

N6693

MAWILA

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

N669358470

FACILITY: COOPER HEAT TREATING LLC		SRN / ID: N6693
LOCATION: 20251 SHERWOOD AVENUE, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT: Dave Prebola , Owner		ACTIVITY DATE: 06/04/2021
STAFF: Samuel Liveson	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled inspection.		
RESOLVED COMPLAINTS:		

On Friday, June 4, 2021, AQD staff (Sam Liveson) conducted an announced, scheduled inspection of Cooper Heat Treating LLC (CHTL) located at 20251 Sherwood Avenue in Detroit, Michigan. The purpose of this inspection was to determine the facility’s compliance with the federal Clean Air Act; Part 55, Air Pollution Control, of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; the Michigan Air Pollution Control (APC) Rules; and the conditions of Permit to Install (PTI) No. 34-03A.

AQD arrived around 9:15 AM. The temperature was 69 °F. Wind was westerly (headed east) at 8 miles an hour according to wunderground.com. Weather was partly cloudy. No opacity was observed from stacks on site before heading into the facility.

Announced Inspection

As a safety precaution to ensure that facility COVID protocols are followed, inspections are currently announced. AQD talked with Mr. Matt Cooper on Wednesday June 2, 2021 about inspecting the facility on June 4, 2021.

Opening Meeting

On June 4, 2021, I met with Mr. Dave Prebola, who leads CHTL’s facility recordkeeping and environmental compliance efforts. I showed him my State of Michigan employee badge and provided him my contact information.

Facility Overview

CHTL conducts heat treating and metal finishing operations. The facility receives new iron and steel parts. To remove oils from received parts, CHTL may clean parts using an open-top vapor degreaser that uses n-propyl bromide (nPB) for degreasing. This degreaser is EU-DEGREASER1 in the facility’s PTI No. 34-03A.

HAP Opt-Out Permit Application

CHTL’s vapor degreaser uses nPB as its cleaning solvent. NPB is not currently a hazardous air pollutant (HAP). On June 12, 2020, the U.S. Environmental Protection Agency (EPA) finalized its decision to grant petitions to add nPB (also known as 1-bromopropane) to its list of HAP. No regulatory requirements will come into effect until EPA adds nPB to its list of HAP. AQD and Mr. Prebola discussed how nPB is likely to become a HAP.

The facility’s permit allows 15 tons of VOCs to be emitted, so the facility appears to have the potential to emit greater than 10 tons of nPB a year. If nPB were a HAP, the facility would become a Title V major source because of its potential to emit greater than 10 tons of a single HAP.

AQD talked with Mr. Prebola about the options available to the facility to either (1) become a Title V major source due to the ability to emit more than 10 tons of nPB a year (up to 15 tons), or (2) to modify its permit to limit the emission of HAPs to less than 10 tons per year. Mr. Prebola received an EPA Fact Sheet detailing its actions regarding nPB to date; copies of APC Rule 205, which talks about how a PTI can limit its potential to emit to below that which would constitute a major source, and APC Rule 211, which talks about major sources under section 112 of the Clean Air Act having the potential to emit ten tons per year of any hazardous air pollutant; a copy of Appendix B of the MAERS User Guide, which discusses fees for opt-out sources and major sources; and a copy of the Michigan Permit to Install application.

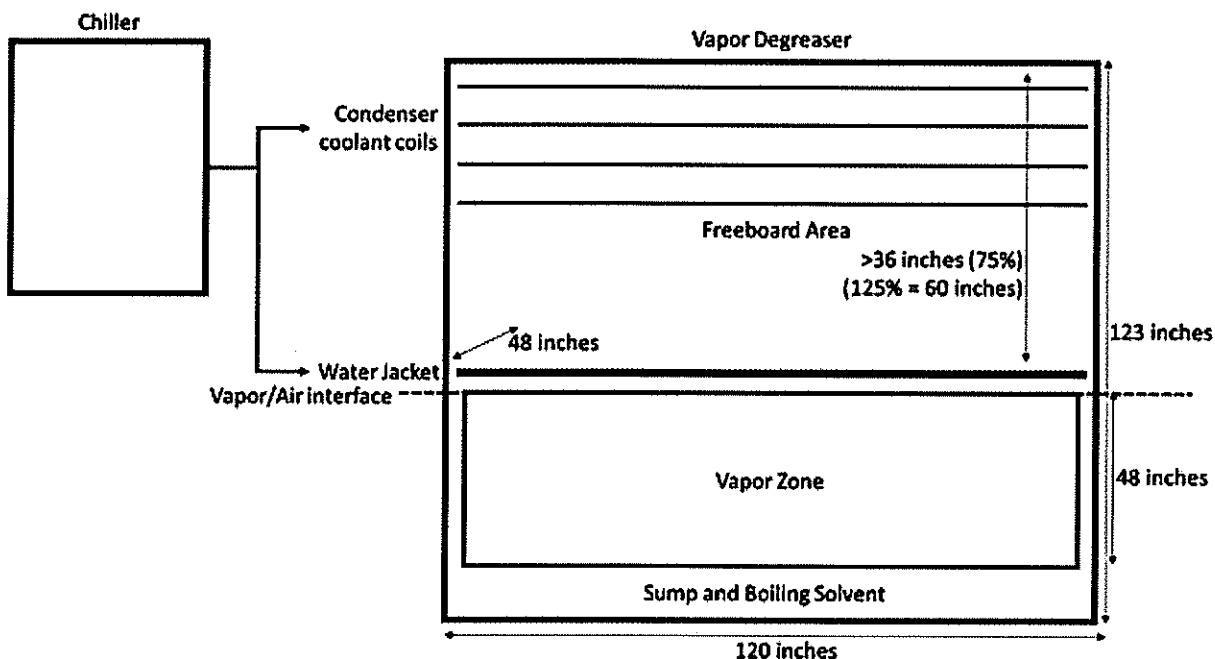
Facility Walkthrough and Compliance Status

EUDEGREASER1 – PTI No. 34-03A

The facility received PTI 34-03A for the one natural gas-fired batch vapor degreaser on site. The degreaser uses nPB as its cleaning solvent.

The degreaser was operating during the facility inspection. Mr. Prebola explained degreaser operation. The degreaser has a sump near its bottom, which heats the solvent to its vapor form. A chiller nearby provides cold water that flows through the 6 inch water jacket channel wrapped around the middle of the vapor degreaser. The same chiller water travels through condenser coolant coils above the water jacket. The chiller water temperature is about 39 °F, and the water jacket is about 40 °F. Once nPB reaches its boiling point of about 159 °F, solvent vapor begins filling the vapor zone, but condenses when it reaches the water jacket because of the colder temperature. The chiller turns off if the water temperature drops to 33 °F. Thermocouples are designed to be accurate within 1 or 2 °F and are not calibrated periodically.

The vapor zone area is the area from the boiling solvent to the water jacket. The freeboard area is the area from the water jacket to the air/vapor interface. A rough sketch based on discussions and historical degreaser information is provided below.



Parts are positioned in a basket so liquid will not pool on the part. Two panels above the degreaser are opened with pneumatic levers. When the degreaser doors open up via the pneumatic levers, fans turn on to pull air from two vents above the vapor degrease. Exhaust vents externally.

A hoist lowers the basket at less than 11 feet per minute into the vapor zone, where the mist cleans all of the part. A spray wand can also drip nPB onto the part in the vapor zone for additional cleaning. Once the part is heated to a temperature of 150 °F in the vapor zone, the part is raised. Parts are held in the freeboard zone and removed at a speed less than 11 feet per minute to minimize solvent exhaust out of the degreaser.

As oil and dirt from parts accumulates in the sump at the bottom of the degreaser along with the solvent, the solvent needs to reach higher temperatures to vaporize. When the sump temp is closer to 165 °F, the solvent is emptied as waste. Waste solvent is collected and provided to Parts Cleaning Technologies. CHTL receives a report of how much solvent the company was able to reclaim. Using this amount, CHTL can calculate how much solvent was emitted into ambient air.

EUDEGREASER1 Special Conditions and Compliance Status

SC(s)	Brief Condition Summary	Determination	Explanation
I.1	Emission limit of 15 tons volatile organic compounds (VOC) per 12-month rolling time period	Compliance	The highest 12-month VOC emissions occurred in April of 2021. The facility emitted 8.9 tons of VOCs over that 12-month time period. This is below the facility limit of 15 tons VOC.
II.1	Solvent material limit of 2725 gallons per 12-month rolling time period.	Compliance	The highest 12-month solvent usage occurred in April of 2021. The facility used 1623 gallons of solvent over that 12 month time period. This is below the facility limit of 2725 gallons.
III.1	Recover or dispose of solvent according to state and federal rules	Compliance	CHTL contracts Parts Cleaning Technologies (PCT) to pickup waste solvent drums. Mr. Prebola provided a manifest of disposal from February of 2020, bills of lading for December of 2020 and April of 2021, and an email from April of 2021, the last pickup. PCT emails CHTL of the percentage of recovered solvent.
III.2	Capture and store waste solvents so less than 20% by weight vents to atmosphere.	Compliance	AQD observed that waste solvent is stored in the 55 gallon drums in which it was previously received. Drums with waste solvent were closed. I did not notice solvent odor.
III.3	Develop and post written procedures for EUDEGREASER1 conspicuously	Compliance	Mr. Prebola showed me the operating procedures which are kept in a binder near the water chiller.
III.4	No halogenated solvents in 40 CFR Part 63 Subpart T shall be used	Compliance	The facility uses nPB in their vapor degreaser. This solvent is not listed in 40 CFR Part 63 Subpart T.
IV.1	Equip degreaser with refrigerated freeboard device or freeboard height to width ratio ≥ 0.75 .	Compliance	The degreaser meets both of these requirements. It has chiller coils in the freeboard area and a freeboard ratio of 1.25.
IV.2.a	Cover closed except when processing workloads	Compliance	The degreaser opens with pneumatic assistance. AQD observed the unit was closed when processing a workload except for a small gap between the two doors for the hoist cables.
IV.2.b	Procedure for part racking and drainage	Compliance	Parts are racked and lowered at less than 11 feet per minute. They are positioned to avoid solvent pooling. Parts are in vapor zone for at least 15 minutes, and "dwell in the freeboard area above the vapor zone until all dripping has stopped", according to operating instructions.
IV.2.c.i	Shut off to sump heat if coolant is not circulating or is too warm	Compliance	There is an automated shutoff if coolant is not circulating. A shutoff for being too warm does not seem to be in place. This would likely be dedicated to the chiller, whereas other controls are on the degreaser itself. AQD used discretion to avoid issuing a

SC(s)	Brief Condition Summary	Determination	Explanation
			violation for not having the shutoff for being too warm if the control is added in a timely manner.
IV.2.c.ii	Spray safety switch if vapor level drops	Compliance	A switch on the spray hose shuts off the spray if needed. The spray hose has a foot pedal and a squeeze handle to operate.
IV.2.c.iii	Shut off sump heat if solvent rises above normal design level	Compliance	A vapor up thermostat shuts off the unit if the temperature rises. This is a safety switch built into the system.
IV.2.d	Workload less than ½ the degreaser's open top area	Compliance	Page 3 of posted vapor degreaser operating instructions note that workload shall not occupy more than ½ the solvent air interface. Bi-parting covers appear to keep half the air/vapor interface covered when open.
IV.2.e	Solvent not sprayed above vapor level	Compliance	Vapor degreaser operating instructions state "The end of the wand must be in the heating chamber area before spraying the parts."
IV.2.f	Solvent leaks must be repaired immediately	Compliance	Operating instructions require "In case of a spill or leak, contact maintenance." No leaks have occurred under CHTL ownership.
IV.2.g	No water is visible in solvent exiting the water separator	Compliance	It is difficult to see water exiting the water separator. None was observed with a flashlight during inspection. Mr. Prebola explained the water separator is designed so lighter water rises to the top and is skimmed off.
VI.1	Calculations acceptable to AQD District Supervisor	Compliance	Mr. Prebola provided emissions data from January of 2020 through June of 2021.
VI.2	Solvent MSDS or formulation data	Compliance	Mr. Prebola provided the MSDS of the solvent used in the vapor degreaser.
VI.3	Keep monthly and 12-month rolling "net usage" of solvent	Compliance	Records are provided in pounds instead of gallons. AQD discussed updating records to gallons using specific gravity of 1.29 provided on solvent MSDS.
VI.4	VOC emission calculations monthly	Compliance	Records are provided in pounds instead of VOC emissions. AQD discussed updating records to VOC emissions using VOC content of 10.93 lbs VOC/gal on MSDS.
VIII.1	Stack dimensions	Compliance	From observing the stack from ground level, dimensions appear similar to those in SC VIII.1. Stack exhausts unobstructed vertically upwards.

Natural gas furnaces

The facility has five natural gas draw furnaces used for ferritic nitrocarburizing. This process provides the metal with a hard shell with benefits to the metal such as increased tensile strength and decreased corrosion.

From the facility's application for PTI 34-03, heat input of furnaces is 1 or 1.2 MMBtu/hr. One "railcar" furnace, F6, has a larger interior that looks similar to a large railcar that has been cut in half horizontally like a sandwich. Parts are inserted into the bottom half and the top half is lowered. The furnace heat

input is not listed on the facility's PTI application and may be difficult to quantify. The furnace does not appear to have a heat input greater than 10 MMBtu/hr.

Natural gas furnaces use ammonia. The five natural-gas furnaces on site were installed prior to May 23, 2013, which is when CHTL purchased Woodworth, Inc. Mr. Prebola explained that the facility does nitrogen quenching only; no oil quenching. The furnaces appear to be exempt under Rule 282(a)(i) for furnaces used for heat treating metals. Any new furnace installations would have to meet the updated exemption (promulgated December 20, 2016), which does not allow ammonia to be used in furnaces, or to apply for a PTI.

Electric furnaces

The facility has three electric pit furnaces for annealing or vacuum hardening. This annealing process makes the entire metal piece hard rather than only treating the surface of the metal. These furnaces appear to be exempt from obtaining a PTI per Rule 282(2)(a)(i) for furnaces for heat treating metals.

Anhydrous Ammonia Storage Tank

The facility has one anhydrous ammonia storage tank located outside. From a discussion on site, the tank capacity appears to be 60,000 pounds. It is generally filled to 65% capacity to allow headspace above the liquid level. The facility would like to use Rule 290 for the anhydrous ammonia storage tank instead of the general permit for Anhydrous Ammonia Storage & Handling. From the permit application for PTI 34-03, it appears that AQD accepted Rule 290 as an exemption for the anhydrous ammonia tank. The facility has not had any releases, so estimates its emissions at 5 pounds per day, as the general permit background document discusses. Emissions at 5 pounds a day are below the 1000 pound monthly limit for ammonia under Rule 290(2)(a)(ii) for an initial threshold screening level (ITSL) greater than 2 micrograms per meter cubed (ug/m³). According to the Michigan Air Toxics System, ammonia's ITSL is 350 ug/m³.

Nitrogen Storage Tank

One nitrogen storage tank appears to be exempt from obtaining a PTI per Rule 284(2)(j) for pressurized storage of nitrogen.

Aqueous parts washer

The alternative cleaning method to using EU-DEGREASER1 is a belt wash. This can be used for parts large enough to support themselves on the belt, and with few enough crevices that the jets of aqueous solution inside the belt wash will clean the part thoroughly.

From the facility's application for PTI 34-03, it appears that AQD accepted Rule 285(l)(iii) as an exemption for the parts washer. In 2003, Rule 285(l)(iii) exempted equipment for surface preparation of metals by use of aqueous solutions, except for acid solutions. Mr. Prebola provided the MSDS for the cleaning solution, labeled Multi-Kleen 1740T. The percentage of 2-aminoethanol is 10-20%. At the time of this permit in 2003, "aqueous-based parts washer" had not been defined in Part 1 of the Rules as less than 5% VOC, so it appears it was appropriate to consider a solution with 10-20% VOC as being an aqueous solution. AQD did not confirm this history with the facility.

Miscellaneous Equipment

A laboratory room at the facility appears to be exempt from obtaining a PTI per Rule 283(2)(b) for laboratory equipment.

Machining equipment, such as several saws on site, as well as a sand blaster cleaner using aluminum oxide grit, exhausts indoors and appears to be exempt from obtaining a PTI per Rule 285(2)(l)(vi)(B) for sand blast cleaning with emissions released only into the general in-plant environment.

A small natural-gas hot water heater used for steam oxide treatment appears to be exempt from obtaining a PTI per 282(2)(b)(i) for fuel burning equipment used for service water heating which burns sweet natural gas and has a rated heat input capacity of not more than 50 MMBtu/hour. The boiler maximum heat input appears to be 630 Mbtu/hour, or 0.63 MMBtu/hour.

Conclusion

Based on the AQD inspection and records review, it appears that CHTL is in compliance with the federal Clean Air Act; Part 55, Air Pollution Control, of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; the Michigan Air Pollution Control Rules; and PTI No. 34-03A.

NAME ARL

DATE 11/17/21

SUPERVISOR JK