

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

P103464679

FACILITY: ALD Thermal Treatment		SRN / ID: P1034
LOCATION: 2656 24th Street, PORT HURON		DISTRICT: Warren
CITY: PORT HURON		COUNTY: SAINT CLAIR
CONTACT:		ACTIVITY DATE: 08/16/2022
STAFF: Iranna Konanahalli	COMPLIANCE STATUS: Compliance	SOURCE CLASS:
SUBJECT: FY2022 scheduled inspection (off-site) of ALD Thermal Treatment Inc. ("ALDTT" or "the company") of Port Huron, MI 48060-6419		
RESOLVED COMPLAINTS:		

ALD Thermal Treatment, Inc. – USA (P1034)

2656 24th St.

Port Huron, MI 48060-6419

Move: ALDTT moved all process equipment from a leased building, 2626 (SRN P0782) 24th Street in Port Huron, Michigan, to owned building 2656 (SRN P1034) 24th Street in Port Huron, Michigan. Upon moving in August 2020, ammonia nitriding machine (EU0001) was decommissioned permanently.

Active PTI: PTI No. 100-19 (FGNITRIDING (EU0001 thru EU0004) for four (4) ammonia nitriding machines as follows:

GPTI (NH3): General PTI No. 6-17 (P0782, leased, old bldg.) for anhydrous ammonia storage and handling and GPTI No. 98-19 (P1034, owned, new bldg.) for 1,000-gallon Anhydrous Ammonia Tank. The old leak detection system (PTI No. 6-17), upon shutdown, has been transferred to the new 1,000-gallon tank (98-19). Also, 1,000-gallon old tank has been returned to the vendor.

On August 16, 2022, I conducted a level-2 FY2022 scheduled inspection (off-site) of ALD Thermal Treatment Inc. ("ALDTT" or "the company"), located at 2656 24th St., Port Huron, MI 48060-6419. . The inspection was conducted to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451; and Michigan

Department of Environment, Great Lakes & Energy, Air Quality Division (EGLE-AQD) administrative rules.

ALDTT operated at two adjoining properties, 2626 (SRN P0782, PTI Nos. 6-17 & 103-18, old, leased building) and 2656 (SRN P1034, PTI Nos. 98-19 & 100-19, new, owned building) 24th Street in Port Huron, Michigan. Potential-to-Emit (PTE), based upon 8,760 hours per year operation, from the nitriding furnaces, nitrogen oxides and carbon monoxide emissions would be just over 1 tpy NOx and 15 tpy CO, respectively.

During the FY 2022 inspection, Matt Gilbert (Phone: (810) 357-0522; Fax: (810) 357-0699; Mobile: (810) 333-3079; E-mail: mGilbert@aldtt.net), Environmental, Health, & Safety Manager, assisted me.

Founded in 2006, ALD Thermal Treatment Inc. (ALDTT) is the premier source for Vacuum Heat Treatment Services to the Precision Manufactured Component Segment in USA. ALDTT is providing the following services:

1. Low Pressure Carburizing (LPC)
2. Neutral hardening in vacuum
3. High Pressure Gas Quenching (HPGQ) with N2 (control blanket) / He (quenching)
4. Nitriding
5. Vacuum brazing at high temperatures
6. Annealing in vacuum
7. Thermal de-oiling
8. Pre-cleaning
9. Cryogenics
10. Tempering
11. Shot peening
12. Shot blasting for burr removal
13. Rust protection after treatment
14. Additional Services
15. Metallography and related analysis
16. Geometrical inspection (distortion analysis)
17. Heat treatment consultancy
18. 6 ModulTherm® systems with 37 treatment chambers
19. 2 DualTherm® chamber furnaces
20. 3 Gas Nitride/Ferritic Nitro-Carburizing furnaces
21. Various other pre- & post processing facilities
22. Production Record
23. More than 6 million automatic transmissions

Based upon the August 24, 2020, letter to EGLE-AQD, Lansing, from Mr. Gilbert, ALDTT moved all equipment from a leased building, 2626 (SRN P0782) 24th Street in

Port Huron, Michigan, to owned building 2656 (SRN P1034) 24th Street in Port Huron, Michigan. Also, ALDTT installed all process equipment at new owned location (PTI Nos. 98-19 for 1,000-gallon anhydrous ammonia tank and 100-19 for four gas nitride/ferric nitrocarburizing (nitride/FNC) furnaces).

ALDTT constructed a new concrete pad storage area at 2656 24th Street for NH₃ storage tank (PTI No. 98-19) and disconnected and removed all ammonia facilities at 2626 24th Street (GPTI No. 6-17).

In CY 2020 and CY 2021, ALDTT purchased and used 15,966 pounds (\approx 8 tons) and 8,317(\approx 4 tons) pounds of anhydrous ammonia (NH₃) per year , respectively). Natural gas is only used in emissions reduction (principally, highly explosive hydrogen burn off) post process in the two dual stage ring burners on each of the three nitride/FNC machines (2 ring burners per machine, EU0002 thru EU0004). In addition, one ring burner was present (1 ring burner per machine, EU0001); however, this machine has been decommissioned upon moving to the current building.

ALDTT has 32 pieces of heat treatment equipment at ALD Thermal Treatment, 2656 24th Street in Port Huron, Michigan, of which all (including nitride/FNC) are vacuum heat treatment chambers, electrically heated, using nitrogen as a control gas (includes nitriders); those furnaces which are used for tempering or pre-oxidation are sometimes using ambient air or nitrogen as control gas mediums. Most of ALDTT's business is low pressure carburizing using helium (He) gas as a quenchant, though some neutral hardening is done using nitrogen (N₂) gas as a quenchant (the helium is recycled post process for reuse with manufacturer quoted 98% recycling efficiency. Nitrogen gas is also used for cryogenic freezer thermal treatment of customer product to aid in martensitic transformation. About 20-30% of the heat treatment chamber equipment is currently in use due to economic conditions at present (CY 2020 thru 2022).

Ammonia Safety measures for handling and working with Anhydrous ammonia include but are not limited to: emergency breathing apparatus at the tank, emergency rescue mouthbit respirators at every workstation, training on ammonia hazards and emergency response plans, membership on the local emergency planning commission EHS committee/hazards workgroup, spring and fall inspections of the tank site per regulatory requirements (e.g. check for corrosion, paint, weeds, over-pressure relief devices, rescue equipment, etc.) outdoor and indoor multi gas detectors at office area, point of use, and at tank site, security inspections, elevated & locked concrete enclosure with bollards.

Gilbert is a member of the local emergency planning commission EHS committee/hazards workgroup. On June 01, 2022, Gilbert performed spring inspection.

Conclusion

ALDTT is in compliance with the permits and NH₃ safety procedures and the burner rings as explosive H₂ control for the furnaces.

NAME J. S. Marshall

DATE September 20, 2022 SUPERVISOR Joyce