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

P060972303

FACILITY: Mold Masters Limited		**SRN / ID:** P0609
LOCATION: 29111 Stephenson Highway, MADISON HTS		**DISTRICT:** Warren
CITY: MADISON HTS		**COUNTY:** OAKLAND
CONTACT: John Turnbull , Manager		**ACTIVITY DATE:** 06/20/2024
STAFF: Owen Pierce	**COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** MINOR
SUBJECT: FY 24 Inspection Report		
RESOLVED COMPLAINTS:		

On June 20, 2024, I (Owen Pierce EGLE - Air Quality Division) performed a scheduled targeted inspection of Mold Masters Limited located at 29111 Stephenson Highway, Madison Heights, Michigan. Jillian Cellini (EGLE-AQD) joined me for 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.99-15B. Upon arrival Jillian and I met with John Turnbull, Plant 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, John explained the facility's processes and equipment. Mold Masters removes plastic residue from plastic extrusion tools. The building where Mold Masters is located is also owned and occupied by DME. DME is involved in warehousing and parts distribution. Mold Masters operates approximately 6:00 AM to 4:30 PM Monday through Friday with a staff of 25-30 employees including office staff. Non-permitted equipment at Mold Masters includes two portable enclosed sandblast machines, a heated parts washer, three CNC machines, a boiler, and a generator.

Facility Walk-through Observations

EUFLUIDCLEAN

First, we were lead to the EUFLUIDCLEAN. The EUFLUIDCLEAN was not in use at the time of the inspection. The EUFLUIDCLEAN is a Dinamec Fluid Clean Fluidized Bed Type F-42.12.12/ICV used to clean plastic residues from plastic extrusion tooling. The emissions from EUFLUIDCLEAN are controlled using a natural gas fired after burner zone and a cyclone seperator used for the removal of particulate matter from the exhaust system. According to John, tubes under the sand bed in the EUFLUIDCLEAN heat up the sand to the point where it boils, which forces the sand up into the crevices of the extrusion tools causing the plastic residue to dislodge and then burnoff in the afterburner zone located above the sand bed. The nameplate on the EUFLUIDCLEAN indicated that the fuel used is natural gas with a heat input rate of 1.426 MMBTU per hour.

EUMINICLEAN

Next, we were lead to the EUMINICLEAN. The EUMINICLEAN was in use at the time of the inspection and we were able to observe that it was fully functioning. Rick Alberty, Technician, explained that the EUMINICLEAN is a Dinamec Systems LLC DMC 450-400V cleaning furnace equipped with an electrically heated cleaning chamber used for removal of plastic residues from smaller plastic extrusion tooling. The emissions from EUMINICLEAN are controlled using a lime cartridge filter followed by a natural-gas fired afterburner chamber. The afterburner on the EUMINICLEAN was observed as operating at 825^0C (1517^0F). The nameplate on the EUMINICLEAN indicated that the fuel used is natural gas with a heat input rate of 0.030388 MMBTU per hour.

Sand Blast Equipment

During the facility walk-through, we observed two sand blast units. Mold Masters has two portable, fully enclosed sand blast units used to clean parts. The sand blast units are exempt from the requirement in

R336.1201 to obtain a permit to install per R336.1281(2)(d) because they are portable blast-cleaning equipment equipped with appropriately designed and operated enclosure and control equipment.

Parts Washer

We observed a heated parts washer at the facility, which has two tanks. John provided the SDS for the parts washer. According to the SDS, the VOC content of the cleaning product used in the parts washer is 2.04 percent by weight, at 10 percent solution, and the cleaning product has a boiling point of 212 degrees Fahrenheit. Since the cleaning solution has a VOC content less than 5 percent and is heated to less than it's boiling point, it meets the definition in R336.1101(q) of an aqueous based parts washer. This equipment is exempt from the requirement in R336.1201 to obtain a permit to install per R336.1281 (2)(k) because it meets the definition of an aqueous parts washer.

Generator

There is an Onan Model 12JC-3R31/1R, natural gas fired generator with a power rating of 30.1 bhp at 1800 RPM generator at Mold Masters which is used to supply electricity in the event of a power outage. The engine was reported as being installed in the 1980s. The generator is exempt from the requirement of R336.1201 to obtain a permit to install per R336.1285(2)(g) because the heat input is approximately 0.306 MMBTU per hour based on 25 percent thermal efficiency. The generator does not appear to be subject to the Standards of Performance for New Stationary Sources (40 CFR 60 Subpart JJJJ) because it was installed before June 12, 2006. The Department of Environment, Great Lakes, and Energy (EGLE, AQD) has not accepted delegation from the U.S. Environmental Protection Agency (US EPA) for enforcing the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combuston Engines (40 CFR 63 Subpart ZZZZ) at area sources of hazardous air pollutants.

CNC

We observed three CNC machines during the inspection that are exempt from the requirement in R336.1201 to obtain a permit to install per R336.1285(2)(l)(vi)(B) because they are used to cut and/or grind metal or wood and the emissions are released into the general in-plant environment.

Boiler

We observed one Bryan Water Tube Boiler natural gas fired boiler during the walk-through. The boiler has a max heat input of 1.95 MMBTU per hour and is exempt from Rule 336.1201 (Permit-to-Install) pursuant to rules 336.1282(2)(b)(i) (<< 50 MMBTU per hour heat input, natural gas only), and is not subject to New Source Performance Standards (NSPS) Subpart Dc (<< 10 MMBTU per hour heat input, natural gas only).

PTI No. 99-15B Compliance Evaluation

The facility was issued PTI No. 99-15B for one Dinamec Fluid Clean Fluidized Bed Type F-42.12.12/ICV used to clean plastic residues from plastic extrusion tooling, and one Dinamec Systems LLC DMC 450-400V cleaning furnace equipped with an electrically heated cleaning chamber used for removal of plastic residues from smaller plastic extrusion tooling. Required records, from September 2023 through May 2024 were submitted to AQD staff during the inspection and via email by John Turnbull, Plant Manager. Records can be located internally at the following link: S:\Air Quality Division\STAFF\Owen Pierce\FY 24\Mold Masters.

EUFLUIDCLEAN

SC I.1. through 3. sets PM, PM10, and PM 2.5 emission limits for EUFLUIDCLEAN. The emission limits are displayed in the table below:

Pollutant	**Limit**

Pollutant	Limit
1. PM	0.083 lbs per 1000 lbs of dry exhaust gas
2. PM10	1.52 pph
3. PM2.5	1.52 pph

According to the permit, compliance with the emission limits is determine by testing requested by the AQD and by visible emissions readings. The AQD has not requested testing. The visible emission readings were provided as discussed below.

SC I.4. requires visible emissions from EUFLUIDCLEAN not exceed a six-minute average of 10 percent opacity. According to EUFLUIDCLEAN SC VI.4. visible emission readings for EUFLUIDCLEAN shall be taken a minimum of once per calendar month by either a certified or non-certified reader during routine operating conditions. During the previous inspection, a violation notice was issued for failure to provide visible emission readings for EUFLUIDCLEAN. At the time, John explained that none of the current leadership were aware of this requirement due to the fact that there had been some turnover since the previous inspection in 2017. In a response to violation letter dated October 13, 2023, John explained that the facility has corrected this issue and immediately began monthly visible emission readings in June of 2023. As a result, the violation will be resolved. During the inspection this year, John provided monthly visible emission readings from June 2023 through June 2024. According to the records, no visible emissions were identified during that time period.

SC III.1 mandates that Mold Master not process any material in EUFLUIDCLEAN other than metal parts with small amounts of cured residues of the following approved types of plastics: polyethylene, polypropylene, polystyrene, polycarbonate, polyamide, acrylonitrile-butadiene-styrene (ABS), polysulfone, and polyethersulfone. The amount of plastic residue on each part shall be minimized by removing as much residue as possible using hand tools. Rick stated that plastic residue is chipped off using hand tools, and wires are cut from the steel manifolds being cleaned prior to being placed in EUFLUIDCLEAN. The parts are also weighed before and after they are placed in EUFLUIDCLEAN. Safety Data Sheets (SDSs) are kept for all products entering the facility, regardless of whether or not the material has gone into EUFLUIDCLEAN. John provided a copy of a couple SDSs to demonstrate the SDSs are being kept and that only cured residues from approved plastics are used.

The sand bed must be preheated to 850ºF before parts are loaded into the sand bed for processing per SC III.2. Rick said the sand bed is heated to 900ºF before parts are put in EUFLUIDCLEAN. Records of the daily sand bed temperatures for each batch are required per EUFLUIDCLEAN SC VI.3. During the previous inspection, a violation notice was issued for failure to provide sand bed temperatures and exhaust air flow temperatures for each batch of materials processed on a calendar day basis for the requested time period of January 2022 to May 2023 for EUFLUIDCLEAN. According to John, he learned from the IT staff working to download the data from EUFLUIDCLEAN, that it only records and stores data from the last 30 days. In a response to violation letter dated October 13, 2023, John explained that to correct the violation, the facility programmed their PLC to both collect and save the required recordkeeping information. During the inspection this year, John provided the sand bed temperature data records from April 2024 through June 2024. According to the provided records, the data indicates that after heating up for approximately 30-40 minutes, the sand bed temperatures are above 850 degrees for approximately 4-8 hours a run. Remaining temperature records from September 2023 through April 2024 of the requested time period have not yet been sent to the AQD office and as a result, a violation notice will be issued.

According to EUFLUIDCLEAN SC IV.1. the fluidized bed cleaner shall not operate unless the natural gas -fired afterburner zone and the cyclone system are installed, maintained, and operated in a satisfactory manner. According to John and Rick, the sand is changed and the pipes are cleaned once a year. John provided me with a copy of the Service Report for the EUFLUIDCLEAN dated April 15-18, 2024. According to the report, a level 4 service and bed wall repair were performed. All other components of the EUFLUIDCLEAN were found to be in good working order.

SC IV.2. requires that the permittee install, calibrate, maintain, and operate in a satisfactory manner a negative pressure switch in the duct before the fan in the cyclone control system for EUFLUIDCLEAN. Rick showed us the negative pressure switch that is installed in the duct before the fan in the cyclone control system.

SC IV. 3. states the permittee shall not operate EUFLUIDCLEAN unless the manufacturer's automatic temperature control system for the sand bed and afterburner zone are installed, maintained and operated in a satisfactory manner. Rick showed us the temperature monitor system for the sand bed. The calibration schedule is set by the manufacturer and calibration is performed by manufacturer in accordance with the schedule.

SC VI.2 requires the permittee maintain a current listing from the customer of the chemical composition of each material being removed from the parts being processed in EUFLUIDCLEAN, and the data may consist of Safety Data Sheets, manufacturer's formulation data, or both. SDSs are kept for all products entering the facility, regardless of whether the material has gone into EUFLUIDCLEAN. John provided a copy of a couple of SDSs to demonstrate the SDSs are being kept.

SC VI.6. requires records of the date, duration, and description of any malfunction of the cleaning furnace, any maintenance performed and any testing results for EUFLUIDCLEAN be kept. According to John, no malfunctions, unscheduled maintenance items, or testing were performed from September 2023 - May 2024.

SC VI.7 states that the permittee shall record on a calendar day basis, the date, time, duration, and sand bed temperature and the exhaust air flow temperature at equally spaced intervals, not to exceed 15 minutes per interval, of EUFLUIDCLEAN for each batch of materials processed. Sand bed temperatures and exhaust airflow temperatures are recorded at equally spaced 15-minute intervals for each batch of materials processed. As previously stated, John provided the sand bed temperature data records from April 2024 through June 2024, however, the sand bed temperature records from September 2023 through April 2024 of the requested time period have not yet been sent to the AQD office and as a result the facility is in violation of this condition. A violation notice will be issued.

I observed the stack for EUFLUIDCLEAN. The stack appears to meet the stack/vent restrictions listed in VIII.1.

EUMINICLEAN

SC III.1 states that the permittee shall not process any material in EUMINICLEAN other than metal parts with small amounts of cured residues of the following approved types of plastics: polyethylene, polypropylene, polystyrene, polycarbonate, polyamide, acrylonitrile-butadiene-styrene (ABS), polyvinyl chloride (PVC), polysulfone, polyethersulfone, and any of these plastice containing brominated additives (e.g., compounds of bromine such as bromine-based fire retardants, etc.) provided that the plastic contains no more than 1 percent by weight total bromine content. The amount of plastic residue on each part shall be minimized by removing as much residue as possible using hand tools. Rick stated that plastic residue is chipped off using hand tools and wires are cut from the steel manifolds being cleaned, prior to being placed in EUMINICLEAN. Concurrently, SC.VI.2 requires that the facility maintain a current listing from the customer of the chemical composition of each material being removed from the parts being processed in the EUMINICLEAN. SDSs are kept for all products going into the EUMINICLEAN. John provided a copy of a couple SDSs to demonstrate that SDSs are being kept and that only cured residues from approved plastics are used.

SC III.2 requires that the facility not operate EUMINICLEAN for more than 880 hours per 12-month rolling time period as determined at the end of each calendar month, and SC.VI.4 requires that a record of the hours of operation of EUMINICLEAN be kept on a monthly basis and on a 12-month rolling time period as determined at the end of each calendar month. As of the date of this report, those records have not been sent to the AQD office, and according to John facility staff were unaware of this permit requirement. Failure to provide records of the hours of operation of EUMINICLEAN is a violation of SC. III.2 and VI.4, and a violation notice will be issued.

SC III.3 explains that the permittee shall not operate EUMINICLEAN unless the furnace operator preheats the afterburner chamber to 1560^{0}F (849^{0}C) prior to charging parts to the cleaning chamber. During the inspection, Rick explained that the afterburner displays temperatures in Celsius and operates at approximately 825^{0}C (1517^{0}F). I explained to Rick and John that to be in compliance with the conditions in the permit, the operating temperature would have to be raised to 849^{0}C (1560^{0}F). Failure to preheat the afterburner chamber to 1560^{0}F (849^{0}C) prior to charging parts to the cleaning chamber is a violation of SC III.3 and SC IV.1 which states that the permittee shall not operate EUMINICLEAN unless the natural gas-fired afterburner chamber and the lime cartridge filter are installed, maintained, and operated in a satisfactory manner. A violation notice will be issued.

SC IV.2 says that the the facility must have installed a device that measures the temperature in the afterburner chamber. I observed a digital device that displays and records the temperature of the afterburner chamber.

SC IV.3 states that the permittee shall not operate EUMINICLEAN unless an interlock system is installed, maintained, and operated in a satisfactory manner. Rick explained that the EUMINICLEAN does have an interlock system that shuts down the cleaning chamber heater when the afterburner chamber is not operating properly such as detection of a loss of afterburner flame or detection of low natural gas supply pressure to the afterburner.

SC VI.3 states that the permittee shall keep in a satisfactory manner, temperature data records for the afterburner chamber. During the previous inspection, a violation notice was issued for failure to provide temperature data records for the requested time period of January 2022 to May 2023 for EUMINICLEAN. In a response to violation letter dated October 13, 2023, John explained that to correct the violation, the facility contacted the manufacturer. John went on to explain that all of the data is stored on the machine and that the manufacturer's IT department and Mold Master's IT department were working together to retrieve the information and have the program calculate the emissions to meet the permit requirements. During the inspection this year, John provided the temperature data records from May 2024 through June 2024. Remaining temperature records from September 2023 through May 2024 of the requested time period have not yet been sent to the AQD office and as a result, a violation notice will be issued.

EUMINICLEAN SC VI.6 requires the facility keep records of the date, duration, and description of any malfunction of the cleaning furnace, any maintenance performed and any testing results for EUMINICLEAN. No malfunctions, unscheduled maintenance items, or testing were performed from September 2023 - May 2024.

Conclusion

Based on information obtained during the inspection, it has been determined that Mold Masters is in violation of SC VI.3 and VI.7 for EUFLUIDCLEAN and SC III.2, III.3, IV.1, VI.3 and VI.4 for EUMINICLEAN of PTI 99-15B. A violation notice for these violations will be issued.

NAME Owen Pierce DATE 8/7/2024 SUPERVISOR K. Kelly