

**AIR EMISSION PERMIT NO. 09100028- 001
IS ISSUED TO**

Penda Glasstite, Inc.
600 Highway 4 North
Dunnell, Martin County, Minnesota 56127

The emission units, control equipment and emission stacks at the stationary source authorized in this permit are as described in the following permit application(s):

Permit Type	Application Date
Total Facility Operating Permit	10/26/99

This permit authorizes the Permittee to operate the stationary source at the address listed above unless otherwise noted in Table A. The Permittee must comply with all the conditions of the permit. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit are as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Permit Type: Pt. 70/Limits to avoid NSR
Issue Date: August 31, 2000
Expiration: August 31, 2005
All Title I Conditions do not expire.

Toni Volkmeier for
Rodney E. Massey
Director
North/South Districts

for Karen A. Studders
Commissioner
Minnesota Pollution Control Agency

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NOTICE TO THE PERMITTEE:

Your stationary source may be subject to the requirements of the Minnesota Pollution Control Agency's (MPCA) solid waste, hazardous waste, and water quality programs. If you wish to obtain information on these programs, including information on obtaining any required permits, please contact the MPCA general information number at:

Metro Area	(651) 296-6300
Outside Metro Area	1-800-657-3864
TTY	(651) 282-5332

The rules governing these programs are contained in Minn. R. chs. 7000-7105. Written questions may be sent to: Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155-4194.

Questions about this air emission permit or about air quality requirements can also be directed to the telephone numbers and address listed above.

PERMIT SHIELD:

Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition.

Subject to the limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

FACILITY DESCRIPTION:

Penda Glasstite manufactures fiberglass pick-up truck toppers. The process consists of spraying alternating layers of resin and gelcoat on a mold, removing the product from the mold, miscellaneous clean up, repair, grinding, and gluing operations, painting, and oven curing of the paint. Primary emissions are volatile organic compounds (VOC) from the spraying operations. These VOCs are primarily styrene and methyl methacrylate from the resin and gelcoat operations. The Permittee utilizes a mechanical non-atomized resin application process, which results in lower styrene emissions and minimizes particulate matter emissions. Each spray booth is equipped with panel filters to further reduce the amount of particulate matter emitted to the atmosphere. The grinding operations are exhausted to a fabric filter and emitted inside the building 100 percent of the time, therefore qualifying as an insignificant activity under Minnesota Rules. The primary cleaning material used is acetone, which is not categorized as a VOC and therefore does not contribute to overall emissions. The facility also has three natural gas space heaters that also qualify as insignificant activities under Minnesota Rules.

The Permittee proposes to limit VOC emissions to 220 tons per year, based on purchase records. By limiting the quantity of VOC purchased, the quantity of hazardous air pollutants (HAPs) and particulate matter are inherently limited as well. After considering the VOC purchase limit, the facility is a major source under the Part 70 permitting program (VOC and HAPs), and a non-major source under New Source Review.

TABLE A: LIMITS AND OTHER REQUIREMENTS

08/31/00

Facility Name: Penda Glasstite Inc
 Permit Number: 09100028 - 001

Table A contains limits and other requirements with which your facility must comply. The limits are located in the first column of the table (What To do). The limits can be emission limits or operational limits. This column also contains the actions that you must take and the records you must keep to show that you are complying with the limits. The second column of Table A (Why to do it) lists the regulatory basis for these limits. Appendices included as conditions of your permit are listed in Table A under total facility requirements.

Subject Item:	Total Facility
What to do	Why to do it
<p>This permit establishes limits on the facility to keep it a minor source under New Source Review. The Permittee cannot make any change at the source that would make the source a major source under New Source Review unless and until a major amendment has been issued. This includes changes that might otherwise qualify as insignificant modifications and minor or moderate amendments.</p>	<p>Title I Condition: Limits to avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000</p>
<p>The Permittee shall not begin construction of any project or projects that are connected or phased which will cause a total increase in actual emissions of greater than 99 tons per year for any criteria pollutant without first getting a permit amendment to authorize the project. "Connected" and "phased" have the meanings as defined in Minn. R. 4410.0200 subps 9b and 60. The Permittee shall not begin construction of any other project which is listed in Minn. R. 4410.4300 or Minn. R. 4410.4400 without first getting a permit amendment to authorize the project. Such projects may require the completion of an Environmental Assessment Worksheet or an Environmental Impact Statement prior to the amendment being issued.</p> <p>This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.</p>	<p>Minn. R. 4410.4300 and Minn. R. 4410.4400</p>
<p>Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment.</p>	<p>Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)</p>
<p>Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.</p>	<p>Minn. R. 7011.0020</p>
<p>Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3.</p> <p>At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.</p>	<p>Minn. R. 7019.1000, subp. 3</p>
<p>Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2.</p> <p>At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.</p>	<p>Minn. R. 7019.1000, subp. 2</p>
<p>Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.</p>	<p>Minn. R. 7019.1000, subp. 1</p>
<p>Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description:</p> <ol style="list-style-type: none"> 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation. 	<p>Minn. R. 7019.1000, subp. 1</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

08/31/00

Facility Name: Penda Glasstite Inc

Permit Number: 09100028 - 001

Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150
Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Application for Permit Reissuance: due 180 days before expiration of existing permit.	Minn. R. 7007.0400, subp. 3
Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).	Minn. R. 7007.1400, subp. 1(H)
Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350 subp. 2), including records of the emissions resulting from those changes.	Minn. R. 7007.0800, subp. 5(B)
Record keeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)
Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7030.0010 - 7030.0080
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).	Minn. R. 7007.0800, subp. 9(A)
Emissions Inventory Report: due April 1 of each year. To be submitted on a form approved by the Commissioner.	Minn. R. 7019.3000 through Minn. R. 7019.3010
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095

TABLE A: LIMITS AND OTHER REQUIREMENTS

08/31/00

Facility Name: Penda Glasstite Inc
 Permit Number: 09100028 - 001

Subject Item: GP 001 VOC Emitting Operations

- Associated Items:** EU 001 Mold Development & Repair Booth/Area (1 gun)
 EU 002 Gelcoat Booth (2 guns)
 EU 003 Skin Booth (1 gun)
 EU 004 HAF Booth #1 (2 guns)
 EU 005 HAF Booth #2 (2 guns)
 EU 006 Interior Gelcoat Booth (1 gun)
 EU 007 Basecoat Booth (1 gun)
 EU 008 Clearcoat Booth (1 gun)
 EU 011 Glue, cleanup area

What to do	Why to do it
EMISSION AND OPERATING LIMITS	hdr
Volatile Organic Compounds: less than or equal to 220 tons/year using 12-month Rolling Sum , to be calculated by the 15th day of each month for the previous 12-month period, as described in this permit. All VOC-containing materials used in all operations included in GP 001 shall be included in this calculation.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000
Pre-Authorized Changes: The Permittee may replace listed emission units with emission units similar to those listed in GP 001, and may install additional spray equipment in existing booths, provided VOC emissions are tracked and calculated as specified in this permit. If a proposed change triggers an applicable requirement that is not contained in this permit, the change must go through the appropriate procedure in Minn. R. ch. 7007.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000
The Permittee shall vent emissions from all spray booths to control equipment meeting the requirements of GP 002.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. This limit applies separately to each emission unit in GP 001.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity . This limit applies separately to each emission unit in GP 001.	Minn. R. 7011.0715, subp. 1(B)
MONITORING AND RECORDKEEPING REQUIREMENTS	hdr
Material Content: VOC contents in all materials shall be determined by the Material Safety Data Sheet (MSDS) or Certificate of Analysis (COA) provided by the supplier for each material used. If a material content range is given on the MSDS or COA, the highest number in the range shall be used in all permit calculations. Other alternative methods approved by the MPCA may be used to determine the VOC content. The Commissioner reserves the right to require the Permittee to determine the VOC content of any material according to EPA and/or ASTM reference methods. If an EPA or ASTM reference method is used for material content determination, the data obtained shall supersede the MSDS or COA data.	Minn. R. 7007.0800, subp. 4 and subp. 5
Monthly Recordkeeping - VOC Emissions By the 15th of each month, the Permittee shall calculate and record the following: 1. The total purchases of all VOC containing materials for the previous calendar month. This record shall include the VOC content of each material as determined by the Material Content requirement of this permit. 2. The VOC emissions for the previous month using the formulas specified in this permit. 3. The 12-month rolling sum of VOC emissions for the previous 12 months, by summing the monthly VOC emissions calculated for the previous 12 months.	Minn. R. 7007.0800, subp. 4 and subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

08/31/00

Facility Name: Penda Glasstite Inc

Permit Number: 09100028 - 001

<p>Monthly Calculation -- VOC Emissions</p> <p>The Permittee shall calculate VOC emissions using the following equations:</p> $\text{VOC (tons/month)} = S + M + V$ $S = (A1 \times B1 / 2000) + (A2 \times B2 / 2000) + (A3 \times B3 / 2000) + \dots$ $M = (C1 \times D1 / 2000) + (C2 \times D2 / 2000) + (C3 \times D3 / 2000) + \dots$ $V = (E1 \times F1) + (E2 \times F2) + (E3 \times F3) + \dots$ <p>where:</p> <p>S = styrene emissions in tons per month A# = Amount of styrene-containing resin/gelcoat material purchased, in tons B# = Emission factor for styrene, based on weight percent styrene and the spray technology used. (see Note 1)</p>	<p>Minn. R. 7007.0800. subp. 4 and subp. 5</p>
<p>Monthly Calculation, continued</p> <p>M = methyl methacrylate (MMA) emissions in tons per month C# = Amount of MMA-containing gelcoat material purchased, in tons D# = Emission factor for MMA, based on weight percent MMA and the spray technology used. (see Note 1) V = Non-styrene and non-MMA VOC emissions in tons per month E# = Amount of material containing VOC other than styrene or MMA purchased, in tons F# = weight percent non-styrene and non-MMA VOC in each material purchased, determined as required in the Material Content requirement of this permit.</p> <p>NOTE 1: The emission factor shall be the appropriate factor from Appendix 1, until such time as EPA finalizes a new AP-42 emission factor. When finalized, the new AP-42 factor shall be used. The Permittee may propose to use a site-specific emission factor derived from MPCA approved performance tests. If approved by MPCA, this site-specific factor shall be used.</p>	<p>Minn. R. 7007.0800, subp. 4 and subp. 5</p>
<p>Recordkeeping of Equipment and Formulation Changes:</p> <p>The Permittee shall keep records of any equipment that is replaced or added. This record shall be updated at the time the equipment is replaced or added. The record shall include the date the equipment was replaced or added (including dates of shutdown of old equipment and/or startup of new equipment), the corresponding emission unit number (EU001 - EU008, EU011), the manufacturer and model numbers of the new equipment, the spray technology and manufacturer specified transfer efficiency, and the spray capacity in pounds per hour.</p> <p>The Permittee shall keep a log of all resin/gelcoat and coating formulations, as applied, as determined by the Material Content requirement of this permit.</p>	<p>Title I Condition: Limit to avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

08/31/00

Facility Name: Penda Glasstite Inc

Permit Number: 09100028 - 001

Subject Item: GP 002 Panel Filters

- Associated Items:** CE 001 Mat or Panel Filter
 CE 002 Mat or Panel Filter
 CE 003 Mat or Panel Filter
 CE 004 Mat or Panel Filter
 CE 005 Mat or Panel Filter
 CE 006 Mat or Panel Filter
 CE 007 Mat or Panel Filter
 CE 008 Mat or Panel Filter
 CE 009 Mat or Panel Filter
 CE 010 Mat or Panel Filter
 CE 011 Mat or Panel Filter
 CE 012 Mat or Panel Filter
 CE 013 Mat or Panel Filter
 CE 014 Mat or Panel Filter

What to do	Why to do it
EMISSION AND OPERATING LIMITS	hdr
The Permittee shall operate and maintain control equipment such that it achieves an overall control efficiency for Particulate Matter < 10 micron: greater than or equal to 73.6 percent control efficiency	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; Equipment used under Minn. R. 7019.3020(F)
The Permittee shall operate and maintain control equipment such that it achieves an overall control efficiency for Total Particulate Matter: greater than or equal to 73.6 percent control efficiency	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; Equipment used under Minn. R. 7019.3020(F)
The Permittee shall operate and maintain each particulate filter any time the corresponding process equipment is in operation.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; Equipment used under Minn. R. 7019.3020(F)
Operation and Maintenance of Filters: The Permittee shall operate and maintain each filter in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and review by MCPA staff.	Minn. R. 7007.0800, subp. 14
MONITORING AND RECORDKEEPING	hdr
Daily Inspections: Once each operating day, the Permittee shall visually inspect the condition of each panel filter with respect to alignment, saturation, tears, holes, and any other matter that may affect the filter's performance. The Permittee shall maintain a daily written record of filter inspections.	Minn. R. 7007.0800, subp. 2, subp. 5, and subp. 14
Periodic Inspections: The Permittee shall inspect the control equipment components as required by the manufacturer's specifications. The frequency of the inspections shall be specified in the O & M Plan. The Permittee shall maintain a written record of these inspections.	Minn. R. 7007.0800, subp. 2, subp. 5, and subp. 14
Corrective Actions: If the filters or any of their components are found to need repair, the Permittee shall follow the O & M Plan for the panel filter and take corrective action as soon as possible. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	Minn. R. 7007.0800, subp. 2, subp. 5, and subp. 14
Hood Certification: Each booth/panel filter system must conform to the requirements listed in Minn. R. 7011.0070, subp. 1, and the Permittee shall certify this for each hood (spray booth) as specified in Minn. R. 7011.0070, subp. 3. The Permittee shall maintain a copy of each certification on site, as well as an annual record of fan rotation speed, fan power draw, or face velocity of each hood, or other comparable air flow indication method.	Minn. R. 7007.0800, subp. 2 and subp. 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

08/31/00

Facility Name: Penda Glasstite Inc

Permit Number: 09100028 - 001

Subject Item: EU 009 Oven #1**Associated Items: SV 015 Oven #1**

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. (Due to equipment design, the PTE of this unit is 0.002 gr/dscf.)	Minn. R. 7011.0610, subp. 1(A)(1)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0610, subp. 1(A)(2)
Fuel Type: Natural gas only, by equipment design	Minn. R. 7005.0100, subp. 35a

TABLE A: LIMITS AND OTHER REQUIREMENTS

08/31/00

Facility Name: Penda Glasstite Inc

Permit Number: 09100028 - 001

Subject Item: EU 010 Oven #2**Associated Items: SV 016 Oven #2**

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. (Due to equipment design, the PTE of this unit is 0.0017 gr/dscf.)	Minn. R. 7011.0610, subp. 1(A)(1)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0610, subp. 1(A)(2)
Fuel Type: Natural gas only, by equipment design	Minn. R. 7005.0100, subp. 35a

TABLE B: SUBMITTALS

08/31/00

Facility Name: Penda Glasstite Inc
Permit Number: 09100028 - 001

Table B lists most of the submittals required by this permit. Please note that some submittal requirements may appear in Table A or, if applicable, within a compliance schedule located in Table C. Table B is divided into two sections in order to separately list one-time only and recurrent submittal requirements.

Each submittal must be postmarked or received by the date specified in the applicable Table. Those submittals required by parts 7007.0100 to 7007.1850 must be certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Other submittals shall be certified as appropriate if certification is required by an applicable rule or permit condition.

Send any application for a permit or permit amendment to:

Permit Technical Advisor
Permit Section
Air Quality Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Also, where required by an applicable rule or permit condition, send to the Permit Technical Advisor notices of:

- accumulated insignificant activities,
- installation of control equipment,
- replacement of an emissions unit, and
- changes that contravene a permit term.

Unless another person is identified in the applicable Table, send all other submittals to:

Supervisor
Compliance Determination Unit
Air Quality Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Send submittals that are required to be submitted to the U.S. EPA regional office to:

Mr. George Czerniak
Air and Radiation Branch
EPA Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Send submittals that are required by the Acid Rain Program to:

U.S. Environmental Protection Agency
Clean Air Markets Division
1200 Pennsylvania Avenue NW (6204N)
Washington, D.C. 20460

TABLE B: RECURRENT SUBMITTALS

08/31/00

Facility Name: Penda Glasstite Inc

Permit Number: 09100028 - 001

What to send	When to send	Portion of Facility Affected
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance. The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31.	Total Facility
Compliance Certification	due 30 days after end of each calendar year following Permit Issuance (for the previous calendar year). To be submitted on a form approved by the Commissioner, both to the Commissioner, and to the U.S. EPA regional office in Chicago. This report covers all deviations experienced during the calendar year. The EPA copy shall be sent to: Mr. George Czerniak, Chief, Air Enforcement and Compliance Assurance Branch, Air and Radiation Division, EPA Region V, 77 West Jackson Boulevard, Chicago, Illinois 60604	Total Facility

APPENDIX I

Facility Name: **Penda Glasstite, Inc.**
 Permit Number: **09100028-001**

Emission Factors for Open Molding of Composites
 Emission Rate in Pounds of Styrene Emitted per Ton of Resin or Gelcoat Processed

Application Process	Styrene content in resin/gelcoat, % ⁽¹⁾																			
	<33 ⁽²⁾	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	>50 ⁽²⁾
Manual	0.126 x %styrene x 2000	83	89	94	100	106	112	117	123	129	134	140	146	152	157	163	169	174	180	((0.286 x %styrene) - 0.0529) x 2000
Manual w/ Vapor Suppressed Resin VSR⁽³⁾	Manual emission factor [listed above] x (1 - (0.50 x specific VSR reduction factor for each resin/suppressant formulation))																			
Mechanical Atomized	0.169 x %styrene x 2000	111	126	140	154	168	183	197	211	225	240	254	268	283	297	311	325	340	354	((0.714 x %styrene) - 0.18) x 2000
Mechanical Atomized with VSR⁽³⁾	Mechanical Atomized emission factor [listed above] x (1 - (0.45 x specific VSR reduction factor for each resin/suppressant formulation))																			
Mechanical Non-Atomized	0.107 x %styrene x 2000	71	74	77	80	83	86	89	93	96	99	102	105	108	111	115	118	121	124	((0.157 x %styrene) - 0.0165) x 2000
Mechanical Non-Atomized with VSR⁽³⁾	Mechanical Non-Atomized emission factor [listed above] x (1 - (0.45 x specific VSR reduction factor for each resin/suppressant formulation))																			
Filament application	0.184 x %styrene x 2000	122	127	133	138	144	149	155	160	166	171	177	182	188	193	199	204	210	215	((0.2746 x %styrene) - 0.0298) x 2000
Filament application with VSR⁽⁴⁾	0.120 x %styrene x 2000	79	83	86	90	93	97	100	104	108	111	115	118	122	125	129	133	136	140	0.65 x ((0.2746 x %styrene) - 0.0298) x 2000
Gelcoat Application	0.445 x %styrene x 2000	294	315	336	356	377	298	418	439	460	481	501	522	543	564	584	605	626	646	((1.03646 x %styrene) - 0.195) x 2000
Covered-Cure after Roll-Out	Non-VSR process emission factor [listed above] x (0.80 for Manual <or> 0.85 for Mechanical)																			
Covered-Cure without Roll-Out	Non-VSR process emission factor [listed above] x (0.50 for Manual <or> 0.55 for Mechanical)																			

Emission Rate in Pounds of Methyl Methacrylate Emitted per Ton of Gelcoat Processed

Application Process	MMA content in gelcoat, % ⁽⁵⁾																			
	1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	≥20
Gel coat application ⁽⁶⁾	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	0.75 x %MMA x 2000

Notes

1. Including styrene monomer content as supplied, plus any extra styrene monomer added by the molder, but before addition of other additives such as powders, fillers, glass,...etc.
2. *Formulas for materials with styrene content < 33% are based on the emission rate at 33% (constant emission factor expressed as percent of available styrene), and for styrene content > 50% on the emission rate based on the extrapolated factor equations; these are not based on test data but are believed to be conservative estimates. The value for "% styrene" in the formulas should be input as a fraction. For example, use the input value 0.30 for a resin with 30% styrene content by weight.*
3. The VSR reduction factor is determined by testing each resin/suppressant formulation according to the procedures detailed in the *CFA Vapor Suppressant Effectiveness Test*.
4. The effect of vapor suppressants on emissions from filament winding operations is based on the *Dow Filament Winding Emissions Study*.
5. Including MMA monomer content as supplied, plus any extra MMA monomer added by the molder, but before addition of other additives such as powders, fillers, glass,...etc.
6. Based on gelcoat data from *NMMA Emission Study*.

This table is based on the CFA *Unified Emissions Factors* document, dated April 7, 1999.

APPENDIX IIFacility Name: **Penda Glasstite, Inc.**Permit Number: **09100028-001****Insignificant Activities and Applicable Requirements**

Minn. R. 7007.1300, subpart	Rule Description of the Activity	Applicable Requirement
3(A)	<i>Fuel use: space heaters fueled by, kerosene, natural gas, or propane.</i> <ul style="list-style-type: none">Natural gas space heaters	Minn. R. 7011.0510/0515
3(D)	<i>Processing operations:</i> <i>2. Equipment venting particulate matter (PM) or particulate matter less than 10 microns (PM-10) inside a building, provided that emissions from the equipment are:</i> <i>a). filtered through an air cleaning system; and</i> <i>b). vented inside of the building 100% of the time.</i> <ul style="list-style-type: none">Grinding operation exhausting inside the building 100% of the time, through a baghouse	Minn. R. 7011.0710/0715
3(H)	<i>Miscellaneous:</i> <i>8. cleaning operations: alkaline/phosphate cleaners and associated cleaners and associated burners.</i> <ul style="list-style-type: none">Alkaline/phosphate cleaning operations	Minn. R. 7011.0710/0715

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 09100028-001

This technical support document is intended for all parties interested in the permit. The purpose of this document is to set forth the legal and factual basis for the permit conditions, including references to the applicable statutory or regulatory provisions.

1. General Information

1.1. Applicant and Stationary Source Location:

Owner and Operator Address and Phone Number	Facility Location (SIC Code: 3089)
Penda Glasstite, Inc. 600 Highway 4 North Dunnell, MN 56127	Penda Glasstite, Inc. 600 Highway 4 North Dunnell, Martin County, MN
Contact Information: Sam Morris Safety Director (507)695-2378 – voice (507)695-2980 – fax	

1.2. Description of the facility

Penda Glasstite manufactures fiberglass pick-up truck toppers. The process consists of spraying alternating layers of resin and gelcoat on a mold, removing the product from the mold, miscellaneous clean up, repair, grinding, and gluing operations, painting, and oven curing of the paint. Primary emissions are volatile organic compounds (VOC) from the spraying operations. These VOCs are primarily styrene and methyl methacrylate from the resin and gelcoat operations. The Permittee utilizes a mechanical non-atomized resin application process, which results in lower styrene emissions and minimizes particulate matter emissions. Each spray booth is equipped with panel filters to further reduce the amount of particulate matter emitted to the atmosphere. The grinding operations are exhausted to a fabric filter and emitted inside the building 100% of the time, therefore qualifying as an insignificant activity under Minnesota Rules. The primary cleaning material used is acetone, which is not categorized as a VOC and therefore does not contribute to overall emissions. The facility also has 3 natural gas space heaters which also qualify as insignificant activities under Minnesota Rules.

The Permittee proposes to limit VOC emissions to 220 tons per year, based on purchase records. By limiting the quantity of VOC purchased, the quantity of hazardous air pollutants (HAPs) and particulate matter are inherently limited as well. After considering the VOC purchase limit, the facility is a major source under the Part 70 permitting program (VOC and HAPs), and a non-major source under New Source Review.

1.3 Description of any changes allowed with this permit issuance

Since the total quantity of VOC emissions are limited, the Permittee may replace spray guns or add new spray guns or replace VOC-containing materials with other VOC-containing materials, as long as all VOC-containing materials are included in the monthly calculations.

1.4 Facility Emissions:

Table 1. Total Facility Potential to Emit Summary:

	PM tpy	PM ₁₀ tpy	SO ₂ tpy	NO _x tpy	CO tpy	VOC tpy	Total HAPs ² tpy
Total Facility Limited Potential Emissions	32.8	32.8	0.003	0.5	0.4	220	220
Total Facility Actual Emissions ¹	16.5	16.5	0.0	0.0	0.0	97.95	NR ³

1. As reported in the 1998 Emission Inventory.
2. Total HAPS will consist of any combination of one or more of the following: styrene, methyl methacrylate, dimethyl phthalate, ethylbenzene, methyl ethyl ketone, methyl isobutyl ketone, toluene, and/or xylene. Some coatings or solvents may also contain trace amounts of cumene or methylene chloride.
3. NR = Actual emissions not reported (not required to be reported)

Table 2. Facility (TF) and Permit Classification

Classification	Major/Affected Source	*Synthetic Minor	*Minor
PSD		VOC, PM, PM ₁₀	NO _x , SO ₂ , CO, Pb
NAAR - Not Applicable			
Part 70 Permit Program	VOC, HAP	PM ₁₀	NO _x , SO ₂ , CO, Pb

* Refers to potential emissions that are less than those specified as major by 40 CFR 52.21, 40 CFR pt. 51 Appendix S, and 40 CFR pt. 70.

2. Regulatory and/or Statutory Basis

The facility has taken limits to avoid major source classification for New Source Review (40 CFR § 52.21). However, the facility is a major source under the federal operation permits program (40 CFR pt. 70). The following table contains an overview of the applicable regulations for this facility.

Table 3. Regulatory Overview

Level	Applicable Regulations	Comments:
GP 001	40 CFR § 52.21; Minn. R. 7011.0715	Prevention of Significant Deterioration (PSD) and Standards of Performance for Post 1969 Industrial Equipment. Limits taken to avoid major source classification under PSD for all emissions of VOC.
EU009 EU010	Minn. R. 7007.0610	Standards of Performance for Direct Heating Equipment

3. Technical Information

3.1. Potential to Emit Calculations

Attachment 1 to this TSD contains Form GI-07, which summarizes the PTE of the facility, and supporting information.

The facility has elected to accept a limit on VOC emissions to remain a non-major source under 40 CFR Section 52.21 (PSD). The primary source of VOC emissions is spray application of resin and gelcoat to form the truck toppers, and spray application of paint (basecoat and clearcoat).

Styrene

Potential styrene emissions are calculated using the capacity of the gun, the maximum styrene content of the resin or gelcoat, and the United Emission Factors (UEF) for open molding of composites. These factors are reproduced in Appendix I of the permit. Resin spray technology is mechanical non-atomized spray; neither the resin or gelcoat is applied using “controlled spray” techniques described in the *CFA Controlled Spray Handbook*.

Methyl Methacrylate

Potential methyl methacrylate (MMA) emissions are calculated using the capacity of the gun, the maximum MMA content of the gelcoat, and the United Emission Factors (UEF) for open molding of composites. These factors are reproduced in Appendix I of the permit.

Other VOC (including non-styrene and non-MMA HAPs)

Potential VOC emissions other than styrene or MMA are calculated using the capacity of the gun and the maximum VOC content of the material, assuming that all is emitted. This is a standard mass-balance calculation.

Total Particulate Matter/PM₁₀

Potential PM emissions are calculated using the capacity of the gun, the maximum solids content of the material, an assumed transfer efficiency of 75%, an assumed capture efficiency of 80%, and an assumed control efficiency of 92% (for panel filters, per Minn. R. 7011.0070).

This method of PM calculations is likely very conservative. The manufacturer of the guns used for resin and gelcoat application suggests (but does not guarantee) that a transfer efficiency of

90% or greater is appropriate; we conservatively use 75%. The spray technology for resin application is non-atomized, so that particulate matter should not become airborne; we conservatively assume that 25% of the solid content becomes airborne (25% = 1 – assumed transfer efficiency). The capture efficiency of a spray booth is usually around 95%; we assume 80% per the control equipment rule (Minn. R. 7011.0070), which is deliberately conservative so that noncompliance is unlikely. Hood certification is required.

The Permittee has the option of performing an “efficiency study” whereby over a period of time they would measure the quantity of resin and/or gelcoat sprayed and the quantity of particulate matter collected in the filters. Assuming 74% overall control (80% capture, 92% collection), they could then calculate a site-specific controlled PM/PM₁₀ emission factor. The Permittee opted not to conduct such a study prior to permit issuance, to instead continue to calculate PM emissions using the conservative approach outlined above. They may in the future do such a study for purposes of more accurately estimating actual PM₁₀ emissions.

3.2. Periodic Monitoring

In accordance with the Clean Air Act, it is the responsibility of the owner or operator of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements. To achieve this objective, US EPA issued guidance (September 15, 1998, memorandum Periodic Monitoring Guidance for Title V Operating Permits Programs, and April 30, 1999, guidance titled Periodic Monitoring Technical Reference Document) on periodic monitoring requirements for permitted sources.

In evaluating the monitoring included in the permit, the MPCA considered the following as per the above mentioned guidance documents:

- the likelihood of violating the applicable requirement;
- whether add-on controls are necessary to meet the emission limit;
- the variability of emissions over time;
- the type of monitoring, process, maintenance, or control equipment data already available for the emission unit;
- the technical and economic feasibility of possible periodic monitoring methods; and
- the kind of monitoring found on similar units.

Table 4 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate.

Table 4. Emission Units Subject to Periodic Monitoring

EU/ GP/ CE	Emission limit (Basis)	Additional Monitoring	Discussion
GP 001 units	VOC = 220 tons per year on a 12 month rolling basis (limit to avoid NSR)	<p><u>Recordkeeping:</u> Monthly records of material purchase, on-going records of VOC contents</p> <p><u>Calculations:</u> Monthly calculation of VOC emissions</p>	The facility will base records on actual quantity of VOC and VOC-containing materials purchased. Assumption is that all non-resin and non-gelcoat VOC purchased is emitted, on a 12-month rolling sum basis. Styrene and methyl methacrylate from the resin and gelcoat are to be calculated using UEF emission factors (see Section 3.1 of this document); all other VOCs are calculated using a conventional mass balance technique.
GP 002 units	Booth/panel filter systems must be maintained to achieve 74% control efficiency (Minn. R. 7011.0070, control equipment rule; required to remain below NSR thresholds; Minn. R. 7011.0715, Industrial Process Equipment Rule)	Certification of hood (booth) performance in accordance with control equipment rule.	The only true limit that applies is under Minn. R. 7011.0715. The calculated emission rates using the conservative estimates described in in Section 3.1 of this document show that the PM emissions will be less than what is allowed under Minn. R. 7011.0715. Non-compliance is unlikely, and stack testing is not being required at this time.
EU009, EU010	PM, opacity: Limited by Minn. R. 7011.0610	None	Potential emissions of these 2 ovens are significantly below the allowed emissions in the rule, without use of control equipment. It is highly unlikely that the limit could be violated.

3.3. Insignificant Activities

The facility has several operations that qualify as insignificant operations. These are included in the Appendix to the permit, along with the applicable requirements.

- Alkaline/phosphate cleaners

- Natural gas fired space heaters

4. Conclusion

Based on the information provided by Penda Glasstite, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 09100028-001 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Toni Volkmeier

Attachments: 1. Calculations and PTE Summary
2. CD-01 Forms and Facility Description Forms

Attachment 1

Calculations

Attachment 2
Facility Description
CD-01