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

November 17, 2022

PERMIT TO INSTALL
275-04D

ISSUED TO
H.B. Fuller Company

LOCATED AT
2727 Kinney Avenue NW
Grand Rapids, Michigan 49534

IN THE COUNTY OF
Kent

STATE REGISTRATION NUMBER
B5918

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: **July 13, 2022**	
DATE PERMIT TO INSTALL APPROVED: **November 17, 2022**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

Table of Contents

COMMON ACRONYMS

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

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

POLLUTANT / MEASUREMENT ABBREVIATIONS

acfm	Actual cubic feet per minute
BTU	British Thermal Unit
°C	Degrees Celsius
CO	Carbon Monoxide
CO_2e	Carbon Dioxide Equivalent
dscf	Dry standard cubic foot
dscm	Dry standard cubic meter
°F	Degrees Fahrenheit
gr	Grains
HAP	Hazardous Air Pollutant
Hg	Mercury
hr	Hour
HP	Horsepower
H_2S	Hydrogen Sulfide
kW	Kilowatt
lb	Pound
m	Meter
mg	Milligram
mm	Millimeter
MM	Million
MW	Megawatts
NMOC	Non-Methane Organic Compounds
NO_x	Oxides of Nitrogen
ng	Nanogram
PM	Particulate Matter
PM10	Particulate Matter equal to or less than 10 microns in diameter
PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
pph	Pounds per hour
ppm	Parts per million
ppmv	Parts per million by volume
ppmw	Parts per million by weight
psia	Pounds per square inch absolute
psig	Pounds per square inch gauge
scf	Standard cubic feet
sec	Seconds
SO_2	Sulfur Dioxide
TAC	Toxic Air Contaminant
Temp	Temperature
THC	Total Hydrocarbons
tpy	Tons per year
µg	Microgram
µm	Micrometer or Micron
VOC	Volatile Organic Compounds
yr	Year

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**

2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**

3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to Rule 210 (R 336.1210), operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**

4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**

5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to Rule 219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of Rule 219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy. **(R 336.1219)**

6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**

7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal condition or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**

8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.

9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of Rule 301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with Rule 303 (R 336.1303). **(R 336.1301)**
    a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
    b) A visible emission limit specified by an applicable federal new source performance standard.
    c) A visible emission limit specified as a condition of this Permit to Install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001. **(R 336.2001)**

EMISSION UNIT SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

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

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date / Modification Date	Flexible Group ID
EUHOCKMEYERPASTE	This emission unit includes a paste mixing unit and vacuum pump with a baghouse for control.	12/1/1989	FGPARTICULATE
EUMHTMIXER	This emission unit includes a 1,100-gallon MHT paste mixer vessel equipped with a vacuum pump and a water-cooled condenser and a baghouse for control.	4/1/1997	FGPARTICULATE
EUPOLYOLREACTOR	This emission unit includes a vessel and corresponding ancillary equipment used primarily for manufacturing prepolymers and also for blending polyols. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.	8/15/2002	FGPREPOLYMER2 FGPARTICULATE
EUREACTORA	This emission unit includes a vessel and corresponding ancillary equipment used primarily for blending polyols. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.	8/15/2002	FGPREPOLYMER2 FGPARTICULATE
EUREACTORB	This emission unit includes a vessel and corresponding ancillary equipment used primarily for manufacturing prepolymers and also for blending polyols. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.	8/15/2002	FGPREPOLYMER2 FGPARTICULATE
EUREACTORC	This emission unit includes a vessel and corresponding ancillary equipment used primarily for blending polyols. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.	8/15/2002	FGPREPOLYMER2 FGPARTICULATE

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date / Modification Date	Flexible Group ID
EUREACTORD	This emission unit includes a vessel, solvent condenser, and corresponding ancillary equipment used primarily for manufacturing polyurethane prepolymers and also for blending polyether or polyester polyols. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.	8/27/1993	FGPREPOLYMER2 FGPARTICULATE
EUREACTORE	This emission unit includes a vessel, solvent condenser, and corresponding ancillary equipment used primarily for manufacturing polyurethane prepolymers and also for blending polyether or polyester polyols. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.	1/1/2014	FGPREPOLYMER2 FGPARTICULATE
EUREACTORF	This emission unit includes a vessel, solvent condenser, and corresponding ancillary equipment used primarily for manufacturing polyurethane prepolymers and also for blending polyether or polyester polyols. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.	1/1/2014	FGPREPOLYMER2 FGPARTICULATE
EUREACTORG	This emission unit includes a vessel, solvent condenser, and corresponding ancillary equipment used primarily for manufacturing polyurethane prepolymers and also for blending polyether or polyester polyols. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.	1/1/2014	FGPREPOLYMER2 FGPARTICULATE
EUPASTEMIX	This emission unit includes a paste mixer and corresponding ancillary equipment used to blend various other solid or liquid materials. Particulate emissions are controlled by a baghouse.	8/15/2002	FGPREPOLYMER2 FGPARTICULATE
EUTANK21	3,000-gallon storage tank containing one of the following: reclaimed Hi-Sol, reclaimed toluene, toluol (toluol is a mixture of toluene, methyl benzene and phenyl methane), reclaimed NMP, methyl ethyl ketone, hexane, acetone, VM and P naphtha, or heptane	1/3/1974	NA

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date / Modification Date	Flexible Group ID
EUMIXER010	One (1) 550-gallon capacity vessel equipped with a vacuum pump and water-cooled condenser and controlled by an activated carbon bed and baghouse.	TBD	FGSILICONE
EUMIXER011	One (1) 550-gallon capacity vessel equipped with a vacuum pump and water-cooled condenser and controlled by an activated carbon bed and baghouse.	TBD	FGSILICONE

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.

EUHOCKMEYERPASTE
EMISSION UNIT CONDITIONS

DESCRIPTION

This emission unit includes a paste mixing unit and vacuum pump

Flexible Group ID: FGPARTICULATE

POLLUTION CONTROL EQUIPMENT

Baghouse

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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 the number of vessel cleaning events for EUHOCKMEYERPASTE on a daily basis. **(R 336.1225, R 336.1702(a))**

2. The permittee shall monitor the number of batches produced in EUHOCKMEYERPASTE on a daily basis. **(R 336.1225, R 336.1702(a))**

3. The permittee shall keep, in a satisfactory manner, daily records of the number of vessel cleaning events and the type of solvent used during each vessel cleaning event for EUHOCKMEYERPASTE. All records shall be kept on file and made available to the Department upon request. **(R 336.1225, R 336.1702(a))**

4. The permittee shall keep, in a satisfactory manner, daily records of the number of batches produced and the quantity of each raw material solvent used in EUHOCKMEYERPASTE. All records shall be kept on file and made 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. SV-39	20[1]	34[1]	R 336.1225
2. SV-DC-01	24	30	R 336.1225, 40 CFR 52.21(c) & (d)
3. SV-10	14	25	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).

EUMHTMIXER
EMISSION UNIT CONDITIONS

DESCRIPTION

This emission unit includes a 1,100-gallon MHT paste mixer vessel equipped with a vacuum pump

Flexible Group ID: FGPARTICULATE

POLLUTION CONTROL EQUIPMENT

water-cooled condenser and baghouse

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall submit to the AQD District Supervisor, for review, an approvable operation and maintenance/malfunction abatement plan for EUMHTMIXER. The permittee shall not operate EUMHTMIXER unless the approvable operation and maintenance/malfunction abatement plan, or an alternate plan approvable by the AQD District Supervisor, is implemented and maintained. The plan shall include procedures for maintaining and operating in a satisfactory manner, EUMHTMIXER, add-on air pollution control device, or monitoring equipment during malfunction events, and a program for corrective action for such events. If the operation and maintenance/malfunction abatement plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the owner or operator shall revise the malfunction abatement plan within 45 days after such an event occurs and submit the revised plan to the AQD District Supervisor. **(R 336.1225, R 336.1702(a), R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EUMHTMIXER unless the conservation vent condenser is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes maintaining the condenser cooling water outlet temperature at 80 degrees Fahrenheit or less. **(R 336.1225, R 336.1702(a), R 336.1910)**

2. The permittee shall equip and maintain the conservation vent condenser in EUMHTMIXER with a cooling water outlet temperature indicator with an alarm system that indicates when the cooling water outlet temperature exceeds 80 degrees Fahrenheit. **(R 336.1225, R 336.1702(a), R 336.1910)**

3. The permittee shall not charge raw material solvents or cleaning solvents to EUMHTMIXER unless the vapor return system is installed, maintained, and operated in a satisfactory manner. **(R 336.1225, R 336.1702(a), R 336.1910)**

V. TESTING/SAMPLING

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 the number of vessel cleaning events in EUMHTMIXER on a daily basis. **(R 336.1225, R 336.1702(a))**

2. The permittee shall monitor the number of batches produced in EUMHTMIXER on a daily basis. **(R 336.1225, R 336.1702(a))**

3. The permittee shall monitor the temperature of the condenser water exiting the conservation vent condenser for EUMHTMIXER whenever EUMHTMIXER is operating. **(R 336.1225, R 336.1702(a))**

4. The permittee shall keep, in a satisfactory manner, the following records for EUMHTMIXER:
   a) daily records of the number of vessel cleaning events,
   b) daily records of the solvent used during each vessel cleaning event,
   c) daily records of the quantity of each solvent raw material used,
   d) daily records of the number of batches produced,
   e) records of the date and time the alarm activated for the exhaust temperature of the conservation vent condenser, the length of time the exhaust temperature was above 80 degrees Fahrenheit and the actions taken to correct the problem.

   All records shall be kept on file and made 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. SV-39	20[1]	34[1]	R 336.1225
2. SV-DC-01	24	30	R 336.1225, 40 CFR 52.21(c) & (d)
3. SV-10	14	25	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).

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
FGPREPOLYMER2	Adhesive production using reactor vessels. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.	EUPOLYOLREACTOR EUREACTORA EUREACTORB EUREACTORC EUREACTORD EUREACTORE EUREACTORF EUREACTORG EUPASTEMIX
FGPARTICULATE	Adhesive production using vessels in which liquids and powders are mixed. Particulate emissions are controlled by a baghouse.	EUHOCKMEYERPASTE EUMHTMIXER EUPOLYOLREACTOR EUREACTORA EUREACTORB EUREACTORC EUREACTORD EUREACTORE EUREACTORF EUREACTORG EUPASTEMIX
FGSILICONE	Silicone production using with a vacuum pump and water-cooled condenser. Particulate and VOC controlled by an activated carbon bed and baghouse.	EUMIXER010 EUMIXER011

FGPREPOLYMER2
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Adhesive production using reactor vessels. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.

Emission Unit: EUPOLYOLREACTOR, EUREACTORA, EUREACTORB, EUREACTORC, EUREACTORD, EUREACTORE, EUREACTORF, EUREACTORG, EUPASTEMIX

POLLUTION CONTROL EQUIPMENT

Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	10.7 TPY	12-month rolling time period as determined at the end of each calendar month	FGPREPOLYMER2	SC IV.1 SC VI.2 SC VI.3 SC VI.5	R 336.1225 R 336.1702(a)
2. MDI	0.00006 TPY	12-month rolling time period as determined at the end of each calendar month	FGPREPOLYMER2	SC VI.1 SC VI.2 SC VI.4 SC VI.5	R 336.1225 R 336.1702(a)
3. TDI	0.0044 pph	Test protocol	FGPREPOLYMER2	GC 13 SC VI.1 SC VI.4	R 336.1225
4. TDI	0.02 TPY	12-month rolling time period as determined at the end of each calendar month	FGPREPOLYMER2	SC VI.1 SC VI.2 SC VI.4 SC VI.5	R 336.1225 R 336.1702(a)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Prepolymer	1,100 batches per each FGPREPOLYMER2 emission unit	12-month rolling time period as determined at the end of each calendar month	FGPREPOLYMER2	SC VI.3	R 336.1225 R 336.1702(a)

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall submit to the AQD District Supervisor, for review, an approvable operation and maintenance/malfunction abatement plan for FGPREPOLYMER2. The permittee shall not operate FGPREPOLYMER2 unless the approvable operation and maintenance/malfunction abatement plan, or an alternate plan approvable by the AQD District Supervisor, is implemented and maintained. The plan shall

include procedures for maintaining and operating in a satisfactory manner, FGPREPOLYMER2, add-on air pollution control device, or monitoring equipment during malfunction events, and a program for corrective action for such events. If the operation and maintenance/malfunction abatement plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the owner or operator shall revise the malfunction abatement plan within 45 days after such an event occurs and submit the revised plan to the AQD District Supervisor. **(R 336.1225, R 336.1702(a), R 336.1910)**

2. The permittee shall not solvent clean each FGPREPOLYMER2 emission unit more than 1,100 times per 12-month rolling time period, as determined at the end of each calendar month. **(R 336.1225, R 336.1702(a))**

3. The permittee shall not solvent clean any vessel lacking a vent condenser unless the vessel temperature is 265 °F or less. **(R 336.1225, R 336.1702(a))**

4. The permittee shall not carry out any prepolymer manufacturing steps in FGPREPOLYMER2 that produce isocyanate emissions if breakthrough of an activated carbon adsorption bed is detected until the saturated activated carbon adsorption bed has been replaced except that, if a prepolymer reaction is in progress when breakthrough is detected, the permittee may complete that reaction. An isocyanate reading at the exhaust of a carbon adsorption bed of 20 parts per billion by volume (ppbv), based on a 15-minute average, is considered to be "breakthrough". **(R 336.1225, R 336.1702(a), R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not manufacture prepolymers in FGPREPOLYMER2 unless the carbon adsorption beds are installed, maintained, and operated in a satisfactory manner. **(R 336.1225, R 336.1702(a), R 336.1910)**

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the temperature of each vessel lacking a vent condenser during solvent cleaning on a continuous basis. **(R 336.1225, R 336.1702(a))**

2. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the isocyanate concentration, in parts per billion by volume (ppbv), in the FGPREPOLYMER2 exhaust gas at the outlet of the carbon adsorption beds on a continuous basis. **(R 336.1225, R 336.1702(a), R 336.1910)**

3. The permittee shall keep, in a satisfactory manner, records of the number of batches processed and the number of solvent cleanings for each FGPREPOLYMER2 emission unit for each calendar month and 12-month rolling period. All records shall be kept on file and made available to the Department upon request. **(R 336.1225, R 336.1702(a))**

4. The permittee shall keep, in a satisfactory manner, records of the monitored temperature of each vessel lacking a vent condenser during solvent cleaning. All records shall be kept on file and made available to the Department upon request. **(R 336.1225, R 336.1702(a))**

5. The permittee shall keep, in a satisfactory manner, records for the carbon adsorption beds of the isocyanate monitoring data and carbon replacements. All records shall be kept on file and made available to the Department upon request. **(R 336.1225, R 336.1702(a), R 336.1910)**

6. The permittee shall calculate, in a satisfactory manner, the monthly and 12-month rolling time period VOC, MDI, and TDI emission rates from FGPREPOLYMER2. All records shall be kept on file and made 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. SV-39	20[1]	34[1]	R 336.1225
2. SV-DC-01	24	30	R 336.1225, 40 CFR 52.21(c) & (d)
3. SV-10	14	25	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).

FGPARTICULATE
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Adhesive production using vessels in which liquids and powders are mixed.

Emission Unit: EUHOCKMEYERPASTE, EUMHTMIXER, EUPOLYOLREACTOR, EUREACTORA, EUREACTORB, EUREACTORC, EUREACTORD, EUREACTORE, EUREACTORF, EUREACTORG, EUPASTEMIX

POLLUTION CONTROL EQUIPMENT

Particulate emissions are controlled by a baghouse.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. PM	0.012 lb per 1,000 pounds of exhaust gases, calculated on a dry gas basis.	Test protocol	FGPARTICULATE	Test protocol	R 336.1331
2. PM	0.53 lb/hr	Test protocol	FGPARTICULATE	Test protocol	R 336.1225 R 336.1331

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall submit to the AQD District Supervisor, for review, an approvable operation and maintenance/malfunction abatement plan for FGPARTICULATE. The permittee shall not operate FGPARTICULATE unless the approvable operation and maintenance/malfunction abatement plan, or an alternate plan approvable by the AQD District Supervisor, is implemented and maintained. The plan shall include procedures for maintaining and operating in a satisfactory manner, FGPARTICULATE, add-on air pollution control device, or monitoring equipment during malfunction events, and a program for corrective action for such events. If the operation and maintenance/malfunction abatement plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the owner or operator shall revise the malfunction abatement plan within 45 days after such an event occurs and submit the revised plan to the AQD District Supervisor. **(R 336.1331, R 336.1910)**

2. The permittee shall not use asbestos as a formulating ingredient within the adhesive and sealant manufacturing facility. **(40 CFR 61 Subpart M)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate FGPARTICULATE unless the baghouse is installed, maintained and operated in a satisfactory manner. **(R 336.1225, R 336.1331, R 336.1910)**

2. The permittee shall not operate particulate handling processes of the adhesive and sealant manufacturing facility, high speed dispersers, mixers or FGPREPOLYMER2 unless the cartridge fabric filter is installed maintained and operated in a satisfactory manner. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910)**

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the pressure drop across the baghouse once per calendar day. **(R 336.1225, R 336.1331, R 336.1702(a))**

2. The permittee shall observe and record visible emissions from the baghouse stack once per calendar day. **(R 336.1225, R 336.1331, R 336.1702(a))**

3. The permittee shall keep daily records of the pressure drop readings for the baghouse. These records shall be kept on file and made available to the Department upon request. **(R 336.1225, R 336.1331, R 336.1702(a))**

4. The permittee shall keep daily records of the observations of the visible emissions from the baghouse stack. These records shall be kept on file and made available to the Department upon request. **(R 336.1225, R 336.1331, 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. SV-39	20[1]	34[1]	R 336.1225
2. SV-DC-1	24	30	R 336.1225, 40 CFR 52.21(c) & (d)
3. SV-10	14	25	R 336.1225, 40 CFR 52.21(c) & (d)
4. SV-50	10x10	8	R 336.1225, 40 CFR 52.21(c) & (d)
5. SV-51	10x10	8	R 336.1225, 40 CFR 52.21(c) & (d)
6. SV-52	10x10	8	R 336.1225, 40 CFR 52.21(c) & (d)
7. SV-53	10x10	8	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).

FGSILICONE
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Silicone production using a vacuum pump and water-cooled condenser.

Emission Unit: EUMIXER010, EUMIXER011

POLLUTION CONTROL EQUIPMENT

VOC controlled by an activated carbon bed and particulate controlled by baghouse.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. PM	0.01 lb per 1,000 pounds of exhaust gases, calculated on a dry gas basis.	Hourly	FGSILICONE	SC VI.1, SC VI. 2, SC VI. 3	R 336.1331
2. PM	0.006 pph	Hourly	FGSILICONE	SC VI.1, SC VI.2, SC VI.3	R 336.1225, R 336.1331, 40 CFR 52.21(c) & (d)
3. PM10	0.003 pph	Hourly	FGSILICONE	SC VI.1, SC VI.2, SC VI.3	40 CFR 52.21(c) & (d)
4 PM2.5	0.003 pph	Hourly	FGSILICONE	SC VI.1, SC VI.2, SC VI.3	40 CFR 52.21(c) & (d)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate FGSILICONE unless a malfunction abatement plan (MAP) as described in Rule 911(2), for FGSILICONE has been submitted within 90 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 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, 40 CFR 52.21(c) & (d))**

2. The permittee shall not solvent clean any vessel lacking a vent condenser. **(R 336.1225, R 336.1702(a))**

3. The permittee shall not carry out any silicone manufacturing steps in FGSILICONE if breakthrough of an activated carbon adsorption bed is detected until the saturated activated carbon adsorption bed has been replaced except that, if a reaction is in progress when breakthrough is detected, the permittee may complete that reaction. The "breakthrough" value shall be 25 Percent (%) of the Lower Explosive Limit (LEL). **(R 336.1225, R 336.1702(a), R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate either mixer in FGSILICONE unless the activated carbon bed is installed, maintained, and operated in a satisfactory manner acceptable to the AQD District Supervisor. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.1910,)**

2. The permittee shall not operate either mixer in FGSILICONE unless the baghouse is installed, maintained, and operated in a satisfactory manner acceptable to the AQD District Supervisor. **(R 336.1224, R 336.1225, R 336.1331, R 336.1910, 40 CFR 52.21(c)& (d))**

3. The permittee shall not operate either mixer in FGSILICONE unless a gauge, which continuously measures the pressure drop across the baghouse is installed, maintained and operated in a satisfactory manner. **(R 336.1224, R 336.1225, R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**

V. TESTING/SAMPLING

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 across the FGSILICONE baghouse on an each operational day basis. **(R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**

2. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor the % LEL at the outlet of the carbon adsorption beds on a continuous basis. The permittee shall record, in a satisfactory manner, the % LEL at the outlet of the carbon adsorption bed on an operational day basis. **(R 336.1225, R 336.1702(a), R 336.1910)**

3. The permittee shall keep, in a satisfactory manner, records for the carbon adsorption beds of the VOC monitoring data and carbon replacements. All records shall be kept on file and made available to the Department upon request. **(R 336.1225, R 336.1702(a), 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. SV-39	20[1]	34[1]	R 336.1225
2. SV-DC02	12	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).

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

Each EU or FG contains control devices

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	75 tpy	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.2.	R 336.1205(3)
2. 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	22.4 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 LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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 keep, in a satisfactory manner, emission calculations for VOC, individual HAPs and aggregated HAPs, in tons per 12-month rolling time period. Emission calculations shall be performed based

on throughput records and emission factors obtained from the most recent source-specific emission testing, or other methods approved by the AQD District Supervisor. **(R 336.1205(3))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. For all emission units defined in this permit, the term “daily” specified in any monitoring condition means once per calendar day. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910)**