N0317
MANILA

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

N031746075

FACILITY: ACME PLATING INC		**SRN / ID:** N0317
LOCATION: 18636 FITZPATRICK, DETROIT		**DISTRICT:** Detroit
CITY: DETROIT		**COUNTY:** WAYNE
CONTACT: Ken Jurban , President		**ACTIVITY DATE:** 08/08/2018
STAFF: Terseer Hemben	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Zinc phosphating, Investigating PFAs presence at site		
RESOLVED COMPLAINTS:		

SCHEDULED INSPECTION: ACME PLATING, INC. (ACME)

SRN N0317

18636 Fitzpatrick Street, Detroit, MI 48228

Present: **Kenneth J. Jurban Owner/ President**

Terseer Hemben MDEQ

Date: August 9, 2018

Facility Phone: 313-838-3870; Fax: 313-838-2810

BACKGROUND:

ACME's electroplating facility is operated out of one building, which is 5,000 square feet. ACME has five employees. Operating hours are Monday-Friday from 7:00 a.m. to 3:00 p.m. ACME's plating processes are zinc electroplate, cadmium electroplate, zinc phosphate, and the passivation of Stainless steel. The processes are made up of two manual plating lines. The ACME customers are military, automotive, industrial, and general businesses. ACME does not operate a chromium electroplating process. However, dilute chromate (a compound containing chrome as small componential dose) solution is introduced in the process for product conversion and to maintain electrical conductivity of the electrolyte. Zinc and cadmium plating involve the electro deposition of a thin layer of zinc or cadmium onto the part surface. Zinc and cadmium serve as sacrificial metals in solution.

Electroplating Process Description

The zinc and cadmium are applied on the electroplating line using the following process steps:

Prepared metal parts are immersed into a wash tank containing alkaline soak cleaner to strip out oil and dirt from the parts. The parts are allowed time to thoroughly soak. The solution is agitated to generate turbulence in the tank. The soaked parts are transferred to a rinse tank to wash off the alkaline soak cleaner. The parts are transferred to a tank containing a hydrochloric acid solution for removal of rust and scales off the metal parts. The parts are dipped into another tank containing water that is acidified with dilute hydrochloric acid used for rinse. Thoroughly rinsed parts are transferred into the electroplating tank containing electrolytes and electrodes An electric current is passed into the electrolytic bath using the Rectifier contact switch to supply current to the electroplating bath containing zinc or cadmium electrolyte. The electroplated parts are transferred to a rinse tank. The rinsed parts are transferred to a plating tank containing chromate solution (5 % by volume hexavalent or trivalent) for conversion to polished and decorative surface. The chromate surfaced parts are rinsed and transferred to the final rinsing tank containing hot water. Rinsed parts are dried in the electric oven at 140 F and removed for storage.

Phosphating Process

The following steps summarize the description of Zinc phosphating process:

Prepared metal parts are immersed into alkaline wash tank following the same steps as in electroplating process. The prepared parts are soaked in alkaline solution for cleaning and transferred to a rinse tank followed by immersion in a dilute hydrochloric acid, based on the quality specification for product desired. The parts are transferd to a rinse tank for removal of the hydrochloric acid from metal surface. The parts are tranfered to a phosphating tank containing 7 % by volume of zinc phosphate and followed by rinse process. Finally, the parts are transferred to a tank containing 5% by volume water soluble oil and put in the electric oven to dry.

List of Chemicals Used in All Processes

The chemicals used in all processes associated with ACME electroplating include the following:

1: Alkaline Soak cleaner used on all processes.

2: Hydrochloric acid used on both lines.

3: Sodium hydroxide used in zinc and cadmium electroplate.

4: Zinc anodes, and cadmium anodes used in electroplate tank.

5: Water soluble oil used in dilute form on zinc phosphate.

6: Chromates used on zinc or cadmium parts. Hexavalent and trivalent chromates used in dilute form.

7: Sodium hypochlorite used in wastewater treatment.

8: Sulfuric acid used in wastewater treatment system to balance pH.

9: Nitric acid used in passivation of stainless steel parts.

ACME stated:

1: ACME was tested and found the process is PFAS free.

2: ACME was tested and found to be toxic organics free.

3: ACME has no chromium metal in in its process stream.

4: Eighty-five (85%) percent of dilute chromates used are trivalent and the wastewater system has a destruct.

5: Good engineering shop practices are used to contain and control critical concentrations of solutions.

Vapor emissions from the electroplating process tanks and oven are discharged inside the work area. The main pollutant from this process is the zinc or cadmium ions in vapor solution. Chromium enters the plating solution as a component of salt complex containing chromates. Review of chemicals used for electroplating indicated the process is VOC free. Finished products are shipped out to customers. The facility met the exempt status under Rule 285 (2)(r). The facility has no stack; all process emissions are released in the general in-plant area.

INSPECTION NARRATIVE:

I arrived at the facility address on August 9, 2018 at 1356 hours. Purpose of the visit was to conduct a scheduled compliance inspection of the electroplating and phosphating operation. Temperature at the hour was 83 F with wind speed 15 mph coming from the SW, and humidity was 53%. I met Mr. Kenneth Jurban, the owner/president of the company, who admitted me onto the site. We settled down to a pre-inspection interview. Mr. Jurbin informed no changes were made to the facility process with regards to operating conditions since the cadmium process was installed in 2017. The process was currently limited to one open surface zinc electroplating line, and one open surface cadmium electroplating/phosphating line, associated pre-wash, rinse and one electric oven/drying equipment. We

inspected the equipment operation, and looked at recordkeeping for the operations. We concluded the inspection process with a post inspection conference. I left the area at 1510 hours.

PROCESS DESCRIPTION:

The ACME is the last remaining electroplating business along the Fitzpatrick Street. The facility passivates nuts and bolts or fixtures, fasteners for automobile body building. Pre-finished surface parts and electrolytic supplies are received from customers for electroplating processes. The source's electroplating and phosphating processes utilize Aldolyte products coded Aldolyte 302-L; Aldolyte 222-LM; Aldoil 31; Aldophos NN; Aldac 1315; Aldac 34-HDS, Aldokote 765; Aldokote ZNT-150; Aldokote CSD-L-NA; and Aldokote ZSD-L-NA for chrome conversion when toughening the surfaces of parts against wear. Aldolytes typically comprise alkylsulfonophosphates in formulation. Literature search on Aldolytes attached indicates the compounds are free from silicone and halogen components (Attachment Z). During the electroplating process, the essential materials are introduced into the electroplating tank for preparation of the electrolytes. The electrolytic step is followed up with chromate or phosphating formulation. Highest temperature involved in the entire process is measured in the electric oven during the drying process. The electric oven operates at 140 F. Automotive parts are dipped into the Aldolyte (electrolyte). The process does not use add-on control devices; hence neither composite mesh pads (CMP) monitoring nor surface tension monitoring and recordkeeping are conducted. The electroplating and phosphating processes met exemption under Rule 285(2)(r) considering that multiple processes such as surface treatment, pickling, acid dipping cleaning, electropolishing and electrolytic plating are undertaken on the lines.

The controls for the electroplating tanks and electric oven operation are built in the process that use aqua -based materials, followed by washing, rinsing, and drying in electric heated oven. The process is operated in batch modes. All emissions from the aqua-based reactions fall inside the work area.

COMPLIANCE HISTORY:

There has not been any citizen complaint attributed to ACME operations.

REGULATORY SUMMARY:

Rule 201 (1): The facility was exempt from Rule 201(1) during the permitting stage under Rule 285(2)(r). ACME has not made any modification or change to the process or equipment since last installation of cadmium electroplating line in 2017 was completed consistent with Rule 201(1) requirements.

Recordkeeping: Exempt processes require adequate recordkeeping for validation of the exemption requirements. Purchase records for powdered coatings were filed and kept on the site. ACME listed chemicals purchased for the electroplating processes as attached [PFAS/PFOS Certification, pg. 2].

Rule 301: There was no visible emission at the facility at the time of this inspection.

Rule 901: There was no nuisance incidents such as odors or fallout beyond boundary limits of the ACME facility or at the site or in operational vicinity during the inspection.

PFAS:

The review of ACME records indicates the facility's operation is free of PFAS/PFOS. Staff requested confirmation from the facility and received written records indicating the process is certified PFAS/PFOS free by an independent laboratory analyst. Certification was submitted by GLWA and is attached [Attachment PFAS/PFOS Certification, pg. 2 & 4].

COMPLIANCE DETERMINATION:
The inspection of ACME Plating Inc. located at 18636 Fitzpatrick Street was conducted and recordkeeping was reviewed. The inspection determined the ACME Inc. operated in compliance with chrome plating regulatory requirements. The facility verified the process is PFAS/PFOS free. Staff will conduct another inspection.

It appears the ACME facility does not perform chrome electroplating. There is an indication ACME performs a type of chrome conversion coating, which is not subject to MACT, 40 CFR 63, Subpart N or Rule 941. The 40 CFR 63.340(c) states, in part, "...Likewise, tanks that contain a chromium solution, but which no electrolytic process occurs, are not subject to the subpart. An example of such a tank is a chrome conversion coating tank where no electrical current is applied. The scope of this electroplating

operation will be confirmed during the next site visit.

NAME _____ DATE 1/15/2019 SUPERVISOR JK