MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

August 29, 2016

PERMIT TO INSTALL
26-16

ISSUED TO
Lockhart Chemical Company

LOCATED AT
4302 James P. Cole Boulevard
Flint, Michigan

IN THE COUNTY OF
Genesee

STATE REGISTRATION NUMBER
B6179

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. 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 26, 2016**	
DATE PERMIT TO INSTALL APPROVED: **August 29, 2016**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

Table of Contents

Section **Page**

Common Abbreviations / Acronyms

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	acfm	Actual cubic feet per minute
BACT	Best Available Control Technology	BTU	British Thermal Unit
CAA	Clean Air Act	°C	Degrees Celsius
CAM	Compliance Assurance Monitoring	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	CO_2e	Carbon Dioxide Equivalent
CFR	Code of Federal Regulations	dscf	Dry standard cubic foot
COM	Continuous Opacity Monitoring	dscm	Dry standard cubic meter
Department/ department	Michigan Department of Environmental Quality	°F	Degrees Fahrenheit
		gr	Grains
EU	Emission Unit	HAP	Hazardous Air Pollutant
FG	Flexible Group	Hg	Mercury
GACS	Gallons of Applied Coating Solids	hr	Hour
GC	General Condition	HP	Horsepower
GHGs	Greenhouse Gases	H_2S	Hydrogen Sulfide
HVLP	High Volume Low Pressure*	kW	Kilowatt
ID	Identification	lb	Pound
IRSL	Initial Risk Screening Level	m	Meter
ITSL	Initial Threshold Screening Level	mg	Milligram
LAER	Lowest Achievable Emission Rate	mm	Millimeter
MACT	Maximum Achievable Control Technology	MM	Million
MAERS	Michigan Air Emissions Reporting System	MW	Megawatts
MAP	Malfunction Abatement Plan	NMOC	Non-methane Organic Compounds
MDEQ	Michigan Department of Environmental Quality	NO_x	Oxides of Nitrogen
		ng	Nanogram
MSDS	Material Safety Data Sheet	PM	Particulate Matter
NA	Not Applicable	PM10	Particulate Matter equal to or less than 10 microns in diameter
NAAQS	National Ambient Air Quality Standards		
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
NSPS	New Source Performance Standards	pph	Pounds per hour
NSR	New Source Review	ppm	Parts per million
PS	Performance Specification	ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration	ppmw	Parts per million by weight
PTE	Permanent Total Enclosure	psia	Pounds per square inch absolute
PTI	Permit to Install	psig	Pounds per square inch gauge
RACT	Reasonable Available Control Technology	scf	Standard cubic feet
ROP	Renewable Operating Permit	sec	Seconds
SC	Special Condition	SO_2	Sulfur Dioxide
SCR	Selective Catalytic Reduction	TAC	Toxic Air Contaminant
SNCR	Selective Non-Catalytic Reduction	Temp	Temperature
SRN	State Registration Number	THC	Total Hydrocarbons
TEQ	Toxicity Equivalence Quotient	tpy	Tons per year
USEPA/EPA	United States Environmental Protection Agency	µg	Microgram
		µm	Micrometer or Micron
VE	Visible Emissions	VOC	Volatile Organic Compounds
		yr	Year

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

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 Environmental Quality, 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 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 R 336.1219 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 R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(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 R 336.1301, 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 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 R 336.1370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

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 (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EUReactor304	Reactor 304 has a capacity of 9,500 gallons and is used to manufacture rust preventative products, primarily esters and sulfonic acid salts. The salts typically involve barium, sodium, or calcium. Reactor 304 is also used to blend and neutralize, with weak bases such as calcium hydroxide, oxidized waxes and petrolatum. The emission unit also includes a water-cooled condenser and a condensate receiver. Previously covered by PTI No. 311-98.	3/3/1999	NA
EUReactor310	Reactor 310 has a capacity of 6,500 gallons and is used to produce alkyl benzene sulfonic acid salts of elements such as barium, calcium, magnesium, potassium, sodium, and zinc. The emission unit also includes a water-cooled condenser, a condensate receiver, and an alcohol storage tank with a capacity of 13,000 gallons. Previously covered by PTI No. 366-94.	9/14/1995	NA
EUReactor306	Production of gelled calcium sulfonate. Process equipment includes a 2,800 gallon capacity reactor equipped with an air-cooled condenser and a 210-gallon condensate receiver. Previously covered by PTI No. 432-89.	8/18/1989	FG306&307
EUReactor307	Production of gelled calcium sulfonate. Process equipment includes a 2,800 gallon capacity reactor equipped with an air-cooled condenser and a 210-gallon condensate receiver. Previously covered by PTI No. 432-89.	8/18/1989	FG306&307
EU305&325	Production of calcium sulfonate/oxidate-based rust preventative coatings, using mineral spirits as a solvent. Process equipment includes two blend tanks with capacities of 12,000 gallons (T-305) and 9,000 gallons (T-325), a 1,000 gallon condensate collection tank, and a water-cooled condenser. Previously covered by PTI No. 120-00.	6/6/2000	NA
EUOxidation216	The emission unit consists of an air oxidation reactor (R-216, with 2,500 gallon capacity, equipped with a thermal incinerator) and two finishing tanks (T-212 and T-215) with capacity of 14,000 gallons each. The reactor is subject to 40 CFR Part 60, Subpart III. Previously covered by PTI No. 110-91.	4/22/1991	NA

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EUPilotOxidation	Pilot air oxidation reactor (18.8 gallon capacity) with caustic scrubber, used for research and development to support production in EUOxidation216. The scrubber is used to control emissions of organic acids from the reaction. The reactor is subject to limited portions of 40 CFR Part 60, Subpart III. Previously covered by PTI No. 714-92.	10/1/1992	NA
EUCalcium	Process to produce natural calcium sulfonate. Process equipment includes four process tanks (401, 402, 403, and 404) used as reactors, each with 7,300 gallon capacity; four process tanks (405, 406, 407, and 408) for product drying, each with capacity of 7,300 gallons; two blending tanks, one with capacity of 300 gallons and one with capacity of 500 gallons; and a bag filter to control particulate matter emissions from the blending tanks. Blending tanks and bag filter previously covered by PTI No. 433-89 and process tanks previously covered by PTO No. 855-80A.	8/18/1989	NA
EULimeTank540	Bulk lime storage tank with 4,200 gallon capacity. Previously covered by PTO No. 254-83.	8/12/1983	FGLime540-541
EULimeSlurry541	Lime slurry tank with 6,000 gallon capacity for mixing lime and mineral spirits. Previously covered by PTO No. 254-83.	8/12/1983	FGLime540-541
EUBlending	Blending materials in various tanks, primarily: S-1, 322, BASF, M-1, M-2, M-3, Mini 304, 309, 701, 710, W2, 801, 802, 818, 806, 807, 808, 822, 845, 843, 855, 856, 857, UFO, or other drums, pails, or totes. Previously covered by PTO No. 855-80.	10/22/1980	NA
EUMeyers	Mixer with bag filter collector used to mix coatings with powder clay. Previously covered by PTO No. 432-88	10/3/1988	NA
EUEclipse	Natural gas-fired Eclipse boiler with 21 MMBTU/hr heat input rating. Previously covered by PTI No. 349-77	10/10/1977	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 336.1290.			

The following conditions apply to: EUReactor304

DESCRIPTION: Reactor 304 has a capacity of 9,500 gallons and is used to manufacture rust preventative products, primarily esters and sulfonic acid salts. The salts typically involve barium, sodium, or calcium. Reactor 304 is also used to blend and neutralize, with weak bases such as calcium hydroxide, oxidized waxes and petrolatum. The emission unit also includes a water-cooled condenser and a condensate receiver. Previously covered by PTI No. 311-98.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT:
Condenser with cooling tower, with efficiency of 96%

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Methanol	13.6 pph[1]	One hour	EUReactor304	SC VI.3.c	R 336.1225
2. VOC	32.9 lbs per batch	Batch	EUReactor304	SC VI.3.c	R 336.1702(a)
3. VOC	3.2 tpy	12-month rolling time period as determined at the end of each calendar month	EUReactor304	SC VI.4	R 336.1702(a)
4. n-Butanol	23.0 lbs per batch[1]	Batch	EUReactor304	SC VI.3.c	R 336.1225

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Material produced	70,000 lbs per batch	Each batch	EUReactor304	SC VI.3.a	R 336.1702(a)
2. Material produced	195 batches per year	12-month rolling time period as determined at the end of each calendar month	EUReactor304	SC VI.3.b	R 336.1702(a)

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not conduct heating or stripping operations with methanol in EUReactor304 while heating or stripping operations with methanol are conducted in Reactor 306, 307, or 310.[1] **(R 336.1225)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EUReactor304 unless the condenser is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the condenser includes maintaining a received condensate temperature no greater than 110 degrees Fahrenheit as measured in the condensate collection tank at least one hour into the stripping stage of the process. **(R 336.1225, R 336.1702(a), R 336.1910)**

2. The permittee shall equip and maintain the condenser with a received condensate temperature indicator in the condensate collection tank. **(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 and records 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 336.1225, R 336.1702(a))**

2. The permittee shall monitor and record, in a satisfactory manner, the received condensate temperature at least one hour into the stripping stage of the process on a per-batch basis. **(R 336.1225, R 336.1702(a), R 336.1910)**

3. The permittee shall keep a monthly record of the following batch data for EUReactor304:
   a. The size of each batch, in pounds.
   b. The number of batches produced in the 12-month rolling time period ending that month.
   c. The amount of methanol, VOC, and n-butanol emitted for each batch, based on the calculation method in Appendix A or an alternative method acceptable to the AQD District Supervisor.

   The permittee shall keep the records on file at the facility and make them available to the Department upon request. **(R 336.1702(a))**

4. The permittee shall calculate the VOC emission rate from EUReactor304 monthly, for the preceding 12-month rolling time period, using the batch data collected for SC VI.3 or another 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 a log, in a manner acceptable to the AQD District Supervisor, of the dates and time periods when heating or stripping operations are conducted with methanol in EUReactor304. The permittee shall include in the log entry for each such event operator confirmation that heating or stripping operations with methanol were not being conducted during that time period in Reactor 306, 307, or 310. 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 RESTRICTIONS

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. SVCondenser304 (vent from condenser)	2[1]	30[1]	R 336.1225

IX. OTHER REQUIREMENTS

NA

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

The following conditions apply to: EUReactor310

DESCRIPTION: Reactor 310 has a capacity of 6,500 gallons and is used to produce alkyl benzene sulfonic acid salts of elements such as barium, calcium, magnesium, potassium, sodium, and zinc. The emission unit also includes a water-cooled condenser, a condensate receiver, and an alcohol storage tank with a capacity of 13,000 gallons. Previously covered by PTI No. 366-94.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT:
Water-cooled condenser with efficiency of 99%

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. VOC	10.2 pph	One hour	EUReactor310	SC VI.3.c	R 336.1702(a)
2. VOC	31.8 lbs/batch	Batch	EUReactor310	SC VI.3.c	R 336.1702(a)
3. VOC	6,496 lbs/year	12-month rolling time period as determined at the end of each calendar month	EUReactor310	SC VI.4	R 336.1702(a)
4. Methanol	10.2 pph[1]	One hour	EUReactor310	SC VI.3.c	R 336.1225
5. Methanol	20.6 lbs/batch[1]	Batch	EUReactor310	SC VI.3.c	R 336.1225
6. Methanol	4,204 lbs/year[1]	12-month rolling time period as determined at the end of each calendar month	EUReactor310	SC VI.5	R 336.1225
7. Mineral spirits	0.50 pph[1]	One hour	EUReactor310	SC VI.3.c	R 336.1225
8. Mineral spirits	2.00 lbs/batch[1]	Batch	EUReactor310	SC VI.3.c	R 336.1225
9. Mineral spirits	408 lbs/year[1]	12-month rolling time period as determined at the end of each calendar month	EUReactor310	SC VI.5	R 336.1225

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Material produced	50,000 lbs per batch	Each batch	EUReactor310	SC VI.3.a	R 336.1225, R 336.1702(a)
2. Material produced	204 batches per year	12-month rolling time period as determined at the end of each calendar month	EUReactor310	SC VI.3.b	R 336.1225, R 336.1702(a)

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate the reactor in EUReactor310 unless the condenser is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the condenser includes maintaining a received condensate temperature no greater than 110 degrees Fahrenheit as measured in the condensate collection tank at least one hour into the stripping stage of the process. **(R 336.1225, R 336.1702(a), R 336.1910)**

2. The permittee shall equip and maintain the condenser with a received condensate temperature indicator in the condensate collection tank. **(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 and records 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 336.1225, R 336.1702(a))**

2. The permittee shall monitor and record, in a satisfactory manner, the received condensate temperature at least one hour into the stripping stage of the process on a per-batch basis. **(R 336.1910)**

3. The permittee shall keep a monthly record of the following batch data for EUReactor310:
   a. The size of each batch, in pounds.
   b. The number of batches produced in the 12-month rolling time period ending that month.
   c. VOC, methanol, and mineral spirits emitted for each batch, based on the calculation method in Appendix A or an alternative method acceptable to the AQD District Supervisor.

   The permittee shall keep the 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 calculate the VOC emission rate from EUReactor310 monthly, for the preceding 12-month rolling time period, using mass balance or another 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 calculate the methanol and mineral spirits emission rates from EUReactor310 monthly, for the preceding 12-month rolling time period, using the batch data collected for SC VI.3 or another 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.[1] **(R 336.1225)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

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. SVD-310 (distillate pot)	3[1]	35[1]	R 336.1225
2. SVT-52 (storage tanks)	3[1]	36[1]	R 336.1225

IX. OTHER REQUIREMENTS

NA

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

The following conditions apply to: EU305&325

DESCRIPTION: Production of calcium sulfonate/oxidate-based rust preventative coatings, using mineral spirits as a solvent. Process equipment includes two blend tanks with capacities of 12,000 gallons (T-305) and 9,000 gallons (T-325), a 1,000 gallon condensate collection tank, and a water-cooled condenser. Previously covered by PTI No. 120-00.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT:
Shared water-cooled condenser with 99.5% efficiency

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Mineral spirits[A]	8.0 lbs/batch[1]	Batch	EU305&325	SC VI.1.c	R 336.1225
2. Mineral spirits	2,000 lbs/year	12-month rolling time period as determined at the end of each calendar month	EU305&325	SC VI.2	R 336.1225, R 336.1702(a)

[A] The original Permit to Install was based on use of mineral spirits. A change in solvent may require a new Permit to Install.

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Material produced	250 batches per year	12-month rolling time period as determined at the end of each calendar month	EU305&325	SC VI.1.b	R 336.1225, R 336.1702(a)

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EU305&325 unless the condenser is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the condenser includes maintaining a received condensate temperature no higher than 110 degrees Fahrenheit. **(R 336.1225, R 336.1702(a), R 336.1910)**

2. The permittee shall equip and maintain the condenser with a received condensate temperature indicator in the condensate collection tank. **(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 keep a monthly record of the following batch data for EU305&325:
   a. The number of batches produced.
   b. The number of batches produced in the 12-month rolling time period ending that month.
   c. Mineral spirits emitted for each batch, based on the calculation method in Appendix A or an alternative method acceptable to the AQD District Supervisor.

   The permittee shall keep the records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1702(a))**

2. The permittee shall calculate the mineral spirits emission rate from EU305&325 monthly, for the preceding 12-month rolling time period, using the batch data collected for SC VI.1 or another 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, in a satisfactory manner, the temperature of the received condensate once each work shift. **(R 336.1910)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

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. SVCondense305325 (vent from condenser)	2[1]	30[1]	R 336.1225

IX. OTHER REQUIREMENTS

NA

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

The following conditions apply to: EUOxidation216

DESCRIPTION: The emission unit consists of an air oxidation reactor (R-216, with 2,500 gallon capacity, equipped with a thermal incinerator) and two finishing tanks (T-212 and T-215) with capacity of 14,000 gallons each. The reactor is subject to 40 CFR Part 60, Subpart III. Previously covered by PTI No. 110-91.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT:
John Zink thermal oxidizer/afterburner for Reactor R-216

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. TOC[A] (minus methane and ethane)	Whichever is less stringent: • 20 ppmv on a dry basis, corrected to 3 percent oxygen OR • 98 weight percent reduction	Test protocol*	Reactor R-216	GC 13 & SC VI.2, VI.3, VI.4	R 336.1702(b), 40 CFR 60.612(a)
[A] TOC means "total organic compounds," and is defined in 40 CFR 60.611. * Test protocol shall specify averaging time.					

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate Reactor R-216 unless the vent gases from the reactor are burned in a thermal oxidizer and the thermal oxidizer is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the thermal oxidizer includes maintaining a minimum temperature of 1400 °F and a minimum retention time of 3.75 seconds in the thermal oxidizer. **(R 336.1702(b), R 336.1910, 40 CFR Part 60 Subpart III)**

2. The permittee shall install, calibrate, maintain, and operate according to manufacturer's specifications, a device to monitor and record the temperature in the firebox of the thermal oxidizer or afterburner on a continuous basis. The device shall have an accuracy of ±1 percent of the temperature being monitored expressed in degrees Celsius or ±0.5°C, whichever is greater. **(R 336.1910, 40 CFR 60.613(a)(1))**

3. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the vent stream flow from the reactor to the thermal oxidizer or afterburner on an hourly basis. The flow indicator shall be installed in the vent stream from the air oxidation reactor at a point closest to the inlet of the incinerator or afterburner and before being joined with any other vent stream. **(R 336.1910, 40 CFR 60.613(a)(2))**

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 records 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 336.1702(b), R 336.1910, 40 CFR Part 60 Subparts A & III)**

2. The permittee shall monitor and record, in a satisfactory manner, the temperature in the firebox of the thermal oxidizer or afterburner on a continuous basis. **(R 336.1910, 40 CFR Part 60 Subpart III)**

3. The permittee shall monitor and record, in a satisfactory manner, the vent stream flow from the reactor to the thermal oxidizer or afterburner on an hourly basis. **(R 336.1910, 40 CFR Part 60 Subpart III)**

4. The permittee shall monitor emissions and operating information for Reactor R-216 in accordance with the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and III. The permittee shall keep records of all source emissions data and operating information on file at the facility and make them available to the Department upon request. **(R 336.1702(b), 40 CFR Part 60 Subparts A & III)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

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. SV216Oxidizer (oxidizer vent)	30	50	40 CFR 52.21(c)&(d)

IX. OTHER REQUIREMENTS

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and III, as they apply to Reactor R-216. **(40 CFR Part 60 Subparts A & III)**

Footnotes:

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

The following conditions apply to: EUPilotOxidation

DESCRIPTION: Pilot air oxidation reactor (18.8 gallon capacity) with caustic scrubber, used for research and development to support production in EUOxidation216. The scrubber is used to control emissions of organic acids from the reaction. The reactor is subject to limited portions of 40 CFR Part 60, Subpart III. Previously covered by PTI No. 714-92.

Flexible Group ID:

POLLUTION CONTROL EQUIPMENT:
Caustic scrubber

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. VOC	0.4 pph	Test protocol*	EUPilotOxidation	GC 13	R 336.1702(a)
2. VOC	100 lbs per year	12-month rolling time period as determined at the end of each calendar month	EUPilotOxidation	SC VI.3	R 336.1702(a)
* Test protocol shall specify averaging time.					

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Material processed	50 batches per year	12-month rolling time period as determined at the end of each calendar month	EUPilotOxidation	SC VI.2	R 336.1702(a)

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall maintain a Total Resource Effectiveness (TRE) index value greater than 4.0 for EUPilotOxidation. **(40 CFR 60.610(c))**

2. The permittee shall maintain a Total Resource Effectiveness (TRE) index value greater than 1.0 without use of VOC emission control for EUPilotOxidation. **(40 CFR 60.612(c))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EUPilotOxidation unless the caustic scrubber is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes maintaining a pH of at least 9.0 in the scrubber liquid. **(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 336.1702(a), 40 CFR Part 60 Subparts A & III)**

2. The permittee shall record the number of batches processed in EUPilotOxidation 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 calculate the VOC emission rate from EUPilotOxidation 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))**

4. The permittee shall monitor and record, in a satisfactory manner, the pH of the scrubber solution for EUPilotOxidation before starting each batch. **(R 336.1910)**

5. The permittee shall recalculate the TRE index value whenever process changes are made, as required by 40 CFR 60.614(g). Examples of process changes requiring recalculation include, but are not limited to, changes in production capacity, feedstock type, or catalyst type. **(40 CFR 60.614(g))**

6. The permittee shall keep up-to-date, readily accessible records of the following information for EUPilotOxidation:
   a. Any changes in production capacity, feedstock type, or catalyst type, or of any replacement, removal or addition of recovery equipment or air oxidation reactors.
   b. Any recalculation of the TRE index value performed pursuant to 40 CFR 60.614(f).
   c. The results of any performance test performed pursuant to the methods and procedures required by 40 CFR 60.614(d).

   The permittee shall keep each of these records on file at the facility for a period of five years after the action taken that requires the record, in a format acceptable to the AQD District Supervisor, and make them available to the Department upon request. **(40 CFR 60.615(h))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

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. SVScrubberPilot	1	30	40 CFR 52.21(c)&(d)

IX. OTHER REQUIREMENTS

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and III, as they apply to EUPilotOxidation. **(40 CFR Part 60 Subparts A & III)**

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

The following conditions apply to: EUCalcium

DESCRIPTION: Process to produce natural calcium sulfonate. Process equipment includes four process tanks (401, 402, 403, and 404) used as reactors, each with 7,300 gallon capacity; four process tanks (405, 406, 407, and 408) for product drying, each with capacity of 7,300 gallons; two blending tanks, one with capacity of 300 gallons and one with capacity of 500 gallons; and a bag filter to control particulate matter emissions from the blending tanks. Blending tanks and bag filter previously covered by PTI No. 433-89 and process tanks previously covered by PTO No. 855-80A.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT:
Bag filter for blending tanks

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.10 lb per 1,000 lbs exhaust gas, calculated on a dry gas basis	Test protocol*	Blending tanks in EUCalcium	GC 13	R 336.1331
* Test protocol shall specify averaging time.					

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EUCalcium unless the bag filter is installed, maintained, and operated in a satisfactory manner. **(R 336.1331, R 336.1910)**

2. The permittee shall equip and maintain the bag filter with a pressure drop indicator. **(R 336.1331)**

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 monitor and record, in a satisfactory manner, the pressure drop for the bag filter once during each batch. **(R 336.1910)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

Footnotes:

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

The following conditions apply to: EUBlending

DESCRIPTION: Blending materials in various vessels and containers, primarily tanks S-1, 322, BASF, M-1, M-2, M-3, Mini 304, 309, 701, 710, W2, 801, 802, 818, 806, 807, 808, 822, 845, 843, 855, 856, 857, UFO, or other drums, pails, or totes. Previously covered by PTO No. 855-80.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT:

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Material processed	4,000,000 lbs per month[1]	Calendar month	EUBlending	SC VI.1	R 336.1225

2. The permittee shall not process any used or waste materials in EUBlending.[1] **(R 336.1225)**

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

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 by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1225, R 336.1702(a))**

2. The permittee shall keep records of all source operating data for EUBlending. 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 keep a record of the identity and amount of material processed in EUBlending during each calendar month. 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. Emissions of HAPs, if any, must be accounted for under FGFACILITY SC VI.2. **(R 336.1225, R 336.1702(a))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

Footnotes:

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

The following conditions apply to: EUEclipse

DESCRIPTION: Natural gas-fired Eclipse boiler with 21 MMBTU/hr heat input rating. Previously covered by PTO No. 349-77.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: NA

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

1. The permittee shall burn only natural gas in EUEclipse. **(R 336.1205)**

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

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))**

NA

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

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. SVEclipse	28	43	40 CFR 52.21(c)&(d)

IX. OTHER REQUIREMENTS

NA

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

The following conditions apply to: EUMeyers

DESCRIPTION: Mixer with bag filter collector used to mix coatings with powder clay. Previously covered by PTO No. 432-88.

Flexible Group ID:

POLLUTION CONTROL EQUIPMENT:
Pulse-jet bin vent dust collector

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.10 lbs per 1,000 lbs exhaust gases on a dry gas basis	Test protocol*	EUMeyers	GC 13	R 336.1331
* Test protocol shall specify averaging time.					

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EUMeyers unless the dust collector is installed, maintained, and operated in a satisfactory manner. **(R 336.1331, 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 perform visual inspections of the dust collector exhaust to verify the collector is operating properly, a minimum of once per batch. If any visible emissions (other than uncombined water vapor) are observed, the permittee shall immediately inspect the dust collector and perform any required maintenance. **(R 336.1910)**

2. The permittee shall keep, in a satisfactory manner, records of all visual inspections for the dust collector. At a minimum, records shall include the date, time, name of observer/reader, and status of visible emissions. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1910)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

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

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
FG306&307	Manufacture of calcium sulfonate coating in two reactors, each with capacity of 2,800 gallons. Each reactor has a condenser and a 210-gallon condensate receiver, which vents to the atmosphere. Previously covered by PTI No. 432-89.	EUReactor306, EUReactor307
FGLime540-541	Manufacture of lime slurry to be used in other reactors and blend tanks. Equipment includes a 4,200 gallon capacity storage silo with bin vent filter and a 6,000 gallon capacity lime slurry tank. Previously covered by Permit to Operate No. 254-83.	EULimeTank540, EULimeSlurry541
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment.	

The following conditions apply to: FG306&307

DESCRIPTION: Manufacture of calcium sulfonate coating in two reactors, each with capacity of 2,800 gallons. Each reactor has a condenser and a 210-gallon condensate receiver, which vents to the atmosphere. Previously covered by PTI No. 432-89.

Emission Units: EUReactor306, EUReactor307

POLLUTION CONTROL EQUIPMENT:
Two air-cooled condensers, one for each reactor. Each is rated at 714,300 Btu/hr, with 99.9% efficiency for the type of process permitted.

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Methanol	13.7 pph[1]	One hour	FG306&307	SC VI.2	R 336.1225
2. VOC	54.9 lbs/batch	Batch	FG306&307	SC VI.4.a	R 336.1702(a)
3. VOC	3.4 tpy	12-month rolling time period as determined at the end of each calendar month	FG306&307	SC VI.5	R 336.1702(a)

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Material processed	2,000 tons per year	12-month rolling time period as determined at the end of each calendar month	FG306&307	SC VI.3	R 336.1702(a)
2. Material produced	122 batches per year	12-month rolling time period as determined at the end of each calendar month	FG306&307	SC VI.3	R 336.1702(a)

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate a reactor in FG306&307 unless the associated condenser is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of each condenser includes maintaining a received condensate temperature no greater than 110 degrees Fahrenheit as measured in the condensate collection tank at least one hour into the stripping stage of the process. **(R 336.1702(a), R 336.1910)**

2. The permittee shall equip and maintain each condenser with a received condensate temperature indicator in the condensate collection tank. **(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 336.1702(a))**

2. The permittee shall monitor and record, in a satisfactory manner, the received condensate temperature at least one hour into the stripping stage of the process on a per-batch basis. **(R 336.1910)**

3. The permittee shall keep a record, in a satisfactory manner, of the amount of material processed in FG306&307, in tons, and of the number of batches produced, on a calendar month and a 12-month rolling time period basis. **(R 336.1702(a))**

4. The permittee shall keep a monthly record of the following batch data for FG306&307:
   a. The amount of VOC emitted for each batch, based on the calculation method in Appendix A or an alternative method acceptable to the AQD District Supervisor.

   The permittee shall keep the records on file at the facility and make them available to the Department upon request. **(R 336.1702(a))**

5. The permittee shall calculate the VOC emission rate from FG306&307 monthly, for the preceding 12-month rolling time period, using the batch data collected for SC VI.3 and VI.4 or another 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

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

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

The following conditions apply to: FGLime540-541

DESCRIPTION: Manufacture of lime slurry to be used in other reactors and blend tanks. Equipment includes a 4,200 gallon capacity storage silo with bin vent filter and a 6,000 gallon capacity lime slurry tank. Previously covered by Permit to Operate No. 254-83.

Emission Units: EULimeTank540, EULimeSlurry541

POLLUTION CONTROL EQUIPMENT:
Bin vent filter for storage silo

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.10 lbs per 1,000 lbs, dry gas basis	Test protocol*	Lime storage silo	SC VI.4	R 336.1331
2. VOC	1.10 tpy	12-month rolling time period as determined at the end of each calendar month	FGLime540-541	SC VI.3	R 336.1702(a)
3. Sulfonic acid	300 mg per cubic meter, corrected to 70°F and 29.92 mm Hg [1]	Test protocol*	FGLime540-541	GC 13	R 336.1225
* Test protocol shall specify averaging time.					

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Mineral spirits used	329,341 gallons per year	12-month rolling time period as determined at the end of each calendar month	EULimeSlurry541	SC VI.2	R 336.1702(a)

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate the lime storage silo unless the preventive maintenance program has been implemented and is maintained. **(R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate the lime storage tank unless the bin vent filter is installed, maintained, and operated in a satisfactory manner. **(R 336.1331, 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 records and 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 336.1702(a), R 336.1910)**

2. The permittee shall keep a record, in a satisfactory manner, of the amount of mineral spirits processed in EULimeSlurry541 on a calendar month and a 12-month rolling time period basis. **(R 336.1702(a))**

3. The permittee shall calculate the VOC emission rate from FGLime540-541 monthly, for the preceding 12-month rolling time period, using mass balance or another 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))**

4. The permittee shall keep a record of actions taken under the lime storage silo preventive maintenance program. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1910)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

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. SVLime540 (storage silo vent)	Not restricted	35	R 336.1225, 40 CFR 50.21(c)&(d)

IX. OTHER REQUIREMENTS

NA

Footnotes:

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

The following conditions apply Source-Wide to: FGFACILITY

DESCRIPTION: All process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment.

POLLUTION CONTROL EQUIPMENT:

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Methanol	Less than 9 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.2	R 336.1205(3)
2. Aggregate HAPs	Less than 22.5 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.2	R 336.1205(3)

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. By no later than October 31, 2016, the permittee shall label equipment listed in Permit to Install No. 26-16 in use with permanent labels that correspond with the AQD permit and shall label equipment not in use as not in use in a manner acceptable to the AQD District Supervisor. For this condition, “equipment” refers to reactors, storage tanks, pollution control equipment, and mixing and blending devices (excluding pumps and pipes). **(R 336.1201(3))**

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))**

2. The permittee shall calculate the methanol and aggregate HAP emission rates from FGFACILITY monthly, for the preceding 12-month rolling time period, using mass balance or another method acceptable to the AQD District Supervisor, including Appendix A and fugitive losses, along with working and breathing losses from storage vessels. 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 RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

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

APPENDIX A: Emission Calculations

The permittee shall use the equations below to calculate emissions from facility operations, as follows:

Emission unit	Calculations to be used
EUReactor304	1, 2, 4, 5, 6
EUReactor310	1, 2, 3, 4, 5, 6
EUReactor306&307	1, 2, 4, 5, 6
EU305&325	1, 3, 4, 5, 6
FG306&307	1, 2, 4, 5, 6

Calculation 1 (Fugitive losses, Q_L):

Q_L shall be determined according to the USEPA *Protocol for Equipment Leak Emission Estimates*, EPA-453/R-95-017 (Protocol), or another method acceptable to the AQD District Supervisor. While using the Protocol, the permittee shall maintain a list of the components considered in the emission calculation and make the list available to the Department upon request.

Calculation 2 (Emissions through condenser, when solvent is boiled out the vessel, Qc):

Qc shall be determined according to the methodology presented in Section 4.2.1 of Emission Inventory Improvement Program (EIIP) Volume II, Chapter 16, for condensers with one condensable component, or another method acceptable to the AQD District Supervisor.

Calculation 3 (Evaporation, when vessel is heated but solvent is retained in the vessel, Qe):

$$Qe = \frac{MW \times k \times A \times (Psat - P) \times 60\ min/hr}{R \times T1}$$

Calculation 4 (Distillate Tank Filling, Qd1):

$$Qd1 = \frac{MW \times Psat \times Vf \times 60\ min/hr}{R \times T1}$$

Calculation 5 (Reactor Filling, Qd2):

Qd2 shall be determined according to the methodology presented in Section 3.1.2 of EIIP Volume II, Chapter 16 for charging a partially filled vessel with miscible contents, or another method acceptable to the AQD District Supervisor.

Calculation 6 (Total emissions, using the terms that apply to the operations conducted):

$$Q_{Tot} = Q_L + Qc + Qe + Qd1 + Qd2$$

Term/notation	Meaning/Explanation
Q_L	Fugitive losses from pumps, valves, flanges, etc., in pounds per hour
Qc	Emissions through condenser in pounds per hour
MW	Molecular weight of pollutant in pounds per pound mole
Psat	Saturated vapor pressure for the pollutant in atmospheres
R	Gas law constant: 0.7302 (ft^3-atmosphere) / (degree Rankine-pound mole)
Qe	Evaporative losses of pollutant in pounds per hour
k	Mass transfer coefficient for pollutant in feet per minute. $k = 1.63 \times \left(\frac{18}{MW}\right)^{0.333}$
A	Evaporation surface area in square feet
P	Actual pollutant vapor pressure near the liquid surface in atmospheres
T1	Liquid temperature in degrees Rankine
Qd1	Distillate tank filling losses in pounds per hour
Vf	Filling rate in cubic feet per minute
Qd2	Reactor filling losses in pounds per hour
Q_{Tot}	Total emissions in pounds per hour