

**MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
AIR QUALITY DIVISION**

February 15, 2024

PERMIT TO INSTALL
16-24

ISSUED TO
Global Life Science – Cytiva, Michigan

LOCATED AT
1740 Whitehall Road
Muskegon, Michigan 49445

IN THE COUNTY OF
Muskegon

STATE REGISTRATION NUMBER
B6643

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environment, Great Lakes, and Energy. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: October 10, 2023	
DATE PERMIT TO INSTALL APPROVED: February 15, 2024	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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COMMON ACRONYMS

AQD	Air Quality Division
BACT	Best Available Control Technology
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
COMS	Continuous Opacity Monitoring System
Department/department/EGLE	Michigan Department of Environment, Great Lakes, and Energy
EU	Emission Unit
FG	Flexible Group
GACS	Gallons of Applied Coating Solids
GC	General Condition
GHGs	Greenhouse Gases
HVLP	High Volume Low Pressure*
ID	Identification
IRSL	Initial Risk Screening Level
ITSL	Initial Threshold Screening Level
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
MAERS	Michigan Air Emissions Reporting System
MAP	Malfunction Abatement Plan
MSDS	Material Safety Data Sheet
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standard for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NSR	New Source Review
PS	Performance Specification
PSD	Prevention of Significant Deterioration
PTE	Permanent Total Enclosure
PTI	Permit to Install
RACT	Reasonable Available Control Technology
ROP	Renewable Operating Permit
SC	Special Condition
SCR	Selective Catalytic Reduction
SNCR	Selective Non-Catalytic Reduction
SRN	State Registration Number
TBD	To Be Determined
TEQ	Toxicity Equivalence Quotient
USEPA/EPA	United States Environmental Protection Agency
VE	Visible Emissions

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

POLLUTANT / MEASUREMENT ABBREVIATIONS

acfm	Actual cubic feet per minute
BTU	British Thermal Unit
°C	Degrees Celsius
CO	Carbon Monoxide
CO ₂ e	Carbon Dioxide Equivalent
dscf	Dry standard cubic foot
dscm	Dry standard cubic meter
°F	Degrees Fahrenheit
gr	Grains
HAP	Hazardous Air Pollutant
Hg	Mercury
hr	Hour
HP	Horsepower
H ₂ S	Hydrogen Sulfide
kW	Kilowatt
lb	Pound
m	Meter
mg	Milligram
mm	Millimeter
MM	Million
MW	Megawatts
NMOC	Non-Methane Organic Compounds
NO _x	Oxides of Nitrogen
ng	Nanogram
PM	Particulate Matter
PM10	Particulate Matter equal to or less than 10 microns in diameter
PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
pph	Pounds per hour
ppm	Parts per million
ppmv	Parts per million by volume
ppmw	Parts per million by weight
psia	Pounds per square inch absolute
psig	Pounds per square inch gauge
scf	Standard cubic feet
sec	Seconds
SO ₂	Sulfur Dioxide
TAC	Toxic Air Contaminant
Temp	Temperature
THC	Total Hydrocarbons
tpy	Tons per year
µg	Microgram
µm	Micrometer or Micron
VOC	Volatile Organic Compounds
yr	Year

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to Rule 210 (R 336.1210), operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to Rule 219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of Rule 219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal condition or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of Rule 301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with Rule 303 (R 336.1303). **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.
12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001. **(R 336.2001)**

EMISSION UNIT SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date / Modification Date	Flexible Group ID
EULIGAND	Ligand production process, which includes the use of a fermenter, purification tanks, and other associated equipment.	TBD	NA
EUBASEMATRIX	Base matrix production process, which includes the operation of reactors, process tanks, filters/sieves, and storage tanks.	TBD	FGPROCESS
EURESINS	Resins production process, which includes the operation of reactors, feed tanks, mix tanks, filters/sieves, and processing vessels.	TBD	FGPROCESS
EUSRP	Solvent recovery process for the recovery of solvents for reuse in the production processes at the facility.	TBD	NA
EUTANKT108	190-m ³ (50,193-gal) recovered ethanol tank that supports the ligand, base matrix, and resin production processes.	TBD	FGTANKFARM
EUTANKT102	57-m ³ (15,058-gal) acetone storage tank that supports the ligand, base matrix, and resin production processes.	TBD	FGTANKFARM
EUTANKT109	190-m ³ (50,193-gal) CCC mother liquor tank that supports the ligand, base matrix, and resin production processes.	TBD	FGTANKFARM
EUTANKT116	190-m ³ (50,193-gal) CCC distillate tank that supports the ligand, base matrix, and resin production processes.	TBD	FGTANKFARM
EUTANKT110	190-m ³ (50,193-gal) ethanol mother liquor tank that supports the ligand, base matrix, and resin production processes.	TBD	FGTANKFARM
EUTANKT103	20-m ³ (5,283-gal) virgin Epoxide 1 tank that supports the ligand, base matrix, and resin production processes.	TBD	FGTANKFARM
EUTANKT105	20-m ³ (5,283-gal) virgin Epoxide 2 tank that supports the ligand, base matrix, and resin production processes.	TBD	FGTANKFARM
EUWWTP	Wastewater treatment process.	TBD	NA

Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1291.

**EULIGAND
EMISSION UNIT CONDITIONS**

DESCRIPTION

Ligand production process, which includes the use of a fermenter, purification tanks, and other associated equipment.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	0.14 tpy	12-month rolling time period as determined at the end of each calendar month	EULIGAND	SC VI.2	R 336.1702(a)
2. VOC	0.06 pph	Hourly	EULIGAND	SC V.1	R 336.1225, R 336.1702(a)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 180 days after commencement of trial operation, the permittee shall verify VOC emission rates from EULIGAND by testing at the owner’s expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol and must meet the requirements of the federal Clean Air Act, all applicable state and federal rules and regulations, and be within the authority of the AQD to make the change. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1224, R 336.1225, R 336.1702, R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1224, R 336.1225, R 336.1702(a))**
2. The permittee shall calculate the VOC emission rate from EULIGAND monthly for the preceding 12-month rolling time period, using a method acceptable to the AQD District Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1702(a))**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of EULIGAND. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVLIGANDS1	2.5	35	R 336.1225, 40 CFR 52.21(c) & (d)
2. SVLIGANDS2	0.5	35	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**EUSRP
EMISSION UNIT CONDITIONS**

DESCRIPTION

Solvent recovery process for the recovery of solvents for reuse in the production processes at the facility.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	2.31 tpy	12-month rolling time period as determined at the end of each calendar month	EUSRP	SC VI.2	R 336.1702(a)
2. VOC	0.50 pph	Hourly	EUSRP	SC V.1	R 336.1225, R 336.1702(a)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 180 days after commencement of trial operation, the permittee shall verify VOC emission rates from EUSRP by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol and must meet the requirements of the federal Clean Air Act, all applicable state and federal rules and regulations, and be within the authority of the AQD to make the change. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1224, R 336.1225, R 336.1702, R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1224, R 336.1225, R 336.1702(a))**
2. The permittee shall calculate the VOC emission rate from EUSRPs monthly for the preceding 12-month rolling time period, using a method acceptable to the AQD District Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1702(a))**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of EUSRPs. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVSRPK144	2	100	R 336.1225, 40 CFR 52.21(c) & (d)
2. SVSRPT135	3	90	R 336.1225, 40 CFR 52.21(c) & (d)
3. SVSRPK137	2	90	R 336.1225, 40 CFR 52.21(c) & (d)
4. SVSRPX142	2	100	R 336.1225, 40 CFR 52.21(c) & (d)
5. SVSRPL140	6	100	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

EUWWTP EMISSION UNIT CONDITIONS
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DESCRIPTION

Wastewater treatment process.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	1.60 tpy	12-month rolling time period as determined at the end of each calendar month	EUWWTP	SC VI.2	R 336.1702(a)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. (R 336.1224, R 336.1225, R 336.1702(a))
2. The permittee shall calculate the VOC emission rate from EUWWTP monthly for the preceding 12-month rolling time period, using a method acceptable to the AQD District Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request. (R 336.1702(a))

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of EUWWTP. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

FLEXIBLE GROUP SPECIAL CONDITIONS

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGPROCESS	Production processes which include equipment for the production of base matrix and resins.	EUBASEMATRIX, EURESINS
FGTANKFARM	A tank farm, consisting of 7 vertical storage tanks, that services the ligands, base matrix, and resins production processes.	EUTANKT108, EUTANKT102, EUTANKT109, EUTANKT116, EUTANKT110, EUTANKT103, EUTANKT105

**FGPROCESS
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Production processes which include equipment for the production of base matrix and resins.

Emission Unit: EUBASEMATRIX, EURESINS

POLLUTION CONTROL EQUIPMENT

Emissions from SV-ABATE are controlled by a cryogenic condenser.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	12.63 tpy	12-month rolling time period as determined at the end of each calendar month	FGPROCESS	SC VI.4	R 336.1702(a)
2. VOC	20.24 pph	Hourly	FGPROCESS	SC V.1	R 336.1225 R 336.1702(a)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Ethanol used	15,231,078 kg/yr	12-month rolling time period as determined at the end of each calendar month	FGPROCESS	SC VI.5	R 336.1702(a)
2. Toluene used	498,166 kg/yr	12-month rolling time period as determined at the end of each calendar month	FGPROCESS	SC VI.5	R 336.1702(a)
3. Acetic Acid	273,859 kg/yr	12-month rolling time period as determined at the end of each calendar month	FGPROCESS	SC VI.5	R 336.1702(a)
4. Epoxide 1 used	88,136 kg/yr	12-month rolling time period as determined at the end of each calendar month	FGPROCESS	SC VI.5	R 336.1702(a)
5. Epoxide 2 used	16,495 kg/yr	12-month rolling time period as determined at the end of each calendar month	FGPROCESS	SC VI.5	R 336.1702(a)

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate FGPROCESS unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the cryogenic condenser, has been submitted 90 days prior to initial start-up, and is implemented and maintained. The MAP shall, at a minimum, specify the following:
 - a) A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
 - b) An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
 - c) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1702(a), R 336.1910, R 336.1911)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate the portion of FGPROCESS that is exhausted through SV-ABATE unless the cryogenic condenser is installed, maintained, and operated in a satisfactory manner acceptable to the AQD District Supervisor. Satisfactory operation is considered maintaining an effluent gas temperature between -74 °C and -95 °C and maintaining the fan static pressure between 0 and 14.7 psia. **(R 336.1224, R 336.1225, R 336.1702, R 336.1910)**
2. The permittee shall equip and maintain the cryogenic condenser with a device to continuously monitor and record the effluent gas temperature. **(R 336.1224, R 336.1225, R 336.1702, R 336.1910)**
3. The permittee shall equip and maintain the cryogenic condenser with a device to continuously monitor and record the fan static inlet pressure. **(R 336.1224, R 336.1225, R 336.1702, R 336.1910)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 360 days after commencement of trial operation, the permittee shall verify VOC emission rates from FGPROCESS by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol and must meet the requirements of the federal Clean Air Act, all applicable state and federal rules and regulations, and be within the authority of the AQD to make the change. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1224, R 336.1225, R 336.1702, R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1224, R 336.1225, R 336.1702(a))**

2. The permittee shall monitor and record, on a continuous basis, the effluent gas temperature from the cryogenic condenser with instrumentation acceptable to the AQD. For the purpose of this condition, "on a continuous basis" is defined as an instantaneous data point recorded at least once every 15 minutes. The permittee may record block average values for 15 minute or shorter periods calculated from all measured data values during each period. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1702(a))**
3. The permittee shall monitor and record, on a continuous basis, the fan static inlet pressure from the cryogenic condenser with instrumentation acceptable to the AQD. For the purpose of this condition, "on a continuous basis" is defined as an instantaneous data point recorded at least once every 15 minutes. The permittee may record block average values for 15 minute or shorter periods calculated from all measured data values during each period. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1702(a))**
4. The permittee shall calculate the VOC emission rate from FGPROCESS monthly for the preceding 12-month rolling time period, using a method acceptable to the AQD District Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1702(a))**
5. The permittee shall keep the following information on a monthly basis for the previous 12-month rolling time period for FGPROCESS:
 - a) Kilograms of ethanol used
 - b) Kilograms of toluene used
 - c) Kilograms of acetic acid used
 - d) Kilograms of Epoxide 1 used
 - e) Kilograms of Epoxide 2 used

The permittee shall keep the records on file at the facility, in a format acceptable to the AQD District Supervisor, and make them available to the Department upon request. **(R 336.1702(a))**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of each emission unit in FGPROCESS. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-PVENT	6	100	R 336.1225, 40 CFR 52.21(c) & (d)
2. SV-PVENT-MACK	4	100	R 336.1225, 40 CFR 52.21(c) & (d)
3. SV-ABATE	4	26	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**FGTANKFARM
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

A tank farm, consisting of 7 vertical storage tanks, that services the ligands, base matrix, and resins production processes.

Emission Unit: EUTANKT108, EUTANKT102, EUTANKT109, EUTANKT116, EUTANKT110, EUTANKT103, EUTANKT105

POLLUTION CONTROL EQUIPMENT

Breathing losses from EUTANKT103 and EUTANKT105 are controlled by the cryogenic condenser.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	2.71 tpy	12-month rolling time period as determined at the end of each calendar month	FGTANKFARM	SC VI.2	R 336.1702(a)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not store anything in EUTANKT103 or EUTANKT105 unless the cryogenic condenser is installed, maintained, and operated in a satisfactory manner acceptable to the AQD District Supervisor. Satisfactory operation is considered maintaining an effluent gas temperature between -74 °C and -95 °C and maintaining the fan static pressure between 0 and 14.7 psia. **(R 336.1224, R 336.1225, R 336.1702, R 336.1910)**
2. The permittee shall equip and maintain the cryogenic condenser with a device to continuously monitor and record the effluent gas temperature. **(R 336.1224, R 336.1225, R 336.1702, R 336.1910)**
3. The permittee shall equip and maintain the cryogenic condenser with a device to continuously monitor and record the fan static inlet pressure. **(R 336.1224, R 336.1225, R 336.1702, R 336.1910)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1224, R 336.1225, R 336.1702(a))**
2. The permittee shall calculate the VOC emission rate from FGTANKFARM monthly for the preceding 12-month rolling time period, using a method acceptable to the AQD District Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1702(a))**
3. The permittee shall monitor and record, on a continuous basis, the effluent gas temperature from the cryogenic condenser with instrumentation acceptable to the AQD. For the purpose of this condition, "on a continuous basis" is defined as an instantaneous data point recorded at least once every 15 minutes. The permittee may record block average values for 15 minute or shorter periods calculated from all measured data values during each period. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1702(a))**
4. The permittee shall monitor and record, on a continuous basis, the fan static inlet pressure from the cryogenic condenser with instrumentation acceptable to the AQD. For the purpose of this condition, "on a continuous basis" is defined as an instantaneous data point recorded at least once every 15 minutes. The permittee may record block average values for 15 minute or shorter periods calculated from all measured data values during each period. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1702(a))**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of each emission unit in FGTANKFARM. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVTANKT108*	3	44	R 336.1225, 40 CFR 52.21(c) & (d)
2. SVTANKT102*	3	30	R 336.1225, 40 CFR 52.21(c) & (d)
3. SVTANKT109*	3	44	R 336.1225, 40 CFR 52.21(c) & (d)
4. SVTANKT116*	3	40	R 336.1225, 40 CFR 52.21(c) & (d)
5. SVTANKT110*	3	44	R 336.1225, 40 CFR 52.21(c) & (d)
6. SVTANKT103*	3	20	R 336.1225, 40 CFR 52.21(c) & (d)
7. SVTANKT105*	3	20	R 336.1225, 40 CFR 52.21(c) & (d)
* Stack exhausts horizontally			

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).