

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

P063472298

<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> Tony Harb , Plant Manager		<b>ACTIVITY DATE:</b> 05/30/2024
<b>STAFF:</b> April Lazzaro	<b>COMPLIANCE STATUS:</b> Non Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> Unannounced, scheduled inspection.		
<b>RESOLVED COMPLAINTS:</b>		

This inspection report contains a compliance assessment of Worthen Coated Fabrics that occurred over a period of time in 2024 and includes information obtained from a records request made on March 6, 2024 and an on-site inspection conducted on May 30, 2024. During the on-site inspection, Air Quality Division (AQD) staff, April Lazzaro arrived at the facility to conduct an unannounced, scheduled inspection and met with Tony Harb, Plant Manager. Upon arrival, no odors or visible emissions were observed.

## 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 knife coating of textiles with solvent and water-based coating materials and solvent clean-up. A textile web is continuously fed to a coater stand, which presses the coating to the desired thickness for the product. The solvent coating is controlled by a permanent total enclosure (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. The water-based coating materials are not controlled by the RTO, however they are vented through the RTO stack having by-passed the combustion chamber.

The facility meters ingredients and mixes the coatings as necessary in a coating mix preparation room (EU-MixRoom) equipped with dispersion mills which are exhausted to the atmosphere through a carbon adsorption system. The company utilizes any used clean-up solvent by treating it as a coating thinner in the applied coatings whenever possible.

While the permit contains conditions related to two (2) cold cleaners (FG-COLDCLEANERS), Worthen does not currently operate any.

The facility is permitted via Renewable Operating Permit No. MI-ROP-P0634-2023 which limits Volatile Organic Compounds (VOC) from EU-

FabricCoating to 26.6 tons per year. Since only the emission unit has synthetic minor limits for VOC, and not facility-wide limits this is not considered a VOC Opt-out. The permit does not limit Hazardous Air Pollutants (HAP), therefore Worthen is currently 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 initial compliance testing which was late was conducted on October 11, 2016.

Worthen is also subject to the New Source Performance Standard for Polymeric Coating of Supporting Substrates Facilities found in 40 CFR Part 60 Subpart VVV (NSPS VVV), for both EU-FabricCoating and EU-MixRoom. The initial start-up date was on June 8, 2016, and the initial notification was received on July 12, 2021.

In response to alleged violations of Rule 910 and NSPS VVV, Worthen signed a Stipulation for Entry of Final Order by Consent (Consent Order) No. 2022-15 which was finalized on October 25, 2022 and an initial penalty amount of \$45,000.00 was assessed. This order required payment of a monetary penalty and identifies conditions for stipulated penalties if any conditions of the Consent Order are violated. Stipulated penalties were assessed on December 14, 2023, in the amount of \$36,300.00 for continued compliance issues at the facility. The payment for the stipulated penalties was received on February 13, 2024.

## **COMPLIANCE EVALUATION**

### **MI-ROP-P0634-2023**

EU-FabricCoating, consists of one coating line that includes the two coating applicators contained in the PTE's for both solvent-based and water-based coating application. VOC and HAP emissions generated during solvent-based coating application are controlled by the RTO. Any VOC, HAP and/or air toxics emissions generated during water-based coating application are uncontrolled.

### **EU-FabricCoating**

## **EMISSION LIMITS**

The VOC emissions from EU-FabricCoating are limited to 26.6 tons per 12-month rolling time period. The reported VOC emissions for the time period of May 2023 through April 2024 are 8.05 tons (up from 5.96 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 an additional information request this was provided timely and the data indicates that the highest VOC content in water-based coatings used is currently 0.0 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.

Based on conversations with the permit engineer, which have been discussed with Worthen on multiple occasions, this value applies at all times, and includes both solvent-based and water-based coating application. Additionally, the value applies even if coating is not being applied in the second PTE, since the coated fabric travels through the PTE during both solvent-based and water-based coating application.

Compliance with the PTE requirements has been an ongoing issue for Worthen, however, they have recently posted signs and installed an alarm and cameras to ensure the doors remain closed. Worthen stated verbally that they have not had any PTE exceedances since the changes noted above were made. Additionally, Worthen has submitted a Permit to Install (PTI) application to reevaluate the line to remove the requirement to be a PTE during water based coating application.

For purposes of determining compliance with MI-ROP-P0634-2023, EU-FabricCoating Special Condition (SC) III.4, the time period of maintaining the pressure differential greater than 0.007" H<sub>2</sub>O is continuous and there is no averaging period, which was confirmed with the AQD Permit Section. Continuous is specified in EU-Fabric-Coating SC VI.4 as, "Pressure differential data recording shall consist of measurements made at equally spaced intervals, not to exceed 15 minutes per interval".

## **DESIGN/EQUIPMENT PARAMETERS**

The facility has installed and operates an RTO to control emissions from the application of solvent-based coatings. Testing indicated that performance was above the required 98% destruction efficiency. Retention time was determined based upon 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 RTO temperature display appeared to be operating properly.

At the time of the inspection, the RTO temperature was observed at 1,698°F and 1,713°F. The system pressure drop was 2.4" H<sub>2</sub>O. The pressure drop in PTE 1 was -0.109 and PTE 2 was -0.048" H<sub>2</sub>O. Coating was occurring at both applicator stations. These values indicate compliance with the limits.

### **Testing/Sampling**

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 received for the 10 solvent coatings that were analyzed by a laboratory. During the last inspection, AQD noted that the values in the lab reports, do not appear to align with those in the records provided and that Worthen should address these differences going forward. A review of the data found that Worthen did not make the necessary changes to the data used for recordkeeping in response to the laboratory analysis. The permit states that if the values differ, the permittee shall use the Method 24 results to determine compliance. At this time, Worthen is not following the requirements of the permit, and as such it is a violation of MI-ROP-P0634-2023, EU-FabricCoating, Testing/Sampling, Special Condition V.1.

Additional stack testing on the EU-FabricCoating RTO is required before October 25, 2024 pursuant to the agreement contained in Consent Order AQD No. 2022-15. This testing is currently scheduled for September 19, 2024.

### **MONITORING/RECORDKEEPING**

Permit recordkeeping was requested and reviewed. The monitoring program on the coating line monitors the status of the line and whether it is in solvent-based application or water-based application. The permittee shall monitor and record, in a satisfactory manner, all RTO by-pass times, and the reason for the by-pass. Worthen has recently added a channel to the data logger for ease in demonstrating compliance with this requirement.

Worthen has conducted inspections of the RTO pursuant to the Malfunction Abatement Plan and Compliance Assurance Monitoring (CAM) Plan. During the inspections, Worthen has not corrected the noise made during bed changeover of the unit, indicating that according to the manufacturer of the

RTO, the noise is normal. Worthen has stated that the noise is caused by an air muffler used to regulate how hard the dampers close on the RTO to mitigate wear on the poppet valve. Worthen has agreed to invite AQD to the facility at the time of the annual equipment inspection to further assess the unit.

The current condition for the CAM Plan states, "The permittee shall evaluate the capture efficiency of the capture system by monitoring the pressure drop across the PTE. This shall be monitored continuously at one-minute intervals on a data acquisition system or other method and recorded continuously. Worthen is monitoring the pressure drop of the PTE.

The combustion temperature of the RTO is continuously monitored and recorded in an acceptable manner, and while the permit temperature limit is instantaneous, the CAM condition allows for a 1-hour average according to the AQD CAM Specialist.

## **REPORTING**

It is noted not all deviations were included in a revised monitoring and deviation report for July 1- December 30, 2023. Specifically, the facility had to resubmit the report because the NESAP recordkeeping was not conducted properly.

## **STACK/VENT RESTRICTIONS**

The stack height was measured in 2021 using a Nikon Forestry Pro II Laser Rangefinder/Hypsometer, no changes to the stack have been made. The stack height was in compliance.

## **FG-MACT-0000**

## **EMISSION LIMITS**

The facility is currently keeping records to demonstrate compliance with the emission rate with add-on controls for solvent coatings, as well as the emission rate without add-on controls for the water based coatings. 40 CFR Part 63.4291(a)(3) states that based on the regulated materials applied in the web coating/printing operation(s) and the organic HAP emissions reductions achieved by emission capture systems and add-on controls, the organic HAP emission rate for the web coating/printing operation(s) is less than or equal to the applicable emission limit in Table 1 to this subpart, calculated as a rolling 12-month average emission rate. The information submitted by Worthen indicates compliance with the emission limits established in the NESAP.

## **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. 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 September 2021. The three-hour block average temperature for the RTO as determined in accordance with 63.4363(a) is 1,575°F. A three-hour block only needs to be calculated if the temperature goes below 1,575°F on an instantaneous basis.

The capture system monitoring plan required by 63.4364(e), submitted by Worthen identifies a differential pressure reading for the capture system must remain below the 0.007" H<sub>2</sub>O. Any deviation from the operating parameter value or range of values which are monitored according to the plan will be considered a deviation from the operating limit in accordance with 40 CFR 63.4364(e)(4). Additionally, any time there is a failure to meet the operating parameter (capture system), the company must use zero for capture and control efficiency in the recordkeeping used to demonstrate compliance with the emission limit.

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 AQD identified in February 2024 that the site-specific monitoring plan was inadequate, even though the documentation indicates it was being reviewed on an annual basis. This is a violation of MI-ROP-P0634-2023, Special Condition III.4 and 40 CFR 63.4292(b). A Violation Notice will be issued.

Records of RTO temperatures and pressure drop of the capture system were requested and reviewed. No deviations for temperature issues have been self-reported by the company, or identified during a recordkeeping review.

## **DESIGN/EQUIPMENT PARAMETERS**

NA

## **TESTING/SAMPLING**

The permittee has conducted a satisfactory performance test of the emission capture system and add-on control device. 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 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 PTE, 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 2021 compliance test were a pressure drop of -0.032" H<sub>2</sub>O.

Worthen submitted their records and compliance data to AQD and US EPA through the CEDRI reporting system, that did not include this method. This is a violation of MI-ROP-P0634-2023, FG-MACT-O000, Special Condition VI.9 and 40 CFR 63.4342(c)(2) and a Violation Notice will be issued. It is noted that this information was discovered prior to the submittal of the deviation report however, this was not included in the report. The report should be resubmitted to include the recordkeeping deviations.

## **REPORTING**

### **STACK/VENT RESTRICTIONS**

NA

### **OTHER REQUIREMENTS**

Worthen shall comply with all requirements of 40 CFR 63, Subparts A and O000.

### **FG-NSPS-VVV**

#### **Emission Limits**

NA

#### **Material Limits**

NA

## **Process/Operational Restriction(s)**

The efficiency of the coating line control device is above the minimum 95% requirement. The efficiency of the EU-MixRoom control device has not met the 95% efficiency requirement during the previous inspections and records reviews. A Violation Notice was issued for a violation of the permit, FG-NSPS-VVV and Paragraph 9(A)(2), Consent Order AQD No. 2022-15, and stipulated penalties were assessed. Worthen has replaced the granular activated carbon (GAC) drums and have relocated the outlet probe and have stated that they have been able to achieve compliance.

## **Design/Equipment Parameter(s)**

During the previous inspection, Worthen failed to maintain the total enclosure on EU-FabricCoating as required by the FG-NSPS-VVV, Special Condition No. IV.1, 40 CFR 60.743(b)(1)(i)-(vi) and Paragraph 9(A)(2), Consent Order AQD No. 2022-15. A Violation Notice was issued in 2023.

The covers for the coating preparation equipment in EU-MixRoom, appeared to meet the requirements of the rule during the inspection, and procedures are posted. It was noted that the covers were beginning to have a build up of material and Worthen noted they would address that before it became an issue for capture.

## **Testing/Sampling**

Testing of the RTO and Carbon Adsorption System (CAS) have been conducted as required. Additional testing is required by October 22, 2024 for the RTO (pursuant to Consent Order AQD No. 2022-15) and within five years for the CAS.

## **Monitoring/Recordkeeping**

The monitoring and recordkeeping requirements are being maintained.

## **Reporting**

Worthen has stated that they have been able to maintain compliance and as such are not required to submit quarterly reports at this time.

## **FG-RULE290**

### **EU-Mix-Room**

The coating mix preparation 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 emissions are less than 2 pounds using the control device.



COMPLIANCE SUMMARY

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

NAME April Lagana

DATE 06/20/2024

SUPERVISOR HH