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

P119866199

FACILITY: Therma Seal Inc.		**SRN / ID:** P1198
LOCATION: 141 Peyerk Court, ROMEO		**DISTRICT:** Warren
CITY: ROMEO		**COUNTY:** MACOMB
CONTACT: Ted Jacob , President		**ACTIVITY DATE:** 01/10/2023
STAFF: Adam Bognar	**COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS:		

On Tuesday, January 10, 2023, Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) staff, I, Adam Bognar, conducted a scheduled inspection of Therma-Seal Inc. (the "Facility") located at 141 Peyerk Court, Romeo, MI. The purpose of this inspection was to determine the facility's compliance status with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; and Michigan Department of Environment, Great Lakes, Energy-Air Quality Division (EGLE-AQD) rules; and Permit to Install No. 58-22.

I arrived at the facility at around 10 am. I met with David Denhart, V.P. of Operations. Ted Jacob, Owner, was not on-site during this inspection. I identified myself and stated the purpose of the inspection. David showed me some of the records I requested, explained the current state of operations, and gave me a tour of the manufacturing facility. After the inspection we held a meeting to discuss my findings.

Therma-Seal Inc. produces rolls of coated plastic material. These rolls are coated at this facility with Therma-Seals specialty cross-linked coating. After the coated rolls are produced, they can be printed on using specialty ink. The ink is produced and applied at a separate location. This specialty coating and ink allows these rolls to be used as thermal/chemical resistant labels for various use cases.

These labels will be used for applications where accurate labeling is very important, but environmental conditions tend to degrade labels. Some of Thermaseal's main clients are hospitals and meat packing plants, both of which need to maintain sterilized work coats for employees to utilize. These clients have their own bar code stamping device on site so they can create scannable labels on Therma-Seal's crosslinked material. These barcodes will withstand the harsh environmental conditions of chemical or steam sterilization.

Another property of the crosslinked material is that it is easily bonded to clothing using a hydraulic press. The barcodes can also be removed by applying high heat and peeling off. The barcodes will be scanned after each coat is sterilized. Employees will scan their work coats before they enter a sterile area to ensure the work-coat has been sterilized.

Therma-Seal Inc. operates one Dri-Tec 8913 Coater/Laminator at this location. The equipment is capable of coating 45" wide sheets of 1-10 mil polyurethane or paper.

Therma-Seal's crosslinked coating is applied using a gravure coating method. In Gravure coating, the coating resin is continuously applied to an engraved roller. The roller was specifically

engineered for this process so that the roller picks up just the right amount of coating from the reservoir. Sheets of polyurethane are continuously fed over the coated roller to produce a uniform coating on the sheets.

There is a 33' long stainless-steel dryer tunnel with two dryer zones. Two dryer zones are each equipped with 800,000 BTU burners.

This coating process is currently exhausted to the general in-plant environment. Thermaseal has purchased a thermal oxidizer for this process. The thermal oxidizer is on-site but has not yet been hooked up to the process.

Next to the coating equipment is an area used to store coating materials. Ted Jacob stated in a previous inspection and in the permit application that this storage area will be enclosed and ventilated to the thermal oxidizer. The storage area has not been enclosed. There is a cold cleaner in this storage area which utilizes a 50/50 mixture of ethanol and toluene as a cleaning solvent. The cold cleaner has an air/vapor interface of 13ft^2 (about 2'x6').

Therma-Seal Inc. submitted a permit to install application for this equipment in June 2021. The process does not qualify for a general permit to install because it is considered a "graphic arts line" by AQD definitions. AQD approved PTI No. 58-22 on May 10, 2022, permitting both the graphic arts line and the cold cleaner.

PTI No. 58-22

EUPRINTINGLABELS

This emission unit consists of a rotogravure printing line used to manufacture heat/chemical resistant labels.

Section I – Special Condition 1: Limits VOC emissions to 19.1 tons per year. This permit was issued on May 10, 2022. I reviewed VOC emissions since the date of permit issuance. Total VOC emissions from May 2022 through December 2022 were reported at 7.07 tons.

Section III – Special Condition 1: Requires the permittee to capture all waste materials, store them in closed containers, and dispose of them in accordance with state and federal regulations. I observed that waste materials are stored in one closed top 55-gallon drum. When this drum is filled to a certain capacity, the waste solvent is transferred to a solvent recovery unit that distills the solvent. The solvent recovery unit can evaporate 100% of the volatiles leaving only a solid cake of paint solids to dispose of. 100% VOC evaporation is achievable because the waste solvent is distilled within a large heat resistant plastic bag. When all of the solvent has evaporated, the operator simply removes the bag of solids and throws it in the trash. The solvent distillation unit is exempt from Rule 201 requirements pursuant to Rule 285(2)(u) since it has a rated batch capacity less than 55-gallons.

Section III – Special Condition 2: Requires the permittee to handle all VOC and HAP containing materials in a manner which minimizes fugitive emissions. I observed that all VOC/HAP containing

materials were stored in closed containers. The paint mixing vessel was equipped with a lid that only allows for a mixing shaft.

Section III – Special Condition 3: States that the permittee shall not operate EUPRINTINGLABELS unless a malfunction abatement plan (MAP) for the Thermal Oxidizer and Non-Fugitive Enclosure is submitted, implemented, and maintained within 60 days from commencement of trial operation.

David stated that this MAP was never created. Based on my findings during my last inspection, commencement of trial operation occurred sometime in late 2021/early 2022. A violation notice will be sent to Thermaseal for failing to submit, implement, and maintain a MAP.

Section IV – Special Condition 1: Requires the permittee to equip EUPRINTINGLABELS with roller applicators or comparable technology. I confirmed during my inspection that EUPRINTINGLABLES is equipped with roller applicators.

Section IV – Special Condition 2: States that the permittee shall not operate EUPRINTINGLABELS unless the thermal oxidizer is installed, maintained, and operated in a satisfactory manner.

I observed that the thermal oxidizer is on-site but is not functional or hooked up to any equipment. David explained that Thermaseal is in the middle of litigation with the people who sold them the used thermal oxidizer. David explained that the company who sold Thermaseal the oxidizer refuses to provide Thermaseal with the software necessary to operate the oxidizer. This company wants Thermaseal to pay thousands of dollars for one of their technicians to come out and program the machine, which needs to occur annually. Thermaseal wants to pay a 1-time fee for the software and program the machine themselves.

A violation notice will be sent to Thermaseal for failure to install, maintain, and operate the thermal oxidizer in a satisfactory manner.

Section IV – Special Condition 3: Requires the permittee to install, calibrate, maintain, and operate a temperature monitoring device in the combustion chamber of the thermal oxidizer. This temperature monitoring device may be installed. I could not verify this during my inspection. Since the Thermal Oxidizer is not installed, this device cannot be considered to be calibrated, maintained, or operated in a satisfactory manner. A violation notice will be sent to Thermaseal for failing to calibrate, maintain, and operate the continuous temperature monitoring device.

Section IV – Special Condition 4: States that that the permittee shall not operate EUPRINTINGLABELS unless the non-fugitive enclosure is installed, maintained, and operated in a satisfactory manner. The non-fugitive enclosure has not been installed. David stated that the non-fugitive enclosure cannot be installed until they can get the thermal oxidizer functioning. The thermal oxidizer blowers will eventually create the negative pressure needed for the non-fugitive enclosure. A violation notice was sent to Thermaseal for operating EUPRINTINGLABELS without a non-fugitive enclosure.

Section V – Special Condition 1: Requires the permittee to determine the VOC content, water content, and density of any ink, as applied and as received, using federal Reference Test Method

24. I requested Method 24 data from the facility and have not received this information. The facility has not made a request to the AQD district supervisor to use manufacturers formulation values. A violation notice was sent to the facility for failing to perform a Method 24 test on the coating materials used at Thermaseal.

Section V – Special Condition 2: States that the permittee shall verify the destruction efficiency of the thermal oxidizer within 180 days of the issuance of this permit. This permit was issued on May 10, 2022, therefore this test was due by November 6, 2022. This test was never conducted since installation of the oxidizer was never fully completed. A violation notice was sent to Thermaseal for failing to perform a destruction efficiency test by November 6, 2022.

Section V – Special Condition 3: Requires the permittee to verify the direction of air flow at each natural draft opening (NDO) of the non-fugitive enclosure (NFE) for EUPRINTINGLABELS. The non-fugitive enclosure was never installed. A violation notice was sent to Thermaseal for failure to verify the direction of air flow at each NDO in the NFE.

Section VI – Special Conditions 1, 2, 3, 4, 5: Specifies recordkeeping requirements for EUPRINTINGLABELS. Thermaseal maintains records from the manufacturer listing the chemical composition of each material used. There are only 2 coating types used at this facility – a top coat and a base coat. The top coat contains 76% VOCs and the base coat contains 64% VOCs.

Thermaseal keeps monthly records of the gallons of each material used. The highest total reported usage occurred in November 2022 with 93.61 gallons of top coat and 133.69 gallons of base coat used.

Thermaseal is required to monitor and record the temperature in the combustion chamber of the thermal oxidizer on a continuous basis when operating EUPRINTINGLABELS. Additionally, Thermaseal is required to keep test results for the non-fugitive enclosure test. The thermal oxidizer and the non-fugutive enclosure have not been installed. A violation notice will be sent to Thermaseal for failing to keep these records.

Section VII – Special Condition 1: Requires Thermaseal to notify AQD within 30 days of commencing trial operation of EUPRINTINGLABELS. AQD never received this notification; however, AQD was aware from a previous inspection that trial operation had started prior to the issuance of PTI No. 58 -22. AQD will use enforcement discretion and not issue a violation notice for failing to notify AQD within 30 days of commencing trial operation.

EUPARTWASHER

This emission unit is a new closed-cover cold cleaner using a solvent-based cleaner. This 2’x6’ tank is sized to be able to clean 55-gallon drums or 5 gallon buckets. A 50/50 mixture of ethanol and toluene is used as the cleaning solvent.

Section I – Special Condition 1: Limits VOC emissions to 3 tons per year. Based on the records I reviewed, the facility meets this emission limit. The facility reported that they have added 8 gallons

of solvent total from May 2022 through December 2022. This equates to 0.03 tons of VOC emissions.

Section II – Special Condition 1: States that the permittee shall not use more than net 1,320 gallons of cleaning solvent in EUPARTWASHER per 12 month rolling time period. Thermaseal reported 8 total gallons of cleaning solvent used from May 1, 2022 through December 31, 2022.

Section III – Special Condition 1: States that parts in EUPARTWASHER shall be drained for no less than 15 seconds or until dripping ceases. David stated that drums/buckets are inverted for at least 15 seconds to allow solvent to flow out. There is a hook on the lid of the tank that drums/buckets can be hung from while they drain.

Section III – Special Condition 2: States that the permittee shall perform routine maintenance on EUPARTWASHER as recommended by the manufacturer. David stated that he is not aware of any routine maintenance required on this tank. He stated that the tank is emptied and cleaned every 4 months or so.

Section IV – Special Condition 1: States that EUPARTSWASHER shall be equipped with a device for draining cleaned parts. The lid of EUPARTSWASHER is equipped with a hook so that buckets and drums can drip off.

Section IV – Special Condition 2: Requires EUPARTSWASHER to be equipped with a cover that is closed whenever the tank is not in use. I observed that the tank is equipped with a cover and proper operating instructions are posted.

Section IV – Special Condition 3: States that the lid on EUPARTSWASHER shall be mechanically assisted if the Reid vapor pressure of the solvent is more than 0.3 psia. The 50/50 blend of toluene/ethanol used in this cold cleaner has a Reid vapor pressure of approximately 1.55 psia (avg of their Reid vapor pressures). I observed that the lid for this tank is mechanically assisted. David stated that the lid is also capable of auto-shutting if it detects a fire in the cold cleaner.

Section IV – Special Condition 4: States that EUPARTSWASHER must be designed such that the ratio of freeboard height to the width of the cleaner is equal to or greater than 0.7. Based on my observations, the tank appears to have a freeboard ratio greater than 0.7.

Section VI – Special Conditions 1,2,3,4,5,6: Specify recordkeeping requirements for EUPARTSWASHER.

I verified that the facility maintains records of the model number of the unit, the date the unit was installed, the air/vapor interface area, and the reid vapor pressure of each solvent used.

I verified that monthly usage records in gallons are maintained.

I verified that VOC mass emission calculations are maintained on a monthly basis. 12-month rolling records will be evaluated after the facility has operated under PTI 58-22 for a year.

I observed that written operating procedures were posted near the cold cleaner.

Section IV - Special Condition 5 is not applicable since the waste solvent is stored in closed containers.

Section VII – Special Condition 1: Requires Thermaseal to notify AQD within 30 days of commencing trial operation of EUPRINTINGLABELS. AQD never received this notification; however, AQD was aware from a previous inspection that trial operation had started prior to the issuance of PTI No. 58 -22. AQD will use enforcement discretion and not issue a violation notice for failing to notify AQD within 30 days of commencing trial operation.

FGFACILITY

Section I – Special Condition 1 & 2. Limits aggregate Hazardous Air Pollutant (HAP) emissions to under 22.4 tons per year and individual HAP emissions to 8.9 tons per year. Aggregate HAPs were reported at 4.48 tons for the period between May 1, 2022 and December 31, 2022. Records of individual HAPs were provided as well. The HAP emitted in the highest quantity was toluene with a reported 2.8 tons of emissions during that same period.

Section V – Special Condition 1: States that the permittee shall determine the HAP content of materials using the manufacturers formulation data. David stated that manufacturers formulation data is used to determine the composition of all materials used at the facility.

Section VI – Special Conditions 1 & 2: Specifies recordkeeping requirements for FGFACILITY. I verified that Thermaseal maintains records of the gallons of each HAP containing material used & reclaimed. I verified that the HAP content of each coating material is maintained. I verified that HAP emission calculations are maintained on a monthly basis.

Compliance Determination

Based on my findings during this inspection and record review, Thermaseal Inc. is not operating in compliance with the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) Administrative Rules; and Permit to Install No. 58-22.

A violation notice will be sent to Thermaseal inc. for the following reasons:

- Thermaseal Inc. operated EUPRINTINGLABELS without installing, maintaining, and operating the thermal oxidizer in a satisfactory manner. This is a violation of PTI No. 58-22, Section IV, Special Condition 2
- Thermaseal Inc. failed to calibrate, maintain, and operate the continuous temperature monitoring device in the thermal oxidizer combustion chamber. This is a violation of PTI No. 58-22, Section IV, Special Condition 3

- Thermaseal Inc. operated EUPRINTINGLABELS without installing, maintaining, and operating a non-fugitive enclosure for the process. This is a violation of PTI No. 58-22, Section IV, Special Condition 4.

- Thermaseal Inc. operated EUPRINTINGLABELS without implementing, submitting, and maintaining a malfunction abatement plan within 60 days of beginning trial operation. This is a violation of PTI No. 58-22, Section III, Special Condition 3.

- Thermaseal Inc. did not determine the VOC content, water content, and density of coating materials using an EPA federal reference Test Method 24. Thermaseal did not obtain approval from the AQD district supervisor to use manufacturer's formulation data. This is a violation of PTI No. 58-22, Section V, Special Condition 1.

- Thermaseal Inc. failed to perform a destruction efficiency test on the thermal oxidizer within 180 days of permit issuance. This is a violation of PTI No. 58-22, Section V, Special Condition 2.

- Thermaseal Inc failed to verify the direction of air flow of the non-fugitive enclosure is into the enclosure on a semi-annual basis. This is a violation of PTI No. 58-22, Section V, Special Condition 3.

- Thermaseal failed to maintain records of the thermal oxidizer combustion chamber temperature on a continuous basis. This is a violation of PTI No. 58-22, Section VI, Special Condition 4.

- Thermaseal Inc. failed to keep records of the test results verifying the air flow direction is into the non-fugitive enclosure on a semi-annual basis. This is a violation of PTI No. 58-22, Section VI, Special Condition 5.

NAME Adam Bognar DATE 1/27/2023 SUPERVISOR K. Kelly