

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

B192564057

FACILITY: Aludyne Montague, LLC		SRN / ID: B1925
LOCATION: 5353 Wilcox St., MONTAGUE		DISTRICT: Grand Rapids
CITY: MONTAGUE		COUNTY: MUSKEGON
CONTACT: Sean Drzewiecki , Director Global Safety, Health and Environment		ACTIVITY DATE: 07/19/2022
STAFF: Eric Grinstern	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: On-site inspection		
RESOLVED COMPLAINTS:		

FACILITY DESCRIPTION

Aludyne 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.

REGULATORY ANALYSIS

The facility holds one air use permit (opt out permit) PTI No. 41-00F. PTI No. 41-00F was issued in February 2021. The permit addresses the operation of a chip dryer, two reverb furnaces, 16 electric holding furnaces, 16 electric crucible furnaces and one laundering system. PTI No. 41-00F also covers a sand silo, a phenolic urethane cold box core making system and the facility's semi-permanent mold casting operations.

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

COMPLIANCE EVALUATION

At the facility, AQD staff Eric Grinstern (EG) met with Sean Drzewiecki, Director Global Safety, Health and Environment.

PTI No. 41-00F

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 PTI No. 41-00F, the dryer is subject to emission limitations for D/F, PM10, PM2.5 and VOC. The facility conducted testing in July 2019, at which time compliance with D/F and VOC emission limits was demonstrated. The test results documented non-compliance with the PM10 and PM2.5 emission limits. The facility retested in October 2019, at which time non-compliance with the PM10 and PM2.5 emission limits was documented. The facility retested for emissions of PM10 and PM2.5 in July 2020, at which time an emission rate of 1.05 pounds per hour was documented for PM10 and PM2.5, respectively. A VN was issued for each of the documented instances with non-compliance with the PM10 and PM2.5 emission limits. The permit modification (PTI No. 41-00F) finalized in February 2021 established the emission limit for PM10 and PM2.5 at 1.4 pph, for each pollutant. Under the permit modification, the facility is required to conduct performance testing within 3 years of the date of permit issuance to demonstrate compliance with the permitted limits for PM10 and PM2.5. Testing has not been conducted yet.

The dryer is restricted to charging no more than 60,000 pounds per day. The facility provided daily charge records based on a monthly average. Records reviewed showed compliance with the limit. The highest daily charge rate was 23,809 pounds (October 2021). The facility also maintains daily charge records.

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. The facility stated that they are currently only processing chips generated onsite.

Process/Operational Restrictions

Operation of the dryer requires the installation and operation of a thermal oxidizer that operates with a minimum temperature of 1400 degrees F. During the inspection the afterburner temperature was observed to be 1492 degrees F on a 15-minute average and 1488 degrees F, instantaneously.

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.

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 that measures and records or otherwise determines the weight of feed/charge. The dryer is equipped with and is operating a system that weighs the chips, and the facility manually records the weights.

Testing/Sampling

The facility is required to conduct performance testing to demonstrate compliance with the PM10 and PM2.5 emission rates within 3 years of permit issuance. PTI No. 41-00F was issued on February 2, 2021. The facility is also required to conduct testing upon request of AQD for D/F, PM, PM10, PM2.5 and VOC emissions, which has not been requested since the permit was issued.

Monitoring/Recordkeeping

Monitoring and recordkeeping of the feed/charge, types of material charged, and temperature of the operating afterburner 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. During the last compliance test the minimum temperature was established at 1400 degrees F. The observed temperature of the thermal oxidizer at the time of the inspection was 1488 degrees F. The facility is required to monitor and record the 3-hour block average temperature. The facility was not able to extract the temperature data for the afterburner.

The facility reported no deviations, including temperature deviations in the Subpart RRR semiannual excess emission/summary report for January 1, 2022, to June 30, 2022.

EU Silo

200-ton capacity sand storage silo with baghouse control

Emission/Material Limits/Recordkeeping

The permit restricts the emission of PM and PM10/2.5 (0.06 tpy each). Compliance with the emission limits is based on proper operation of the baghouse and material usage limit for the sand. Compliance can also be determined through testing, which has not been requested. Additionally, the facility is required to calculate emissions on a 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 12-month rolling sand usage ending in July 2022 was 464.56 tons. The facility records show PM10/2.5 emissions at <0.00 tons on a 12-month rolling time period.

Observations

During the inspection no visible emissions were observed from the exhaust of sand silo baghouse. The silo was not receiving sand at the time of the inspection.

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, PM_{10/2.5}, VOC and DMIPA. Compliance with the emission limits is based on proper operation of the packed tower scrubber and material usage limits. Compliance can also be determined through testing, which has not been requested. 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 records for 2021 and 2022 document Part A usage of 2,880 pounds in October 2021, and 1,880 pounds of DMIPA used in August 2021. The records show no other resin or catalyst usage in 2021 or 2022. The facility stated that usage was based on purchase records. Resin Part A usage is limited to 228.86 tons/12-month rolling, Resin Part B is limited to 187.25 tons/12-month rolling, and DMIPA is limited to 62.42 tons/12-month rolling. The facility records document a substantial decrease in core sand usage starting in 2020.

Process/Operational Restrictions

The facility is required to maintain and operate in accordance with a MAP. The facility has submitted the required plan previously.

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 core machines were not in operation. The pH was 3.81. The scrubber was not operating.

Review of the requested records for June 2022 showed all recorded readings for pH, flow and pressure drop to be within the established ranges.

Design/Equipment Parameters

The facility is required to have a packed tower scrubber installed and operating and to operate devices to monitor the operating parameters. The facility has a scrubber installed and devices to monitor the operating parameters.

EU Misc

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 records document no material usage in EU Miscellaneous in a few years that contain VOCs.

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. Compliance can also be

determined through testing, which has not been requested. 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 1.76 tons per hour, which occurred in July 2021. The highest daily pour rate was 21.2 tons, which is below the limit of 55.3 tons per hour. Reported annual aluminum pour amounts were below the limit of 20,184.5 tons. The 12-month total ending in June 2022 was 2,204.4 tons.

Review of the emission records show PM10 and PM2.5 emissions to be 0.39 tons for the most recent 12-month rolling time period, ending in June 2022, which is below the limit of 4.39 tpy for each pollutant. The highest hourly PM10/PM2.5 emission rate was 0.582 pounds, which occurred in July 2021. The hourly PM10/PM2.5 limit is 1.29 pounds. Review of the emission records show VOC emissions to be 1.62 tons for the most recent 12-month rolling time period, ending in June 2022, which is below the limit of 20.89 tpy. The highest hourly VOC emission rate was 2.59 pounds, which occurred in July 2021. The hourly VOC limit is 6.21 pounds.

Process/Operational Restrictions

The facility is required to maintain and operate in accordance with a MAP. The facility has submitted the required plan previously.

FG Furn1&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 July 2015, while Furnace No.2 was operating. Ongoing compliance is based on flux and charge limits, weekly VE observations and emission records.

The facility provided emission records for FG_Furn1,2. The calculated PM, PM10 and PM2.5 emissions for the 12-month rolling time period ending in June 2022 were 2.3 tons, respectively. which is below the 8.69 tpy limit for each. The calculated VOC emissions for the 12-month rolling time period ending in June 2022 were 3.67 tons, which is below the 15.62 tpy limit.

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 to 238 tons/day and 86,870 tpy. The facility records for the past two years showed a daily high for flux usage at 98 pounds. The daily high charge rate was 170 pounds and the 12-month total ending in June 2022 was 36,663 tons.

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.

The facility is required to perform visible emissions for the vents in the openings in the upper part of the building containing FG_Furn1,2 a minimum of once per week during charging. The facility was not able to locate visible emission records.

Design/Equipment Parameters

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

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. The highest daily use of all-purpose flux was 60 pounds in December 2021, no scrap cleaning flux usage recorded and no wall cleaning flux usage recorded 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 VOC, as well as individual and aggregate HAP limits. The facility records show VOC emissions of 6.52 tpy for the time period ending in June 2022 (limit: 89.9 tons). The total HAP emissions were documented at 0.308 tpy, ending in June 2022 (limit: 22.5 tpy). The highest emitted individual HAP was HF at 0.173 tpy (limit: 9.0 tpy)

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 following:

EU_Dryer – Facility was not able to provide 3-hour block average temperature records for the afterburner, as required by PTI No. 41-00F, EU_Dryer, Special Condition VI.3.

FG_Furn1,2 – Failure to perform visible emissions observations for the vents and openings in the upper part of the building containing FG_Furn1,2 a minimum of once per week during charging, as required by PTI No. 41-00F, FG_Furn1,2, Special Condition VI.2.

A Violation Notice will be issued for the above listed violations.

NAME *Eric Grinstern*

DATE 9/30/2022

SUPERVISOR _____