

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

B455029349

FACILITY: VACUUM ORNA METAL INC		SRN / ID: B4550
LOCATION: 11380 HARRISON RD, ROMULUS		DISTRICT: Detroit
CITY: ROMULUS		COUNTY: WAYNE
CONTACT: Frank Chester , Vice President		ACTIVITY DATE: 05/05/2015
STAFF: Jill Zimmerman	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Target Inspection		
RESOLVED COMPLAINTS:		

DATE OF INSPECTION : May 5, 2015  
 TIME OF INSPECTION : 2:15 pm  
 LEVEL OF INSPECTION : II  
 NAICS CODE : 326199  
 EPA POLLUTANT CLASS : A  
 INSPECTED BY : Jill Zimmerman  
 PERSONNEL PRESENT : Frank Chester, Vice President  
 FACILITY PHONE NUMBER : 734-941-9100  
 FACILITY FAX NUMBER : 734-941-1127

### FACILITY BACKGROUND

The Vacuum Orna-Metal Company is located in the City of Romulus on the east side of Harrison Road, south of Wick Road in a mainly industrial setting. The nearest residential area is adjacent to the facility on its northeast corner. This facility produces decorative flower containers and other metalized plastic containers, as well as hubcaps for golf carts and custom parts for antique cars. Vacuum Orna Metal usually operates the production equipment one shift per day, four days per week. The facility is considered a major Title V source due to the potential to emit Volatile Organic Compounds (VOCs) exceeding 100 tons. The purpose of the inspection was to determine the facility's compliance with Renewable Operating Permit No. MI-ROP-B4550-2012, and state and federal air pollution regulations. Frank Chester, the company's Vice President, accompanied AQD staff on the inspection.

### COMPLAINT/COMPLIANCE HISTORY

No complainants have been received regarding this facility since the last inspection on March 5, 2013.

### OUTSTANDING VNs

There are no outstanding VNs or Consent Orders.

## **PROCESS EQUIPMENT AND CONTROLS**

The facility has 15 plastic mold injection machines, 4 flow coat machine and an associated cure oven, and 3 vacuum metalizing machines. Typically four to six plastic mold injection machines, two vacuum metalizing machines and three flow coating lines are operating. The molded parts are coated with a base coat resin. Then the parts are loaded into the vacuum metalizing machine, where the metal is vacuum deposited onto the part. Finally the parts are coated with a top coat, also in the flow coating machine. Occasionally, a color tint is added to the top coat to give the piece a colored metallic look.

The facility also molds plastic parts in a variety of colors. When the parts are molded in color, no metal is used to coat these colored parts. The parts are colored when color pellets are mixed into the raw natural colored pellets using an auger for accurate mixing ratios. The facility has a small paint spray booth which has used less than eight gallons of paint during the past year.

Each flow coater at the facility has a dry off oven as part of the process. These ovens only operate on natural gas, and vent to one of four stacks on the roof. The equipment is exempt from a permit to install because it was installed in 1963.

## **INSPECTION NARRATIVE**

I arrived at the facility at 2:15 pm and met with Mr. Frank Chester, Vice President. Together we discussed the process, the operating conditions, and any changes since the previous inspection. No changes have occurred since my last inspection.

The facility is open five days per week, but only operates the molding and coating production equipment four days per week, unless there is a demand to work additional time. The flow coating lines were operating, as recently coated parts were being prepared to be metalized.

The facility operates 15 plastic mold injection machines. The facility molds colored pots as well. These pots are not coated in the vacuumized metal lines, but do receive a base coat and top coat. The machines vary based on the amount of material they can handle, and the shape of the mold. The raw pellets are stored in a silo outside in the back of the facility.

The next step in this process is the base coat. The resin coat is applied to the parts in a flow coat process. The resin is specially formulated to allow the metal to be deposited

onto the part. The flow coaters apply the resin in a slow, controlled manner, as opposed to spraying. Each flow coater line has a natural gas fired dry-off oven that receives the newly resin-coated parts, and then dries them at a temperature between 150 and 160 degrees F. The part will cure in the dry off oven for about an hour per coat. During this time, the part follows a conveyor up to the roof and about twenty feet across and back.

Next, the natural colored parts are loaded into the vacuum metalizing chambers. First, the air in the chamber is pumped out. In the center of the chamber, a coiled piece of tungsten holding a piece of aluminum is heated with electricity, similar to the way a light bulb works. When the coil is heated, the aluminum vaporizes. Because it is a vacuum, the particles of the metal spread out and are deposited onto the parts. The vacuum metalizer holds ten racks which are spinning during this step in the process. This step in the process lasts about 10 minutes.

After removing the parts from the vacuum chamber, the top coat resin is applied in the same manner as the base coat. This coat secures the metal to the part, and gives the part a shiny finished look. Sometimes, this top coat is tinted with a color to give the piece a colored metallic appearance. The colored plastic parts which are not metalized, do receive the base and top coat so that these parts look less like plastic. Finally the parts are inspected, and prepared to be shipped. The racks which hold the plastic pieces during the process are cleaned by being soaked in a caustic solution over night. These racks need to be cleaned after about twelve times through the total coating process. Records were collected which show the amounts of coating, aluminum, tungsten and natural gas used during 2012. These records are attached to this report.

The facility operates one small paint coating line. This booth uses a small air gun to paint small parts. This booth was being used during the inspection. Filters were present. Records were collected which demonstrate compliance. These records are attached to this report. A machine shop is located in this area where custom molds are prepared based on customer specifications.

## **APPLICABLE RULES/PERMIT CONDITIONS**

Currently, Vacuum Orna Metal is operating under Renewable Operating Permit (ROP) MI-ROP-B4550-2012. Although all equipment located at this facility is exempt from Permit to Install because it was installed in 1963, the facility is considered a major source for HAPs and is therefore required to obtain the ROP. The ROP was issued on January 25, 2012. Renewal for this ROP is between July 25, 2015 and July 25, 2016, and I reminded Mr. Chester of these renewal dates during the onsite inspection. The ROP requires usage records to be maintained for the paint booth. These records were reviewed, show compliance and are attached to this

report. The ROP required usage records to be maintained monthly and annually. These records were reviewed onsite during the inspection and demonstrate compliance.

The facility operates seven emission units, which can be combined into two flexible groups. The four flow coat lines are combined into FG-FLOW-COAT, and the three vacuum chambers are combined into FG-VACUUM-MT. The facility also operates EU-PAINTBOOTH, which is part of FG-RULE287(c).

The flexible groups have been evaluated as follows:

**FG-FLOW-COAT** – Monthly and annual records for each coating used are maintained. These records are attached to this report. This flexible group appears to be operating in compliance with the ROP.

**FG-VACUUM-MT** – Records describing the deposited metals are maintained. These records are attached to this report. This flexible group appears to be operating in compliance with the ROP.

**FG-RULE287(c)** – The facility is limited to less than 200 gallons of paint in the paint booth per month. Records show that the facility is in compliance with the requirement. Filters are present in the paint booth, which demonstrates compliance with the design / equipment parameter. Coating usage records are maintained which show compliance with the monitoring / recordkeeping requirements.

The ROP also requires the facility to submit annual and semiannual ROP Report Certification, and annual emission report, or MAERS. All of these reports have been submitted in a timely fashion and appear to be in compliance.

### **MAERS REPORT REVIEW**

The MAERS for reporting year 2014 was received on March 7, 2015 and were reviewed by me on May 4, 2015. This report was acceptable, and no errors were found; the facility emitted 14.74 tons VOC in 2014.

### **FINAL COMPLIANCE DETERMINATION**

At this time, Vacuum Orna Metal appears to be operating in compliance with Renewable Operating Permit (ROP) MI-ROP-B4550-2012 as well as all applicable State and Federal Regulations that were reviewed.

9/25/2015

The plastic coating operation might be subject to the requirements within 40 CFR 63 Subpart PPPP. The ROP renewal application for this facility is due between July 25, 2015 and July 25, 2016. The potential applicability of this MACT standard will be evaluated during the renewal process.

NAME Jill Zimmerman

DATE 9/25/15

SUPERVISOR JK

