# MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY AIR QUALITY DIVISION

January 7, 2015

PERMIT TO INSTALL 197-14

ISSUED TO

Caribbean Pool & Fiberglass Products, Inc.

**LOCATED AT** 

300 Lincoln Lake Avenue SE Lowell, Michigan

IN THE COUNTY OF Kent

# STATE REGISTRATION NUMBER P0578

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).

December 9, 2014								
DATE PERMIT TO INSTALL APPROVED:  January 7, 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	СО	Carbon Monoxide					
CEM	Continuous Emission Monitoring	dscf	Dry standard cubic foot					
CFR	Code of Federal Regulations	dscm	Dry standard cubic meter					
CO <sub>2</sub> e	Carbon Dioxide Equivalent	°F	Degrees Fahrenheit					
COM	Continuous Opacity Monitoring	gr	Grains					
EPA	Environmental Protection Agency	Hg	Mercury					
EU	Emission Unit	hr	Hour					
FG	Flexible Group	H <sub>2</sub> S	Hydrogen Sulfide					
GACS	Gallon of Applied Coating Solids	hp	Horsepower					
GC	General Condition	lb .	Pound					
GHGs	Greenhouse Gases	kW	Kilowatt					
HAP	Hazardous Air Pollutant	m	Meter					
HVLP	High Volume Low Pressure *	mg	Milligram					
ID	Identification	mm	Millimeter					
LAER	Lowest Achievable Emission Rate	MM	Million					
MACT	Maximum Achievable Control Technology	MW	Megawatts					
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram					
MAP	Malfunction Abatement Plan	NO <sub>x</sub>	Oxides of Nitrogen					
MDEQ	Michigan Department of Environmental Quality (Department)	PM	Particulate Matter					
MSDS	Material Safety Data Sheet	PM10	PM with aerodynamic diameter ≤10 microns					
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	PM with aerodynamic diameter ≤ 2.5 microns					
NSPS	New Source Performance Standards	pph	Pounds per hour					
NSR	New Source Review	ppm	Parts per million					
PS	Performance Specification	ppmv	Parts per million by volume					
PSD	Prevention of Significant Deterioration	ppmw	Parts per million by weight					
PTE	Permanent Total Enclosure	psia	Pounds per square inch absolute					
PTI	Permit to Install	psig	Pounds per square inch gauge					
RACT	Reasonably Available Control Technology	scf	Standard cubic feet					
ROP	Renewable Operating Permit	sec	Seconds					
SC	Special Condition	SO <sub>2</sub>	Sulfur Dioxide					
SCR	Selective Catalytic Reduction	THC	Total Hydrocarbons					
SRN	State Registration Number	tpy	Tons per year					
TAC	Toxic Air Contaminant	μg	Microgram					
TEQ	Toxicity Equivalence Quotient	VOC	Volatile Organic Compound					
VE	Visible Emissions	yr	Year					

<sup>\*</sup> 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.
- 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								
EUHANDLAYUP	Manual, non-atomized, open-molding hand layup for the production of thermoset resin-based piping, storage tanks, and custom designed process equipment.	FGLAMINATRM FGFACILITY								
EUWETOUT	Mechanical, atomized, open-molding spray layup for the production of thermoset resin-based piping, storage tanks, and custom designed process equipment.	FGLAMINATRM FGFACILITY								
EUFLOWCOATER	Mechanical, non-atomized, open-molding layup for the production of thermoset resin-based piping, storage tanks, and custom designed process equipment.	FGLAMINATRM FGFACILITY								
EUCHOPPER	Mechanical, atomized, open-molding chopper for the production of thermoset resin-based piping, storage tanks, and custom designed process equipment.	FGLAMINATRM FGFACILITY								
	Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.									

#### **FLEXIBLE GROUP SUMMARY TABLE**

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGLAMINATRM	Manual and Mechanical open-molding lines for the production of thermoset resin-based piping, storage tanks, and custom designed process equipment.	EUHANDLAYUP, EUWETOUT, EUFLOWCOATER, EUCHOPPER
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment.	

#### The following conditions apply to: FGLAMINATRM

**<u>DESCRIPTION:</u>** Manual and Mechanical open-molding lines for the production of thermoset resin-based piping, storage tanks, and custom designed process equipment.

Emission Units: EUHANDLAYUP, EUWETOUT, EUFLOWCOATER, EUCHOPPER

**POLLUTION CONTROL EQUIPMENT: NA** 

#### I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. VOC	6 tpy	12-month rolling time period	All emission units	SC VI.4	R 336.1205,
		as determined at the end of	within		R 336.1225,
		each calendar month	FGLAMINATRM		R 336.1702(a)
<ol><li>Styrene</li></ol>	800 lb/month	Calendar month	All emission units	SC VI.4	R 336.1225
			within		
			FGLAMINATRM		
3. Acetone	10 tpy	12-month rolling time period	All emission units	SC VI.4	R 336.1224,
		as determined at the end of	within		R 336.1225
		each calendar month	FGLAMINATRM		

#### II. MATERIAL LIMITS

- 1. The styrene content of any resin used in FGLAMINATRM shall not exceed 50 percent by weight. (R 336.1224, R 336.1225, R 336.1702(a))
- 2. The styrene content of any gelcoat used in FGLAMINATRM shall not exceed 33 percent by weight. (R 336.1225, R 336.1702(a))
- 3. The methyl methacrylate (MMA) content of any gelcoat used in FGLAMINATRM shall not exceed 5.0 percent by weight. (R 336.1224, R 336.1225, R 336.1702(a))

#### **III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall capture all waste cleanup solvent(s), catalyst(s), resin(s), and gelcoat(s) used in FGLAMINATRM 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. (R 336.1224, R 336.1702(a))

#### IV. <u>DESIGN/EQUIPMENT PARAMETERS</u>

NA

#### V. <u>TESTING/SAMPLING</u>

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

NA

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#### VI. MONITORING/RECORDKEEPING

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

- 1. 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, R336.1225, R336.1702(a))
- 2. The permittee shall maintain a current listing from the manufacturer of the chemical composition of each material (i.e. 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. (R 336.1224, R 336.1225, R 336.1702(a))
- 3. The permittee shall keep a separate record of the styrene and MMA monomer contents, as applicable, 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. (R 336.1225, R 336.1702(a))
- 4. The permittee shall keep the following information for each calendar month for FGLAMINATRM:
  - a) The identity and amount (in pounds) of each resin (manual application and mechanical atomized application each separately), gelcoat, catalyst and cleanup solvent used
  - b) The amount of cleanup solvent reclaimed, where applicable
  - c) The styrene, MMA, and VOC content of each resin, gelcoat and catalyst used
  - d) The appropriate emission factor for each raw material used, as applicable
  - e) VOC mass 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 using mass balance and the appropriate emission factors or an alternate method acceptable to the AQD District Supervisor.
  - f) 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 using mass balance and the appropriate emission factors or an alternate method acceptable to the AQD District Supervisor.

The permittee shall keep the records in the format specified in Appendix B, or 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, R 336.1225, R 336.1702(a))

# VII. REPORTING

NA

#### VIII. STACK/VENT RESTRICTIONS

NA

#### IX. OTHER REQUIREMENTS

NA

#### Footnotes:

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

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#### The following conditions apply Source-Wide to: FGFACILITY

### POLLUTION CONTROL EQUIPMENT: NA

#### I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
Aggregate     HAPs	Less than 6 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.2	R 336.1205(3)

#### II. MATERIAL LIMITS

NA

#### III. PROCESS/OPERATIONAL RESTRICTIONS

NA

#### IV. DESIGN/EQUIPMENT PARAMETERS

NA

#### V. TESTING/SAMPLING

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

1. The permittee shall determine the HAP content of any material (resin, gelcoat, catalyst, cleanup solvent, etc.) as received and as applied, using manufacturer's formulation data. Upon request of the AQD District Supervisor, the permittee shall verify the manufacturer's HAP formulation data using EPA Test Method 311. (R 336.1205(3))

#### VI. MONITORING/RECORDKEEPING

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

- 1. 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))
- 2. The permittee shall keep the following information on a monthly basis for FGFACILITY:
  - a) Gallons or pounds of each HAP containing material used.
  - b) Where applicable, gallons or pounds of each HAP containing material reclaimed.
  - c) HAP content, in pounds per gallon or pounds per pound, of each HAP containing material used.
  - d) Individual and aggregate HAP emission calculations determining the monthly emission rate of each in tons per calendar month using mass balance and the appropriate emission factors or an alternate method acceptable to the AQD District Supervisor.

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e) Individual and aggregate HAP emission calculations determining the annual emission rate of each in tons per 12-month rolling time period as determined at the end of each calendar month. For the first month following permit issuance, the calculations shall include the summation of emissions from the 11-month period immediately preceding the issuance date. For each month thereafter, calculations shall include the summation of emissions for the appropriate number of months prior to permit issuance plus the months following permit issuance for a total of 12 consecutive months using mass balance and the appropriate emission factors or an alternate method acceptable to the AQD District Supervisor.

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))

#### VII. REPORTING

NA

#### VIII. STACK/VENT RESTRICTIONS

NA

#### IX. OTHER REQUIREMENTS

NA

#### Footnotes:

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

#### **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

	(2)																			(2)
Styrene content in resin /gelcoat, % (1)	<33 <sup>(2)</sup>	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	>50 <sup>(2)</sup>
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		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)			N	/lechanic	al Atomi	zed emi	ssion fac	tor [liste	d above	] x (1 – (	(0.45 x s	pecific	VSR red	uction fa	ctor for	each res	in/suppre	essant fo	rmulatio	n))
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		M	lechanic	al Atomiz	zed Cont	trolled S	pray emi	ssion fa	ctor [list	ed above	e] x (1 –	(0.45 x	specific '	VSR rec	luction fa	actor for	each resi	in/suppr	essant fo	ormulation))
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)			Me	chanical	Non-Ato	mized e	mission	factor [lis	sted abo	ve] x (1	- (0.45	x specif	ic VSR re	eduction	factor fo	or each i	resin/supp	oressant	formula	tion))
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 pro	cess em	ission fa	ctor [list	ed abov	e] x (0	.80 for M	lanual <	or> 0.85	for Mec	hanical)			·
Covered-Cure without Roll-Out						Non-	VSR pro	cess em	ission fa	ctor [list	ed abov	e] x (0	.50 for M	lanual <	or> 0.55	for Mec	hanical)			

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

Г	MMA content in gelcoat, % (6)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	<u>&gt;</u> 20
Γ	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

#### Note

- 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.
- 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.

  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 f

#### **APPENDIX B**

PTI No. 197-14
Calendar Month Summary -- Styrene and VOC Process Emissions

Month/Year:	/_
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	Α	В	С	D	E	$F = (A \times D) + (A \times E)$
GELCOAT DESCRIPTION	Gelcoat Usage (LB/MONTH)	Styrene Content <sup>1,3</sup> (% By Weight As Supplied)	MMA Content <sup>3</sup> (% By Weight As Supplied)	Styrene Emission Factor Per UEF Table (lb/lb)	MMA Emission Factor per UEF Table (lb/lb GELCOAT)	Calendar Month VOC Emissions (LB/MONTH)
Total Pounds VOC Emitt	ed Per Calenda	r Month From	Gelcoat, <b>G</b> = (	sum of column F)	G	

	Н	I	J	K	L = H x K
RESIN DESCRIPTION	Resin Usage (LB/MONTH)	Application Method	Styrene Content <sup>1,3</sup> (% by weight as supplied)	Styrene Emission Factor per UEF Table (lb/lb)	Calendar Month VOC Emissions (LB/MONTH)
Total Lbs. Styrene/VOC Emitted Per	Calendar Month F	rom Open Mol	ding Resin, <b>M</b> = (sum of column L)	М	

	Т	U	V = T x (U / 100)
CATALYST DESCRIPTION	Catalyst Usage (LB/MONTH)	VOC <sup>2,3</sup> (% BY WEIGHT)	Calendar Month VOC Emissions (LB/MONTH)
TOTAL POUNDS VOC EMITTED FROM C			

Monthly VOC Emissions, tons, $\mathbf{X} = (G + M + W) / 2000$	X	
12-MONTH ROLLING PERIOD VOC EMITTED (TONS),		
V - Y + TOTAL OF 11 PREVIOUS MONTHS	V	

- 1. Styrene content shall be determined as supplied, plus any extra styrene added by the molder, but before the addition of other additives such as fillers, glass, catalyst, etc.
- 2. Determine VOC content for catalyst (Luperox DDM-9) as follows: Catalyst VOC = 8% by weight. (Based upon maximum MEK content (2%) and Hexylene Glycol content (6%) per the Supplier MSDS).
- 3. Input styrene content, MMA content, etc. as a decimal (i.e. 30% styrene content should be input as 0.30).

NOTE: THE OTHER ORGANIC INGREDIENTS IN THE CATALYST, INCLUDING METHYL ETHYL KETONE PEROXIDE AND 2,2,4-TRIMETHYLPENTANEDIOL-1,3-DIISOBUTYRATE, MAY BE CONSIDERED AS EITHER TOTALLY CONSUMED IN THE CROSS-LINKING REACTIONS OR NON-VOLATILE. ALSO, HYDROGEN PEROXIDE IS NOT AN ORGANIC COMPOUND.