

State Registration Number
N2812

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-N2812-2023

LexaMar Corporation

State Registration Number (SRN): N2812

Located at

100 LexaMar Drive, Boyne City, Charlevoix County, Michigan 49712

Permit Number: MI-ROP-N2812-2023

Staff Report Date: August 14, 2023

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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AUGUST 14, 2023 - STAFF REPORT

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:	LexaMar Corporation 100 LexaMar Drive Boyne City, Michigan 49712
Source Registration Number (SRN):	N2812
North American Industry Classification System (NAICS) Code:	326199
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	201900135
Responsible Official:	Charlie Siska, General Manager 231-582-3163
AQD Contact:	David Bowman, Environmental Quality Analyst 989-395-6298
Date Application Received:	August 8, 2019
Date Application Was Administratively Complete:	August 8, 2019
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	August 14, 2023
Deadline for Public Comment	September 13, 2023

Source Description

LexaMar produces and coats a variety of plastic parts for the automotive industry at a facility located on the southeast side of Boyne City in Charlevoix County. The facility either produces plastic parts from on-site plastic injection molding machines, or plastic parts are shipped in for coating. There are five parts coating lines, called EUBCPL, EUURSAMINOR, EUBLACKOUT, EUBT1PANEL, and EUBT1FRAME where LexaMar can apply basecoats, adhesion promoters, and topcoats to plastic automotive parts. The emissions from the EUBCPL and EUURSAMINOR coating lines are captured by two permanent total enclosures (one for each emission unit). The emissions from EUBT1PANEL and EUBT1FRAME are in partial enclosed spaces, operating under a vacuum, with remaining emissions into plant air. The emissions from EUBLACKOUT are uncontrolled. All controlled exhausts are ducted to one regenerative thermal oxidizer (RTO) control system. The RTO control system consists of two beds described as Bed A and Bed B. Each bed consists of one 25,000 standard cubic feet per minute (scfm) unit. Bed A and Bed B have a common exhaust stack. Typically, one bed is used at a time while the second bed acts as a backup, however both beds may operate at the same time. The RTO is used for the destruction of volatile organic compounds (VOCs) and hazardous air pollutants (HAPs).

The area surrounding the source is relatively flat with small amounts of woodlands near and around it. Source is located in an industrial zone to the southeast of Boyne City, MI on Michigan Highway 75. The closest school is approximately 0.6 miles west of the facility with multiple businesses and foliage between source and school. 0.4 miles east of the source is the Boyne River and a heavily wooded area. The closest residential areas are 0.3 mile southwest of the source and 0.4 southeast of the source.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2022**.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	0.1585
Lead (Pb)	0
Nitrogen Oxides (NO _x)	1.136
Particulate Matter (PM)	0.053
Sulfur Dioxide (SO ₂)	0.0168
Volatile Organic Compounds (VOCs)	16.258

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2022 by AQD:

Individual Hazardous Air Pollutants (HAPs) **	Tons per Year
Acetaldehyde	0.000295
Acetone	0.000180
Acrolein	0.000120
Acrylic Acid	0.000120
Formaldehyde	0.000355
Methyl Ethel Ketone	0.000120
Propionaldeh	0.000120
Total Hazardous Air Pollutants (HAPs)	0.00131

**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 Charlevoix 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 of the potential to emit of Volatile Organic Compounds exceeds 100 tons per year and 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.

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 Volatile Organic Compounds was less than 250 tons per year.

EUBCPL, EUURSAMINOR, EUSOLV, EUBLACKOUT, EUROOFBOND, and EUBT1PANEL at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Surface Coating of Plastic Parts and Products promulgated in 40 CFR Part 63, Subparts A and PPPP.

EUBT1FRAME is subject to the National Emission Standard for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products promulgated in 40 CFR Part 63, Subparts A and MMMM. The amount of metal present on the parts being coated is minor, the part being mostly plastic. Based upon predominant activity, the source is showing compliance for 40 CFR Part 63, Subpart MMMM by showing compliance with 40 CFR Part 63, Subpart PPPP

EUWASHERHEATER, EUURSADRYOFFOVEN, EUURSAPRIMEOVEN, EUURSATOPCOATOVENA, and EUURSATOPCOATOVENB at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters promulgated in 40 CFR Part 63, Subparts A and DDDDD.

Best Available Control Technology (BACT) pursuant to Rule 702 for EUURSAMINOR is an enforceable mass emission limit for VOCs with appropriate recordkeeping; along with the use of an existing PTE & RTO combination for the dip tanks portion of the line, and uncontrolled emissions at a split no greater than 10% from the ovens portion.

Exhaust air recirculation system and operation act as a permanent total enclosure (PTE) for EUBCPL with VOC control provided by the common plant RTO system. A minimum overall VOC control efficiency of 95% (based on an assumed minimum destruction efficiency of 95% and a minimum capture efficiency of 100% for the PTE). These VOC controls represent VOC BACT per Rule 702(a). The permit also requires continuous monitoring of the pressure differential between the PTE and the outside Room.

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 monitoring conditions contained in the ROP are necessary to demonstrate compliance with all applicable requirements and are consistent with the "Procedure for Evaluating Periodic Monitoring Submittals."

The emission limitation(s) or standard(s) for Organic HAP at the stationary source with the underlying applicable requirement(s) of 40 CFR 63, Subpart PPPP from EUBCPL and EUURSAMINOR is exempt from the federal Compliance Assurance Monitoring (CAM) regulation pursuant to 40 CFR 64.2(b)(1)(i) because 0.16 lb. per lb. of coating solids meet(s) the CAM exemption for NSPS or MACT proposed after November 15, 1990.

The following Emission Units/Flexible Groups 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? *
EUBCPL	VOC, 8.6 pph; 37.6 TPY	R 336.1205 R 336.1702(a)	Permanent Total Enclosure (PTE), Regenerative Thermal Oxidizer (RTO)	PTE- Differential Pressure between the inside of each line PTE and the outside = Minimum 0.007"WC RTO- Combustion Chamber Temperature = minimum 1400°F or the average combustion temperature maintained during the last approved and passing destruction efficiency stack test performed, whichever is higher.	FGCAM	No
EUURSARMINOR	VOC, 14.9 lb/hr; 29.7 TPY	R 336.1205 R 336.1702(a)	Permanent Total Enclosure (PTE), Regenerative Thermal Oxidizer	PTE- Differential Pressure between the inside of each line PTE and the	FGCAM	No

Emission Unit/Flexible group ID	Pollutant/ Emission Limit	UAR(s)	Control Equipment	Monitoring (Include Monitoring Range)	Emission Unit/Flexible Group for CAM	PAM? *
			(RTO)	outside = Minimum 0.007"WC RTO- Combustion Chamber Temperature = minimum 1400°F or the average combustion temperature maintained during the last approved and passing destruction efficiency stack test performed, whichever is higher.		

*Presumptively Acceptable Monitoring (PAM)

EUBCPL and EUURSAMINOR have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring rule pursuant to 40 CFR Part 64, because the units have potential pre-control emissions over the major source thresholds. The emission units have a control device and potential pre-control emissions of Volatile Organic Compounds greater than the major source threshold level. LexaMar installed two ABB Corporation reversing-flow regenerative thermal oxidizers in parallel to provide sufficient capacity to control exhaust emissions from both coating line operations. The RTOs operate at a minimum 0.5 second retention time. The minimum operating temperature of the RTOs is the higher of 1,400° F (per the Title V operating permit) or the average combustion temperature maintained during the last approved and passing destruction efficiency stack test.

The combustion chamber center-bed temperature was selected because it is indicative of the RTO operation and VOC destruction occurring within the chamber. If the combustion chamber center-bed temperature decreases significantly, complete combustion may not occur. The control efficiency achieved by a thermal oxidizer is a function of its operating temperature. By maintaining the operating temperature at or above a minimum temperature, a specific level of control efficiency can be achieved. Overall RTO control efficiency is generally accepted to be a function of temperature and residence time. Based on the combustion chamber volume and the collection fan flow rate set to properly exhaust the coating lines PTEs and maintain the specified differential pressure (DP), the residence time is a minimum of 0.5 second.

DP between the inside of each coating line PTE and the outside room was selected as a measure of the overall capture efficiency of the PTE. Maintenance of a sufficient DP indicates the presence of a PTE, resulting in the collection of all VOC emissions within each coating line PTE, which are subsequently

transferred to the RTOs for destruction. Loss of sufficient DP would indicate loss of PTE status, which could result in loss of VOC emissions from the coating lines to the general room air.

In August 2022, performance tests were performed on the RTO control system and on the coating lines PTE. This testing was performed under conditions of maximum emission potential under normal conditions with all coating operations in operation. In addition, during the August 2022 performance test, the physical design and operational criteria for the coating lines enclosures were verified to meet the physical design requirements of a PTE as set forth in the facility’s installation permit and final ROP. Testing confirmed that each coating line enclosure met the requirements of a PTE.

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-N2812-2015b are identified in Appendix 6 of the ROP.

PTI Number			
397-94F			

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
EUGASCOMBUSTION	All-Natural gas-fired, roof mounted space heaters.	Rule 212(4)(b)	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 Shane Nixon, Cadillac/Gaylord 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
OCTOBER 05, 2023 - STAFF REPORT ADDENDUM

ROP Number
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Purpose

A Staff Report dated August 14, 2023, 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:	Charlie Siska, General Manager
AQD Contact:	David Bowman, Environmental Quality Analyst

Summary of Pertinent Comments

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