

State Registration Number  
P0634

**RENEWABLE OPERATING PERMIT  
STAFF REPORT**

ROP Number  
MI-ROP-P0634-2023

**Worthen Coated Fabrics**

State Registration Number (SRN): P0634

Located at

1125 41<sup>st</sup> Street SE, Grand Rapids, Kent County, Michigan 49508

Permit Number: MI-ROP-P0634-2023

Staff Report Date: December 19, 2022

This Staff Report is published in accordance with Sections 5506 and 5511 of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Specifically, Rule 214(1) of the administrative rules promulgated under Act 451, requires that the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), prepare a report that sets forth the factual basis for the terms and conditions of the Renewable Operating Permit (ROP).

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**RENEWABLE OPERATING PERMIT**

**December 19, 2022 - STAFF REPORT**

ROP Number

MI-ROP-P0634-2023

**Purpose**

Major stationary sources of air pollutants, and some non-major sources, are required to obtain and operate in compliance with an ROP pursuant to Title V of the federal Clean Air Act; and Michigan’s Administrative Rules for Air Pollution Control promulgated under Section 5506(1) of Act 451. Sources subject to the ROP program are defined by criteria in Rule 211(1). The ROP is intended to simplify and clarify a stationary source’s applicable requirements and compliance with them by consolidating all state and federal air quality requirements into one document.

This Staff Report, as required by Rule 214(1), sets forth the applicable requirements and factual basis for the draft ROP terms and conditions including citations of the underlying applicable requirements, an explanation of any equivalent requirements included in the draft ROP pursuant to Rule 212(5), and any determination made pursuant to Rule 213(6)(a)(ii) regarding requirements that are not applicable to the stationary source.

**General Information**

Stationary Source Mailing Address:	Worthen Coated Fabrics 1125 41 <sup>st</sup> Street SE Grand Rapids, Michigan 49508
Source Registration Number (SRN):	P0634
North American Industry Classification System (NAICS) Code:	313320
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	202200067
Responsible Official:	Frederic P. Worthen III, President 603-821-5949
AQD Contact:	April Lazzaro, Senior Environmental Quality Analyst 616-558-1092
Date Application Received:	March 21, 2022
Date Application Was Administratively Complete:	March 21, 2022
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	December 19, 2022
Deadline for Public Comment:	January 18, 2023

## Source 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 equipped with dispersion mills which are exhausted to the atmosphere. The company utilizes any used clean-up solvent by treating it as a coating thinner in the applied coatings whenever possible.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) and provided by Worthen Coated Fabrics for the year **2021**.

### **TOTAL STATIONARY SOURCE EMISSIONS**

<b>Pollutant</b>	<b>Tons per Year</b>
Carbon Monoxide (CO)	1.01
Lead (Pb)	NA
Nitrogen Oxides (NO <sub>x</sub> )	1.20
Particulate Matter (PM)	0.02
Sulfur Dioxide (SO <sub>2</sub> )	0.01
Volatile Organic Compounds (VOCs)	9.20

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2021 by Worthen Coated Fabrics:

<b>Individual Hazardous Air Pollutants (HAPs) **</b>	<b>Tons per Year</b>
Toluene	2.15
Xylene	0.03
<b>Total Hazardous Air Pollutants (HAPs)</b>	<b>2.18</b>

\*\*As listed pursuant to Section 112(b) of the federal Clean Air Act.

See Parts C and D in the ROP for summary tables of all processes at the stationary source that are subject to process-specific emission limits or standards.

## Regulatory Analysis

The following is a general description and history of the source. Any determinations of regulatory non-applicability for this source are explained below in the Non-Applicable Requirement part of the Staff Report and identified in Part E of the ROP.

The stationary source is in Kent County, which is currently designated by the United States Environmental Protection Agency (USEPA) as attainment/unclassified for all criteria pollutants.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70, because the potential to emit of any single HAP regulated by Section 112 of the federal Clean Air Act, is equal to or more than 10 tons per year and/or the potential to emit of all HAPs combined is equal to or more than 25 tons per year.

The stationary source has limits of VOC on EU-FabricCoating, however since that is not the only source of VOCs at the facility it is not considered to be a “synthetic minor” source in regard to VOC emissions.

No emission units at the stationary source are currently subject to the Prevention of Significant Deterioration regulations of Part 18, Prevention of Significant Deterioration of Air Quality of Act 451, because at the time of New Source Review permitting the potential to emit of each criteria pollutant was less than 250 tons per year.

EU-FabricCoating at the stationary source is subject to Best Available Control Technology (BACT) requirements for the ton per year Volatile Organic Compounds (VOC) emission limitation as well as the VOC content of water-based coatings. A Regenerative Thermal Oxidizer (RTO) and Coating composition information are required to meet Rule 225 and Rule 702.

EU-FabricCoating and EU-MixRoom at the stationary source are subject to the Standards of Performance for Polymeric Coating of Supporting Substrates Facilities promulgated in 40 CFR Part 60, Subparts A and VVV.

EU-FabricCoating at the stationary source is subject to the National Emission Standard for Hazardous Air Pollutants for Printing, Coating, and Dyeing of Fabrics and Other Textiles promulgated in 40 CFR Part 63, Subparts A and OOOO.

Upon facility startup, the facility was subject to 40 CFR Part 60, Subparts A and VVV, however the initial notification was not received until July 12, 2021. Worthen has been cited for violations of 40 CFR Part 60, Subpart VVV for failure to comply with provisions of this federal standard. Additionally, Worthen has been cited for violations of permit MI-ROP-P0634-2017 and Air Pollution Control Rule 910 for failure to properly operate the Regenerative Thermal Oxidizer (RTO) and meet a minimum destruction efficiency of 98%.

Worthen has entered into a voluntary Administrative Consent Order with the Air Quality Division, AQD No. 2022-15, to resolve the violation. Worthen is expected to be in compliance with the permit and 40 CFR Part 60, Subpart VVV, and as such a compliance plan is not a part of the ROP renewal. The requirements of the Administrative Consent Order have been incorporated into this permit.

The AQD’s Rules 287 and 290 were revised on December 20, 2016. FGRULE287(2)(c) and FGRULE290 are flexible group tables created for emission units subject to these rules. Emission units installed before December 20, 2016, can comply with the requirements of Rule 287 and Rule 290 in effect at the time of installation or modification as identified in the tables. However, emission units installed or modified on or after December 20, 2016, must comply with the requirements of the current rules as outlined in the tables.

The emission limitation(s) or standard(s) for Organic Hazardous Air Pollutants (HAP) at the stationary source with the underlying applicable requirement(s) of 40 CFR Part 63 Subpart OOOO from FG-MACT-OOOO are exempt from the federal Compliance Assurance Monitoring (CAM) regulation pursuant to 40 CFR 64.2(b)(1)(i) because 0.08 kg per kg of solids applied and 98% overall control efficiency meet the CAM exemption for NSPS or MACT proposed after November 15, 1990.

The following Emission Units are subject to CAM:

Emission Unit/Flexible group ID	Pollutant/ Emission Limit	UAR(s)	Control Equipment	Monitoring (Include Monitoring Range)	Emission Unit/Flexible Group for CAM	PAM? *
EU-FabricCoating	VOC 26.6 tpy	<b>R 336.1702(a)</b> <b>R 336.1205</b>	Regenerative Thermal Oxidizer (RTO)	Combustion Temperature above 1,575° F	EU-FabricCoating	No
EU-FabricCoating	VOC 26.6 tpy	<b>R 336.1702(a)</b> <b>R 336.1205</b>	Permanent Total Enclosure (PTE)	Differential Pressure across the enclosure of the capture system: 1.0 to -1.0 inches of water column	EU-FabricCoating	No

\*Presumptively Acceptable Monitoring (PAM)

EU-FabricCoating is controlled by an RTO which is equipped with a digital temperature monitoring device located in the combustion chamber, as well as pressure transmitters that continuously monitor pressure differential in the PTE.

The RTO monitoring devices monitor and record data once every second. The capture system has independent monitoring devices which continuously monitor and record the differential pressure.

The RTO operating temperature is selected because it is indicative of the control system's destruction efficiency. The collection system differential pressure is selected because it is indicative of the control system's collection efficiency. The desired level of overall control efficiency is expected as a result of maintaining the capture system pressure and the operating temperature of the thermal oxidizer at or above a minimum value. If the operating pressure or temperature changes significantly, the control efficiency may be reduced.

To ensure consistent VOC control, the structural integrity of the capture and destruction systems will be inspected and maintained, and the control system will be calibrated periodically. This will indicate any problems with the control system that could result in decreased performance or efficiency. The frequency will either be weekly, monthly, quarterly, or annually, depending on the task. Additional details can be found as part of the company's internal preventative maintenance program. Stack testing has been conducted to verify compliance, and the enclosure complies with EPA Method 204 for Permanent Total Enclosures.

The selected indicator range for the RTO operating temperature is based on specifications for optimal performance provided by the equipment designer, Nestec, and is incorporated into the permit conditions as established by the AQD. The selected range for the capture system static pressure is based on the desire to maintain maximum collection efficiency for each controlled emission unit.

A performance test of the RTO was conducted on September 28, 2021 using EPA Reference Method 25A. Three one-hour test runs were conducted. During the performance test, the chamber temperature was measured continuously and recorded. During the test, the RTO achieved an average destruction efficiency of 98.36% which is in compliance with the 40 CFR Part 60 Subpart VVV requirement to maintain a minimum

destruction efficiency of 95% and in compliance with the ROP to maintain a minimum destruction efficiency of 98%.

EPA Method 204 criteria were met to verify the PTE was capturing 100% of the VOCs emitted from the coating line. During the performance test the pressure drop of each PTE was recorded. No changes have taken place since the performance test with the coating line, RTO, or PTE that would affect the test results.

Please refer to Parts B, C and D in the draft ROP for detailed regulatory citations for the stationary source. Part A contains regulatory citations for general conditions.

**Source-Wide Permit to Install (PTI)**

Rule 214a requires the issuance of a Source-Wide PTI within the ROP for conditions established pursuant to Rule 201. All terms and conditions that were initially established in a PTI are identified with a footnote designation in the integrated ROP/PTI document.

The following table lists all individual PTIs that were incorporated into previous ROPs. PTIs issued after the effective date of ROP No. MI-ROP-P0634-2017 are identified in Appendix 6 of the ROP.

PTI Number			
151-15			

**Streamlined/Subsumed Requirements**

This ROP does not include any streamlined/subsumed requirements pursuant to Rules 213(2) and 213(6).

**Non-applicable Requirements**

Part E of the ROP lists requirements that are not applicable to this source as determined by the AQD, if any were proposed in the ROP Application. These determinations are incorporated into the permit shield provision set forth in Part A (General Conditions 26 through 29) of the ROP pursuant to Rule 213(6)(a)(ii).

**Processes in Application Not Identified in Draft ROP**

The following table lists processes that were included in the ROP Application as exempt devices under Rule 212(4). These processes are not subject to any process-specific emission limits or standards in any applicable requirement.

PTI Exempt Emission Unit ID	Description of PTI Exempt Emission Unit	Rule 212(4) Citation	PTI Exemption Rule Citation
EU-labheater	40,000 BTU/HR heater	Rule 212(4)(c)	Rule 282(2)(b)(i)
EU-bathrmheater	92,000 BTU/HR heater	Rule 212(4)(c)	Rule 282(2)(b)(i)
EU-brkrmheater	92,000 BTU/HR heater	Rule 212(4)(c)	Rule 282(2)(b)(i)
EU-officeheater1	120,000 BTU/HR heater	Rule 212(4)(c)	Rule 282(2)(b)(i)
EU-officeheater2	120,000 BTU/HR heater	Rule 212(4)(c)	Rule 282(2)(b)(i)
EU-AMUBldg	4,500,000 BTU/HR air makeup unit	Rule 212(4)(c)	Rule 282(2)(b)(i)
EU-AMUMixRm	963,000 BTU/HR air makeup unit	Rule 212(4)(c)	Rule 282(2)(b)(i)

This draft ROP does not contain any terms and/or conditions that the AQD and the applicant did not agree upon pursuant to Rule 214(2).

### **Compliance Status**

The AQD finds that the stationary source is expected to be in compliance with all applicable requirements as of the effective date of this ROP.

### **Action taken by EGLE, AQD**

The AQD proposes to approve this ROP. A final decision on the ROP will not be made until the public and affected states have had an opportunity to comment on the AQD's proposed action and draft permit. In addition, the USEPA is allowed up to 45 days to review the draft ROP and related material. The AQD is not required to accept recommendations that are not based on applicable requirements. The delegated decision maker for the AQD is Heidi Hollenbach, Grand Rapids District Supervisor. The final determination for ROP approval/disapproval will be based on the contents of the ROP Application, a judgment that the stationary source will be able to comply with applicable emission limits and other terms and conditions, and resolution of any objections by the USEPA.



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**RENEWABLE OPERATING PERMIT**  
**January 19, 2023 - STAFF REPORT ADDENDUM**

ROP Number  
MI-ROP-P0634-2023

**Purpose**

A Staff Report dated December 19, 2022, was developed to set forth the applicable requirements and factual basis for the draft Renewable Operating Permit (ROP) terms and conditions as required by Rule 214(1) of the administrative rules promulgated under Act 451. The purpose of this Staff Report Addendum is to summarize any significant comments received on the draft ROP during the 30-day public comment period as described in Rule 214(3). In addition, this addendum describes any changes to the draft ROP resulting from these pertinent comments.

**General Information**

Responsible Official:	Frederic P. Worthen III, President 603-821-5949
AQD Contact:	April Lazzaro, Senior Environmental Quality Analyst 616-558-1092

**Summary of Pertinent Comments**

No pertinent comments were received during the 30-day public comment period.

**Changes to the December 19, 2022 Draft ROP**

No changes were made to the draft ROP.