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

A811745833

FACILITY: SUPERIOR METAL FINISHING		SRN / ID: A8117
LOCATION: 3510 MC NICHOLS E, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT: Robin Petty , Owner/Manager		ACTIVITY DATE: 08/29/2018
STAFF: Terseer Hemben	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Zinc Electroplating/Zinc Phosphating		
RESOLVED COMPLAINTS:		

Superior Metal Finishing, Inc.

INSPECTOR: Terseer Hemben (DEQ) and Gerry Krawiec (DEQ)

PRESENT: Robin Petty (Owner)

Phone: 313-893-1050

Date of Inspection: August 29, 2018

SRN: A8117

Address: 3510 East McNichols Ave, Detroit, MI 48212

State: R 336.1201, R 336.1910; R 336.1901.

FACILITY BACKGROUND: A Zinc Plating and Phosphating Process

The Superior Metal Finishing (SMF) operates 2 open surface zinc electroplating lines: the zinc electroplating and zinc phosphating lines for auto parts at the 3150 McNichols Avenue, Detroit. The SMF previously operated dip spin painting at this location. The process was changed to electroplating. The dip spin painting/coating equipment were removed. The permits associated with dip spin painting/coating were voided. The zinc electroplating process galvanizes nails, nuts, bolts, rivets, etc. using hard zinc electroplating procedures. SMF is a minor source considering the power consumption rate of 28,500,000 ampere-hour per year delivered through the rectifier. The process consists of alkaline wash, dip, wash and natural gas fired dryers and ovens. The zinc electroplating process emissions are discharged inside the in-plant area. The two gas-ovens are rated at the heat input 5,000BTU/hr. each with maximum operating temperatures of 140 F. One of the dryers is the Tumble model type and has been in operation for 27 years. Both dryers are natural gas fired using single burners. The zinc electroplating processes involve aqua-based chemicals. Hot water washes are achieved using single natural gas burners for heating the water bath. Gas ovens use single burners. There are no VOC emission sources involved in the zinc electroplating and phosphating processes. Two organic chemicals identified among the zinc electroplating electrolytes such as 2-Butoxyethanol and aliphatic amines are high molecular weight liquids combinedly added as wetting agents for fume suppression. The two chemicals, in a mixture, chemically combine to form an adduct of a higher molecular weight and low vapor pressure. This adduct compound of high molecular weight and low vapor pressure is not identified as a VOC (Attachment L). Exhaust gases from the natural gas burning activities are discharged in the general in-plant area. The facility keeps MSDS information for all chemicals used at the site. The review of MSDS documents also confirmed there was no VOC content in the process. Phosphating process did not involve decomposition of electrolytes into gaseous components. The zinc electroplating process uses a cobalt-chrome salt complex containing 5% inorganic salt by weight named ammonium bifluoride. A chrome salt complex is applied for chromate conversion process in the phosphating stage. The chromate conversion chemicals are water soluble that do not decompose. The liquid wetting agent/surfactant oxidizes when it is exposed to atmospheric oxygen and degrades under environmental conditions. The SMF is an EPA regulated facility. The facility met the SIP exempt Rule 285(2)(r) because metal surface treatment, pickling, acid dipping, cleaning, etching, electropolishing and electroplating processes are undertaken in the electroplating lines. The precision of this regulatory assessment shall be verified during the next site visit. The main pollutant from this source is zinc solution. The federally rule 40 CFR 63 Subpart N (40 CFR 63.342(d)(4)) for chrome electroplating process regulates processes involving PFOS. The inspection identified that SMF performs zinc electroplating and zinc phosphating at the facility. SMF is PFOS free [MSDS for bifluoride complex downloaded from google website is attached].

INSPECTION NARRATIVE:

I arrived at the facility location in the company of Mr. Gerry Krawiec on August 29, 2018, at 1410 hours. The purpose of visit was to perform a scheduled compliance inspection for evaluation of the facility's zinc electroplating and phosphating processes. Temperature at the hour was 82 F with wind speed 12 mph coming from Variable directions. Humidity was 85%. We were admitted onto the property by Ms. Robin Petty, the owner

and president of SMF. We held a pre-inspection conference and went over the inspection agenda items. Ms. Petty informed the facility had changed and restructured a new process to 2 lines of operation: zinc electroplating lines 1 & 2, and Zinc phosphating lines 1 & 2. No VOC emissions were associated with the aqua-based reactions of the processes. We walked through the zinc electroplating tanks area and observed the cleaning, electroplating and phosphating activities. Natural gas dryers and associated ovens were heated using single burners. Combustion gases were discharged in the general in-plant area. We walked outside the building and inspected the stacks for opacity. There were no visible emissions from the facility. The environment appeared satisfactorily maintained. We finally returned to the office for a post-inspection conference.

COMPLAINT/COMPLIANCE HISTORY:

The SMF has not been a source of citizen air quality complaints.

OUTSTANDING CONSENT ORDERS:

None

OUTSTANDING VN'S:

None

OPERATING SCHEDULE/PRODUCTION RATE:

The facility operates a 2, 8-hour shift from Monday to Friday with 15 employees.

PROCESS DESCRIPTION:

Described under the background heading

APPLICABLE RULES/PERMIT:

Rule 201 (1): The facility met the SIP exempt Rule 201(1) during the permitting stage under Rule 285(2)(r). SMF stated there has not been any modification or change to the process or equipment that would increase pollutants emission consistent with Rule 201(1) requirements. SMF voided the permit previously issued for the painting/coating process

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

Rule 910: SMF has no add-on control device in use when the facility changed the process to VOC free aqua-based zinc electroplating operations.

Rule 901: There were no unusual odors outside the building or boundaries of the property during the inspection the processes.

40 CFR 63.342(d)(4): The facility does not electroplate chromium, so the requirement is not applicable. SMF is PFOS free.

APPLICABLE FUGITIVE DUST CONTROL PLAN CONDITIONS:

This facility did not have nor was in need of a fugitive dust plan.

FINAL COMPLIANCE DETERMINATION:

The inspection of SMF determined the facility operated in compliance with Michigan air pollution control requirements. The facility modified the previous process from paint coating to zinc electroplating and phosphating reaction processes. SMF's process is PFOS free. Accurate description of the main electroplating process shall be verified during the next site visit to determine if the electroplating process is limited only to phosphating/passivation of metals.

NAME

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DATE

1/25/2019

SUPERVISOR

JK