

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

B192549513

FACILITY: Diversified Machine Montague, LLC		SRN / ID: B1925
LOCATION: 5353 Wilcox St., MONTAGUE		DISTRICT: Grand Rapids
CITY: MONTAGUE		COUNTY: MUSKEGON
CONTACT: Mary Twa , HSE/Training Specialist		ACTIVITY DATE: 07/16/2019
STAFF: Eric Grinstern	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS:		

### FACILITY DESCRIPTION

Chassix (formerly Diversified Machine) is a permanent/semi-permanent mold casting foundry with machining and heat treating operations. The facility's products are primarily aluminum suspension and steering components for the automotive industry. The facility currently employs approximately 600 workers.

### REGULATORY ANALYSIS

The facility holds one air use permit (opt out permit) PTI No. 41-00D. PTI No. 41-00D was issued in January 2019 to allow for the installation of a new furnaces (EU\_Furn3) and to modify EU\_Dryer to allow for the installation of a thermal oxidizer for control instead of using on of the reverberatory furnaces for control. In addition to the chip dryer and EU\_Furn3, the permit covers two reverb furnaces, 16 electric holding furnaces, 16 electric crucible furnaces and one laundering system. PTI No. 41-00D also covers a sand silo, a phenolic urethane cold box core making system and the facility's semi-permanent mold casting operations. These processes were previously covered under PTI No. 225-10A, which was void when the processes were rolled into PTI No. 41-00D.

The chip dryer is subject to Subpart RRR, Secondary Aluminum NESHAP.

### COMPLIANCE EVALUATION

At the facility EG met with Mary Twa, HSE, Training Specialist and Kevin Topping Compliance/Corporate Social Responsibility Manager. The facility was in the process of conducting compliance testing under for the aluminum chip dryer, which was modified with the installation of a thermal oxidizer to control emissions. Air Dynamics (Mike Dicen), was conducting the compliance testing. Jeremy Howe, TPU/AQD was onsite observing the compliance testing.

#### PTI No. 41-00D

##### EU Dryer

Aluminum chip dryer that utilizes waste heat from one of the reverb furnaces and exhausts emissions to a thermal oxidizer for control.

The chip dryer is subject to the requirements of Subpart RRR.

#### **Emission/Material Limits**

Under the pervious permit (PTI No. 41-00C) the dryer was subject to the dioxin/furan (D/F) limit in Subpart RRR. The facility tested and demonstrated compliance in 2015, with the dryer being associated with Furnace No. 2. In 2016, the dryer was tested and demonstrated compliance while being associated with Furnace No. 1. The 2016 test results showed a D/F emission rate of 7.9E-07 gr/ton Al, which is below the limit of 3.5E-05 gr/ton Al.

Under PTI No. 41-00D, the dryer is subject to limitations for D/F, PM10, PM2.5 and VOC. During this inspection, testing was being conducted to demonstrate compliance with each of the limits. At the time of this report, the results of the test have been received, and show an exceedance of the PM10/PM2.5 emission limit. The PM10 and PM2.5 test result show emission at 0.46 pounds per hour. The limit for each pollutant is 0.30 lb/ton of charge. The average production rate during testing was 0.94 tons/hr. Therefore, the emission rate established during testing was 0.489 lb/ton of feed.

A final determination regarding the emission rates for all pollutants will be made following a review of the test results by TPU.

The dryer is restricted to charging no more than 60,000 pounds per day based on daily usage records. Records reviewed for the month of August 2019 showed a daily high charge amount of 44,000 pounds for a single day.

Additionally, the facility is restricted to charging only unpainted/uncoated aluminum chips. Only uncoated/unpainted chips have been observed onsite. Additionally, the facility certifies semi-annually that they only use unpainted chips.

### **Process/Operational Restrictions**

The facility is required to maintain and operate in accordance with an OM&M Plan and a SSM Plan required by Subpart RRR. The facility has submitted the required plans. The facility will be requested to submit updated plans that account for the installation of the thermal oxidizer.

### **Design/Equipment Parameters**

The chip dryer is restricted to using natural gas or waste heat from the furnace as a heat source for the dryer. The dryer is also required to have exhaust gases controlled by a thermal oxidizer. The system is designed and operated in compliance with these requirements. The dryer is required to be equipped with a device to measure and record the weight of feed/charge. The dryer is equipped with and is operating a system that weighs and records chip throughput.

### **Testing/Sampling**

The facility was required to conduct an initial test to demonstrate compliance with the dioxin/furan limits, as well as PM<sub>10</sub>, PM<sub>2.5</sub> and VOC emission rates. The test was being conducted at the time of the inspection.

### **Monitoring/Recordkeeping**

Monitoring and recordkeeping of the feed/charge, types of material charged and temperature of the operating furnace are required. The facility has systems in place to monitor and record each of the parameters.

The 3-hour block temperature is required to remain above the minimum temperature established during compliance testing. The facility was in the process of establishing the minimum temperature. The observed temperature of the thermal oxidizer during testing was approximately 1,000 degrees F. Review of records provided for the month of August 2019 showed three hour block averages above 1,200 degrees F.

In 2018, the facility documented 8 temperature deviations where the temperature was below the established minimum. In all instances the facility appeared to appropriately respond and address the deviations. This is a large reduction in deviations compared to the last inspection. With the switch from using the melt furnace as a control device to a thermal oxidizer, the facility should be able to have greater control over the temperature.

### **EU FURN3**

The facility has not installed Furnace No. 3, which was permitted under PTI No. 41.00D. If the furnace is installed, they will be required to conduct performance testing within 180 days.

### **EU Silo**

200 ton capacity sand storage silo with baghouse control

### **Emission/Material Limits/Recordkeeping**

The permit restricts the emission of PM and PM<sub>10/2.5</sub> (0.06 tpy each). Compliance with the emission limits is based on proper operation of the baghouse and material usage limit for the sand. Additionally, the facility is required to calculate emissions on 12-month rolling time period.

Sand usage is limited to 41,610 tons per year based on a 12-month rolling time period. The facility is required to maintain records to document compliance with the limit.

Review of the facility records showed compliance with the sand usage limit as well as the PM and PM10/2.5 limits.

The current 12-month rolling average usage ending in July 2019 was 8,965 tons. The facility records show PM10/2.5 emissions at 0.01 tons on a 12-month rolling time period.

### **Observations**

During the inspection no visible emissions were observed from the exhaust of sand silo baghouse. Pressure drop across the baghouse was 1.1 ".

### **EU CorePUCB**

Phenolic Urethane Cold Box core making systems with two Loramendi core machines controlled by a packed tower scrubber.

### **Emission/Material Limits/Recordkeeping**

The permit restricts the emissions of PM, PM10/2.5, VOC and DMIPA. Compliance with the emission limits is based on proper operation of the packed tower scrubber and material usage limits. Additionally, the facility is required to calculate emissions for each on a 12-month rolling time period.

The permit also restricts the amount of Resin Part A, Resin Part B, and the catalyst DMIPA that can be used on a 12-month rolling time period. Usage for the 12-month rolling time period ending in July 2019 was 36.1 tons for Resin Part A, which is below the allowed 228.86 tons. During the same time period, 28.8 tons of Resin Part B and 7.23 tons of DMIPA was used. Both of which are below the limits of 187.25 tons and 62.42 tons, respectively.

### **Process/Operational Restrictions**

The facility is required to maintain and operate in accordance with a MAP. The facility has submitted the required plan previously. A copy of the most recent version of the plan will be requested.

The facility is required to monitor the scrubber flow rate, pH and pressure drop on a continuous basis.

The permit requires the pH of the packed scrubber solution to be 5.0 or lower, the scrubber solution flow rate to be 57.5 gallons per minute or more and the pressure drop across the scrubber to be within 0.5 – 6.0 inches of water column.

At the time of the inspection the pH was 2.45, the scrubber flow 76.8 gpm, and the pressure drop was 1.18 inches.

All values are in compliance with the permit limits. Review of the requested records showed no deviations of the permitted pH, flow and pressure drop requirements.

### **EU Miscellaneous**

Use of materials ancillary to the core making process.

### **Emission/Material Limits/Recordkeeping**

The permit restricts the emission VOCs to 16.1 tpy. Compliance with the emission limit is based on a VOC content restriction of 5 percent by weight and material usage restrictions.

The facility is required to maintain records of monthly and 12-month rolling usage record of each material, as well as the mold/core coatings and total VOC containing material usage. The facility is also required to calculate VOC emissions for each 12-month rolling time period.

Review of the facility records showed compliance with the VOC limit. The facility has not used any material in EU Miscellaneous recently.

### **EU SPMC**

Semi-Permanent Mold Casting operations

#### **Emission/Material Limits/Recordkeeping**

The permit restricts the emissions of PM, PM10/2.5, and VOC. Compliance with the emission limits is based on material usage limit of the amount of aluminum poured per hour and tons per 12-month rolling time period. Additionally, the facility is required to calculate emissions for each month and 12-month rolling time period.

Review of the facility records for the past two years showed the highest hourly pour rate to be 1.25 tons per hour, which occurred in March 2017. Which is below the limit of 6.0 tons per hour. Reported annual aluminum pour amounts were below the limit of 37,323.7 tons.

Review of the emission records show PM10 and PM2.5 emission to be below 0.50 tons for the most recent 12-month rolling time period, which is below the limit of 11.3 tpy for each pollutant. VOC emissions were 2.23 tons for the most recent 12-month rolling time period, which is below the limit of 38.63 tpy.

#### **Process/Operational Restrictions**

The facility is required to maintain and operate in accordance with a MAP. The facility has submitted the required plan previously and will be requested to submit a copy of the most current version of the plan.

### **FG G1Furn1&2**

Two natural gas-fired aluminum reverberatory melting furnaces.

The furnaces are not subject to Subpart RRR since the chips from the dryer are considered clean charge upon entering the furnace.

#### **Emission/Material Limits/Recordkeeping**

The permit limits the emission of PM, PM10, PM2.5, VOC and NOx. The facility demonstrated compliance with the emission limits through testing conducted in August 2012, while Furnace No.2 was operating. Ongoing compliance is based on flux and charge limits, weekly VE observations and emission records.

The use of flux (all purpose, scrap cleaning, and wall) is limited as is the amount of charge to the furnace. Flux is limited to 610 pounds per day and charge to the furnace is restricted on a 384 tons/day.

Review of the facility records showed compliance with the flux usage as well as charge limits.

Only clean charge per Subpart RRR is allowed to be charged to the furnace. All available information shows compliance with this restriction. The facility charges ingot, chips and shredded wheels that are thermally cleaned. Inspection of the shredded wheels showed it to be very clean and in compliance with the Subpart RRR definition of clean charge.

Review of the previous 6 months of records for VE observations showed that no VE was documented during charging. This is in compliance with the requirement of no VE during operation, from the upper part of the building containing the furnaces. The facility is required to calculate and maintain records of PM, PM10, PM2.5 and VOC emission rates for each month and 12-month rolling time period. Review of the facility records showed compliance with the PM, PM10 and PM2.5 limits. Prior to the most recent revision to the permit the facility did not have to maintain records of VOC emissions. The facility will be modifying the current spreadsheet to account for VOC emissions. Upon completion, the facility will send an updated versions to AQD. Based on the current throughput, the facility appears to be in compliance with the VOC limit.

#### **Design/Equipment Parameters**

Labels are required in accordance with Subpart RRR. During the inspection labels were observed.

### **Testing/Sampling**

The facility was required to test within 180 days of trial operation to demonstrate compliance with the dioxin/furan limits, as well as the PM, PM10, PM2.5, and NOx emission rates associated with the reverb furnace. Testing was conducted in July 21-22, 2015, at which time compliance was demonstrated.

### **Stack/Vent Restrictions**

Visual observation of the stacks (SV\_Furance1, SV\_Furnace2) showed that they appeared to meet the required dimensions.

### **FG Holding**

16 Electric Holding Furnaces, 16 Electric Crucible Furnaces and one Launder

### **Emission/Material Limits/Recordkeeping**

The permit establishes daily flux use limits based on monthly usage records (all-purpose cleaning: 320 pounds, scrap material cleaning: 0 pounds, wall cleaning: 150 pounds). Compliance with the flux usage limits is demonstrated by the facility maintaining monthly records of usage and hours of operation.

Review of the facility records showed compliance with the flux usage. Use of all-purpose flux was always under 200 pounds per month, no scrap cleaning flux usage reported and no wall cleaning flux usage in the last few years.

### **FGFACILITY**

#### Source-Wide requirements

### **Emission/Material Limits/Recordkeeping**

Establishes VOC, individual and aggregate HAP opt out limits. Compliance with the limits is demonstrated through the requirement that the facility maintain monthly and 12-month rolling emission records.

Review of the facility records showed compliance with the individual and aggregate HAP limits. The facility was requested to update the records for the most current time period and to add VOC emissions which were required under the recent permit revision.

### **Conclusion**

At the time of the inspection the facility appears to be in compliance with all applicable air quality rules and regulations, with the exception of the PM10 and PM2.5 emission exceedance documented through stack testing. A review of the test results is being conducted by TPU to evaluate the reported emissions. Unless TPU determines errors were made in testing, a Violation Notice will be issued to address the emission exceedance.

Attachments: Electronic emission records

NAME 

DATE 9/16/19

SUPERVISOR 