

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION**

December 11, 2013

**PERMIT TO INSTALL**  
275-04C

**ISSUED TO**  
H.B. Fuller Company

**LOCATED AT**  
2727 Kinney Road Northwest  
Grand Rapids, Michigan

**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 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:

**November 25, 2013**

DATE PERMIT TO INSTALL APPROVED:

**December 11, 2013**

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

**PERMIT TO INSTALL**

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**Common Abbreviations / Acronyms**

<b>Common Acronyms</b>		<b>Pollutant / Measurement Abbreviations</b>	
AQD	Air Quality Division	BTU	British Thermal Unit
BACT	Best Available Control Technology	°C	Degrees Celsius
CAA	Clean Air Act	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	dscf	Dry standard cubic foot
CFR	Code of Federal Regulations	dscm	Dry standard cubic meter
CO <sub>2</sub> e	Carbon Dioxide Equivalent	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H <sub>2</sub> S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
GHGs	Greenhouse Gases	kW	Kilowatt
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure *	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfuction Abatement Plan	NO <sub>x</sub>	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality (Department)	PM	Particulate Matter
MSDS	Material Safety Data Sheet	PM10	PM with aerodynamic diameter ≤10 microns
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	PM with aerodynamic diameter ≤ 2.5 microns
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	Reasonably Available Control Technology	scf	Standard cubic feet
ROP	Renewable Operating Permit	sec	Seconds
SC	Special Condition	SO <sub>2</sub>	Sulfur Dioxide
SCR	Selective Catalytic Reduction	THC	Total Hydrocarbons
SRN	State Registration Number	tpy	Tons per year
TAC	Toxic Air Contaminant	µg	Microgram
TEQ	Toxicity Equivalence Quotient	VOC	Volatile Organic Compound
VE	Visible Emissions	yr	Year

\* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (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.

<b>Emission Unit ID</b>	<b>Emission Unit Description (Process Equipment &amp; Control Devices)</b>	<b>Flexible Group ID</b>
EUSOLVCEM	This emission unit includes an adhesive mixing and drumming process that includes two mixers and one drum filling station used to produce a solvent based adhesive cement. Each of the mixers is controlled by a condenser.	FGFACILITY
EUHOCKMEYERPASTE	This emission unit includes a paste mixing unit and vacuum pump with a baghouse for control.	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.	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.	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.	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.	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.	FGPREPOLYMER2 FGPARTICULATE
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.	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.	FGPREPOLYMER2 FGPARTICULATE

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Flexible Group ID
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.	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.	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.	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	FGFACILITY
EUTANK22	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	FGFACILITY
EUTANK23	6,000 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	FGFACILITY
EUTANK24	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	FGFACILITY
EUTANK25	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	FGFACILITY
EUTANK26	6,000 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	FGFACILITY
EUTANK27	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	FGFACILITY

<b>Emission Unit ID</b>	<b>Emission Unit Description (Process Equipment &amp; Control Devices)</b>	<b>Flexible Group ID</b>
EUTANK28	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	FGFACILITY
EUTANK29	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	FGFACILITY
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: EUSOLVCEM**

**DESCRIPTION:** This emission unit includes an adhesive mixing and drumming process that includes two mixers and one drum filling station used to produce a solvent based adhesive cement.

**Flexible Group ID:** FGFACILITY

**POLLUTION CONTROL EQUIPMENT:** Each of the mixers is controlled by a condenser.

**I. EMISSION LIMITS**

NA

**II. MATERIAL LIMITS**

NA

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall submit to the AQD District Supervisor, for review, an approvable operation and maintenance/malfunction abatement plan for EUSOLVCEM. The permittee shall not operate EUSOLVCEM 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, EUSOLVCEM, 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 PARAMETERS**

1. The permittee shall not operate EUSOLVCEM unless each of the condensers is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes maintaining the cooling water outlet temperature at 80 degrees Fahrenheit or less for each of the condensers. **(R 336.1225, R 336.1702(a), R 336.1910)**
2. The permittee shall equip and maintain each condenser in EUSOLVCEM with a temperature indicator with an alarm system that indicates when the temperature exceeds 80 degrees Fahrenheit at the cooling water outlet. **(R 336.1225, R 336.1702(a), R 336.1910)**
3. The permittee shall not charge solvent raw materials to EUSOLVCEM unless the vapor return system for solvent raw material charging 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 for EUSOLVCEM on a daily basis. **(R 336.1225, R 336.1702(a), R 336.1910)**
2. The permittee shall monitor the number of batches produced in EUSOLVCEM on a daily basis. **(R 336.1225, R 336.1702(a), R 336.1910)**
3. The permittee shall monitor the temperature of the cooling water at the outlet of each of the condensers on a continuous basis. **(R 336.1225, R 336.1702(a), R 336.1910)**
4. The permittee shall keep, in a satisfactory manner, the following records for EUSOLVCEM:
  - 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 outlet water temperature for either of the condensers, the length of time the outlet water 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 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:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter/Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SV-15	100 <sup>1</sup>	27 <sup>1</sup>	R 336.1225
2. SV-16	100 <sup>1</sup>	27 <sup>1</sup>	R 336.1225
3. SV-20	100 <sup>1</sup>	27 <sup>1</sup>	R 336.1225
4. SV-24	100 <sup>1</sup>	27 <sup>1</sup>	R 336.1225
5. SV-26	100 <sup>1</sup>	27 <sup>1</sup>	R 336.1225
6. SV-27	100 <sup>1</sup>	27 <sup>1</sup>	R 336.1225
7. SV-42	2 <sup>1</sup>	27 <sup>1</sup>	R 336.1225

**IX. OTHER REQUIREMENTS**

NA

**Footnotes:**

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

**The following conditions apply to: EUHOCKMEYERPASTE**

**DESCRIPTION:** This emission unit includes a paste mixing unit and vacuum pump

**Flexible Group ID:** FGPARTICULATE

**POLLUTION CONTROL EQUIPMENT:** baghouse

**I. EMISSION LIMITS**

NA

**II. MATERIAL LIMITS**

NA

**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 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 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:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter/Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SV-42	2 <sup>1</sup>	27 <sup>1</sup>	R 336.1225

**IX. OTHER REQUIREMENTS**

NA

**Footnotes:**

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

**The following conditions apply to: EUMHTMIXER**

**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 LIMITS**

NA

**II. MATERIAL LIMITS**

NA

**III. PROCESS/OPERATIONAL RESTRICTIONS**

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 PARAMETERS**

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**

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 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 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:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter/Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SV-34	10 <sup>1</sup>	34 <sup>1</sup>	R 336.1225
2. SV-35	3 <sup>1</sup>	34 <sup>1</sup>	R 336.1225

**IX. OTHER REQUIREMENTS**

NA

**Footnotes:**

<sup>1</sup>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
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
FGFACILITY	All process equipment at the facility including equipment covered by this permit, equipment covered by other permits, grand-fathered equipment and exempt equipment including all Rule 336.1290 exempt emission units and Rule 336.1281(h) exempt parts washers.	NA

**The following conditions apply to: FGPREPOLYMER2**

**DESCRIPTION:** Adhesive production using reactor vessels.

**Emission Units:** 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 LIMITS**

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring 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 LIMITS**

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring 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 RESTRICTIONS**

- 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 PARAMETERS**

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 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:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter/Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SV-39	10 <sup>1</sup>	34 <sup>1</sup>	R 336.1225
2. SV-10	14 <sup>1</sup>	34 <sup>1</sup>	R 336.1225

**IX. OTHER REQUIREMENTS**

NA

**Footnotes:**

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

**The following conditions apply to: FG PARTICULATE**

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

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

**POLLUTION CONTROL EQUIPMENT:** Particulate emissions are controlled by a baghouse.

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring 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 LIMITS**

NA

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall submit to the AQD District Supervisor, for review, an approvable operation and maintenance/malfunction abatement plan for FG PARTICULATE. The permittee shall not operate FG PARTICULATE 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, FG PARTICULATE, 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 PARAMETERS**

1. The permittee shall not operate FG PARTICULATE 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 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. SVDC-01	23 <sup>1</sup>	28.8 <sup>1</sup>	R 336.1225

**IX. OTHER REQUIREMENTS**

NA

**Footnotes:**

<sup>1</sup>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 at the facility including equipment covered by this permit, equipment covered by other permits, grand-fathered equipment and exempt equipment including all Rule 336.1290 exempt emission units and Rule 336.1281(h) exempt parts washers.

**I. EMISSION LIMITS**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period / Operating Scenario</b>	<b>Equipment</b>	<b>Testing / Monitoring Method</b>	<b>Underlying Applicable Requirements</b>
1. VOC	75 tpy	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	VI.2.	R 336.1205(3)
2. Individual HAP	Less than 9 tpy	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	VI.2.	R 336.1205(3)
3. Total HAPs	Less than 22.5 tpy	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	VI.2.	R 336.1205(3)

**II. MATERIAL LIMITS**

NA

**III. PROCESS/OPERATIONAL RESTRICTIONS**

NA

**IV. DESIGN/EQUIPMENT PARAMETERS**

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. All required calculations shall be completed in a format acceptable to the AQD District Supervisor and made available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. **(R 336.1205(3))**

2. The permittee shall keep, in a satisfactory manner, records of monthly and 12-month rolling time period VOC, individual HAP and total HAP emission rate calculations for FGFACILITY, as required by the emission limits in the FGFACILITY subsection (conditions I.1., I.2., and I.3). All records shall be kept on file and made available to the Department upon request. **(R 336.1205(3))**

**VII. REPORTING**

NA

**VIII. STACK/VENT RESTRICTIONS**

NA

**IX. OTHER REQUIREMENTS**

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)**