed hoods.

**APPLICABLE RULES/PERMITS PTI# 74-02A CONDITIONS:**

Based on the federal rule and PTI 74-02A conditions, the operations of Arted Chrome Electroplating (ACE) was evaluated as-

1. In compliance – ACE demonstrated the total chromium emission in EUCHROMETANK1 did not exceed 0.00018 pph. based on operating time period [SC. I.1]. Response from ACE stated the facility limited total chromium emissions in EUCHROMETANK1 to less than 0.00018 pph. by adding a chemical fume suppressant in quantities and frequency required for ensuring the surface tension of the liquid in the tank do not exceed 45 dynes/cm. Calculations of emissions from effect of surface tension control is in AQD file.

2. In compliance – ACE demonstrated the permittee did not operate EUCHROMETANK1 unless the chemical fume suppressant was applied in quantities and at a frequency to ensure the surface tension of EUCHROMETANK1 did not exceed 45 dynes/cm (3.1x10<sup>-3</sup> pound-force per foot) at any time during operation. (R 336.1225, R 336.1910, R 336.1941, 40 CFR Part 63 Subpart N) [SC. III.1]. Response from ACE indicated the limit was complied with by

addition of fume suppressants for limiting of surface tension within permitted limits. Records of surface tension covering the last 24 months indicated the highest surface tension reading was 43.80 reading less than 45 dynes/cm [Attachment B, pg. 1-3]. The facility was in compliance with the permit condition.

a). Non-compliance – 40 CFR 63 Subpart N allowed an owner or operator of a decorative electroplating tank with a chromic acid bath to comply with 45 dynes/cm, as measured by a stalagmometer, or 33 dynes/cm, as measured by a tensiometer, as the maximum surface tension value that corresponds to compliance with the applicable emission limitation. Response from ACE indicated the surface tension measurements were taken using a stalagmometer. Readings from the measurement did not exceed 45 dynes/cm [Attachment B, Pg. 1-3]. However, EPA has since lowered the surface tension restriction to not more than 40 dynes/cm at 40 CFR 63.342(d)(3). This new standard became effective for existing sources on September 19, 2014 (40 CFR 63.343(a)(1)). This standard is incorporated into AQD Rule 941(1). Based on the surface tension records, the surface tension on September 17, 2014 was measured at 42.15 dynes/cm and has not been measured below 40 dynes/cm at any time after September 19, 2014 through the last record of February 8, 2016. Therefore, ACE is not in compliance with the emissions standard of 40 CFR 63.343(d)(3) or Rule 941.

Staff found out the facility was not aware of the shift. The manager pledged to attain compliance from this recent inspection going forward.

3. Non-compliance – ACE did not monitor, in a satisfactory manner, the surface tension of EUCHROMETANK1 every four hours except as allowed in 40 CFR 63.343(c)(5). (R 336.1225, R 336.1910, R 336.1941, 40 CFR Part 63 Subpart N) [SC VI.1] Response to this condition was same as in Question # 2. [Attachment B, pg. 1-3]. ACE stated that if on and after the date on which the initial performance test was required to be completed under §63.7, the owner or operator of an affected source monitored the surface tension of the electroplating or anodizing bath. Operation of the affected source at a surface tension greater than the value established during the performance test, or greater than 45 dynes/cm, as measured by a stalagmometer, or 33 dynes/cm, as measured by a tensiometer, if the owner or operator used this value in accordance with paragraph (c)(5)(i) of this section, the operation shall constitute noncompliance with the standards. Thus the surface tension was monitored according to the following schedule: (i) Once a bath solution was drained from the affected tank and a new solution added, the original monitoring schedule of once every 4 hours was resumed, with a decrease in monitoring frequency allowing the following procedures of paragraphs (c)(5)(ii) (B) and (C) of this section. Response from ACE indicated that upon initial startup, surface tension was measured once every 4 hours. When there were no exceedances of maximum surface tension after 40 hours of operation, the monitoring frequency was decreased to once every 8 hours. When there were no exceedances after 40 hours, the frequency decreased to once every 40 hours [Response# 2b, Pg. 5; Attachment B, Pg. 1-3].

However, the facility based the monitoring schedule upon 45 dynes/cm. When the surface tension standard was lowered from 45 dynes/cm to 40 dynes/cm on September 19, 2014, the surface tension was required to be monitored once every 4 hours. Therefore, the facility is not in compliance with SC VI.1, 40 CFR 63.343(c)(5), and Rule 941.

4. Non-compliance–ACE did not monitor emissions and operating and maintenance information in accordance with the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 63 Subparts A and N. (R 336.1941, 40 CFR Part 63 Subpart N) [SC VI.2]. Response to this question was same as in Question # 2 [Attachment B, Pg. 1-3].

However, the facility based the monitoring schedule upon 45 dynes/cm. When the surface tension standard was lowered from 45 dynes/cm to 40 dynes/cm on September 19, 2014, the surface tension was required to be monitored once every 4 hours. Therefore, the facility is not in compliance with SC VI.1, 40 CFR 63.343(c)(5), and Rule 941.

5. Non-compliance–The ACE partially demonstrated the permittee maintained records of inspections required to comply with applicable work practice standards of 40 CFR 63.342(f). Each inspection record should identify the device inspected, the date, approximate time of inspection, and a brief description of the working condition of the device during the inspection. The permittee should also record any actions taken to correct the deficiencies found during the inspection. All records should be kept on file for a period of at least five years and made available to the Department upon request. (R 336.1225, R 336.1910, R 336.1941, 40 CFR Part 63 Subpart N) [VI.3]. ACE demonstrated the maintenance of record relating to test or inspections made at the facility. Stalagmometer use for surface tension measurements, and records were maintained as in Attachment B. However, details of measurements(inspections) were not maintained on records as required in the 40 CFR 63 Subpart N. ACE pledged in writing to start keeping detailed records going forward. [Response# 5, Pg. 6.] Therefore, the facility is not in compliance with SC VI.3, 40 CFR 63.346(b)(1) and (5), and Rule 941.

6. In compliance–ACE demonstrated records of the surface tension of EUCHROMETANK1, the amount of chemical fume suppressant added to EUCHROMETANK1 and the date and time of each addition were kept. The records were kept on file for a period of five years and made available to the Department upon request. (R 336.1225, R 336.1941,

40 CFR Part 63 Subpart N) [VI.4]. Records covering the last 5 years were accessed in the database. Extracts of records maintained covering the last 24 months are attached [attachment B, pg. 1-3].

7. In compliance- ACE demonstrated the Stack/vent dimensions have not been modified since permitted, and exhaust gases from stacks listed in SC. VIII.1 are discharged unobstructed vertically upwards to the ambient air unless otherwise noted {SC. VIII.1}. Drawings of the stacks were accessed. The technical configurations remained the same. Visual inspections indicated there was no change in stack configuration. Statement from ACE supported the observation [Response# 7, Pg. 8]. 8. In compliance- ACE demonstrated the permittee incorporated wetting agent/fume suppressant as defined in 40 CFR 63.341 as a bath ingredient in EUCHROMETANK2 [SC. III.1]. Response from ACE indicated inclusion of material Tristar 300 Wetter (wetting agent/fume suppressant) as a bath ingredient in the trivalent chrome tank EUCHROMETANK2. Information relating to the material properties is located in the SDS provided [Attachment C, Pg. 1-7].

9. In compliance- ACE demonstrated the permittee maintained records of the bath components purchased, with the wetting agent clearly identified as a bath constituent contained in one of the components, per 40 CFR 63.346(b)(14) [SC. VI.1]. The response to this question is same as in item # 8. Additionally, ACE stated the company only operated EUCHROMETANK2 for a total of less than 10 hours in the last 24 months. Resultantly, ACE did not purchase additional bath components for this tank during the requested time period. The company pledged to keep more detail records for the EUCHROMETANK2 going forward.

10. In compliance – ACE demonstrated the permittee kept records of the amount of chemical fume suppressant added to EUCHROMETANK2 and the date and time of each addition. All acquired records were kept on file for the period of five years and made available to the Department upon request [SC. VI.2]. The response was same as in item# 9.

11. In compliance – ACE demonstrated that within 30 days after completion of the installation, construction, reconstruction, or modification authorized by this permit to install, the permittee or the authorized agent pursuant to Rule 204, notified the AQD Detroit District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification was considered to occur not later than commencement of trial operation of EUCHROMETANK2 [SC. VII.1]. Response from ACE indicated the permittee completed the subject required notification on April 6, 2010 [Attachment D, Pg. 1-2].

12. In compliance -Please demonstrate that permittee submitted the following notification to the Department in accordance with 40 CFR Part 63.347 Sub: (a) In compliance-A notification of the date when construction was commenced, and submitted no later than 30 calendar days after such date was made consistent with (SC. VII. 2)(a). [Attachment D, pg. 1-2] (b) In compliance-A notification of the actual date of startup of the source, submitted within 30 calendar days after such date was made in April 6, 2010 [Attachment D, Pg. 1-2].

14. In compliance - ACE did not need to demonstrate the exhaust gases from the stacks listed in the table below are discharged unobstructed vertically upwards to the ambient air [SC. VIII.1]. The stacks configurations were not altered. Visual inspection indicated the stack was configured to deliver upwardly unobstructed.

#### DISCUSSIONS:

Other emissions from the process were discharged in the manufacturing were vented to SVCHROME1 and exempt under Rule 290 (see permit application). There were no other vents to the building except through the stacks and ventilation ducts. Therefore, all volatile compounds generated in the process such as trivalent chromium vapors discharge inside the building. Dust pollutants were cleaned and dispose of in bins. The insignificant contribution to contaminant impact on ambient air quality justified the application of exempt Rule 290 to the process. The facility did not violate the integrity of exempt rule 290.

#### PERMIT VOID:

None.

#### APPLICABLE FUGITIVE DUST CONTROL PLAN CONDITIONS:

This facility does not have nor is in need of a fugitive dust plan.

#### FINAL COMPLIANCE DETERMINATION:

The inspection of Arted Chrome and examination of operation records of supports the determination that ACE did

not fully operate in compliance with the permit PTI No. 74 – 02A, Rule 941, and 40 CFR 63 Subpart N. The facility failed to keep records of operations in EUCHROMETANK1 relating amount of chromium emissions, wetter-fume suppressant application, time and dates of such inspections. A violation notice will be issued to ACE. The facility was carrying out turnaround maintenance on equipment at the time of inspection and totally shut down the two EUCHROMETANKs. The facility discontinued the Nickel stripping process and uninstalled equipment designated for the process.

NAME           ALY          

DATE           9/23/16          

SUPERVISOR           JK