MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

July 16, 2008

PERMIT TO INSTALL
No. 24-05C

ISSUED TO
Tri-Clor, Inc.

LOCATED AT
1012 Enterprise Drive
Hastings, Michigan 49058

IN THE COUNTY OF
Barry

STATE REGISTRATION NUMBER
N7425

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: **7/10/2008**	
DATE PERMIT TO INSTALL APPROVED: **7/16/2008**	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	NO_x	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	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. **(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, 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 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 R 336.1219. The notification shall include all of the information required by R 336.1219(1)(a) and (b). In addition, a new owner or operator must submit a written statement pursuant to R 336.1219(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 Permit to Install. **(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 Identification

Emission Unit ID	Emission Unit Description	Stack Identification
EUFILAMENTWIND	Large mandrel fiberglass lay-up operation with dry filter overspray control and application of resin using nonatomized mechanical, atomized mechanical, filament winding, and manual lay-up application methods.	SVFILAMENTWIND (Stack #3)
EUSMLMANDREL	Small mandrel fiberglass lay-up operation with dry filter overspray control and application of resin using nonatomized mechanical, atomized mechanical, filament winding, and manual lay-up application methods.	SVSMLMANDREL (Stack #1)
EUHANDLAYUP	Fiberglass lay-up operation with application of resin using only manual lay-up application methods.	SVHANDLAYUP (Stack #2)
EUCLEANUP	Miscellaneous cleanup activities using acetone cleanup solvent with reclaim of a portion of the spent solvent.	SVFILAMENTWIND, SVSMLMANDREL, SVHANDLAYUP
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.		

Flexible Group Identification

Flexible Group ID	Emission Units Included in Flexible Group	Stack Identification
FGFIBERGLASS	EUFILAMENTWIND, EUSMLMANDREL, EUHANDLAYUP, EUCLEANUP	SVFILAMENTWIND, SVSMLMANDREL, SVHANDLAYUP

The following conditions apply to: EUHANDLAYUP

Equipment

1.1 The permittee shall only apply resin on EUHANDLAYUP using manual applicator equipment. **(R 336.1225, R 336.1702(a))**

The following conditions apply to: EUCLEANUP

Emission Limits

	Pollutant	Limit	Time Period	Equipment	Testing/ Monitoring Method	Applicable Requirements
2.1	Acetone	10.0 tpy	12-month rolling time period as determined at the end of each calendar month	EUCLEANUP	SC 4.3, SC 4.4	R 336.1224

Process/Operational Limits

2.2 The permittee shall recover for shipment off site, in accordance with all applicable regulations, a minimum of 25 percent by weight of all acetone received and used in EUCLEANUP. **(R 336.1224)**

Recordkeeping/Reporting/Notification

2.3 The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor 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 336.1224)**

2.4 The permittee shall keep the following information on a calendar month basis for EUCLEANUP:

a) The identity of each clean-up solvent used

b) The amount (in gallons or pounds) of each clean-up solvent used

c) Where applicable, gallons or pounds of each clean-up solvent reclaimed

d) A calculation determining the percent by weight of cleanup solvent reclaimed.

e) 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. **(R 336.1224)**

The following conditions apply to: FGFIBERGLASS

Emission Limits

	Pollutant	Limit	Time Period	Equipment	Testing/ Monitoring Method	Applicable Requirements
3.1a	Styrene	8.9 tpy	12-month rolling time period as determined at the end of each calendar month	FGFIBERGLASS	SC 3.5, SC 3.6, SC 3.7, SC 3.8, SC 3.9	R 336.1225, R 336.1205(3)
3.1b	VOC	9.3 tpy	12-month rolling time period as determined at the end of each calendar month	FGFIBERGLASS	SC 3.5, SC 3.6, SC 3.7, SC 3.8, SC 3.9	R 336.1702(a), R 336.1205(3)

Material Usage Limits

3.2 The styrene content of any resin used in FGFIBERGLASS shall not exceed 50.5 percent by weight. **(R 336.1225, R 336.1702(a))**

Process/Operational Limits

3.3 Beginning within 60 days after permit approval and continuing thereafter, the permittee shall not operate EUFILAMENTWIND or EUSMLMANDREL unless the respective exhaust filter for the emission unit is installed, maintained and operated in a satisfactory manner. **(R 336.1301, R 336.1331, R 336.1901)**

3.4 The permittee shall capture all waste catalyst(s), and resin(s) used in FGFIBERGLASS and store them in closed containers. The permittee shall dispose of all waste catalyst(s) and resin(s) in an acceptable manner in compliance with all applicable state rules and federal regulations. **(R 336.1224, R 336.1225, R 336.1702(a))**

Equipment

3.5 Any mechanical application of resin shall be carried out using nonatomized mechanical application methods unless product specifications require use of atomized mechanical application methods. When operated as nonatomized mechanical applicators spray applicator guns shall be configured as fluid impingement technology (FIT) guns per manufacturer's instructions and operated according to the manufacturer's directions for nonatomized operation, including instructions to prevent operation of the guns at excessive spray pressures. Nonatomized mechanical and atomized mechanical application methods are defined in Appendix B. **(R 336.1205(3), R 336.1225, R 336.1702(a))**

Recordkeeping/Reporting/Notification

3.6 The permittee shall maintain information for each nonatomized mechanical application device on file at the facility, including 1) documentation of testing showing that each device meets the MACT Table 1 emission rates (listed in 40 CFR Part 63, Subpart WWWW); and 2) manufacturer's directions for operation of each device (including any pressure fed roller) as a

nonatomized mechanical applicator. Directions for nonatomized operation of spray guns shall include how to set up guns as fluid impingement technology (FIT) guns and instructions on preventing operation of the guns at excessive spray pressures. **(R 336.1205(3), R 336.1225, R 336.1702(a))**

3.7 The permittee shall maintain a current listing from the manufacturer of the chemical composition of each material (i.e. lamination resin, 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. **(R 336.1224, R 336.1225, R 336.1702(a))**

3.8 The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor 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), R 336.1225, R 336.1702(a))**

3.9 The permittee shall keep a separate record of the styrene monomer content for each shipment of resin 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**. (R 336.1205(3), R 336.1225, R 336.1702(a))**

3.10 The permittee shall keep the following information for each calendar month for FGFIBERGLASS for monthly and annual emission calculations:

a) The identity and amount (in pounds) of each resin used and the associated resin application method(s) used for each resin listed by the amount of each resin applied for each application method.

b) The styrene content of each resin used.

c) The identity and amount (in pounds) of each catalyst used on a calendar month basis.

d) The appropriate emission factor for each resin and associated resin application method used based on the Unified Emission Factors listed in Appendix A.

e) Styrene and VOC emission calculations determining the monthly emission rate of each in tons per calendar month, and the annual emission rate of each 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. **(R 336.1205(3), R 336.1225, R 336.1702(a))**

Stack/Vent Restrictions

3.11 Beginning within 60 days after permit approval and continuing thereafter, the exhaust gases from FGFIBERGLASS shall be discharged unobstructed vertically upwards to the ambient air from stacks with the dimensions listed in the table below.

	Stack & Vent ID	Maximum Diameter (inches)	Minimum Height Above Ground Level (feet)	Applicable Requirements
3.11a	SVFILAMENTWIND (Stack #3)	20	40	R 336.1225, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)
3.11b	SVSMLMANDREL (Stack #1)	12	36	R 336.1225, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)
3.11c	SVHANDLAYUP (Stack #2)	20	40	R 336.1225, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)

APPENDIX A
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.

Appendix B

Spray Application Equipment – Definitions from 40 CFR Part 63, Subpart WWWW, Sect. 63.5935 (Federal Reinforced Plastic Composites Production MACT Regulation)

Atomized Mechanical Application

Atomized mechanical application means application of resin or gel coat with spray equipment that separates the liquid into a fine mist. This fine mist may be created by forcing the liquid under high pressure through an elliptical orifice, bombarding a liquid stream with directed air jets, or a combination of these techniques.

Nonatomized Mechanical Application

Nonatomized mechanical application means the use of application tools other than brushes to apply resin and gel coat where the application tool has documentation provided by its manufacturer or user that this design of the application tool has been organic HAP emission tested, and the test results showed that use of this application tool results in organic HAP emissions that are no greater than the organic HAP emissions predicted by the applicable nonatomized application equation(s) in Table 1 to this subpart. In addition, the device must be operated according to the manufacturer's directions, including instructions to prevent the operation of the device at excessive spray pressures. Examples of nonatomized application include flow coaters, pressure fed rollers, and fluid impingement spray guns.