

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

P063458587

<b>FACILITY:</b> Worthen Coated Fabrics		<b>SRN / ID:</b> P0634
<b>LOCATION:</b> 1125 41st Street SE, GRAND RAPIDS		<b>DISTRICT:</b> Grand Rapids
<b>CITY:</b> GRAND RAPIDS		<b>COUNTY:</b> KENT
<b>CONTACT:</b> Kristi Koetje , Quality/Environmental Manager		<b>ACTIVITY DATE:</b> 06/18/2021
<b>STAFF:</b> April Lazzaro	<b>COMPLIANCE STATUS:</b> Non Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> Announced, scheduled inspection.		
<b>RESOLVED COMPLAINTS:</b>		

Staff, April Lazzaro arrived at the facility to conduct an announced, scheduled inspection and met with Kristi Koetje, Quality/Environmental Manager. All required PPE was worn, and social distancing was practiced to the extent possible. Earlier in the week, recordkeeping was requested from Ms. Koetje which was provided in a timely manner.

### FACILITY DESCRIPTION

Worthen Coated Fabrics is a fabric coating facility, located in an industrial zone in southeast Grand Rapids. The plant knife-coats fabric to prepare it for making clothing labels as well as for other uses. The coating line, EU-FabricCoating, consists of two applicators for knife coating of textiles with solvent and water-based coating materials and solvent clean-up. A textile web is continuously fed to the coater stand(s), which presses the coating to the desired thickness for the product. During solvent based coating application, the two applicators are controlled by permanent total enclosures (PTE), vented to a regenerative thermal oxidizer (RTO), which controls emissions created by the coating, solvents, and exhaust emissions from the natural gas fired drying oven. The solvent clean-up on the line is controlled, and there are also uncontrolled clean-up emissions that take place outside of the PTE. When water-based coating materials are applied, they are not controlled by the RTO, however they are vented through the RTO stack having by-passed the combustion chamber.

The coating mix room generates uncontrolled emissions. The facility does not currently operate any parts washers.

The facility is permitted via Renewable Operating Permit No. MI-ROP-P0634-2017 which limits Volatile Organic Compounds (VOC) from EU-FabricCoating to 26.6 tons per year. Therefore, the emission unit has synthetic minor limits for VOC, but this is not considered a VOC Opt-out. The permit does not limit Hazardous Air Pollutants (HAP), and Worthen is a major source of HAP. As such, the facility is subject to 40 CFR Part 63, Subpart OOOO- National Emission Standards for Hazardous Air Pollutants: Printing, Coating and Dyeing of Fabrics and Other Textiles. The initial start-up date was January 4, 2016. The compliance testing which was late was conducted on October 11, 2016. The information obtained during testing was acceptable to determine compliance.

Worthen has also recently identified that the facility is subject to the New Source Performance Standard for Polymeric Coating of Supporting Substrates Facilities found in 40 CFR Part 60 Subpart VVV. This will be further discussed below.

### COMPLIANCE EVALUATION

## **MI-ROP-P0634-2017**

The emission unit, EU-FabricCoating, includes the two coating applicators contained in the PTE's during solvent-based coating application. VOC and HAP emissions generated during solvent-based coating application are controlled by the RTO. VOC and HAP emissions generated during water-based coating application are uncontrolled.

### **EU-FabricCoating**

#### **EMISSION LIMITS**

The VOC emissions are limited to 26.6 tons per 12-month rolling time period. The reported VOC emissions for the time period of June 2020 through May 2021 are 4.32 tons.

#### **MATERIAL LIMITS**

The VOC content of water-based coatings is limited to 1.2 lb/gal (minus water) as applied. Worthen is currently using water-based coatings that contain small amounts of VOC. The records that were supplied to AQD did not contain the lb/gal (minus water) as applied VOC number. During the records review conducted during the previous inspection, the AQD requested that Worthen modify the records going forward to include a column for this value to make compliance easier to assess.

Following a secondary information request this was provided and the data indicates that the highest VOC content in water-based coatings used is 1.2 lb/gal. This indicates compliance with the material limit.

#### **PROCESS/OPERATIONAL RESTRICTIONS**

During the inspection, AQD staff did not observe improper handling or capture of waste or cleanup solvents.

A malfunction abatement plan (MAP) has been submitted to the AQD. It is suggested that Worthen periodically review and evaluate the effectiveness of this plan.

The permittee is required to maintain a minimum of 0.007" H<sub>2</sub>O pressure differential between the PTE and the adjacent area on a continuous basis. Continuous means during times when either solvent-based or water-based coating application is taking place. Pressure differential records were evaluated for compliance. Of these records, Wednesday, March 10, 2021 showed that there were 5 hours where the door of PTE #2 was left open. However, the pressure drop value based on a 3 hour average does not appear to exceed 0.007" H<sub>2</sub>O.

#### **DESIGN/EQUIPMENT PARAMETERS**

The facility has installed and operates an RTO for solvent-based coatings. Testing indicated that performance was above the required 98% destruction efficiency. Retention time was proven based on air flow and design capacity. The facility uses a data logger to monitor and record temperature of the RTO, as well as the pressure drop of the two PTE's. The differential pressure gauges appeared to be operating properly.

The permittee is required to determine VOC content, water content and density as applied and as received using Method 24 on an annual basis. Test data was requested and received for the 5 most frequently used water based and solvent based coating in 2020

### **MONITORING/RECORDKEEPING**

Permit recordkeeping was requested and reviewed. Staff requested the current listing from the manufacturer of the chemical composition of some high use materials to verify that the emissions are being calculated correctly. After some discussion, this information was received.

The monitoring program on the coating line monitors the status of the line and whether or not it is in solvent-based application or water-based application. The facility typically runs water-based coatings during the beginning of the week, and solvent-based coatings at the end of the week. That way they can better control the RTO operation and not worry about switching back and forth all the time. The permittee shall monitor and record, in a satisfactory manner, all RTO by-pass times, and the reason for the by-pass. Based on feedback following an inspection by EPA Region 5 staff, Worthen has made changes to make compliance with this condition easier to determine.

### **REPORTING**

The reporting requirements are currently being met.

### **STACK/VENT RESTRICTIONS**

The stack height was measured using a Nikon Forestry Pro II Laser Rangefinder/Hypsometer. The stack height was in compliance.

### **FG-MACT-0000**

### **EMISSION LIMITS**

The facility is currently keeping records to demonstrate compliance with the 98% overall control efficiency per 12-month rolling time period as determined at the end of each calendar month. The reported overall control efficiency is 98.81% which is based on a capture efficiency of 100% and a destruction efficiency of 98.81% determined by stack testing. Additional stack testing is scheduled for September 2021.

### **MATERIAL LIMITS**

There are no material limits listed in this flexible group.

### **PROCESS/OPERATIONAL RESTRICTIONS**

There are a variety of operating limits as prescribed by the NESHAP/MACT. This includes limits for the capture systems and add-on control device, work practice standards, and start-up, shutdown malfunction plans (SSM).

The operating limits for the capture and control devices were determined during the stack test of October, 2016. The three-hour block average temperature for the RTO

as determined in accordance with 63.4363(a) is 1,567°F. A three-hour block only needs to be calculated if the temperature goes below 1,567°F on an instantaneous basis. The three-hour block average pressure drop reading is per the capture system monitoring plan as required in 63.4364(e).

Records of RTO temperatures and pressure drop of the capture system were requested and reviewed. No deviations were identified, and no deviations have been self-reported by the company.

#### **DESIGN/EQUIPMENT PARAMETERS**

NA

#### **TESTING/SAMPLING**

The permittee conducted a satisfactory performance test of the emission capture system and add-on control device in October 2016. The two enclosures are verified Method 204 PTE's. One of the PTE's sustained a fire in 2020. As such the facility removed the natural draft openings and conducted a new PTE evaluation. This was submitted to the AQD at the time but sent to a non-working email address. Ms. Koetje and I discussed this, and she forwarded me the determination which is acceptable.

#### **MONITORING/RECORDKEEPING**

It is noted that the successive three-hour block RTO temperature averages should begin at midnight each night. As stated in 63.4364, to have a valid hour of data you must have at least three of four equally spaced data values from an hour. (currently, Worthen uses a data point every 1 minute) According to the regulation, to calculate a three-hour average, you must have at least two of three of the hourly averages for that period.

As indicated, the two enclosures at Worthen qualify as Method 204 Permanent Total Enclosures, as reviewed and evaluated by AQD Technical Programs Unit staff Jeremy Howe. (see file for detailed review) To be considered a PTE the booths must meet the physical design standards, which they do. They also must meet air flow standards, of at least 200 feet per minute (fpm). Alternatively, 200 fpm corresponds to a pressure drop of 0.007" H<sub>2</sub>O. The three hour average readings taken during the compliance test were a pressure drop of -0.032" H<sub>2</sub>O. Worthen is required to develop a site-specific monitoring plan that contains information as required in 63.4364(e). This is not the same as the compliance assurance monitoring (CAM) plan. It would be acceptable for Worthen to identify parameters between 0.007" H<sub>2</sub>O and 0.032"H<sub>2</sub>O as a valid range for ensuring that the capture efficiency of 100% is maintained. The data supports that Worthen was in compliance with the range of pressure drop readings.

Worthen maintains an online database of all Safety Data Sheets (SDS) and information on ten (10) coatings was requested. A review of the SDS's shows the range of chemicals. The coating VOC content reported for a few coatings was the high range from the SDS. However, there are several that are not. If Worthen chooses to use SDS's to demonstrate compliance with the material listing requirement in the permit, the high range VOC content should be used in the

recordkeeping. These differences in values do not affect compliance with the overall VOC emission limit.

## **REPORTING**

The reporting requirements are ongoing, and currently are being met.

## **STACK/VENT RESTRICTIONS**

NA

## **OTHER REQUIREMENTS**

Worthen shall comply with all requirements of 40 CFR 63, Subparts A and OOOO.

### **Mix Room**

The coating mix room contains three mixers which are covered while in use, unless ingredients are being added which is appropriate. Worthen has identified the use of the Rule 290 exemption for the mix room emissions. Monthly VOC emissions were submitted for review for the time period of January 2019 through May 2021. The highest reported month of emissions was February 2019 at 681.20 pounds.

### **NSPS VVV Applicability**

Worthen has recently identified that they are subject to the New Source Performance Standard for Polymeric Coating of Supporting Substrates Facilities found in 40 CFR Part 60 Subpart VVV. Worthen has notified the AQD that this applicability has been overlooked since installation of the facility in 2015. Part 148 of Michigan's Natural Resources and Environmental Protection Act (NREPA) gives organizations incentive to conduct and disclose the results of environmental audits, however, Worthen did not conduct the audit in accordance with Part 147 and therefore do not qualify for the special protections and immunities against violation, fines and penalties that Part 147 provides.

This regulation applies to the coating line because Worthen applies a polymeric coating to fabric. The regulation also applies to the coating mix preparation equipment because they manufacture coatings with more than 130 Mg of VOC per 12-month rolling time period.

Worthen has identified that they must control VOC emissions from the coating line pursuant to 60.742(b)(2) which states (in part) "each owner or operator shall install, operate and maintain a total enclosure around the coating operation and vent the captured VOC emissions from the total enclosure to a control device that is at least 95% efficient." This is currently being achieved.

Worthen has also identified that they must control VOC emissions from the onsite coating mix preparation equipment pursuant to 60.742(c)(1) which states, "For an affected facility that has concurrent construction of a control device and uses at least 130 Mg of VOC per 12-month period, the owner or operator shall install, operate, and maintain a cover on each piece of affected coating mix preparation equipment and vent VOC emissions from the covered mix equipment to a 95 percent efficient control device while preparation of the coating is taking place within the vessel."

The vessels in the coating mix preparation room are not currently equipped with a control device. This is a violation of 40 CFR 60.742(c)(1).

Additionally, the covers required by 40 CFR 60.743(c) were not installed according to the specifications. This is a violation of 40 CFR 60.743(c).

The monitoring requirements are set forth in 40 CFR 60.744. Worthen has submitted an alternate monitoring plan to the AQD for outlet monitoring of the control device that will be installed on the coating mix preparation equipment and mix room. This alternate monitoring plan requested permission to monitor the outlet of the carbon adsorption system once per week.

A discussion with EPA Region V (EPA) was conducted regarding rule implementation and the alternate monitoring plan. The EPA stated that control of the coating mix preparation equipment is meant to be via the equipment covers while preparation of the coating is taking place within the vessel. Controlling the vessels and room emissions as described in the alternate monitoring plan submitted by Worthen is not what was intended by the rule. Unless the mix room is a Method 204 Permanent Total Enclosure, it should not be included in the control stream. Additionally, during rulemaking, the EPA takes into consideration costs for continuous monitoring as required by the rule. In this rulemaking, EPA determined that continuous monitoring was not cost prohibitive and as such the proposed weekly monitoring schedule is not acceptable.

Worthen has been informed that the alternate monitoring plan for the coating mix preparation equipment is not approvable and that capture of the coating mix preparation equipment in accordance with 60.742 and monitoring as set forth in 60.744 shall be implemented.

Worthen has submitted an initial notification. This notification was also sent to EPA Region 5.

A Violation Notice will be issued for non-compliance with 40 CFR Part 60 Subpart VVV.

#### COMPLIANCE SUMMARY

Worthen Coated Fabrics was in non-compliance at the time of the inspection.

NAME April Lazzaro

DATE 08/04/2021

SUPERVISOR HH