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

B171462121

FACILITY: AUTOCAST INC		**SRN / ID:** B1714
LOCATION: 4565 SPARTAN INDUSTRIAL DRIVE SW, GRANDVILLE		**DISTRICT:** Grand Rapids
CITY: GRANDVILLE		**COUNTY:** KENT
CONTACT: Mark Warner , Vice President		**ACTIVITY DATE:** 03/11/2022
STAFF: Eric Grinstern	**COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** Minor
SUBJECT: Unannounced on-site compliance inspection		
RESOLVED COMPLAINTS:		

FACILITY DESCRIPTION

AutoCast Inc. is an aluminum and zinc die casting facility. The facility manufactures castings for the automotive industry.

The facility has been in operation for approximately 50 years. The facility currently has approximately 60 employees and operates 5 days a week, 24 hours a day.

REGULATORY ANALYSIS

The facility currently has one air use permit, PTI No. 513-92C, that covers all regulated emission units. PTI No. 513-92C was issued in 2021, to allow for the installation of an additional aluminum remelt furnace (EUALMELT2).

COMPLIANCE EVALUATION

At the facility, AQD staff, consisting of Eric Grinstern (EG), met with Ralph Peterson, Personnel Manager and Mark Warner, Vice President. Mr. Warner accompanied EG during the facility tour.

Prior to entering the facility, no visible emissions or odors were observed.

The facility has one aluminum die casting line that contains nine diecasting machines. The line currently has one aluminum remelt furnace (EUALREMELT) that melts and conveys aluminum via one laundering system that provides aluminum to each of the die casters. Each die caster has an associated electric holding furnace. The facility has recently added a second remelt furnace (EUALREMELT2) at the opposite end of the die casting line, relative to EUALREMELT. When installation is complete, the furnace will be available as a backup, or to provide molten aluminum to a portion of the die casters.

The facility has one zinc die casting line that contains five diecasting machines. The line has one remelt furnace (EUZNREMELT) that melts and conveys zinc via a ladle delivery system to each of the die casters. Each die caster has a gas-fired holding furnace.

The facility has several cast finishing operations, including cutting, stamping, and CNC. All of the processes are vented internally. During the inspection, no visible emissions were observed to be emitted from the processes. Additionally, the facility has one small sandblast cabinet with an internally vented baghouse. The sandblast unit is used for maintenance. These processes appear to be exempt from air permitting via Rule 285(2)(l)(vi)(A) &(B).

PTI No. 513-92C contains three emission units, EUALREMELT, EUALREMELT2, and EUZNREMELT.

EUALREMELT

The emission unit contains one 12,000-lb. aluminum remelt furnace, one launder delivery system, and ten electric holding furnaces.

The remelt furnace is a stack melting furnace designed to have aluminum ingots charged at the top of the unit. The furnace also has a conveyor system the feeds internal die cast runaround to the furnace for remelting. The facility only purchases (380A) spec aluminum ingot. The facility fluxes the bath and upper chamber of the furnace. Amlox 123 is used as a wall flux and Pyroflux N14S is used to flux the bath. The flux is measured in a cup and sprayed into the furnace via compressed air. The facility stated that protocol is to use flux to clean the laundering system and holding furnaces on a daily basis, but in practice it is not conducted daily.

EMISSION LIMIT(S)

Emissions of PM are limited to 0.10lb/ton of exhaust gas and emissions of HCL are limited to 0.5 pounds per hour.

Compliance with the PM and HCL emission limits can be demonstrated through stack testing. Stack testing has not been requested or conducted.

MATERIAL LIMIT(S)

The permit restricts flux usage to no more than 33,900 pounds/yr. of material containing no more than 84% chlorine.

The facility provided records documenting that they used 1,496 pounds of flux for the 12-month period ending in February 2022. Review of the MSDS sheets provided by the facility, as well as flux data provided as part of the permit application for PTI No. 513-92C, the facility is using flux with a chlorine content less than 84%.

The flux use limit is very high for one furnace considering that the HCL limit is only 0.5 pounds per hour. In practice, the facility only used 1,496 pounds

in the most recent 12-month time period. During the permitting of EUALREMLT2, Permit staff encouraged the facility to consider lowering the flux use limit, however, the facility decided to retain the limit. Based on the flux use limit of 33,900 pounds/yr. and a chlorine content of 84%, the HCL potential to emit is 14.64 tpy of HCL. The major source threshold is 10 tpy. Since the permit limits HCL to 0.5 pph, emissions would be limited to 2.19 tons per year.

MONITORING/RECORDKEEPING

Monitoring and recordkeeping requirements are contained in FGREMELT.

STACK/VENT RESTRICTIONS

The furnace stack (SVALREMELTVENT) is required to have a stack with a maximum diameter of 48 inches and a minimum height of 48 feet. Visual observation of the stack showed that it appeared to meet the height and diameter requirements. The stack is also required to be discharge unobstructed vertically upwards. Observation of the stack showed that it contains a rain cap.

EUALREMELT2

One 26,000 lb. holding capacity aluminum remelt furnace with a melt rate of 3,000 lb/hr.

The furnace is located in the plant but has not been connected or operated yet.

EUZNREMELT

One 52,000 lb zinc remelt furnace, one ladle delivery system and ten electric induction furnaces.

The facility processes SAE 903 alloy zinc. The facility has downsized zinc operations since the permit was issued. The facility currently has five die casters instead of the ten originally permitted.

The permit description identifies the holding furnaces associated with each die casters as "electric", however, the furnaces are gas-fired. The facility currently has five holding furnaces and casters. The facility stated that the holding furnaces are the original installed furnaces. Holding furnaces No.1-4 have a holding capacity of 1,800 pounds, while holding furnace No. 5 has a capacity of 2,000 pounds.

EMISSION LIMIT(S)

Emissions of PM are limited to 0.10lb/ton of exhaust gas.

Compliance with the PM emission limit can be demonstrated through stack testing. Stack testing has not been requested or conducted.

MONITORING/RECORDKEEPING

Monitoring and recordkeeping requirements are contained in FGREMELT.

STACK/VENT RESTRICTIONS

The furnace stack (SVZNREMELTVENT) is required to have a stack with a maximum diameter of 48 inches and a minimum height of 45 feet. Visual observation of the stack showed that it appeared to meet the height and diameter requirements. The stack is also required to be discharge unobstructed vertically upwards. Observation of the stack showed that it vents vertically unobstructed.

FGREMELT

Two aluminum remelt furnaces and one zinc remelt furnace, with associated launder systems and electric holding furnaces

EUALREMELT, EUALREMELT2, and EUZNREMELT

MATERIAL LIMIT(S)

Restricts the facility to melting only clean charge and internal scrap.

The facility stated they only melt spec ingot and internal runaround, which is consistent with what was observed by EG during the inspection.

MONITORING/RECORDKEEPING

The facility is required to maintain records of the monthly tonnage of aluminum and zinc melted in each furnace, in tons per month and tons per 12-month rolling time period.

The facility provided records of zinc and aluminum purchases, from which usage is determined.

The facility is required to maintain records of flux usage for each furnace in pounds per month and pounds per 12-month rolling time period.

Flux is currently only used in EUALREMELT. The facility provided records documenting flux usage for the furnace.

When the new remelt furnace is brought on-line, the facility will need to maintain separate records of flux use and aluminum melted for each furnace, in tons per month and 12-month rolling time period.

CONCLUSION

Based on the information and observations made as part of this inspection, the facility appears to be in compliance with applicable air quality rules and regulations, with the exception of the following:

1. **The exhaust gases from the stack associated with EUALREMELT, identified as SVALREMELTVENT, are required to be exhausted unobstructed vertically upwards. During the on-site inspection a rain cap was observed on the stack.**

2. **The holding furnaces associated with EUZNMELT are identified in the emission unit description of PTI No. 513-92C as electric. The facility actually has five gas-fired holding furnaces installed.**

NAME Eric Grinstern DATE 03/23/2022 SUPERVISOR HH