

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

March 4, 2015

PERMIT TO INSTALL
156-01C

ISSUED TO
Huntington Foam LLC

LOCATED AT
1323 Moore Drive
Greenville, Michigan

IN THE COUNTY OF
Montcalm

STATE REGISTRATION NUMBER
N6976

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: March 2, 2015	
DATE PERMIT TO INSTALL APPROVED: March 4, 2015	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant / Measurement Abbreviations	
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 ₂ 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 ₂ 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	Malfunction Abatement Plan	NO _x	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 ₂	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.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Flexible Group ID
EU02000	Expandable polystyrene foam molding line consisting of two pre-expanders (a primary and a back-up), mold machines, and raw material, intermediate product, and final product storage.	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:
EU02000

DESCRIPTION: Expandable polystyrene foam molding line consisting of two pre-expanders (a primary and a back-up), mold machines, and raw material, intermediate product, and final product storage.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: NA

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. VOC	490 ppd ¹	Daily	EU02000	SC VI.1	R 336.1225
2. VOC	85 tpy	12-month rolling time period as determined at the end of each calendar month	EU02000	SC VI.1	R 336.1205(3), R 336.1702(a)

II. MATERIAL LIMITS

- The permittee shall limit the annual throughput of expandable polystyrene resin in EU02000 (measured at the pre-expanders) as specified below, based on a 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205(3), R 336.1225, R 336.1702(a))**

$$\sum_{12\text{-months}} \left(\left(\frac{\sum_i (U_i \times V_i)}{100} \times (1 - P_w) \right) \right) \leq 170,000 \text{ pounds}$$

U_i = Pounds of expandable polystyrene resin from lot i used during the calendar month.

V_i = VOC content of expandable polystyrene resin from lot i, in pounds of VOC per 100 pounds of resin.

P_w = Production-weighted average fraction of VOC retained in product. "Production-weighted average fraction of VOC retained in product" means the average fraction of VOC contained in the raw resin that is retained in the product shipped from the facility for each month's production. This average is determined by dividing the VOC content of each product by the VOC content of the respective raw resin and weighting this ratio by the fraction, by weight, of the month's production that the product constitutes. The default value for this shall be 15% or 0.15; the actual tested value may be used with the approval of the AQD District Supervisor.

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))**

1. As an option to the 15% default value, the permittee may determine the VOC content, as shipped, of product from EU02000 to support the equations in SC II.1 and Appendix A. The permittee shall use sampling and analysis methods approved by the District Supervisor. The samples shall represent the full range of VOC content of expandable polystyrene resin used in EU02000 and shall support an estimate of the production-weighted average fraction of VOC retained in product from EU02000. Results of product sampling and analysis shall be submitted to the District Supervisor in an acceptable format within 30 days following the receipt of analytical results. **(R 336.1205(3), R 336.1225, R 336.1702(a))**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep the following information for EU02000, using the method detailed in Appendix A:
 - a) VOC content (by weight) of each lot of expandable polystyrene resin used.
 - b) Pounds of each lot of expandable polystyrene resin used in EU02000 each day.
 - c) VOC emission calculations determining the daily emission rate from EU02000 in pounds per day.
 - d) VOC mass emission calculations determining the annual emission rate from EU02000 in tons per 12-month rolling time period as determined at the end of each calendar month.

The records shall be kept in a format acceptable to the AQD District Supervisor. All records shall be kept on file for a period of at least five years and made available to the Department upon request. **(R 336.1205(3), 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. SVPREEXPANDER1	8 ¹	32 ¹	R 336.1225
2. SVPREEXPANDER2	8 ¹	42.5 ¹	R 336.1225

IX. OTHER REQUIREMENTS

NA

Footnotes:

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

APPENDIX A

- I. The pounds of VOC per 100 pounds of expandable polystyrene resin used in the processes during a calendar month shall be calculated as follows:

$$P = \frac{\sum_i (U_i \times V_i)}{\sum_i U_i}$$

where:

P = Pounds of VOC per 100 pounds of expandable polystyrene resin used in the processes during the calendar month.

U_i = Pounds of expandable polystyrene resin from lot i used during the calendar month.

V_i = VOC content of expandable polystyrene resin from lot i , in pounds of VOC per 100 pounds of resin.

- II. For each lot of expandable polystyrene resin (i) used in the processes, the VOC emission for the calendar day shall be calculated as follows:

$$E_i = \left(\frac{U_i \times V_i}{100} \times (1 - P_w) \right)$$

where:

E_i = VOC emissions due to use of expandable polystyrene resin from lot i during the calendar day, in pounds.

U_i, V_i = As above, but on a daily basis instead of monthly.

P_w = Production-weighted average fraction of VOC retained in product. "Production-weighted average fraction of VOC retained in product" means the average fraction of VOC contained in the raw resin that is retained in the product shipped from the facility for each day's production. This average is determined by dividing the VOC content of each product by the VOC content of the respective raw resin and weighting this ratio by the fraction, by weight, of the day's production that the product constitutes. The default value for this shall be 15% or 0.15; the actual tested value may be used with the approval of the AQD District Supervisor.

- III. For each lot of expandable polystyrene resin (i) used in the processes, the VOC emission for the calendar month shall be calculated as follows:

$$E_i = \left(\frac{U_i \times V_i}{100} \times (1 - P_w) \right)$$

where:

E_i = VOC emissions due to use of expandable polystyrene resin from lot i during the calendar month, in pounds.

U_i, V_i = As above.

P_w = Production-weighted average fraction of VOC retained in product. "Production-weighted average fraction of VOC retained in product" means the average fraction of VOC contained in the raw resin that is retained in the product shipped from the facility for each month's production. This average is determined by dividing the VOC content of each product by the VOC content of the respective raw resin and weighting this ratio by the fraction, by weight, of the month's production that the product constitutes. The default value for this shall be 15% or 0.15; the actual tested value may be used with the approval of the AQD District Supervisor.