

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

March 10, 2022

PERMIT TO INSTALL
141-07N

ISSUED TO
W.R. Grace & Co.-Conn.

LOCATED AT
1421 Kalamazoo Street
South Haven, Michigan 49090

IN THE COUNTY OF
Van Buren

STATE REGISTRATION NUMBER
B6519

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: February 23, 2022	
DATE PERMIT TO INSTALL APPROVED: March 10, 2022	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))	Flexible Group ID
EU-TK0605	5,700-gallon solvent storage tank	FGTANKFARM
EU-TK0607	5,700-gallon solvent storage tank	FGTANKFARM
EU-TK0609	5,700-gallon solvent storage tank	FGTANKFARM
EU-TK0611	3,500-gallon solvent storage tank	FGTANKFARM
EU-TK0611-A	5,700-gallon solvent storage tank	FGTANKFARM
EU-TK0613	5,700-gallon Tetrahydrofuran (THF) storage tank	FGPROCESS
EU-TK0617	10,000-gallon solvent storage tank	FGTANKFARM
EU-TK0619	4,500-gallon solvent storage tank	FGTANKFARM
EU-TK0621	10,000-gallon solvent storage tank	FGTANKFARM
EU-TK0621-B	10,000-gallon methanol storage tank	FGTANKFARM
EU-TK0621-C	10,000-gallon methanol storage tank	FGTANKFARM
EU-TK0623	10,000-gallon solvent storage tank	FGTANKFARM
EU-TK3307	10,000-gallon Production LTC (Dynaene HC-40) storage tank	FGTANKFARM
EU-TK4101A	10,000-gallon Waste Water storage tank (V.P. > 1.5 psia)	FGTANKFARM
EU-TK4101B	10,000-gallon Waste Water storage tank (V.P. > 1.5 psia)	FGTANKFARM
EU-TK4103A	10,000-gallon Waste Solvent storage tank	FGTANKFARM
EU-TK4103B	10,000-gallon Waste Solvent storage tank	FGTANKFARM
EU-TK4301A	4,500 gallon Recovered solvent storage tank	FGTANKFARM
EU-TK4301B	10,000 gallon Recovered solvent storage tank	FGTANKFARM
EU-TK4301C	10,000 gallon Recovered solvent storage tank	FGTANKFARM
EU-TK4301D	10,000-gallon solvent storage tank	FGTANKFARM
EU-TK4401	3,500-gallon Emissions LTC (Methanol) storage tank	FGTANKFARM
EU-TK0627	10,000-gallon solvent storage tank with conservation vent	FGTANKFARM
EU-TK0627B	10,000-gallon solvent storage tank with conservation vent	FGTANKFARM
EU-TK0615-A	10,000-gallon solvent storage tank with conservation vent	FGTANKFARM
EUPROCESSUNITS	<p>Process equipment including reactors, various tanks, pumps, and other vessels. A detailed equipment list will be maintained on site. The air pollution control equipment consists of a packed-bed scrubber system and a regenerative thermal oxidizer (RTO).</p> <p>The "Plant 2 Scrubbers" will continue to be available for operation.</p>	FGPROCESS
EUHCLTANKS	10,000-gallon HCl bulk storage tank (TK0603). This tank vents to the new packed-bed scrubber system	FGPROCESS
EUPMEQUIPMENT	Particulate emitting equipment vented to the large dust collector	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.

**EUPMEQUIPMENT
 EMISSION UNIT CONDITIONS**

DESCRIPTION

Particulate emitting equipment vented to the large dust collector.

Flexible Group ID: NA.

POLLUTION CONTROL EQUIPMENT

Large dust collector.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. PM	0.01 lbs per 1000 lbs exhaust gas	Hourly	EUPMEQUIPMENT	SC V.1, SC VI.2	R 336.1331(c)
2. PM	0.18 pph	Hourly	EUPMEQUIPMENT	SC V.1, SC VI.2	R 336.1331(c)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate the dust collector unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the dust collector, has been submitted within 45 days of permit issuance, 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 336.1301, R 336.1331, R 336.1702, R 336.1910, R 336.1911, 40 CFR 52.21(c) & (d))

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EUPMEQUIPMENT unless the respective cartridge filters are installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes, but is not limited to, maintaining a differential pressure of 0.2 to 5 inches of water column. **(R 336.1331(c), R 336.1910)**

V. TESTING/SAMPLING

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

1. Upon request of the AQD District Supervisor, the permittee shall verify the PM emission rate from EUPMEQUIPMENT by testing at owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in the table below.

Pollutant	Test Method Reference
PM	40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules

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 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall monitor, in a satisfactory manner, the EUPMEQUIPMENT cartridge filters differential pressure on a continuous basis. **(R 336.1331(c), R 336.1910)**
2. The permittee shall keep, in a satisfactory manner, weekly records of the cartridge filter differential pressure for EUPMEQUIPMENT. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1331, R 336.1910)**

VII. REPORTING

NA

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. SVPMEQUIPMENT	20	52	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).

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	Equipment including reactors, various tanks, pumps, and other vessels, a THF storage tank, and an HCl bulk storage tank. The permittee will maintain a detailed equipment list on site.	EUPROCESSUNITS, EUHCLTANKS, EU-TK0613
FGTANKFARM	Tanks located in the tank farm area.	EU-TK0605, EU-TK0607, EU-TK0609, EU-TK0611, EU-TK0611-A, EU-TK0617, EU-TK0619, EU-TK0621, EU-TK0621-B, EU-TK0621-C, EU-TK0623, EU-TK3307, EU-TK4101A, EU-TK4101B, EU-TK4103A, EU-TK4103B, EU-TK4301A, EU-TK4301B, EU-TK4301C, EU-TK4301D, EU-TK4401, EU-TK0627, EU-TK0627B, EU-TK0615-A

**FGPROCESS
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Equipment including reactors, various tanks, pumps, and other vessels, a THF storage tank, and an HCl bulk storage tank. The permittee will maintain a detailed equipment list on site.

Emission Unit: EUPROCESSUNITS, EUHCLTANKS, EU-TK0613.

POLLUTION CONTROL EQUIPMENT

The air pollution control equipment consists of a packed-bed scrubber system and a regenerative thermal oxidizer (RTO).

The "Plant 2 Scrubbers" will continue to be available for operation.

Tank No. TK0603 vents to the packed-bed scrubber system.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	7.0 pph	Test Protocol*	EUPROCESSUNITS	SC V.1, VI.5, VI.6	R 336.1702(a), R 336.1910
2. 1-Bromo-3-Chloropropane	0.019 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
3. 2-Diethylamino-ethylamine	0.58 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
4. Acetaldehyde	0.0025 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
5. Acetic Acid	0.058 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
6. Acetic Anhydride	0.002 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
7. Acetone	3.1 pph ¹	Test Protocol*	EUPROCESSUNITS	SC V.1, VI.5, VI.6	R 336.1225
8. Benzaldehyde	0.005 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
9. Chloroacetyl Chloride	0.009 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
10. Diethylamine	0.008 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
11. Dimethylaminoethanol	0.14 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
12. Ethanol	0.33 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
13. Ethyl Acetate	0.7 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
14. Formaldehyde	0.016 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
15. Formic Acid	0.08 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
16. Heptane	2.1 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
17. Hydrazine	0.0001 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
18. Isopropyl Alcohol	2.2 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
19. Isopropylamine	0.004 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
20. Methanesulfonyl Chloride	0.000003 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
21. Methyl Bromide	0.03 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
22. Methyl Chloride	2 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
23. Methyl isobutyl Ketone	2.1 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
24. Methyl t-Butyl Ether	6.5 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
25. Morpholine	0.03 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
26. n-Butyl Bromide	0.006 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
27. o-Chlorotoluene	0.003 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
28. Pyridine	0.12 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
29. t-Butanol	0.12 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
30. Tetrahydrofuran	7.0 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
31. Triethylamine	0.2 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
32. Xylene	2.76 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
33. Ammonia	0.1 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
34. Hydrobromic Acid 48%	1 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
35. Total Hydrogen Chloride	1.5 pph ¹	Test Protocol*	EUPROCESSUNITS EUHCLTANKS	GC 13, SC VI.5, VI.6	R 336.1224, R 336.1225, R 336.1901
36. Hydrogen Peroxide	0.0006 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
37. Phosphorus Oxychloride	0.01 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
38. Phosphorus Trichloride	0.01 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
39. Sulfuric Acid	0.025 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
40. Thionyl Chloride	0.05 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
41. 2-ethyl butanol	0.3 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
42. 2-ethylbutyl bromide	0.005 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
43. Acetonitrile	1.7 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
44. Cyclohexane	2.0 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
45. Polyethylene glycol	1.7 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
46. Petroleum Naphtha	0.3 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
47. 2-methyl tetrahydrofuran	6.15 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
48. Dimethylformamide	3.3 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
49. Ethyl-8-Bromooctanoate	0.0071 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
50. Isopropyl acetate	5.6 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
51. Methanesulfonic acid	0.035 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
52. Methyl ethyl ketone	1.9 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
53. N,N-dimethylacetamide	0.25 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
54. n-Propanol	2.6 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
55. Phenol	0.0073 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
56. Trifluoroacetic acid	0.06 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
57. Acetyl chloride	0.29 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
58. Acetyl chloride	11 lb/month ¹	Calendar month	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
59. Hydroxylamine	216 lb/month ¹	Calendar month	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
60. Ethylene diamine	3.3 lb/month ¹	Calendar month	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
61. 1,3,5-Cycloheptatriene, Benzenesulfonyl Chloride, Benzonitrile, Cyclohexylamine, Ethyl Chloroformate, p Anisaldehyde, Piperazine, Propargyl Alcohol, Benzylamine, (S)-3-hydroxypyrrolidine, N,N-diisopropylethylamine, Phenyl chloroformate, Phenylpropylamine, Dodecyl Methyl Sulfide, and 2-Chlorobenzaldehyde	0.14 pph ¹ per compound and 10 lb/month ¹ per compound	Test Protocol* for pph and calendar month for lb/month	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1226(a)
62. Benzene	0.0025 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
63. 2,2-Dimethoxy propane	0.11 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
64. 2,2-Dimethoxy propane	8.1 lb/month ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
65. 1-Dodecanethiol	0.027 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
66. Isobutanol	4.3 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
67. t-butylamine	0.66 pph ¹	Test Protocol*	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225
68. Benzyl chloride	18 lb/month ¹	Calendar month	EUPROCESSUNITS	GC 13, SC VI.5, VI.6	R 336.1225, R 336.1227(2)

*Test Protocol shall specify averaging time

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EUPROCESSUNITS unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the RTO is implemented and maintained. 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 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 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. When using the Plant 2 scrubbers as a method of emissions control necessary to meet required emission limits, the permittee shall not vent any EUPROCESSUNITS equipment to the Plant 2 scrubbers unless the Plant 2 scrubbers are installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes, but is not limited to, maintaining an eductor minimum flow rate of 22 gallons per minute for each of the Plant 2 scrubbers. **(R 336.1225, R 336.1625, R 336.1702, R 336.1910)**
2. When using the Plant 2 scrubbers as a method of emissions control necessary to meet required emission limits, the permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor the Plant 2 scrubbers eductor liquid flow rates on a continuous basis, when in use. **(R 336.1225, R 336.1625, R 336.1702, R 336.1910)**
3. The permittee shall not operate EUHCLTANKS or any EUPROCESSUNITS equipment when using corrosive materials unless the corrosive vapors are routed to either the packed-bed scrubber system or to the Plant 2 Scrubbers. Satisfactory operation includes, but is not limited to, maintaining minimum scrubber flow rates in accordance with manufacturer's recommendations. **(R 336.1225, R 336.1625, R 336.1628, R 336.1702, R 336.1910)**
4. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner, a device to monitor and record the packed-bed scrubber system liquid inlet flow rate, in gallons per minute, on a continuous basis. **(R 336.1225, R 336.1625, R 336.1628, R 336.1702, R 336.1910)**
5. The permittee shall not operate EU-TK0613 unless the RTO is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the RTO includes maintaining a minimum combustion chamber temperature of 1500°F and a minimum retention time of 0.5 seconds. In lieu of a minimum temperature, the permittee may use an average temperature of 1500°F based upon a three-hour rolling average. **(R 336.1225, R 336.1702(a), R 336.1910)**
6. The permittee shall not operate EUPROCESSUNITS unless the RTO is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the RTO includes a minimum VOC and acetone destruction efficiency of 98 percent (by weight) or an outlet concentration less than or equal to 20 ppmv combined for VOC and acetone and maintaining a minimum combustion chamber temperature of 1500°F and a minimum retention time of 0.5 seconds. In lieu of a minimum temperature, the permittee may use an average temperature of 1500°F based upon a three-hour rolling average. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1702(a), R 336.1910)**
7. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner a temperature monitoring device in the combustion chamber of the RTO to monitor and record the temperature on a continuous basis, during operation of EUPROCESSUNITS. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702(a), 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 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 336.1224, R 336.1225, R 336.1702(a))**
2. When using the Plant 2 scrubbers as a method of emissions control necessary to meet required emission limits, the permittee shall keep, in a satisfactory manner, daily records of the Plant 2 scrubbers liquid flow rates when any EUPROCESSUNITS equipment is venting to the Plant 2 scrubbers. The permittee shall keep all

records on file at the facility and make them available to the Department upon request. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1702(a), R 336.1910)**

3. The permittee shall monitor and record, in a satisfactory manner, the temperature in the combustion chamber of the RTO, on a continuous basis, during operation of EUPROCESSUNITS. Temperature data recording shall consist of measurements made at equally spaced intervals, not to exceed 15 minutes per interval. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1702(a), R 336.1910)**
4. The permittee shall keep, in a satisfactory manner, operating temperature records for the RTO as required by SC VI.3. If the measured operating temperature of the RTO falls below 1500°F during operation of EUPROCESSUNITS, the permittee may demonstrate compliance based upon a three-hour rolling average temperature, by calculating the average operating temperature for each rolling three hour period which includes one or more temperature readings below 1500°F. The permittee shall keep all records and calculations on file at the facility and make them available to the Department upon request. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1702(a), R 336.1910)**
5. The permittee shall keep, in a satisfactory manner, records of the following for EUPROCESSUNITS. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1625, R 336.1702)**
 - a) Chemical steps performed to make each batch of product.
 - b) Calculated emission rates in pounds per batch of each pollutant.
 - c) Calculated emission rates in pounds per hour of each pollutant.
 - d) Calculated emission rates in pounds per month for each pollutant with a monthly emission limit.
 - e) Method of calculation.
6. The permittee shall keep, in a satisfactory manner, records for each calendar month of the average hourly VOC and individual TAC emission rates from EUPROCESSUNITS. The permittee may use the information required to be collected in SC VI.5 to create these records. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1625, R 336.1702)**
7. The permittee shall keep records of the throughput of each solvent/mixture for EU-TK0613 when controlled by the RTO for each calendar month and 12-month rolling time period, as determined at the end of each calendar month. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1702(a))**

VII. REPORTING

NA

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. SVRTO	30	30	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

Tanks located in the tank farm area.

Emission Unit: EU-TK0605, EU-TK0607, EU-TK0609, EU-TK0611, EU-TK0611-A, EU-TK0617, EU-TK0619, EU-TK0621, EU-TK0621-B, EU-TK0621-C, EU-TK0623, EU-TK3307, EU-TK4101A, EU-TK4101B, EU-TK4103A, EU-TK4103B, EU-TK4301A, EU-TK4301B, EU-TK4301C, EU-TK4301D, EU-TK4401, EU-TK0627, EU-TK0627B, EU-TK0615-A.

POLLUTION CONTROL EQUIPMENT

Conservation vents.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	2 tpy	12-month rolling time period as determined at the end of each calendar month	FGTANKFARM	SC VI.2, SC VI.3	R 336.1225, R 336.1702(a)

II. MATERIAL LIMIT(S)

1. The permittee shall not store tetrahydrofuran (THF) in EU-TK4103A, EU-TK4103B, EU-TK4301A, EU-TK4301B, EU-TK4301C, EU-TK4301D, EU-TK0627B, or EU-TK0615-A.¹ **(R 336.1225)**
2. The permittee shall not transfer more than 6,700 gallons of ethanol to EU-TK0615-A during any hour, as determined by the total amount transferred divided by the time over which the transfer occurs, including the time for pressure relief from the tank truck.¹ **(R 336.1225)**
3. The permittee shall not transfer more than 4,155 gallons of heptane to EU-TK0611-A per calendar day.¹ **(R 336.1225)**
4. The permittee shall only store methanol in EU-TK0621-B and EU-TK0621-C.¹ **(R 336.1225)**

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any FGTANKFARM storage tank unless the corresponding conservation vent is installed, maintained, and operated in a satisfactory manner. **(R 336.1225, R 336.1702(a))**

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. All required calculations shall be completed in a format acceptable to the AQD District Supervisor and made available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. **(R 336.1225, R 336.1702(a))**
2. The permittee shall keep records of the throughput of each solvent/mixture for each FGTANKFARM storage tank for each calendar month and 12-month rolling time period, as determined at the end of each calendar month. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1702(a))**
3. 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 336.1225, R 336.1702(a))**
4. The permittee shall keep a record of the following for each transfer operation when ethanol is transferred to EU-TK0615-A. The permittee shall keep all records on file at the facility and make them available to the Department upon request.¹ **(R 336.1225)**
 - a) The quantity, in gallons, of ethanol transferred to EU-TK0615-A during the transfer operation.
 - b) The date and time the transfer operation begins.

If the amount transferred exceeds 6,700 gallons, the permittee shall also record the following:

- c) The duration of the transfer operation, including the time for pressure relief from the tank truck.
 - d) The transfer rate, in gallons per hour, as determined by the total amount transferred divided by the time over which the transfer occurs, including the time for pressure relief from the tank truck.
5. The permittee shall keep a record of the quantity, in gallons, of heptane transferred to EU-TK0611-A each calendar day. The permittee shall keep all records on file at the facility and make them available to the Department upon request.¹ **(R 336.1225)**

VII. REPORTING

NA

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-TK0605	6 ¹	14.5 ¹	R 336.1225
2. SV-TK0607	6 ¹	14.5 ¹	R 336.1225
3. SV-TK0609	6 ¹	14.5 ¹	R 336.1225
4. SV-TK0611	6 ¹	14.5 ¹	R 336.1225
5. SV-TK0611-A	6 ¹	14.5 ¹	R 336.1225
6. SV-TK0617	6 ¹	14.5 ¹	R 336.1225
7. SV-TK0619	6 ¹	14.5 ¹	R 336.1225
8. SV-TK0621	6 ¹	14.5 ¹	R 336.1225
9. SV-TK0621B	2 ¹	21.8 ¹	R 336.1225
10. SV-TK0621C	2 ¹	21.8 ¹	R 336.1225
11. SV-TK0623	6 ¹	14.5 ¹	R 336.1225
12. SV-TK3307	6 ¹	14.5 ¹	R 336.1225

Stack & Vent ID	Maximum Exhaust Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
13. SV-TK4101A	6 ¹	14.5 ¹	R 336.1225
14. SV-TK4101B	6 ¹	14.5 ¹	R 336.1225
15. SV-TK4103A	6 ¹	14.5 ¹	R 336.1225
16. SV-TK4103B	6 ¹	14.5 ¹	R 336.1225
17. SV-TK4301A	6 ¹	14.5 ¹	R 336.1225
18. SV-TK4301B	6 ¹	14.5 ¹	R 336.1225
19. SV-TK4301C	6 ¹	14.5 ¹	R 336.1225
20. SV-TK4301D	6 ¹	14.5 ¹	R 336.1225
21. SV-TK4401	6 ¹	12.5 ¹	R 336.1225
22. SV-TK0627	6 ¹	14.5 ¹	R 336.1225
23. SV-TK0627B	6 ¹	20.0 ¹	R 336.1225
24. SV-TK0615-A	2	23	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).

FGFACILITY CONDITIONS

DESCRIPTION

The following conditions apply source-wide to all process equipment including equipment covered by other permits, grand-fathered equipment, and exempt equipment.

POLLUTION CONTROL EQUIPMENT

Pollution control equipment at the facility includes a regenerative thermal oxidizer (RTO), a dust collector and a new packed bed scrubber system.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	89 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.2	R 336.1205(3)
2. Each individual HAP	8.9 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.2	R 336.1205(3)
3. Total HAPs	22 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.2	R 336.1205(3)

4. The total HAP emissions from FGFACILITY shall not exceed the limits in SCI.2 and SCI.3 on an uncontrolled basis for any process emitting any urban HAP as defined in Table 1 of 40 CFR Part 63, Subpart VVVVVV. **(40 CFR Part 63, Subpart VVVVVV)**

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. All required calculations shall be completed in a format acceptable to the AQD District Supervisor and made available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. **(R 336.1205(3))**
2. The permittee shall calculate the total VOC, each Individual HAP, and total HAPs emission rates from FGFACILITY monthly and for the preceding 12-month rolling time period. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205(3))**
3. The permittee shall calculate the individual and total HAP emissions for any process emitting any urban HAP found in Table 1 of 40 CFR Part 63, Subpart VVVVVV on an uncontrolled basis monthly and for the preceding 12-month rolling time period. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205(3))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of the National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources as specified in 40 CFR Part 63, Subparts A and VVVVVV, as they apply to FGFACILITY. **(40 CFR Part 63, Subpart VVVVVV)**

Footnotes:

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