

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

September 29, 2021

**PERMIT TO INSTALL
70-21**

ISSUED TO
BASF Corporation – Chemical Plants

LOCATED AT
1609 Biddle Avenue
Wyandotte, Michigan 48192-3729

IN THE COUNTY OF
Wayne

STATE REGISTRATION NUMBER
B4359

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: August 20, 2021	
DATE PERMIT TO INSTALL APPROVED: September 29, 2021	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 _{2e}	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 conditions 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
EUPOLGRAFT	This graft polyol manufacturing process, including acrylonitrile (ACN), alcohol, and styrene storage tanks (TK-413C, TK-500, TK-524) and reactor train no. 11. Emissions are controlled by a vapor balance system for the acrylonitrile storage tank loading and a thermal oxidizer.	01-01-1967, 01-01-1988, 10-01-1996, 07-01-2001, TBD	FGPOLEMCON FGPOLFUG FGPOLFACILITY
EUPOLFUGGRAFT	This emission unit contains the fugitive emissions from the graft polyol manufacturing process.	01-01-1968, 10-01-1996, TBD	FGPOLFUG FGPOLFACILITY

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.

**EUPOLGRAFT
 EMISSION UNIT CONDITIONS**

DESCRIPTION

This graft polyol manufacturing process, including acrylonitrile (ACN), alcohol, and styrene storage tanks (TK-413C, TK-500, TK-524) and reactor train no. 11. Emissions are controlled by a vapor balance system for the acrylonitrile storage tank loading and a thermal oxidizer.

Flexible Group ID: FGPOLEMCON, FGPOLFUG, FGPOLFACILITY

POLLUTION CONTROL EQUIPMENT

Vapor balance for acrylonitrile storage tank loading, thermal oxidizer for VOCs.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Styrene	22.7 pounds per day ¹	Each calendar day	Styrene storage tank TK-500	SC VI.3	R 336.1225(3)
2. Styrene	1.185 tons per year	12-month rolling time period as determined at the end of each calendar month	Styrene storage tank TK-500	SC VI.3	R 336.1205(1), R 336.1225(3), R 336.1702(a)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Styrene	60,300,000 pounds per year	12-month rolling time period as determined at the end of each calendar month	Charged to styrene storage tank TK-500	SC VI.1	R 336.1205(1), R 336.1225(3), R 336.1702(a)
2. Graft Polyol	150,000,000 pounds per year	12-month rolling time period as determined at the end of each calendar month	Production in reactor train no. 11	SC VI.2	R 336.1205(1), R 336.1225(3), R 336.1702(a)

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not charge styrene to the styrene storage tank (TK-500) unless the unloading system is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes following the procedures specified below. **(R 336.1205(1), R 336.1225(3), R 336.1702(a), R 336.1910)**
 - a. The hatch and openings of the delivery vessel shall be closed to prevent emission of displaced VOC vapors during transfer operation, except under emergency conditions.
 - b. The liquid transfer line shall be equipped with a device (e.g. a valve), or a procedure shall be implemented, to prevent, liquid drainage from the line when it is disconnected and not in use.
 - c. The permittee shall develop written procedures for the operation of the control measures described above, and such procedures shall made available to the Department in an accessible location.

2. The permittee shall not fill the acrylonitrile storage tank (TK-524) unless the vapor balance system is installed, maintained and operated in a satisfactory manner or the filling emissions are vented to the thermal oxidizer. Satisfactory operation of the vapor balance system includes following the procedures specified below. **(R 336.1205(1), R 336.1225(3), R 336.1702(a), R 336.1910, 40 CFR 60.112b(a)(3)(i), 40 CFR 60.113b(c)(1) and (2), 40 CFR 60.115b(c)(1))**
 - a) The vapor-tight collection line shall be connected to the delivery vessel before any volatile organic liquid is transferred.
 - b) The vapor-tight collection shall be purged with nitrogen prior to disconnection so as to minimize release of VOC vapors.
 - c) The hatch and other openings on the delivery vessel shall be closed to prevent emission of displaced vapors during transfer operation, except under emergency conditions.
 - d) The liquid transfer line shall be purged with nitrogen prior to disconnection and equipped with a device to minimize liquid drainage from the line when it is disconnected and not in use.
 - e) The permittee shall develop written procedures for the operation of all control measures described above, and such procedures shall be made available to the Department in an accessible location.
 - f) The permittee shall maintain documentation that the vapor balance system operates with a VOC capture efficiency of 95 percent or greater and with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined in 40 CFR 60.485(b).

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip the acrylonitrile storage tank (TK-524) with a closed vent system and thermal oxidizer control meeting the following specifications: **(R 336.1604(1)(c) and (2), 40 CFR 60.112b(a)(3)(i) and (ii))**
 - a) The closed vent system shall be designed to collect all VOC vapors and gases discharged from the storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined in 40 CFR 60.485(b). 40 CFR 60.485(b) specifies Method 21 shall be used to determine the presence of leaking sources. The instrument shall be calibrated before use each day of its use by the procedures specified in Method 21. The following calibration gases shall be used: (i) zero air (less than 10 ppm of hydrocarbon in air); (ii) a mixture of methane or n-hexane and air at a concentration of about, but less than, 10,000 ppm methane or n-hexane.
 - b) The thermal oxidizer control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater.

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 keep, in a satisfactory manner, monthly and 12-month rolling time period records of the amount of styrene charged to TK-500. The permittee shall keep all records on file at the facility and shall make them available to the Department upon request. **(R 336.1205(1), R 336.1225(3), R 336.1702(a))**
2. The permittee shall keep, in an acceptable manner, monthly and 12-month rolling time period records of the amount of graft polyol produced in EUPOLGRAFT reactor train. The permittee shall keep all records on file at the facility and shall make them available to the Department upon request. **(R 336.1205(1), R 336.1225(3), R 336.1702(a))**

3. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period calculations of the styrene emission rates from the TK-500 styrene storage tank. The permittee shall keep all records on file at the facility and shall make them available to the Department upon request. **(R 336.1205(1), R 336.1225(3), R 336.1702(a))**
4. The permittee shall maintain, for the life of the storage tank, a readily accessible record showing the dimension of the TK-524 acrylonitrile storage tank and an analysis showing the capacity of the storage tank. **(40 CFR 60.116b(a) and (b))**
5. Within 60 days of the issuance of this permit, the permittee shall submit to the AQD a plan, acceptable to the AQD, for monitoring the VOC concentration about the periphery of the closed vent system to ensure the design standard at SC IV.1.a is maintained. Upon approval by AQD, the permittee shall implement the plan and maintain records of monitoring required by the plan for a period of five years. **(40 CFR 60.113b(c)(1) and (2), 40 CFR 60.115b(c)(1) and (2))**
6. The permittee shall either retain all information, data, and analysis used to document the basis for the determination that reactor train no. 11 is not a PMPU, or, when requested by the EPA Administrator or the AQD, demonstrate that reactor train no. 11 is not a PMPU, as the term "PMPU" is defined at 40 CFR 63.1423. **(40 CFR 63.1420(e)(8), 40 CFR 63.1423)**

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 the phase II vacuum stripping system upgrade. **(R 336.1201(7)(a))**
2. The permittee shall notify the Department if a change in land use occurs for property classified as industrial or as a public roadway, where this classification was relied upon to demonstrate compliance with Rule 225(1). The permittee shall submit the notification to the AQD District Supervisor, within 30 days of the actual land use change. Within 60 days of the land use change, the permittee shall submit to the AQD District Supervisor a plan for complying with the requirements of Rule 225(1). The plan shall require compliance with Rule 225(1) no later than one year after the due date of the plan submittal. **(R 336.1225(4))**

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. SVPOL115	24	23	R 336.1225(3) 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with the applicable requirements of 40 CFR Part 60, Subparts A and Kb, the Standards of Performance for Volatile Organic Liquid Storage Vessels for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, as they apply to the acrylonitrile storage tank TK-524. **(40 CFR 60.110b(a))**

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
FGPOLEMCON	Equipment in the conventional polyols manufacturing process controlled by a caustic scrubber (consisting of two caustic absorbers) and a thermal oxidizer in series. Equipment in the graft polyols manufacturing process are controlled by only the thermal oxidizer.	EUPOLCONV, EUPOLGRAFT

**FGPOLEMCON
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Equipment in the conventional polyols manufacturing process controlled by a caustic scrubber (consisting of two caustic absorbers) and a thermal oxidizer in series. Equipment in the graft polyols manufacturing process are controlled by only the thermal oxidizer.

Emission Unit: EUPOLCONV, EUPOLGRAFT

POLLUTION CONTROL EQUIPMENT

A caustic scrubber and a thermal oxidizer for VOC control

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NOx	15.3 tons per year	12-month rolling time period as determined at the end of each calendar month	From the thermal oxidizer of FGPOLEMCON	SC VI.2	R 336.1205(1), 40 CFR 52.21(c)&(d)
2. VOC	6.4 pounds per hour	Daily Average	From the equipment of FGPOLEMCON vented through the thermal oxidizer	SC V.2	R 336.1225, R 336.1702(a)
3. VOC	16 tons per year	12-month rolling time period as determined at the end of each calendar month	From the equipment of FGPOLEMCON vented through the thermal oxidizer	SC VI.3	R 336.1205(1), R 336.1702(a)
4. Ethylene oxide	0.89 tons per year	12-month rolling time period as determined at the end of each calendar month	From the equipment of FGPOLEMCON vented through the thermal oxidizer	SC VI.3	R336.1225, R336.1702(a)
5. Propylene oxide	2.2 tons per year	12-month rolling time period as determined at the end of each calendar month	From the equipment of FGPOLEMCON vented through the thermal oxidizer	SC VI.3	R336.1205(1), R336.1225, R336.1702(a)
6. Acrylonitrile	2.4 tons per year	12-month rolling time period as determined at the end of each calendar month	From the equipment of FGPOLEMCON vented through the thermal oxidizer	SC VI.3	R336.1205(1), R336.1225, R336.1702(a)
7. Styrene	0.927 tons per year	12-month rolling time period as determined at the end of each calendar month	From the equipment of FGPOLEMCON vented through the thermal oxidizer	SC VI.3	R336.1205(1), R336.1225, R336.1702(a)

Pollutant	Limit	Time Period/Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
8. Acrylonitrile	15.4 pounds per day ¹	Each calendar day	From the equipment of FGPOLEMCON vented through the thermal oxidizer	SC V.1	R 336.1225(3)
9. Styrene	5.1 pounds per day ¹	Each calendar day	From the equipment of FGPOLEMCON vented through the thermal oxidizer	SC V.1	R 336.1225(3)

10. The permittee shall maintain an outlet concentration of total epoxides, as determined through the methodology at 40 CFR 63.1426(c), after the thermal oxidizer of 20 ppmv or less. The emission limitation set forth in this condition shall apply at all times except during periods of nonoperation of the affected source (or specific portion thereof) resulting in cessation of emissions to which this condition applies. **(40 CFR 63.1420(h)(1), 40 CFR 63.1424(a)(1), 40 CFR 63.1425(a) and (b)(2)(iii))**

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate either EUPOLCONV or EUPOLGRAFT equipment normally vented through the thermal oxidizer, including the EUPOLCONV and EUPOLGRAFT vacuum jet systems, unless such equipment is vented through the thermal oxidizer (except as allowed in SC III.3, SC III.4, and SC III.5 of EUPOLCONV in MI-ROP-B4359-2003b and subsequent revisions) and the thermal oxidizer is installed, maintained, and operated in a satisfactory manner, including meeting the requirements of 40 CFR 60 Subparts A and Kb and 40 CFR 63 Subparts A and PPP, and each of the following requirements: **(R 336.1205(1), R 336.1225, R 336.1702(a), R 336.1910, 40 CFR 60 Subparts A and Kb, and 40 CFR 63 Subparts A and PPP)**
 - a. In accordance with 40 CFR 63.1430(d) and 40 CFR 63.1438(a) and (b), the minimum firebox temperature that indicates the thermal oxidizer is operating in a manner to ensure compliance with the total epoxides emission standard at SC I.10 has been established at 1820°F. Whenever any equipment (including oxide storage tanks) of EUPOLCONV is in operation, the permittee shall operate the thermal oxidizer such that the daily average value of the firebox temperature remains at or above 1820°F. **(40 CFR 63.1420(h)(3), 40 CFR 63.1424(a)(1) and (a)(7), 40 CFR 63.1429(d) and (d)(1), 40 CFR 63.1438(a) and (a)(1), 40 CFR 63.1438(b) and (b)(2))**
 - b. Whenever any equipment of either EUPOLCONV or EUPOLGRAFT is in operation, the permittee shall operate the thermal oxidizer such that each individual measure of the firebox temperature is not less than 1700°F, such that a minimum residence time of 0.8 seconds is maintained through the thermal oxidizer, and such that the emission rates from the thermal oxidizer are limited to 1.13 pounds per hour ethylene oxide or less, 0.96 pounds per hour propylene oxide or less, 0.88 pounds per hour acrylonitrile or less, and 0.74 pounds per hour styrene or less. **(R 336.1910, 40 CFR 60.113b(c)(1) and (2))**

3. The permittee shall not operate EUPOLCONV equipment normally vented through the caustic scrubber, including the vacuum jet systems, unless such equipment is vented through the caustic scrubber (except as allowed in SC III.3, SC III.4, and SC III.5 of EUPOLCONV in MI-ROP-B4359-2003b and subsequent revisions) and the caustic scrubber is installed, maintained, and operated in a satisfactory manner. **(R 336.1910, 40 CFR 63 Subparts A and PPP)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the operating temperature of the thermal oxidizer on a continuous basis. The permittee shall calibrate

the outlet temperature monitor in a satisfactory manner acceptable to the AQD District Supervisor.
(R 336.1205(1), R 336.1225, R 336.1702(a), R 336.1910, 40 CFR Part 63, Subparts A and PPP)

2. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor the position of the waste gas inlet control valves of the thermal oxidizer on a continuous basis. The permittee shall verify operation of the control valve position monitor in a satisfactory manner acceptable to the AQD District Supervisor. **(R 336.1205(1), R 336.1225, R 336.1702(a), R 336.1910, 40 CFR 60.113b(c)(1)(ii) and (2))**
3. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the liquid flowrate through each absorber in the caustic scrubber on a continuous basis. The permittee shall calibrate the liquid flowrate monitor in a satisfactory manner acceptable to the AQD District Supervisor. **(R 336.1205(1), R 336.1225, R 336.1702(a), R 336.1910, 40 CFR Part 63, Subparts A and PPP)**
4. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the pH of the effluent from the caustic scrubber on a continuous basis. The permittee shall calibrate the pH monitor in a satisfactory manner acceptable to the AQD District Supervisor. **(R 336.1205(1), R 336.1225, R 336.1702(a), R 336.1910, 40 CFR Part 63, Subparts A and PPP)**

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 of the Phase II Vacuum Stripping System Upgrade, the permittee shall verify the styrene and acrylonitrile emission rates from the equipment of FGPOLEMCON vented through the thermal oxidizer by testing at owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 63, 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 30 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 336.1225(3), R 336.2001, R 336.2003, R 336.2004)**
2. Upon request of the AQD District Supervisor, the permittee shall verify the VOC emission rates from the equipment of FGPOLEMCON vented through the thermal oxidizer by testing at 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 30 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 336.1702, 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/records 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 336.1205(3), R 336.1225, R 336.1702(a), 40 CFR 52.21 (c) & (d))**
2. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period calculations of the NO_x emission rates from the thermal oxidizer. The permittee shall keep all records on file at the facility and shall make them available to the Department upon request. **(R 336.1205(1), 40 CFR 52.21(c) and (d))**

3. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period calculations of the propylene oxide, ethylene oxide, acrylonitrile, styrene, and VOC emission rates from EUPOLCONV and EUPOLGRAFT equipment vented through the thermal oxidizer. The permittee shall keep all records on file at the facility and shall make them available to the Department upon request. **(R 336.1205(1), R 336.1225, R 336.1702(a), R336.1910, 40 CFR Part 63, Subpart PPP)**
4. While equipment of either EUPOLCONV or EUPOLGRAFT is in operation, the permittee shall monitor and record, on a continuous basis, the operating temperature of the thermal oxidizer with instrumentation acceptable to the AQD District Supervisor. For the purposes 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 336.1205(1), R 336.1225, R 336.1702(a), R 336.1910, 40 CFR Part 63, Subparts A and PPP)**
5. While equipment of either EUPOLCONV or EUPOLGRAFT is in operation, the permittee shall monitor and record, on a continuous basis, the position of the waste gas inlet control valves of the thermal oxidizer with instrumentation acceptable to the AQD District Supervisor. For the purposes 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 336.1205(1), R 336.1225, R 336.1702(a), R 336.1910, 40 CFR 60.113b(c)(1)(ii) and (2))**
6. While equipment of either EUPOLCONV or EUPOLGRAFT is in operation, the permittee shall monitor and record, on a continuous basis, the liquid flowrate through each absorber in the caustic scrubber with instrumentation acceptable to the AQD District Supervisor. For the purposes 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 336.1205(1), R 336.1225, R 336.1702(a), R 336.1910, 40 CFR Part 63, Subparts A and PPP)**
7. While equipment of either EUPOLCONV or EUPOLGRAFT is in operation, the permittee shall monitor and record, on a continuous basis, the pH of the effluent from the caustic scrubber with instrumentation acceptable to the AQD District Supervisor. For the purposes 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 336.1205(1), R 336.1225, R 336.1702(a), R 336.1910, 40 CFR 60.113b(c)(1)(ii) and (2))**
8. The permittee shall conduct regular inspections, as outlined below, of the thermal oxidizer for the purpose of determining the operating condition of the thermal oxidizer. **(R 336.1910)**
 - a. Regular inspections of the thermal oxidizer shall be conducted during scheduled outages or downtime, but not less frequently than every 12-months.
 - b. The operational condition, and if necessary, reasons for the failure or malfunction of the different components of the thermal oxidizer shall be determined during the inspection.
 - c. Any repairs and corrective actions needed to address the causes of malfunction or failure shall be performed within one hour. If the problem is not corrected within one hour, the facility shall promptly discontinue the source of emissions to the thermal oxidizer until any repairs and corrective actions needed to address the causes of malfunction or failure is performed.

VII. REPORTING

1. The permittee shall submit as a part of the MACT PPP Periodic Report required in SC VII.6 of EUPOLCONV the information specified in 40 CFR 63.1430(h)(1) through (4) for the caustic scrubber and thermal oxidizer process vent, including the following: **(40 CFR 63.1424(a)(1), 40 CFR 63.1430(h))**

- a) Reports of the daily average liquid flowrate for an absorber in the caustic scrubber, the daily average effluent pH of the caustic scrubber, or the daily average thermal oxidizer firebox temperature for all operating days when the daily average is below the minimum established in accordance with 40 CFR 63.1430(d) and 40 CFR 63.1438(a). Each occurrence, by definition at 40 CFR 63.1438(f)(3) and (3)(i), represents an excursion under MACT PPP. **(40 CFR 63.1424(a)(1) and (a)(7), 40 CFR 63.1430(h)(1), 40 CFR 63.1438(f)(3) and (3)(i), 40 CFR 63.1439(e)(6)(iii)(B))**
- b) Reports of the duration of periods when monitoring data for the daily average liquid flowrate for an absorber in the caustic scrubber, when monitoring data for the daily average effluent pH of the caustic scrubber, or when monitoring data for the daily average thermal oxidizer firebox temperature is insufficient for the operating day. At 40 CFR 63.1438(f)(3)(ii), for process vents from batch unit operations monitoring data shall be considered insufficient when measured values are not available, due to monitoring system breakdowns, repairs, calibration checks, or zero (low-level) and high-level adjustments, for at least 75 percent of the 15-minute periods when batch emissions episodes selected to be controlled are being vented to the thermal oxidizer during the operating day, using the procedures specified at 40 CFR 63.1438(f)(3)(ii)(A) through (D):
 - i. Determine the total amount of time during the operating day when batch emission episodes selected to be controlled are being vented to the control device; **(40 CFR 63.1438(f)(3)(ii)(A))**
 - ii. Subtract the time during periods of non-operation of the affected source (or portion thereof) resulting in cessation of the emissions to which the monitoring applies, from the total amount of time determined in subparagraph (i) to obtain the operating time used to determine if monitoring data are insufficient; **(40 CFR 63.1438(f)(3)(ii)(B))**
 - iii. Determine the total number of 15-minute periods in the operating time used to determine if monitoring data, as was determined in subparagraph (ii); **(40 CFR 63.1438(f)(3)(ii)(C))**
 - iv. If measured values are not available for 75 percent of the total number of 15-minute periods determined in subparagraph (iii), the monitoring data are insufficient for the operating day. **(40 CFR 63.1438(f)(3)(ii)(D))**

Each occurrence, by definition at 40 CFR 63.1438(f)(3) and (3)(ii), represents an excursion under MACT PPP. **(40 CFR 63.1424(a)(1) and (a)(7), 40 CFR 63.1430(h)(2), 40 CFR 63.1438(f)(3) and (3)(ii))**

- c) Reports of the times and durations of all periods recorded when the process vent stream is diverted from the caustic scrubber or thermal oxidizer through a bypass line. **(40 CFR 63.1424(a)(1), 40 CFR 63.1430(h)(3))**
- d) Reports of all periods recorded in which the seal mechanism is broken, the bypass line valve position has changed, or the key to unlock the bypass line valve was checked out. **(40 CFR 63.1424(a)(1), 40 CFR 63.1430(h)(4))**

Should the caustic scrubber or the thermal oxidizer have more than one excursion of MACT PPP for a semiannual reporting period, the permittee shall submit quarterly MACT PPP Periodic Reports for the process vent as specified in 40 CFR 63.1439(e)(6)(viii). Quarterly MACT PPP Periodic Reports shall be submitted no later than 60 days after the end of each calendar quarter (i.e. the calendar quarters being January 1 through March 30, April 1 through June 30, July 1 through September 30, and October 1 through December 31). Quarterly reports shall continue to be submitted for the thermal oxidizer process vent until two semiannual periods have passed wherein not more than one excursion occurs within the semiannual period, after which the permittee may return to semiannual reporting. **(40 CFR 63.1424(a)(8), 40 CFR 63.1439(e)(6)(viii)(A)(1))**

2. If any performance tests are reported in the MACT PPP Periodic Report required in SC VII.1 of EUPOLCONV, the permittee shall include within the MACT PPP Periodic Report one complete test report for each test method used for a particular kind of emission point tested. A complete test report shall include the results of the performance test, a brief process description, sampling site description, description of sampling and analysis procedures and any modifications to standard procedures, quality assurance procedures, record of operating conditions during the test, record of preparation of standards (if the permittee prepares the standards), record of calibrations, raw data sheets for field sampling, raw data sheets for field and laboratory analyses, documentation of calculations, and any other information required by the test method to be in the test report. For additional tests performed for the same kind of emission point using the same method, results

and any other information required by the test method to be in the test report shall be submitted, but a complete test report is not required. **(40 CFR 63.1424(a)(8), 40 CFR 63.1439(e)(6)(iv)(A) and (B))**

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. SVPOL80	30	100	R 336.1225 40 CFR 52.21 (c) &(d)

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with the applicable requirements of 40 CFR Part 63, Subparts A and PPP, the National Emission Standards for Hazardous Air Pollutant Emissions for Polyether Polyol Production, as they apply to FGPOLEMCON. **(40 CFR 63.1420, 40 CFR 60.480)**
2. For the purpose of EUPOLCONV and the conditions herein that apply to EUPOLCONV, where a term originates in 40 CFR Part 63, Subparts A and PPP the term shall have the meaning given in 40 CFR 63.1423. **(40 CFR 63.1423)**
3. With respect to the caustic scrubber as a control device associated with process vents from batch unit operations, each MACT PPP excursion within either the meaning described in SC VII.1.a or the meaning described in SC VII.1.b, excepting one excused excursion for the caustic scrubber within each MACT PPP Periodic Reporting period, constitutes a violation of the operating limit at 40 CFR 63.1438(a)(1). **(40 CFR 63.1424(a)(7), 40 CFR 63.1438(e)(1), (e)(1)(iii), and (e)(2), 40 CFR 63.1438(g) and (g)(6))**
4. With respect to the thermal oxidizer as a control device associated with process vents from batch unit operations, each MACT PPP excursion within either the meaning described in SC VII.1.a or the meaning described in SC VII.1.b, excepting one excused excursion for the thermal oxidizer within each MACT PPP Periodic Reporting period, constitutes a violation of the operating limit at 40 CFR 63.1438(a)(1). **(40 CFR 63.1424(a)(7), 40 CFR 63.1438(e)(1), (e)(1)(iii), and (e)(2), 40 CFR 63.1438(g) and (g)(6))**

Footnotes:

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