

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

N741773154

FACILITY: AUSTEMPER INC.		SRN / ID: N7417
LOCATION: 33180 KELLY RD., CLINTON TWP		DISTRICT: Warren
CITY: CLINTON TWP		COUNTY: MACOMB
CONTACT: Kyle Stansik , Safety and Quality Administrator		ACTIVITY DATE: 08/13/2024
STAFF: Owen Pierce	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: FY 2024 Inspection Report		
RESOLVED COMPLAINTS:		

On August 13, 2024, I (Owen Pierce EGLE - Air Quality Division) performed a scheduled targeted inspection of Austemper Inc. located at 33180 Kelly Road, Clinton Township, Michigan. Kevin Villalta and Allan Terry, EGLE-AQD Permit Engineers, joined me on the inspection. The purpose of the inspection was to determine the facility's compliance with the Federal Clean Air Act; and Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451 and the conditions of Permit to Install (PTI) No. 276-04B. Upon arrival, I met with Kyle Stansik, Safety and Quality Administrator, and Aaron Thompson, Maintenance Manager and conducted a pre-inspection meeting where we introduced ourselves, presented our credentials, and stated the purpose of the inspection.

During the pre-inspection meeting, Aaron explained the facility's processes and equipment. Austemper, Inc. is a metal heat treating company that conducts heat treat processes for miscellaneous metal parts for customers in the automotive, and other industries. Austemper Inc., is permitted to operate two belt furnaces, each utilizing a molten salt quench, and one tempering furnace. Heat treating is a process to harden metal by subjecting the metal to a two stage heat application processes. The first phase is called austertizing (hardening) process. In this process, the metal is subjected to high temperatures, such as 1500°F, to alter the properties, then cooled rapidly through a cooling medium (salt quench) known as the quenching process. After the first heating stage, the metal is usually cleaned and then subjected to a lower heating temperature known as the tempering process.

The facility has approximately 8 - 13 employees and operates approximately 16 hours a day for five to six days a week depending on their work demand. According to Aaron, there have been no recent process or equipment changes. Non-permitted equipment includes two endothermic atmosphere generators and tools used for cutting, grinding, etc. Following the pre-inspection meeting, Aaron and Kyle lead us on an inspection of the facility.

Facility Walk-through Observations

During the facility walk-through, I observed two hardening furnaces (EUHARDENING4 and EUHARDENING5) operating, and Aaron explained that both furnaces run at approximately 1500°F or higher. I observed that the tempering furnace (EUTEMPER1) was installed and operational but not operating at the time of the inspection.

The quench tanks were observed as being located in the ground and fully covered as part of the continuous belt line connected to each hardening furnace. The quench tanks operate at a temperature between 550°F and 740°F. The facility performs maintenance once per year where salt that has hardened onto the tanks is removed. Parts coming out of the belt line from quenching were emptied into a series of three wash tanks and then either dried for packaging or conveyed to the tempering furnace and subjected to a secondary lower temperature heat treating process.

Endothermic Gas Generators

The facility has two atmospheric endothermic gas generators. One operates at any one time and provides enough gas for the two heat treat lines. The gas generators provide endothermic gas used on the interior of the heat treat furnace to produce parts. The gas is approximately 40% hydrogen, 40% nitrogen, and 20% carbon monoxide. Each endothermic gas generator has a max heat input capacity of

approximately 3,000,000 BTU/hr. The units have nickel catalyst tubes and operate at a max temperature of 1950°F. Atmosphere generators used in connection with metal heat treating are exempt from obtaining a permit-to install per R336.1285(2)(l)(iv).

Tools used for Cutting, Grinding, etc

The tools used for cutting, grinding, etc, that were observed during the walk-through, are exempt from the requirement to obtain a permit to install per R336.1285(2)(l)(vi)(B) because they have emissions that are released only into the general in-plant environment.

During the facility walk-through, there were no boilers, emergency generators, or cold cleaners observed at the facility.

PTI No. 276-04B Compliance Evaluation

FGHEATREAT

The facility was issued PTI No. 276-04B for two hardening furnaces with molten salt quenching and one tempering furnace. Recordkeeping requirements were submitted to AQD staff via email from Kyle Stansik, Safety and Quality Administrator.

Special condition (SC) I.1 sets the PM emission limit at 4.7 tpy based off a 12-month rolling time period as determined at the end of each calendar month, and SC VI.1 states that the permittee shall use a mass balance equation, as shown in Appendix A, for quench salt usage to calculate the PM emission rate for each calendar month. The mass balance equation found in Appendix A to calculate the PM emission rate equals the total salt added to the quench tanks, to replenish lost quench salt and bring salt levels up to operating levels, less any amount of quench salt reclaimed, disposed of, or spilled/cleaned up.

After several discussions and meetings concerning the methodology to record the quench salt usage, the final PM emission rate records were submitted for January 2023 - July 2024. Records can be located internally at the following link: S:\Air Quality Division\STAFF\Owen Pierce\FY 24\Austemper Inc. These records include the following assumptions agreed upon by facility staff and AQD staff:

- Salt added to the quench tanks includes all salt added to the quench tanks (reclaimed cubes and newly purchased salt).
- Reclaimed salt includes the pounds of salt returned to the facility, in the form of 1,850 pound blocks, in a given year. Recordkeeping procedures have improved since the last inspection and the facility is now tracking the number of reclaimed salt cubes that are sent to Austemper from their sister facility Atmosphere Heat Treating Inc. in Wixom, MI, where all of the brine water from Austemper is shipped to undergo the reclamation process. In the spreadsheet for each year, the reclaimed salt is pro-rated for each month, for each furnace line at the facility (2 furnace lines), based on the amount of salt added per month, per furnace line.
- The amount of salt remaining on parts (drag out) as they are transferred out of the quench tanks to the rest of the heat treating process was considered and included in the disposed/drag out portion of the mass balance equation. During the previous inspection, drag out was estimated as five percent of the total amount of salt added/used each year plus five percent of a one-time per year tank recharge for each quench tank at the facility (2 quench tanks), where each tank is filled to a max quench salt capacity of approximately 220,000 pounds. Discussions during this year's inspection revealed that this one-time tank recharge does not actually occur in the manner that had been explained during the last inspection. During the recharge, the current molten salt in the quench tank is pumped out of the tank into a heated holding tank. Then, the quench tank is

thoroughly cleaned and after the cleaning, the molten salt in the holding tank is returned to the quench tank where new salt or reclaimed salt cubes are then added to the quench tank to bring it up to operating levels. With this in mind, beginning with the January 2024 emissions going forward, it was decided by AQD staff, and agreed to by the facility, that the parameters for drag out calculation should change from five percent of the total amount of salt added/used each year plus five percent of a one-time per year tank recharge for each tank at the facility to a flat rate ten percent of all salt added to the quench tanks. Drag out totals for each year are then pro-rated for each month, for each furnace line at the facility, based on the amount of salt added per month, per furnace line.

According to the final records, PM emissions were under the limit for every month from January 2023 through July 2024. The highest PM emissions recorded were 4.65 tpy as recorded at the end of January 2023.

SC I.2 sets a visible emissions opacity limit of 10% and SC VI.2 states that the permittee shall perform and document non-certified visible emissions observations as required in Emission Limit SC I.2 on a daily basis when FGHEATTREAT is operating. According to the daily visible emissions records sent to me via email, no visible emissions have been observed from January 2023 through July 2024.

SC II.1 states that the permittee shall not exceed the net molten quench salt usage rate of 9,400 pounds in FGHEATTREAT per year, based on 12-month rolling time period as determined at the end of each calendar month. According to the records from January 2023 through July 2024, the net molten quench salt usage rate was under the limit for every month, and the highest net molten quench salt usage rate recorded was 9,291 lbs as recorded at the end of January 2023.

SC VII.1, VII.2, and VII.3 specify stack height requirements. I did not take measurements of stack dimensions during this inspection, however the stacks were observed as being discharged unobstructed vertically upwards to the ambient air.

During the last inspection, a violation notice was issued for an exceedance of the PM emissions limit of 2.16 tpy and the net molten quench salt usage rate material limit of 4,320 pounds per year as established in PTI No. 276-04A. Submitted records showed that exceedances for both limits occurred in September 2022, October 2022, November 2022, and December 2022. In a response to violation notice letter dated September 29, 2023, the facility explained that steps were being taken to improve the recordkeeping to better monitor reclaimed salt usage and improve the calculation method to accurately calculate air emissions. In addition, the facility stated that they would submit a Permit to Install Application to request an increase in their PM and material usage limits. PTI No. 276-04B was approved on February 7, 2024 and includes new PM and material usage limits of 4.7 tpy and 9,400 pounds per year, respectively. Based on the new PTI and improved recordkeeping being observed during this year's inspection, the violations cited in September 2023 will be resolved.

Conclusion

Based on the information obtained during the inspection and a review of the provided records, Austemper Inc. is in compliance with the conditions and requirements in PTI No. 276-04B.

NAME Owen Puerce

DATE 8/21/2024

SUPERVISOR K. Kelly