

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

A016961124

FACILITY: Bradford White Corporation		SRN / ID: A0169
LOCATION: 200 Lafayette Street, MIDDLEVILLE		DISTRICT: Grand Rapids
CITY: MIDDLEVILLE		COUNTY: BARRY
CONTACT: Tyler Caro ,		ACTIVITY DATE: 12/09/2021
STAFF: Eric Grinstern	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Unannounced on-site compliance inspection		
RESOLVED COMPLAINTS:		

FACILITY DESCRIPTION

The facility is located within the City of Middleville and manufactures water heaters. Operations include steel tank forming, welding, shot blasting, enamel coating, foam insulation and assembly.

REGULATORY OVERVIEW

The facility's operations are covered by Opt-Out Permit No. 207-04D.

COMPLIANCE EVALUATION

Prior to entering the facility, a survey of the perimeter was made. No abnormal odors were noted. Observation of the facility showed no visible emissions.

At the facility staff met with Tyler Caro, HR Safety Engineer, and Lance Appleby.

Below is an evaluation of the facility's compliance with applicable air quality rules, regulations and permits.

PTI No. 207-04D

EU-COENAMEL

Commercial department (South Tank Plant) porcelain application line with a 20,000 CFM dust collector.

EMISSION LIMITS

EU-COENAMEL is subject to the following emission limits.

- | | |
|-------|---|
| 1. PM | 0.05 lb. per 1000 lb. of exhaust gas, calculated on a dry gas basis |
| 2. PM | 4.27E-03 lb./hr. |

3. PM10	4.27E-03 lb./hr.
4. PM2.5	4.27E-03 lb./hr.
5. Opacity	10%

Compliance with the PM/PM10/PM2.5 and opacity emission limits is demonstrated through proper operation of the dust collector.

PROCESS/OPERATIONAL RESTRICTION(S)

The facility is required to install, maintain, and operate a dust collector in a satisfactory manner.

The facility has a baghouse installed and operating. Observation of the baghouse showed that it appeared to be operating properly. A roof top observation showed no visible emissions from the outlet of the stack.

DESIGN/EQUIPMENT PARAMETERS

Requires that the permittee install, calibrate, maintain and operate in a satisfactory manner a differential pressure gauge on the baghouse.

Observation of the baghouse showed that a pressure drop gauge was installed and operating. At the time of the inspection the pressure drop was 3.0". The facility has established an operating range of 1-5" for the baghouse.

The facility is required to implement and maintain a MAP for EU-COENAMEL. The facility previously submitted a MAP for EU-COENAMEL.

TESTING/SAMPLING

Testing for PM, PM10, PM2.5 and visible emissions is required upon request. Testing has not been previously requested or performed.

MONITORING/RECORDKEEPING

The facility is required to monitor and record the results of visible inspections of the dust collector on a weekly basis during operation. Records were requested for the time period of September 1, 2021 through December 9, 2021. The facility provided the following records.

28 day service order - Issue date November 8, 2021, completed November 13, 2021

84 day service order - Issue date November 8, 2021, completion date not recorded

Daily service order - Issue date November 8, 2021, completion date not recorded

Daily service order - Issue date November 15, 2021, completion date not recorded

Daily service order - Issue date November 22, 2021, completion date not recorded

Daily service order - Issue date November 29, 2021, completion date not recorded

Daily service order - Issue date December 6, 2021, completion date not recorded

The facility clarified that the inspections are done the same week the work order is issued. The operator signs the order when it is completed at the end of the week.

The facility is required to monitor and record, at least once per calendar day, during operation, the pressure drop across the baghouse. The records are required to include the date, time, pressure drop, and initials of the person making the record.

Records were requested for the time period of November 9, 2021 through December 9, 2021. The facility supplied pressure drop readings for the baghouse. The following records were provided. All recorded pressure drop readings were within the established range of 1-4 inches.

Associated with the November 8, 2021 daily service order - Monday through Saturday pressure drop readings

Associated with the November 15, 2021 daily service order - Monday through Saturday pressure drop readings

Associated with the November 22, 2021 daily service order - Monday through Wednesday pressure drop readings (Plant Closed for Thanksgiving Holiday)

Associated with the November 29, 2021 daily service order - Monday through Wednesday (facility stated that the missing records are associated with the operator being on vacation and the PM not being picked up by another employee.)

Associated with the December 6, 2021 daily service order - Monday through Saturday pressure drop readings

STACK/VENT RESTRICTIONS

Stack - SV-COENAMEL, has the following requirements: Maximum diameter 28 inches, Minimum height: 50 feet. Visual observation of the stack(s) showed that they appeared to comply with the requirements.

EU-RESENAMEL

Residential department porcelain application enamel line including three spray booths with baghouse control.

EMISSION LIMITS/RECORDKEEPING

Pollutant	Limit
1. PM	0.05 lb. per 1000 lb. exhaust gas calculated on a dry gas basis
2. PM	7.21E-03 lb./hr.
3. PM10	7.21E-03 lb./hr.
4. PM2.5	7.21E-03 lb./hr.
5. Opacity	10%

Compliance with the PM/PM10/PM2.5 and opacity emission limits is demonstrated through proper operation of the dust collector.

PROCESS/OPERATIONAL RESTRICTION(S)

The facility is required to install, maintain and operate a dust collector in a satisfactory manner.

Observation of the baghouse showed that it appeared to be operating properly. A roof top observation showed no visible emissions from the outlet of the stack.

DESIGN/EQUIPMENT PARAMETERS

Requires that the permittee install, calibrate, maintain and operate in a satisfactory manner a differential pressure gauge on the baghouse.

Observation of the baghouse showed that a pressure drop gauge was installed and operating. A pressure drop reading of 4.2" was observed at the time of the inspection. The facility has established an operating range of 1-5" for the baghouse.

The facility is required to implement and maintain a MAP for EU-RESENAMEL. The facility submitted a current copy of the MAP, as part of this inspection, as requested.

TESTING/SAMPLING

Testing for PM, PM10, PM2.5 and visible emissions is required upon request. Testing has not been previously requested or performed.

MONITORING/RECORDKEEPING

The facility is required to monitor and record the results of visible inspections of the dust collector on a weekly basis during operation. Records were requested for the time period of September 1, 2021 through December 9, 2021. The facility provided the following records.

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Daily service order - Issue date November 29, 2021, completion date not recorded

Daily service order - Issue date December 6, 2021, completion date not recorded

The facility clarified that the inspections are done the same week the work order is issued. The operator signs the order when it is completed at the end of the week.

The facility is required to monitor and record, at least once per calendar day, during operation, the pressure drop across the baghouse. The records are required to include the date, time, pressure drop, and initials of the person making the record.

Records were requested for the time period of November 9, 2021 through December 9, 2021. The facility supplied pressure drop readings for the bag. The following records were provided. All recorded pressure drop readings were within the established range of 1-4 inches.

Associated with the November 8, 2021 daily service order - Monday through Saturday pressure drop readings

Associated with the November 15, 2021 daily service order - Monday through Saturday pressure drop readings

Associated with the November 22, 2021 daily service order - Monday through Wednesday pressure drop readings (Plant Closed for Thanksgiving Holiday)

Associated with the November 29, 2021 daily service order - Monday through Wednesday (facility stated that the missing records are associated with the operator being on vacation and the PM not being picked up by another employee.)

Associated with the December 6, 2021 daily service order - Monday through Saturday pressure drop readings

STACK/VENT RESTRICTIONS

Stack - SV-RESENAMEL, has the following requirements: Maximum diameter 30.0 x 30.0 inches, Minimum height: 38 feet. Visual observation of the stack showed that they appeared to comply with the requirements.

EU-TRAYSTRIPPER

A tray type air stripping unit used to treat groundwater.

EMISSION LIMITS/RECORDKEEPING

Pollutant	Limit	Time Period / Operating Scenario
1. VOC	0.58 lb./hr.	hourly based upon a monthly average
2. Cis-1,2-dichloroethylene	0.27 lb./hr.	hourly based upon a monthly average
3. Trichloroethylene	0.28 lb./hr.	hourly based upon a monthly average
4. Vinyl Chloride	0.026 lb./hr.	hourly based upon a monthly average

Compliance with the emission limits is based on the requirement to monitor and record the pollutant concentrations of the influent/effluent, the emissions of each pollutant, and the flow rate (based on maximum observed during the month).

Records for the previous 12-months (December 2020 - November 2021) were requested and provided by the facility.

The flow rate during that period of time ranged from 29 to 41 gallons/minute.

Review of the records showed emission rates well below the permitted limits. (records attached)

The highest observed emission rates are as follows (all below the permitted limits):

VOC: 0.003 lbs./hr.

Cis-1,2-dichloroethylene: 0.002 lbs./hr.

Trichloroethylene: 0.002 lbs./hr.

Vinyl Chloride: 0.00 lbs./hr.

STACK/VENT RESTRICTIONS

Stack - SV-TRAYSTRIP, has the following requirements: Maximum diameter 10.0 inches, Minimum height: 40 feet. Visual observation of the stack showed that it appeared to comply with the requirements.

EU-FLUESPRAY

Located in the South Tank Park, adjacent to EU-COENAMEL. Two porcelain enamel spray booths and bake oven. Emissions are controlled by a 20,000 cfm dust collector.

EMISSION LIMITS/RECORDKEEPING

Pollutant	Limit
1. PM	0.05 lb. per 1000 lb. of exhaust gas, calculated on a dry gas basis
2. PM	1.08E-03 lb./hr.
3. PM10	1.08E-03 lb./hr.
4. PM2.5	1.08E-03 lb./hr.
5. Opacity	10%

Compliance with the PM/PM10/PM2.5 and opacity emission limits is demonstrated through proper operation of the dust collector.

PROCESS/OPERATIONAL RESTRICTION(S)

The facility is required to install, maintain and operate a the dust collector is as satisfactory manner.

The facility has a baghouse installed and operating. Observation of the baghouse showed that they appeared to be operating properly. A roof top observation showed no visible emissions from the outlet of the stack.

DESIGN/EQUIPMENT PARAMETERS

Requires that the permittee install, calibrate, maintain and operate in a satisfactory manner a differential pressure gauge on the baghouse.

Observation of the baghouse showed that a pressure drop gauge was installed and operating. At the time of the inspection the pressure drop was 4.0". The facility has established an operating range of 1-5" for the baghouse.

The facility is required to implement and maintain a MAP for EU-FLUESPRAY. The facility previously submitted a MAP for EU-FLUESPRAY.

TESTING/SAMPLING

Testing for PM,PM10, PM2.5 and visible emissions is required upon request. Testing has not been previously requested or performed.

MONITORING/RECORDKEEPING

The facility is required to monitor and record the results of visible inspections of the dust collector on a weekly basis during operation. Records were requested for the time period of September 1, 2021 through December 9, 2021. The facility provided the following records.

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Records were requested for the time period of November 9, 2021 through December 9, 2021. The facility supplied pressure drop readings for the baghouse. The following records were provided. All recorded pressure drop readings were within the established range of 1-4 inches.

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Associated with the November 29, 2021 daily service order - Monday through Wednesday (facility stated that the missing records are associated with the operator being on vacation and the PM not being picked up by another employee)

Associated with the December 6, 2021 daily service order - Monday through Saturday pressure drop readings

STACK/VENT RESTRICTIONS

Stack SV-FLUESPRAY has the following requirements: Maximum diameter 30.0 x 28.0 inches, Minimum height: 50 feet. Visual observation of the stack showed that it appeared to meet the requirements.

FGFOAMLINES

Four residential water heater cyclopentane-based polyurethane foam insulation lines and one commercial water heater cyclopentane-based polyurethane foam insulation line. Residential includes: (1) gas, (1) electric, (1) specialty, (1) heat pump (located upstairs). All lines share two 10,000 gallon bulk isocyanate tanks. The residential lines share five 7,000 gallon bulk polyol storage tanks and there is one 7,000 gallon bulk polyol storage tank for the commercial line.

Emission Units: EURESFOAM1, EURESFOAM2, EURESFOAM3, EURESFOAM4, EUCOMFOAM1

EMISSION LIMITS/RECORDKEEPING

Pollutant	Limit	Time Period / Operating Scenario	Equipment
1. VOC	16 tpy	12-month rolling time period as determined at the end of each calendar month	EURESFOAM1

Pollutant	Limit	Time Period / Operating Scenario	Equipment
2. VOC	16 tpy	12-month rolling time period as determined at the end of each calendar month	EURESFOAM2
3. VOC	16 tpy	12-month rolling time period as determined at the end of each calendar month	EURESFOAM3
4. VOC	12 tpy	12-month rolling time period as determined at the end of each calendar month	EURESFOAM4
5. VOC	16 tpy	12-month rolling time period as determined at the end of each calendar month	EUCOMFOAM1
6. VOC	31.1 tpy	12-month rolling time period as determined at the end of each calendar month	FGFOAMLINES

Compliance with the emission limits is based on the requirement to monitor and record resin usage as well as calculate and record the VOC emissions rates on a monthly and 12-month rolling time period.

Monthly and 12-month rolling time period records were requested and provided by the facility for the 12-month period ending in November 2021. All reviewed records demonstrate compliance with the permitted limits.

12-Month rolling emissions ending November 2021

EURESFOAM1:	2.96 tons
EURESFOAM2:	9.11 tons
EURESFOAM3:	9.59 tons
EURESFOAM4:	0.29 tons
EUCOMFOAM1:	5.36-01 tons
FGFOAMLINES:	24.06 tons

MATERIAL LIMITS/RECORDKEEPING

Resin usage and the cyclopentane content of the resin is restricted as follows:

Material	Limit	Time Period / Operating Scenario	Equipment
1. Resin usage	4,270,000 pounds per year	12-month rolling time period as determined at the end of each calendar month	Each emission unit in FGFOAMLINES except EURESFOAM4
2. Resin usage	3,200,000 pounds per year	12-month rolling time period as determined at the end of each calendar month	EURESFOAM4
3. Resin usage	8,300,000 pounds per year	12-month rolling time period as determined at the end of each calendar month	FGFOAMLINES
4. Cyclopentane content of resin	Maximum 15% by weight	Instantaneous	FGFOAMLINES

Compliance with the usage limits is demonstrated through the requirement that the facility maintain records of resin usage rates on a monthly and 12-month basis. Monthly and 12-month rolling time period records were requested and provided by the facility for the 12-month period ending in November 2021. All reviewed records demonstrate compliance with the permitted limits.

12-Month rolling resin usage as of November 2021

EURESFOAM1:	788,549 pounds
EURESFOAM2:	2,429,180 pounds
EURESFOAM3:	2,557,405 pounds
EURESFOAM4:	77,539 pounds
EUCOMFOAM1:	143,044 pounds
FGFOAMLINES	5,650,529 pounds

The facility is required to maintain a current listing from the manufacture of the chemical composition of the materials used. The facility was requested

and provided copies of the resin SDSs. The SDS Elastopor P50100 lists a cyclopentane content of $\geq 10 - < 15.0\%$, documenting compliance with the maximum 15% limit.

FGFACILITY

Facility-wide Cobalt Oxide, HAP and VOC limits.

EMISSION LIMITS/RECORDKEEPING

Pollutant	Limit	Time Period / Operating Scenario	Equipment
1. Cobalt Oxide	Less than 0.99 lbs./yr.	12-month rolling time period as determined at the end of each calendar month	FG-FACILITY
2. VOC	Less than 90 tpy	12-month rolling time period as determined at the end of each calendar month	FG-FACILITY
3. Each individual HAP	Less than 9.0 tpy	12-month rolling time period as determined at the end of each calendar month	FG-FACILITY
4. Aggregate HAPs	Less than 22.5 tpy	12-month rolling time period as determined at the end of each calendar month	FG-FACILITY

Compliance with the emission limits is demonstrated through the requirement that the facility maintain records of monthly and 12-month usage and emission rates.

Records for the past 12 months, ending in November 2021, were requested, and provided by the facility.

Cobalt Oxide usage records were requested and supplied by the facility.

Gallons and pounds of VOC and HAP material used. Records were requested and the facility provided data associated with foam operations.

Cobalt Oxide emissions: 5.59E-01 lb./yr.

Highest emitted individual HAP: manganese 0.86 tons

Aggregate HAP emissions:	2.17 tons
VOC	24.00 tons/yr.

Miscellaneous

South Tank Plant

Adjacent to the commercial enamel coating and flue spray operations is the south tank blast operations, which consists of two blast units, each with baghouse control. The baghouses vent to the outside atmosphere. The units have been designated by the facility as exempt from air permitting. The units were not operating at the time of the inspection.

The South Tank Plant contains residential tank welding operations that are controlled by a Donaldson Torit collector. There are also additional welders that have emissions controlled by collectors that vent externally. The facility has designated the welding operations as exempt from air permitting.

The commercial enamel coating operations have an associated drying furnace, curing tunnel.

Within the South Tank Plant is commercial tank blasting, which has baghouse control. The baghouse is located on the southwest side of the facility. The South Tank Plant also contains commercial tank welding, which is manual stick welding that is controlled by three baghouse units on the southwest side of the facility.

North Tank Plant

The North Tank Plant has various shotblasting processes that have previously been determined to be exempt from permitting under Rule 285(2)(l)(vi)(C). The facility stated that they will be replacing the Tank Blast and Flue Blast baghouses and installing two new baghouses that will be in-series. Additionally, five internally vented baghouses will be removed, and the emissions ducted to the two new baghouses.

The facility will also be installing a new baghouse in the current location of the Flue Blast baghouse. The new externally vented baghouse will control emissions from the "brusher", that is currently controlled by an internally vented baghouse.

The North Tank Plant contains residential tank fabrication welding, from which the emissions are vented uncontrolled. The welding operations are exempt from permitting under Rule 285(2)(i).

The facility has powder coating operations ((2) booths) with emissions controlled by a baghouse that vents internally. Powder coating has previously been designated as exempt from permitting.

Enamel milling is conducted and controlled by a baghouse that vents externally.

Exempt Equipment	Description	Exemption Rule
Porcelain Milling Equipment	Milling operation	R 336.1291(2)
Metal Shot Blasters	Blasting operation	R 336.1291(2)
Welding Equipment	Commercial welding operation	R 336.1285(2)(i)
Welding Equipment	Residential welding operation	R 336.1285(2)(i)

Conclusion

Based on the information and observations made during this inspection, the facility appears to be in compliance with all applicable air quality rules and regulations.

(Records attached)

NAME Eric Grinstern

DATE 02/17/2022

SUPERVISOR HH