MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

FEBRUARY 8, 2006

PERMIT TO INSTALL
NO. 3-06

ISSUED TO
GLASSLINE, INC.

LOCATED AT
199 W ANN ARBOR TRAIL
PLYMOUTH, MICHIGAN 48170

IN THE COUNTY OF
WAYNE

STATE REGISTRATION NUMBER
M3856

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: **1/26/2006**	
DATE PERMIT TO INSTALL APPROVED: **2/8/2006**	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
COM	Continuous Opacity Monitoring	°F	Degrees Fahrenheit
EPA	Environmental Protection Agency	gr	Grains
EU	Emission Unit	Hg	Mercury
FG	Flexible Group	hr	Hour
FRP	Fiberglass Reinforced Plastic	H_2S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
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
MMA	Methyl Methacrylate	NOx	Oxides of Nitrogen
MAP	Malfunction Abatement Plan	PM	Particulate Matter
MDEQ	Michigan Department of Environmental Quality	PM-10	Particulate Matter less than 10 microns diameter
MSDS	Material Safety Data Sheet	pph	Pounds per hour
NESHAP	National Emission Standard for Hazardous Air Pollutants	ppm	Parts per million
NSPS	New Source Performance Standards	ppmv	Parts per million by volume
NSR	New Source Review	ppmw	Parts per million by weight
PS	Performance Specification	psia	Pounds per square inch absolute
PSD	Prevention of Significant Deterioration	psig	Pounds per square inch gauge
PTE	Permanent Total Enclosure	scf	Standard cubic feet
PTI	Permit to Install	sec	Seconds
RACT	Reasonable Available Control Technology	SO_2	Sulfur Dioxide
ROP	Renewable Operating Permit	THC	Total Hydrocarbons
RTM	Resin Transfer Molding	tpy	Tons per year
SC	Special Condition Number	µg	Microgram
SCR	Selective Catalytic Reduction	VOC	Volatile Organic Compound
SRN	State Registration Number	yr	Year
TAC	Toxic Air Contaminant		
TEQ	Toxic Equivalent		
VE	Visible Emissions		

* 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. **[R336.1201(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, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **[R336.1201(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 R336.1210, 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. **[R336.1201(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. **[R336.1201(8), Section 5510 of Act 451, PA 1994]**

5. The AQD District Supervisor shall be notified, in writing, of a change in ownership or operational control of the stationary source or emission unit(s) authorized by this Permit to Install pursuant to R336.1219. The notification shall include all of the information required by R336.1219(1)(a) and (b). In addition, a new owner or operator must submit a written statement pursuant to R336.1219(1)(c), agreeing to and accepting the terms and conditions of this Permit to Install, and shall notify the AQD District Supervisor of any change in the contact person for this Pemit to Install. **[R336.1219]**

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. **[R336.1901]**

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). **[R336.1912]**

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 R336.1301, 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 R336.1303. **[R336.1301]**

    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 R336.1370(2). **[R336.1370]**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R336.2001 and R336.2003, under any of the conditions listed in R336.2001. **[R336.2001]**

SPECIAL CONDITIONS

Emission Unit Identification

Emission Unit ID	Emission Unit Description	Stack Identification
EURESIN	One dry filter spray booth using manual or non-atomized application of resin and/or gelcoat materials to open molds.	SVSTACKA
EUGELCOAT	One dry filter spray booth using manual or non-atomized application of resin and/or gelcoat materials to open molds.	SVSTACKB SVSTACKC
EUCLEANUP	Miscellaneous cleanup activities	SVSTACKA SVSTACKB SVSTACKC
Changes to the equipment described in this table are subject to the requirements of R336.1201, except as allowed by R336.1278 to R336.1290.		

Flexible Group Identification

Flexible Group ID	Emission Units Included in Flexible Group	Stack Identification
FGFIBERGLASS	EURESIN, EUGELCOAT, EUCLEANUP	NA

The following conditions apply to: EUCLEANUP

Emission Limits

	Pollutant	Equipment	Limit	Time Period	Testing/ Monitoring Method	Applicable Requirements
1.1a	Acetone	EUCLEANUP	3.0 tpy	12-month rolling time period as determined at the end of each calendar month.	SC 1.3	R336.1224, R336.1225

Recordkeeping/Reporting/Notification

1.2 The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them 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. **[R336.1224, R336.1225, R336.1702(a)]**

1.3 The permittee shall keep the following information on a monthly basis for EUCLEANUP:

a) The amount (in gallons or pounds) of acetone used

b) Where applicable, gallons or pounds of acetone reclaimed

c) Acetone emission calculations determining the monthly emission rate in tons per calendar month, and the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.

The permittee shall keep the records in a format acceptable to the AQD District Supervisor. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request. **[R336.1224, R336.1225]**

The following conditions apply to: FGFIBERGLASS

Emission Limits

	Pollutant	Equipment	Limit	Time Period	Testing/ Monitoring Method	Applicable Requirements
2.1a	VOC	FGFIBERGLASS	1.5 tpy	12-month rolling time period as determined at the end of each calendar month	SC 2.10	R336.1225, R336.1702(a)

Material Usage Limits

2.2 The VOC content of any resin used in EURESIN shall not exceed 42.0 percent by weight. **[R336.1225, R336.1702(a)]**

2.3 The VOC content of any gelcoat used in EUGELCOAT shall not exceed 42.0 percent by weight. **[R336.1225, R336.1702(a)]**

Process/Operational Limits

2.4 The permittee shall capture all waste cleanup solvent(s), catalyst(s), resin(s), and gelcoat(s) used in FGFIBERGLASS and store them in closed containers. The permittee shall dispose of all waste cleanup solvent(s), catalyst(s), resin(s), and gelcoat(s) in an acceptable manner in compliance with all applicable state rules and federal regulations. **[R336.1224, R336.1702(a)]**

Equipment

2.5 The permittee shall not operate any booth associated with FGFIBERGLASS unless its respective exhaust filter is installed, maintained and operated in a satisfactory manner. **[R336.1301, R336.1331, R336.1901]**

2.6 The permittee shall equip and maintain the spray booth(s) in FGFIBERGLASS with non-atomized applicators or technology with equivalent or lower styrene emission rates. **[R336.1225, R336.1702(a)]**

Recordkeeping/Reporting/Notification

2.7 The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them 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. **[R336.1225, R336.1702(a)]**

2.8 The permittee shall keep a separate record of the VOC content, styrene monomer content and MMA monomer content for each shipment of resin and gelcoat received. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request. **[R336.1225, R336.1702(a)]**

2.9 The permittee shall maintain a current listing from the manufacturer of the chemical composition of each material (i.e. lamination resin, gelcoat, catalyst, etc.), including the weight percent of each component. The data may consist of Material Safety Data Sheets, manufacturer's formulation data, or both as deemed acceptable by the AQD District Supervisor. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request. **[R336.1224, R336.1225, R336.1702(a)]**

2.10 The permittee shall keep the following information for each calendar month for FGFIBERGLASS:

a) The identity and amount (in pounds) of each resin and gelcoat used.

b) The styrene content, MMA content and total VOC content of each resin and gelcoat used.

c) The identity and amount (in pounds) of each catalyst used.

d) The VOC content of each catalyst used.

e) The appropriate emission factor for each resin and gelcoat used found in the Unified Emission Factor (UEF) Table in Appendix A, as applicable.

f) The identity and amount of each other VOC containing material used in the process (i.e. paste wax, mold release, etc.)

g) The VOC content of each other VOC containing material used in the process (i.e. paste wax, mold release, etc.)

h) VOC emission calculations determining the monthly emission rate in tons per calendar month, and the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.

The permittee shall keep the records in a format acceptable to the AQD District Supervisor. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request. **[R336.1225, R336.1702(a)]**

Stack/Vent Restrictions

	Stack & Vent ID	Maximum Diameter (inches)	Minimum Height Above Ground Level (feet)	Applicable Requirements
2.11a	SVSTACKA	24	36	R336.1225, R336.1901, 40 CFR 52.21(c) and (d)
2.11b	SVSTACKB	24	36	R336.1225, R336.1901, 40 CFR 52.21(c) and (d)
2.11c	SVSTACKC	24	36	R336.1225, R336.1901, 40 CFR 52.21(c) and (d)
	The exhaust gases shall be discharged unobstructed vertically upwards to the ambient air.			

APPENDIX A
(UEF Table)
Unified Emission Factors for Open Molding of Composites
July 23, 2001
Emission Rate in Pounds of Styrene Emitted per Ton of Resin or Gelcoat Processed

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 Atomized Controlled Spray [4]	0.130 x %styrene x 2000	86	97	108	119	130	141	152	163	174	185	196	207	218	229	240	251	262	273	0.77 x ((0.714 x %styrene) – 0.18) x 2000
Mechanical Controlled Spray with VSR	Mechanical Atomized Controlled Spray 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 [3]	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	398	418	439	460	481	501	522	543	564	584	605	626	646	((1.03646 x %styrene) – 0.195) x 2000
Gelcoat Controlled Spray Application [4]	0.325 x %styrene x 2000	215	230	245	260	275	290	305	321	336	351	366	381	396	411	427	442	457	472	0.73 x ((1.03646 x %styrene) – 0.195) x 2000
Gelcoat Non-Atomized Application [8]	SEE Note 9 below	196	205	214	223	232	241	250	259	268	278	287	296	305	314	323	332	341	350	((0.4506 x %styrene) – 0.0505) 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

MMA content in gelcoat, % [6]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	>20
Gel coat application [7]	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 wt.

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 SEE the CFA Controlled Spray Handbook for a detailed description of the controlled spray procedures.

5 The effect of vapor suppressants on emissions from filament winding operations is based on the Dow Filament Winding Emissions Study.

6 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.

7 Based on gelcoat data from NMMA Emission Study.

8 SEE the July 17, 2001 EECS report Emission Factors for Non-Atomized Application of Gel Coats used in the Open Molding of Composites for a detailed description of the Non-Atomized gelcoat testing.

9 Use the equation ((0.4506 x %styrene) – 0.0505) x 2000 for gelcoats with styrene contents between 19% and 32% by wt.; use the equation 0.185 x %styrene x 2000 for gelcoats with less than 19% styrene content by wt.