

State Registration Number  
B1677

**RENEWABLE OPERATING PERMIT  
STAFF REPORT**

ROP Number  
MI-ROP-B1677-20XX

**Allnex USA, Inc.**

State Registration Number (SRN): B1677

Located at

2715 Miller Road, Kalamazoo, Kalamazoo County, Michigan 49001

Permit Number: MI-ROP-B1677-20XX

Staff Report Date: May 6, 2024

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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**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:	Allnex USA Inc. 2715 Miller Road Kalamazoo, Michigan 49001
Source Registration Number (SRN):	B1677
North American Industry Classification System (NAICS) Code:	325211
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	202300076
Responsible Official:	Michael Szoke, Site Manager 269-385-1249
AQD Contact:	Michael Cox, Environmental Quality Analyst 616-240-3607
Date Application Received:	April 24, 2023
Date Application Was Administratively Complete:	April 24, 2023
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	May 6, 2024
Deadline for Public Comment:	June 5, 2024

## Source Description

Allnex USA, Inc. (Facility) is a chemical manufacturer that makes a wide variety of resins, additives, and crosslinkers for use on wood, metal, plastic, and other surfaces. Allnex USA, Inc. is located at 2715 Miller Road, Kalamazoo, Michigan. The facility in Kalamazoo makes only one type of methylated resin molecule but can make different forms of the same resin. The emissions from this process are controlled by a vapor balance system, methanol scrubber, cryogenic condenser, water scrubber, two bin vent filters, and two baghouses. The other major part of the facility is the Cyrez production, which mixes the same resin made in the resin plant with different types of silica, depending on customer demands, to produce a powder product. These emissions are controlled by a baghouse. There are a number of storage tanks at the facility that are associated with the resin production, along with various reactors, condensers, distillation systems, and solids separation equipment. The facility also has two boilers, two emergency generators, and a parts washer.

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)	13.28
Lead (Pb)	8E-5
Nitrogen Oxides (NO <sub>x</sub> )	15.93
PM10*	1.80
Sulfur Dioxide (SO <sub>2</sub> )	1.77
Volatile Organic Compounds (VOCs)	27.57
Ammonia	0.505

\* Particulate matter (PM) that has an aerodynamic diameter less than or equal to a nominal 10 micrometers.

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

Individual Hazardous Air Pollutants (HAPs) **	Tons per Year
Methanol	4.92
N-Hexane	0.28
Formaldehyde	0.01
<b>Total Hazardous Air Pollutants (HAPs)</b>	<b>5.16</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 Kalamazoo 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 is subject to Administrative Order EPA-5-17-113(a)-MI-03. In the order, the USEPA alleges that the Facility is a "major source" because the Facility emitted over 10 tons per year of methanol. Permit to Install (PTI) No. 418-96I was issued to add the requirements of the order based on the USEPA Consent Agreement and Final Order (CAFO). The company also identified four emission units in FGCYREZ, which included emission units EUCYREZSTTK, EUCYREZHDTK, EUCRYREZBLND, and EUCRYREZPKG. PTI No.418-96I also added requirements to use the newly installed water scrubber when operating FGCYREZ. Based on the CAFO, the facility must achieve 90% removal of organic HAP.

No emission units at the stationary source were subject to the Prevention of Significant Deterioration regulations of the Michigan Air Pollution Control Rules Part 18, Prevention of Significant Deterioration of Air Quality of Act 451 or 40 CFR 52.21 because at the time of New Source Review permitting the potential to emit of each criteria pollutant was less than 100 tons per year.

EUBOILER#1 and EUBOILER#3 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.

EURECFORMTK, EUMFORMCELTK, EUFRMEOHTK, EURECMEOHTK, and EURXN at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Manufacture of Amino/Phenolic Resins promulgated in 40 CFR Part 63, Subparts A and OOO.

EUCUMMINS\_ENG and EUDET\_DIESEL\_ENG at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines promulgated in 40 CFR Part 63, Subparts A and ZZZZ.

EUMACT\_EEEE at the stationary source is subject to the National Emission Standard for Hazardous Air Pollutants for Organic Liquid Distribution (Non-Gasoline) promulgated in 40 CFR Part 63, Subparts A and EEEE.

FGCYREZ at the stationary source is subject to the National Emission Standard for Hazardous Air Pollutants for Miscellaneous Organic Chemical Manufacturing promulgated in 40 CFR Part 63, Subparts A and FFFF.

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.

Emission units EUMODAFLOW\_ST\_TANK, EUMODAFLOW\_HD\_TANK, EUMODAFLOWBLEND, EUMODAFLOWPACK are listed by the facility as utilizing Rule 290. FGRULE290 flexible group was included into the ROP Renewal.

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."

FGCYREZ and water scrubber (ID 631-509) in FGMRPT do not have emission limitations or standards that are subject to the federal CAM rule pursuant to 40 CFR Part 64, because the units do not have potential pre-control emissions over the major source thresholds. This is based on calculations using the efficiency of the control device. FGCYREZ pre-controlled VOC emissions are noted to be 18 tons per year (tpy) and PM emissions are noted to be 4.4 tpy.

The emission limitations for formaldehyde, melamine, and methanol in FGMRPT are not subject to the federal CAM rule pursuant to 40 CFR Part 64, because the underlying applicable requirement of R 336.1225 is not federally enforceable.

The emission limitation(s) or standard(s) for VOC from FGMRPT (EURECFORMTK, EUMFORMCELTK, EUNITRICTK, EUMELSTOR, EUFRMEOHTK, EURECMEOHTK, EURXN, EUCYMELTKA, and EUCYMELTKB) at the stationary source are subject to the federal Compliance Assurance Monitoring (CAM) rule under 40 CFR Part 64. These emission units have a control device and potential pre-control emissions of VOC greater than the major source threshold level.

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? *
FGMRPT	VOC/49 TPY when equipment exhausted through cryogenic condenser 631-516	R 336.1702(a)	Cryogenic condenser	Outlet vapor temperature	FGMRPT	No
	VOC /24.7 pph when equipment exhausted through cryogenic condenser 631-516 and using recycled methanol in methanol scrubber 631-509 while the outlet vapor temperature is more than - 50°C	R 336.1702(a)				
	VOC/6.1 pph when	R 336.1702(a)				

Emission Unit/Flexible group ID	Pollutant/Emission Limit	UAR(s)	Control Equipment	Monitoring (Include Monitoring Range)	Emission Unit/Flexible Group for CAM	PAM? *
	equipment exhausted through cryogenic condenser 631-516 and using recycled methanol in methanol scrubber 631-509 while the outlet vapor temperature is -50°C or less					
	VOC/6.1 pph when equipment exhausted through cryogenic condenser 631-516 and using fresh methanol in methanol scrubber 631-509	R 336.1702(a)				

\*Presumptively Acceptable Monitoring (PAM)

VOC emissions from FGMRPT are controlled using a refrigerated condenser. Monitoring of the outlet vent temperature indicates the level of condensation occurring in the condenser. Outlet vent temperature is a good indicator of the operation of the condenser because the concentration of the outlet vent stream can be determined based on the temperature of the stream and vapor pressure equilibrium data. To achieve the outlet concentration, the outlet vent temperature must be maintained below a certain level (i.e., a maximum temperature). If the outlet vent temperature increases above a maximum temperature limit, condensation of the components to the level expected will not occur. An increase in outlet vent temperature indicates a reduction of performance of the condenser. The indicator range was established as part of the initial compliance testing performed for 40 CFR 63, Subpart OOO.

The facility utilizes a device to monitor and record the outlet vapor temperature from the final condensing step of the cryogenic condenser on a continuous basis. Temperature data recording consists of measurements made at equally spaced intervals, not to exceed 15 minutes per interval. The temperature monitoring device is calibrated once per calendar year. Operation of the cryogenic condenser includes achieving an outlet vapor temperature after the final condensing step as described below:

- a. When using fresh methanol in the scrubber, -30°C or lower
- b. When using recycled methanol in the scrubber, -50°C or lower, except for 2,351 hours per year, based on a 12-month rolling time period as determined at the end of each calendar month, during which the outlet vapor temperature may be greater than -50°C but shall not exceed -30°C.

When fresh methanol is used in the methanol scrubber, the condenser outlet vapor temperature may be determined using a calendar day average. When recycled methanol is used in the methanol scrubber, the condenser outlet vapor temperature is determined on an hourly basis. Excursions trigger an inspection, corrective action and reporting in a semiannual report. Excursions are defined as a daily average condenser outlet temperature great than -30°C. Records of specific corrective action are kept onsite. The facility minimizes the periods of any startup, shutdown or malfunction (SSM) and takes any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). The facility maintains an SSM plan that was included in this renewal application that details specific corrective action scenarios.

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-B1677-2018 are identified in Appendix 6 of the ROP.

PTI Number			
419-96F	419-96G	419-96H	

**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 Not in the Draft ROP**

There were no PTI exempt processes listed in the ROP Application pursuant to Rule 212(4) that were not included in the Draft ROP.



### **Draft ROP Terms/Conditions Not Agreed to by Applicant**

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 Monica Brothers, Kalamazoo 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.