

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

P060967671

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: 06/08/2023
STAFF: Owen Pierce	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: FY 2023 Inspection Report		
RESOLVED COMPLAINTS:		

On June 8, 2023, I (Owen Pierce EGLE - Air Quality Division) performed a scheduled targeted inspection of Mold Masters Limited located at 29111 Stephenson Highway, Madison Heights, Michigan. Kerry Kelly (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 Kerry and I met with John Turnbull, Plant Manager, and Rick, Technician, 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 85-90 employees including office staff. Non-permitted equipment at Mold Masters includes two enclosed sandblast machines, a heated parts washer, five CNCs, a boiler, and a generator.

Facility Walkthrough Observations

EUMINICLEAN

During the walkthrough, we were first lead to the EUMINICLEAN. The EUMINICLEAN was not in use at the time of the inspection, however, Rick did fire it up for us and we were able to observe that it was fully functioning when turned on. 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 nameplate on the EUMINICLEAN indicated that the fuel used is natural gas with a heat input rate of 0.030388 MMBTUs.

EUFLUIDCLEAN

Next, we were lead to the EUFLUIDCLEAN. The EUFLUIDCLEAN was not in use at the time of the inspection, however, Rick did fire it up for us, and we were able to observe that it was fully functioning when turned on. 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 separator 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 MMBTUs.

Sand Blast Equipment

During the facility walkthrough, we observed two sand blast units. Mold Masters has two portable, fully enclosed sand blast units used to clean parts. The sand appears to be exempt from the requirement in R336.1201 to obtain a permit to install per R336.1281(2)(d).

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. Because the cleaning solution has a VOC content less than 5 percent and is heated to less than its boiling point, it meets the definition in R336.1101(q) of an aqueous based parts washer. This equipment appears to be exempt from the requirement in R336.1201 to obtain a permit to install per R336.1281(2)(k) because it meets the definition of 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 appears to be 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/hr 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 Combustion Engines (40 CFR 63 Subpart ZZZZ) at area sources of hazardous air pollutants.

CNC

The CNC machines appear to be 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 natural gas fired boiler during the walkthrough. The boiler has a max heat input of 1.56 MMBTU 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

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
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 determined by testing requested by the AQD and by measuring the pressure drop and by visible emissions readings. The AQD has not requested testing. The pressure drop and 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. John explained that none of the current leadership was aware of this requirement due to the fact that there has been some turnover since the last inspection in 2017, however, Rick went on to explain that he does check the stack for opacity on a regular basis but doesn't record his observations. We explained that records of the visible emission readings are required per EUFLUIDCLEAN SC VI.5, and detailed what those records should include. We instructed John to begin recording visible emissions monthly and to begin with the current month of June. A visible emission reading for June 2023 was provided by John, and according to this record, no visible emission was observed in June 2023. Failure to keep records of all visible emission readings for EUFLUIDCLEAN, in a satisfactory manner, is a violation of SC VI.5, and a violation notice will be issued to the facility.

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 850°F before parts are loaded into the sand bed for processing per SC III.2. Rick said the sand bed is heated to 900°F before parts are put in EUFLUIDCLEAN. Records of the daily sand bed temperatures for each batch are required per EUFLUIDCLEAN SC VI.3. As of the date of this report only one 30-day period of temperature records, from July 20, 2023 to August 15, 2023, has been provided, and that 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. The temperature records from the requested time period of January 2022 - May 2023 have not yet been sent to the AQD office. According to John during a recent phone conversation, 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. This is a violation of SC VI.1, VI.3, and VI.7 and 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 us with a copy of the Service Report for the EUFLUIDCLEAN dated January 17, 2023. According to the report, distribution pipes were cleaned and the hoist system was fixed. 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.

EUFLUIDCLEAN 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.

EUFLUIDCLEAN 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. Safety Data Sheets (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.

EUFLUIDCLEAN 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. No malfunctions, unscheduled maintenance items, or testing were performed from January 2022 - May 2023.

EUFLUIDCLEAN 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. As previously stated, as of the date of this report only one 30-day period of temperatures has been provided. The remaining temperature records from the requested time period of January 2022 - May 2023 have not yet been sent to the AQD office.

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 plastic 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. Safety Data Sheets (SDSs) are kept for all products going into the EUMINICLEAN. 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.

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. Failure to provide records of the hours of operation of EUMINICLEAN is a violation of SC. VI.4, and a violation notice will be issued.

SC. IV.1 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. Rick opened up the EUMINICLEAN and showed us the lime cartridge filter. Rick also explained that nothing goes in the EUMINICLEAN until the temperature in the chamber reaches at least 1560 degrees Fahrenheit. Temperature data records are supposed to be recorded for the afterburner chamber according to SC. VI.3. As of the date of this report, those records have not yet been provided to the AQD office. Failure to provide temperature data records for the afterburner chamber is a violation of SC.VI.3, and a violation notice will be issued.

SC. IV.2 says that the the facility must have installed a device that measure 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.

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 January 2022 - May 2023.

Conclusion

Based on information obtained during the inspection, it appears Mold Masters is in violation of SC VI.1, VI.3, VI.5, and VI.7 for EUFLUIDCLEAN and SC VI.1, and VI.3-4 for EUMINICLEAN of PTI 99-15B. A violation notice for these violations will be issued.

NAME Owen Pierce

DATE 9/21/2023

SUPERVISOR K. Kelly