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DIVISION OF AIR
RESOURCE MANAGEMENT

Department of Environmental Protection

Division of Air Resources Management

APPLICATION FOR AIR PERMIT - NON-TITLE V SOURCE

See Instructions for Form No. 62-210.900(3)

I. APPLICATION INFORMATION

Identification of Facility

1. Facility Owner/Company Name: GLASSTREAM INC./ KRUIS RETHERFORD	
2. Site Name: GLASSTREAM INC.	
3. Facility Identification Number: 0050077 [ ] Unknown	
4. Facility Location: PANAMA CITY, FLORIDA Street Address or Other Locator: 1143 E. 15th. St. City: PANAMA CITY County: BAY Zip Code: 32405-6103	
5. Relocatable Facility? [ ] Yes [X] No	6. Existing Permitted Facility? [X] Yes [ ] No

Application Contact

1. Name and Title of Application Contact: KRUIS RETHERFORD PRESIDENT
2. Application Contact Mailing Address: Organization/Firm: GLASSTREAM INC. Street Address: 1143 E. 15th STREET City: PANAMA CITY State: FL Zip Code: 32405
3. Application Contact Telephone Numbers: Telephone: (850) 873 - 6205 Fax: (850) 873 - 6705

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	5-29-12
2. Permit Number: 0050077-008-AF	

Purpose of Application

Air Operation Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

[ ] Initial non-Title V air operation permit for one or more existing, but previously unpermitted, emissions units.

[ ] Initial non-Title V air operation permit for one or more newly constructed or modified emissions units.

Current construction permit number:_____

[ ] Non-Title V air operation permit revision to address one or more newly constructed or modified emissions units.

Current construction permit number:_____

Operation permit number to be revised:_____

[X] Initial non-Title V air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s):

0050077-007-AV

[ ] Non-Title V air operation permit revision for a synthetic non-Title V source. Give reason for revision; e.g., to address one or more newly constructed or modified emissions units.

Operation permit number to be revised:_____

Reason for revision:_____

Air Construction Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

[ ] Air construction permit to construct or modify one or more emissions units.

[ ] Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

[ ] Air construction permit for one or more existing, but unpermitted, emissions units.

Owner/Authorized Representative

1. Name and Title of Owner/Authorized Representative:
   KRUIS RETHERFORD PRESIDENT
2. Owner/Authorized Representative Mailing Address:
   Organization/Firm: GLASSTREAM, INC.
   Street Address: 1143 E. 15th STREET
   City: PANAMA CITY State: FL Zip Code: 32405
3. Owner/Authorized Representative Telephone Numbers:
   Telephone: (850) 873-6205 Fax: (850) 873-6705
4. Owner/Authorized Representative Statement:

   I, the undersigned, am the owner or authorized representative of the facility addressed in this application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*

   Signature 5-21-2012 Date

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

1. Professional Engineer Name: ROB COLE
   Registration Number: 69846
2. Professional Engineer Mailing Address:
   Organization/Firm: PAGE COLE CONSULTING
   Street Address: 2915 PATRICIA ANN LANE
   City: PANAMA CITY State: FL Zip Code: 32045
3. Professional Engineer Telephone Numbers:
   Telephone: (850) 960-4701 Fax: (850) 522 - 0684

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [ ], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [X], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Robert B. Cole PE #69846
Signature

5-21-2012
Date

(seal)

* Attach any exception to certification statement.

Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type	Processing Fee
EU1	Booth for the non-atomized spray of Polyester resin and gel coat.	AF2B	
EU2	Booth for the non-atomized spray of Polyester resin and gel coat	AF2B	

Application Processing Fee

Check one: [ ] Attached - Amount: $_____ [X] Not Applicable

Construction/Modification Information

1. Description of Proposed Project or Alterations:

2. Projected or Actual Date of Commencement of Construction:

3. Projected Date of Completion of Construction:

Application Comment

This application is made to correct the error that classified Glasstream as a Major Source and a Title V Permit was applied for and received. Glasstream has never emitted more than 10 Tons of a single HAP, 25 Tons of combined HAP's or 100 Tons of VOC's.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates: Zone: 16 East (km): 630.62 North (km): 3338.96			
2. Facility Latitude/Longitude: Latitude (DD/MM/SS): 30° 10' 30.1224"N Longitude (DD/MM/SS) 85°38'36.2146" W			
3. Governmental Facility Code: 0	4. Facility Status Code: ACTIVE	5. Facility Major Group SIC Code: TRANSPORTATION EQUIPMENT (37)	6. Facility SIC(s): 3732
7. Facility Comment (limit to 500 characters):			

Facility Contact

1. Name and Title of Facility Contact: KRUIS RETHERFORD
2. Facility Contact Mailing Address: Organization/Firm: GLASSTREAM INC. Street Address: 1143 E 15th. STREET City: PANAMA CITY State: FL Zip Code: 32405
3. Facility Contact Telephone Numbers: Telephone: (850) 873 - 6205 Fax: (850) 873 -6705

Facility Regulatory Classifications

Check all that apply:

1. [ ] Small Business Stationary Source?	[ ] Unknown
2. [x] Synthetic Non-Title V Source?	
3. [ ] Synthetic Minor Source of Pollutants Other than HAPs?	
4. [x] Synthetic Minor Source of HAPs?	
5. [ ] One or More Emissions Units Subject to NSPS?	
6. [ ] One or More Emission Units Subject to NESHAP Recordkeeping or Reporting?	
7. Facility Regulatory Classifications Comment (limit to 200 characters):	

Rule Applicability Analysis

B. FACILITY POLLUTANTS

List of Pollutants Emitted

1. Pollutant Emitted	2. Pollutant Classif.	3. Requested Emissions Cap lb/hour	tons/year	4. Basis for Emissions Cap	5. Pollutant Comment
HAP's	SM		25	ESCTIII	
SYTRENE H163	SM		10	ESCTIII	
MMA H125	SM		10	ESCTIIII	

C. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements

1. Area Map Showing Facility Location:
   [ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested

2. Facility Plot Plan:
   [ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested

3. Process Flow Diagram(s):
   [ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested

4. Precautions to Prevent Emissions of Unconfined Particulate Matter:
   [ ] Attached, Document ID:_____ [ ] Not Applicable [x] Waiver Requested

5. Supplemental Information for Construction Permit Application:
   [ ] Attached, Document ID:_____ [ ] Not Applicable

6. Supplemental Requirements Comment:

   See Narrative.

Emissions Unit Information Section 1 **of** 2

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through G as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in This Section: (Check one)

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[X] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in This Section (limit to 60 characters):
Spray booth for the non-atomized spray of resin and gel coat

3. Emissions Unit Identification Number:
ID: EU1
[ ] No ID
[ ] ID Unknown

4. Emissions Unit Status Code: A	5. Initial Startup Date: 03 March 01	6. Emissions Unit Major Group SIC Code: 37

7. Emissions Unit Comment: (Limit to 500 Characters)

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through G as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in This Section: (Check one)

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[x] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in This Section (limit to 60 characters):

Spray booth for the non-atomized spray of polyester resin and gel coat

3. Emissions Unit Identification Number: [ ] No ID
ID: EU2 [ ] ID Unknown

4. Emissions Unit Status Code:	5. Initial Startup Date:	6. Emissions Unit Major Group SIC Code:
A	03-March-01	37

7. Emissions Unit Comment: (Limit to 500 Characters)

Note: This work booth has been at the facility since it began operations in 2001. It has not been used until now but plans are to spray in that area as production increases.

Emissions Unit Information Section 1 **of** 1

Emissions Unit Control Equipment

1. Control Equipment/Method Description (limit to 200 characters per device or method):
   NO CONTROL EQUIPMENT

2. Control Device or Method Code(s): 0

Emissions Unit Details

1. Package Unit:
   Manufacturer: Model Number:
2. Generator Nameplate Rating: MW
3. Incinerator Information:
   Dwell Temperature: °F
   Dwell Time: seconds
   Incinerator Afterburner Temperature: °F

Emissions Unit Operating Capacity and Schedule

1. Maximum Heat Input Rate: mmBtu/hr
2. Maximum Incineration Rate: lb/hr tons/day
3. Maximum Process or Throughput Rate:
4. Maximum Production Rate:
5. Requested Maximum Operating Schedule:
   hours/day days/week
   weeks/year hours/year
6. Operating Capacity/Schedule Comment (limit to 200 characters):

B. EMISSION POINT (STACK/VENT) INFORMATION

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram?	2. Emission Point Type Code: 4	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): NO TRUE EMISSION POINT _ FUGITIVE EMISSIONS		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: F	6. Stack Height: feet	7. Exit Diameter: feet
8. Exit Temperature: 77 °F	9. Actual Volumetric Flow Rate: acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates: Zone: East (km): North (km):		
14. Emission Point Comment (limit to 200 characters):		

C. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type) (limit to 500 characters):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment (limit to 200 characters):		

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type) (limit to 500 characters):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment (limit to 200 characters):		

Emissions Unit Information Section _____ **of** _____

Pollutant Detail Information Page _____ **of** _____

D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION

Potential Emissions

1. Pollutant Emitted: STYRENE		2. Pollutant Regulatory Code: H163
3. Primary Control Device Code: 0	4. Secondary Control Device Code:	5. Total Percent Efficiency of Control: 0
6. Potential Emissions: lb/hour 10 tons/year		7. Synthetically Limited? [X]
8. Emission Factor: Reference: United Emission Factors for Open Molding of Composites		9. Emissions Method Code: 1
10. Calculation of Emissions (limit to 600 characters): See Attachment "A"		
11. Pollutant Potential Emissions Comment (limit to 200 characters):		

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code: ESCTV AND ESCTIII	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

GLASSTREAM NON-TITLE V SOURCE PERMIT APPLICATION.

ATTACHMENT "A".

Calculation of Emissions: The United Emission Factors for Open Molding of Composites developed by CFA and NMMA (attached) displays a table which allows the calculation of the Emission Rate in pounds of Styrene emitted per Ton of Resin or Gelcoat Processed.

Example:

- Glasstream uses production Resin which has a Styrene content of 33.8 %.
- Non atomized HVLP – FIT (Fluid Impingement Technology) spray guns are used for resin application to open molds.

Utilizing the UEF Table the styrene emission from spray of resin would be as follows:

- The box for 33 % styrene states that 71 pounds of styrene would be emitted per ton of resin processed with mechanical non atomized spray.
- The box for 34 % styrene states that 74 pounds of styrene would be emitted per ton of resin processed with mechanical non atomized spray.
- At 33.8 % styrene, 8 % of the difference between 71 and 74 pounds emitted (2.4 pounds) would be added to the 71 pounds = 73.4 #.

At 73.4 pounds of styrene emitted per ton of resin used, dividing 73.4 by 2000 would give an emission factor of 73.4/2000 = 0.0367.

Note: All calculations for styrene and MMA emissions from the spray of resin and gel coat will be calculated in a similar fashion using the CFA 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) - 0.0155) 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	((0.2745 x %styrene) - 0.0298) x 2000
Filament application with VSR [5]	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 ((0.2745 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	((1.03846 x %styrene) - 0.185) 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 ((1.03846 x %styrene) - 0.185) x 2000
Gelcoat Non-Atomized Application [7]	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> 0.65 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.

E. VISIBLE EMISSIONS INFORMATION
(Only Emissions Units Subject to a VE Limitation)

Visible Emissions Limitation: Visible Emissions Limitation _____ of _____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: [ ] Rule [ ] Other
3. Requested Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment (limit to 200 characters):	

F. CONTINUOUS MONITOR INFORMATION
(Only Emissions Units Subject to Continuous Monitoring)

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[ ] Rule [ ] Other
4. Monitor Information: Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment (limit to 200 characters):	

G. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Supplemental Requirements

1. Process Flow Diagram [ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested
2. Fuel Analysis or Specification [ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested
3. Detailed Description of Control Equipment [ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested
4. Description of Stack Sampling Facilities [ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested
5. Compliance Test Report [ ] Attached, Document ID:_____ [ ] Previously submitted, Date:_____ [ ] Not Applicable
6. Procedures for Startup and Shutdown [ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested
7. Operation and Maintenance Plan [ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested
8. Supplemental Information for Construction Permit Application [ ] Attached, Document ID:_____ [ ] Not Applicable
9. Other Information Required by Rule or Statute [ ] Attached, Document ID:_____ [ ] Not Applicable
10. Supplemental Requirements Comment:

Sales

M.V.P.

From: Susie Leonard
Sent: Friday, May 18, 2012 11:43 AM
To: Tom Eveland "Tom is area representative for Magnum which markets the
Subject: FW: Units gel coat and resin spray equipment."

From: Kruis Retherford [mailto:kruis@glasstream.com]
Sent: Friday, May 18, 2012 11:43 AM
To: Susie Leonard
Subject: Re: Units

AND ALL OF THESE UNITS ARE NON ATOMIZED?

On Fri, May 18, 2012 at 10:31 AM, Susie Leonard <SmLeonard@mvpind.com> wrote:

Systems you have gotten since 07.

1 MGS-PRO-22	12-07
1 MGS-PAT-15	02-08
1 SF-FIT-C-PAT-7	07-09
1 FIT-C-UPS-6	04-11
1 FIT-C-UPS-6	05-11

--

Kruis Retherford

Glasstream Powerboats

kruis@glasstream.com

GLASSTREAM, INC.

APPLICATION FOR AIR PERMIT – NON-TITLE V SOURCE

LIST OF CONTENTS:

Air Permit Application.

- Original
- Three copies.
- Attachment A: Calculation of Emissions.
    a. UEF Table for Calculation of emissions from open molding of composites.

Resin / Gel coat usage: 2002 through 2007

Summary: HAP Emissions: 2007 through 2011

- Detail: HAP material usage and Emissions, 2007 through 2011.
- Detail: VOC material usage and Emissions, 2007 through 2011.

Facility Narrative and attachments.

Reason for request to change from a Title V source to a non-title V source and attachments.

GLASSTREAM RESIN AND GEL COAT USAGE UNDER FLORIDA GENERAL PERMIT			
YEAR	ITEM	USAGE	
		in pounds.	
2002	RESIN	15,920	
	GEL COAT	5911	
TOTAL		21,831	
2003	RESIN	14000	
	GEL COAT	5900	
TOTAL		19900	
2004	RESIN	54500	
	GEL COAT	4942	
TOTAL		59442	
2005	RESIN	61513	
	GEL COAT	6356	
TOTAL		67869	
2006	RESIN	58500	
	GEL COAT	9419	
TOTAL		67919	
2007	RESIN	74000	
	GEL COAT	5024	
TOTAL		79024	Exceeded 76,000 # permit limit.

GLASSSSTREAM INC.							
ANNUAL HAP EMISSIONS IN TONS							
	Styrene	MMA	Toluene	Eth. Benz.	Xylene	MEK	Total.
2007	1.57	0.097	insignificant	0	0	insignificant	1.6675
2008	1.9645	0.09	0	0	0	insignificant	2.055
2009	1.572	0.157	insignificant	insignificant	insignificant	insignificant	1.73
2010	1.684	0.181	insignificant	0	0	insignificant	1.886
2011	2.291	0.209	insignificant	insignificant	insignificant	insignificant	2.5

YEAR: 2007

GLASSTREAM INC.

HAP CONTAINING MATERIAL AND EMISSION LOG

HAP AND VOC MATERIAL	USAGE	HAP %						Emission Factor						Emissions					
		Styrene	MMA	Toluene	Eth. Benz	Xylene	MEK	Styrene	MMA	Toluene	Eth. Benz	Xylene	MEK	Styrene	MMA	Toluene	Eth. Benz	Xylene	MEK
Production Resin	74000	0.338	0	0	0	0	0	0.037	1	1	1	1	1	2715.8	0	0	0	0	0
Exterior white	4441	0.29	0.05	0	0	0	0	0.08	0.04	1	1	1	1	355.28	177.64	0	0	0	0
Clear Gel Coat	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Jet Black Gel Coat	134	0.28	0.04	0	0	0	0	0.076	0.03	1	1	1		10.144	4.02	0	0	0	0
Black gel coat	0	0.31	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Ice Blue Gel Coat	90	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	9.9	2.7	0	0	0	0
Rape Yellow GC	96	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	10.56	2.88	0	0	0	0
Signal Red GC	44	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	4.84	1.32	0	0	0	0
UM Blue Gel Coat	45	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	4.95	1.35	0	0	0	0
Traffic Blue GC	129	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	14.19	3.87	0	0	0	0
Red Tooling Gel	45	0.44	0	0	0	0	0	0.148	1	1	1	1	1	6.66	0	0	0	0	0
Bondo	8	0.3	0	0	0	0	0	1	1	1	1	1	1	2.4	0	0	0	0	0
Adtech	0	0.34	0	0	0	0	0.14	1	1	1	1	1	1	0	0	0	0	0	0
Patch Reducer	6	0.65	0	0	0	0	0	1	1	1	1	1	1	6	0	0	0	0	0
Webbing Solution	3	0	0	0.4	0	0	0.04	1	1	1	1	1	1	0	0	1.2	0	0	0.105
Bonding Putty	0	0.3	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Graphics Paint	0	0	0	0	0.05	0.3	0.01	1	1	1	1	1	1	0	0	0	0	0	0
Clear Urethane	0	0.01	0	0	0.1	0.4	0	1	1	1	1	1	1	0	0	0	0	0	0
Paint Reducer	0	0	0	0.2	0.01	0.1	0	1	1	1	1	1	1	0	0	0	0	0	0
Quick sand primer	0	0.3	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Bedding Putty	0	0.28	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Fighting Lady GC	0	0.36	0.05	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Pastel Green GC	0	0.3	0.1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
White lo grade GC	0	0.23	0.07	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
TOTAL	**79041**												LBS.	**3140.7**	**193.78**	**1.2**	**0**	**0**	**0.105**
													TONS	**1.57**	**0.097**	**insig.**	**0**	**0**	**insig.**
													LBS	**TOTAL HAP EMISSIONS, 2007**					**3335.81**
													TONS						**1.6675**

YEAR: 2008

GLASSTREAM

HAP CONTAINING MATERIAL AND EMISSION LOG

HAP AND VOC MATERIAL	USAGE	HAP %						Emission Factor						Emissions					
		Styrene	MMA	Toluene	Eth. Benz	Xylene	MEK	Styrene	MMA	Toluene	Eth. Benz	Xylene	MEK	Styrene	MMA	Toluene	Eth. Benz	Xylene	MEK
Production Resin	91601	0.338	0	0	0	0	0	0.037	1	1	1	1	1	3361.8	0	0	0	0	0
Exterior white	4050	0.29	0.05	0	0	0	0	0.08	0.04	1	1	1	1	324	162	0	0	0	0
Clear Gel Coat	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Jet Black Gel Coat	225	0.28	0.04	0	0	0	0	0.076	1	1	1	1		17.033	9	0	0	0	0
Black gel coat	0	0.31	0	0	0	0	0	0.09	1	1	1	1	1	0	0	0	0	0	0
Ice Blue Gel Coat	0	36	0.04	0	0	0	0	0.11	0.04	1	1	1	1	0	0	0	0	0	0
Rape Yellow GC	45	36	0.04	0	0	0	0	0.11	0.04	1	1	1	1	4.95	0.072	0	0	0	0
Signal Red GC	0	36	0.04	0	0	0	0	0.11	0.04	1	1	1	1	0	0	0	0	0	0
UM Blue Gel Coat	0	36	0.04	0	0	0	0	0.11	0.04	1	1	1	1	0	0	0	0	0	0
Traffic Blue GC	0	36	0.04	0	0	0	0	0.11	0.04	1	1	1	1	0	0	0	0	0	0
Red Tooling Gel	195	0.44	0.04	0	0	0	0	0.148	1	1	1	1	1	28.86	7.8	0	0	0	0
Bondo	4	0.3	0	0	0	0	0	1	1	1	1	1	1	1.2	0	0	0	0	0
Adtech	6	0.34	0	0	0	0	0.14	1	1	1	1	1	1	2.04	0	0	0	0	0.852
Patch Booster	6	0.65	0	0	0	0	0	1	1	1	1	1	1	3.9	0	0	0	0	0
Webbing Solution	0	0	0	0.4	0	0	0.04	1	1	1	1	1	1	0	0	0	0	0	0
Bonding Putty	300	0.3	0	0	0	0	0	1	1	1	1	1	1	90	0	0	0	0	0
Graphics Paint	0	0	0	0	0.05	0.3	0.01	1	1	1	1	1	1	0	0	0	0	0	0
Clear Urethane	0	0.01	0	0	0.1	0.4	0	1	1	1	1	1	1	0	0	0	0	0	0
Paint Reducer	0	0	0	0.2	0.01	0.1	0	1	1	1	1	1	1	0	0	0	0	0	0
Quick sand primer	40	0.3	0	0	0	0	0	1	1	1	1	1	1	12	0	0	0	0	0
Bedding Putty	0	0.28	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Fighting Lady GC	48	0.36	0.05	0	0	0	0	0.11	0.04	1	1	1	1	5.28	0.096	0	0	0	0
Pastel Green GC	0	0.3	0.1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
White lo grade GC	550	0.29	0.05	0	0	0	0	0.08	0.04	1	1	1	1	60.5	0.99	0	0	0	0
Traffic Red GC	90	0.36	0.04	0	0	0	0	0.11	0.04	1	1	1	1	9.9	0.144	0	0	0	0
Purple Gel Coat	70	0.36	0.04	0	0	0	0	0.11	0.04	1	1	1	1	7.7	0.112				
TOTAL	**97230**												**LBS.**	**3929.1**	**180.21**	**0**	**0**	**0**	**0.852**
													TONS	**1.9645**	**0.09**	**0**	**0**	**0**	**insig.**
													LBS	**TOTAL HAP EMISSIONS, 2008**					**4110.19**
													TONS						**2.055**

YEAR: 2009

GLASSTREAM

HAP CONTAINING MATERIAL AND EMISSION LOG

HAP AND VOC MATERIAL	USAGE	HAP %						Emission Factor						Emissions					
		Styrene	MMA	Toluene	Eth. Benz	Xylene	MEK	Styrene	MMA	Toluene	Eth. Benz	Xylene	MEK	Styrene	MMA	Toluene	Eth. Benz	Xylene	MEK
Production Resin	59824	0.338	0	0	0	0	0	0.037	1	1	1	1	1	2213	0	0	0	0	0
Exterior white	7700	0.29	0.05	0	0	0	0	0.08	0.04	1	1	1	1	616	308	0	0	0	0
Clear Gel Coat	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Jet Black Gel Coat	0	0.28	0.04	0	0	0	0	0.076	0.03	1	1	1		0	0	0	0	0	0
Black gel coat	225	0.31	0	0	0	0	0	0.09	1	1	1	1	1	20.25	0	0	0	0	0
Ice Blue Gel Coat	0	0.36	0.04	0	0	0	0	0.112	0.03	1	1	1	1	0	0	0	0	0	0
Rape Yellow GC	45	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	4.95	1.35	0	0	0	0
Signal Red GC	0	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	0	0	0	0	0	0
UM Blue Gel Coat	0	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	0	0	0	0	0	0
Traffic Blue GC	0	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	0	0	0	0	0	0
Red Tooling Gel	135	0.44	0	0	0	0	0	0.148	1	1	1	1	1	19.98	0	0	0	0	0
Bondo	0	0.3	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Adtech	0	0.34	0	0	0	0	0.14	1	1	1	1	1	1	0	0	0	0	0	0
Patch Booster	0	0.65	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Webbing Solution	8	0	0	0.4	0	0	0.04	1	1	1	1	1	1	0	0	3.2	0	0	0.28
Bonding Putty	840	0.3	0	0	0	0	0	0.3	1	1	1	1	1	252	0	0	0	0	0
Graphics Paint	0	0	0	0	0.05	0.3	0.01	1	1	1	1	1	1	0	0	0	0	0	0
Clear Urethane	0	0.01	0	0	0.1	0.4	0	1	1	1	1	1	1	0	0	0	0	0	0
Paint Reducer	0	0	0	0.2	0.01	0.1	0	1	1	1	1	1	1	0	0	0	0	0	0
Quick sand primer	40	0.3	0	0	0	0	0	0.08	1	1	1	1	1	3.2	0	0	0	0	0
Bedding Putty	0	0.28	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Fighting Lady GC	45	0.36	0.05	0	0	0	0	0.11	0.04	1	1	1	1	4.95	1.8	0	0	0	0
Pastel Green GC	0	0.3	0.1	0	0	0	0	0.11	1	1	1	1	1	0	0	0	0	0	0
White lo grade GC	0	0.23	0.07	0	0	0	0	0.11	1	1	1	1	1	0	0	0	0	0	0
Traffic Red GC	90	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	9.9	2.7	0	0	0	0
Purple Gel Coat	0	0.36	0.04	0	0	0	0	0.11	1	1	1	1	1	0	0				
TOTAL	**68952**												**lbs**	**3144.2**	**313.85**	**3.2**	**0**	**0**	**0.28**
													Tons	**1.572**	**0.157**	**insig.**	**insig**	**insig**	**insig**
													Lbs	**TOTAL HAP EMISSIONS, 2009**					**3461.56**
													Tons						**1.73**

YEAR: 2010

GLASSTREAM

HAP CONTAINING MATERIAL AND EMISSION LOG

HAP AND VOC MATERIAL	USAGE	HAP %						Emission Factor						Emissions					
		Styrene	MMA	Toluene	Eth. Benz	Xylene	MEK	Styrene	MMA	Toluene	Eth. Benz	Xylene	MEK	Styrene	MMA	Toluene	Eth. Benz	Xylene	MEK
Production Resin	64900	0.338	0	0	0	0	0	0.037	1	1	1	1	1	2381.8	0	0	0	0	0
Exterior white	8160	0.29	0.05	0	0	0	0	0.08	0.04	1	1	1	1	652.8	326.4	0	0	0	0
Clear Gel Coat	45	0.45	0	0	0	0	0	0.15	1	1	1	1	1	6.75	0	0	0	0	0
Jet Black Gel Coat	0	0.28	0.04	0	0	0	0	0.076	0.03	1	1	1		0	0	0	0	0	0
Black gel coat	450	0.31	0	0	0	0	0	0.09	1	1	1	1	1	40.5	0	0	0	0	0
Ice Blue Gel Coat	90	0.36	0.04	0	0	0	0	0.112	0.03	1	1	1	1	9.9	2.7	0	0	0	0
Rape Yellow GC	45	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	4.95	1.35	0	0	0	0
Signal Red GC	0	0.36	0.04	0	0	0	0	0.12	0.03	1	1	1	1	0	0	0	0	0	0
UM Blue Gel Coat	0	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	0	0	0	0	0	0
Traffic Blue GC	0	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	0	0	0	0	0	0
Tooling Gel Coat	270	0.44	0	0	0	0	0	0.15	0	1	1	1	1	40.5	0	0	0	0	0
Bondo	0	0.3	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Adtech	60	0.34	0	0	0	0	0.14	1	1	1	1	1	1	20.4	0	0	0	0	8.52
Patch Booster	0	0.65	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Webbing Solution	80	0	0	0.4	0	0	0.04	1	1	1	1	1	1	0	0	32	0	0	2.8
Bonding Putty	120	0.3	0	0	0	0	0	1	1	1	1	1	1	36	0	0	0	0	0
Graphics Paint	0	0	0	0	0.05	0.3	0.01	1	1	1	1	1	1	0	0	0	0	0	0
Clear Urethane	0	0.01	0	0	0.1	0.4	0	1	1	1	1	1	1	0	0	0	0	0	0
Paint Reducer	0	0	0	0.2	0.01	0.1	0	1	1	1	1	1	1	0	0	0	0	0	0
Quick sand primer	0	0.3	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Bedding Putty	210	0.28	0	0	0	0	0	1	1	1	1	1	1	58.8	0	0	0	0	0
Fighting Lady GC	0	0.36	0.05	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Pastel Green GC	135	0.3	0.1	0	0	0	0	0.11	0.03	1	1	1	1	14.85	4.05	0	0	0	0
White lo grade GC	775	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	85.25	23.25	0	0	0	0
Traffic Red GC	95	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	10.45	2.85	0	0	0	0
Purple Gel Coat	0	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	0	0	0	0	0	0
Gray Primer GC	45	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	4.95	1.35	0	0	0	0
Ocean night GC	0	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	0	0	0	0	0	0
Nutmeg Gel Coat	0	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	0	0	0	0	0	0
TOTAL	**75480**												**Lbs.**	**3367.9**	**361.95**	**32**	**0**	**0**	**11.32**
													Tons	**1.684**	**0.181**	**insig.**	**0**	**0**	**insig**
													Lbs.	**Total HAP Emissions for 2011**					**3773.2**
													Tons						**1.886**

YEAR: 2011

GLASSTREAM

HAP CONTAINING MATERIAL AND EMISSION LOG

HAP AND VOC MATERIAL	USAGE	HAP %						Emission Factor						Emissions					
		Styrene	MMA	Toluene	Eth. Benz	Xylene	MEK	Styrene	MMA	Toluene	Eth. Benz	Xylene	MEK	Styrene	MMA	Toluene	Eth. Benz	Xylene	MEK
Production Resin	87480	0.338	0	0	0	0	0	0.037	1	1	1	1	1	3210.5	0	0	0	0	0
Exterior white	9350	0.29	0.05	0	0	0	0	0.08	0.04	1	1	1	1	748	374	0	0	0	0
Clear Gel Coat	45	45	0	0	0	0	0	0.15	1	1	1	1	1	303.75	0	0	0	0	0
Jet Black Gel Coat	0	0.28	0.04	0	0	0	0	0.076	0.03	1	1	1		0	0	0	0	0	0
Black gel coat	642	0.31	0	0	0	0	0	0.09	1	1	1	1	1	57.78	0	0	0	0	0
Ice Blue Gel Coat	0	0.36	0.04	0	0	0	0	0.112	0.03	1	1	1	1	0	0	0	0	0	0
Rape Yellow GC	0	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	0	0	0	0	0	0
Signal Red GC	46	0.36	0.04	0	0	0	0	0.12	0.03	1	1	1	1	5.52	1.38	0	0	0	0
UM Blue Gel Coat	0	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	0	0	0	0	0	0
Traffic Blue GC	0	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	0	0	0	0	0	0
Tooling Gel Coat	90	0.44	0	0	0	0	0	0.15	0	1	1	1	1	13.5	0	0	0	0	0
Bondo	0	0.3	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Adtech	90	0.34	0	0	0	0	0.14	1	1	1	1	1	1	30.6	0	0	0	0	12.78
Patch Booster	0	0.65	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Webbing Solution	0	0	0	0.4	0	0	0.04	1	1	1	1	1	1	0	0	0	0	0	0
Bonding Putty	200	0.3	0	0	0	0	0	1	1	1	1	1	1	60	0	0	0	0	0
Graphics Paint	0	0	0	0	0.05	0.3	0.01	1	1	1	1	1	1	0	0	0	0	0	0
Clear Urethane	0	0.01	0	0	0.1	0.4	0	1	1	1	1	1	1	0	0	0	0	0	0
Paint Reducer	140	0	0	0.2	0.01	0.1	0	1	1	1	1	1	1	0	0	28	1.4	14	0
Quick sand primer	0	0.3	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Bedding Putty	0	0.28	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Fighting Lady GC	46	0.36	0.05	0	0	0	0	0.11	0.03	1	1	1	1	5.06	1.38	0	0	0	0
Pastel Green GC	135	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	14.85	4.05	0	0	0	0
White lo grade GC	1100	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	121	33	0	0	0	0
Traffic Red GC	45	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	1.782	1.35	0	0	0	0
Purple Gel Coat	0	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	0	0	0	0	0	0
Gray Primer GC	0	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	0	0	0	0	0	0
Ocean night GC	46	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	5.06	1.38	0	0	0	0
Nutmeg Gel Coat	46	0.36	0.04	0	0	0	0	0.11	0.03	1	1	1	1	5.06	1.38	0	0	0	0
TOTAL	**99409**												**Lbs.**	**4582.5**	**417.92**	**28**	**1.4**	**14**	**12.78**
													Tons	**2.291**	**0.209**	**insig.**	**insig.**	**insig.**	**insig.**
													Lbs.	**Total HAP Emissions for 2011**					**5056.578**
													Tons						**2.528**

YEAR: 2007

GLASSTREAM

VOC CONTAINING MATERIAL AND EMISSION LOG.

MATERIAL CONTAING VOC'S	USAGE	VOC %			Emission Factor			Emissions		
		Styrene	MMA	Misc. VOC's	Styrene	MMA	Misc. VOC's	Styrene	MMA	Misc VOC's
Production Resin	74000	0.338	0	0.09	0.0367	1	1	2715.8	0	6660
Exterior white	4441	0.29	0.05	0	0.08	0.04	1	355.28	177.64	0
Clear Gel Coat	0	0	0	0	1	1	1	0	0	0
Jet Black Gel Coat	134	0.28	0.04	0	0.0757	0.03	1	10.144	4.02	0
Black gel coat	0	0.31	0	0	1	1	1	0	0	0
Ice Blue Gel Coat	90	0.36	0.04	0	0.11	0.03	1	9.9	2.7	0
Rape Yellow GC	96	0.36	0.04	0	0.11	0.03	1	10.56	2.88	0
Signal Red GC	44	0.36	0.04	0	0.11	0.03	1	4.84	1.32	0
UM Blue Gel Coat	45	0.36	0.04	0	0.11	0.03	1	4.95	1.35	0
Traffic Blue GC	129	0.36	0.04	0	0.11	0.03	1	14.19	3.87	0
Red Tooling Gel	45	0.44	0	0	0.148	0.03	1	6.66	0	0
Bondo	8	0.3	0	0.25	1	1	1	2.4	0	2
Adtech	0	0.34	0	0.15	1	1	1	0	0	0
Patch Reducer	6	0.65	0	0	1	1	1	6	0	0
Webbing Solution	3	0	0	0.55	1	1	1	0	0	1.65
Bonding Putty	0	0.3	0	0	1	1	1	0	0	0
Graphics Paint	0	0	0	0.45	1	1	1	0	0	0
Clear Urethane	0	0.01	0	0.2	1	1	1	0	0	0
Paint Reducer	0	0	0	0.9	1	1	1	0	0	0
Quick sand primer	0	0.3	0	1	1	1	1	0	0	0
Bedding Putty	0	0.28	0	1	1	1	1	0	0	0
Fighting Lady GC	0	0.36	0.05	0	1	0.04	1	0	0	0
Pastel Green GC	0	0.3	0.1	0	1	0.08	1	0	0	0
White lo grade GC	0	0.23	0.07	0	1	0.05	1	0	0	0
Partall Wax # 2	20	0	0	0.72	1	1	1	0	0	14.4
Partall Wax # 10	25	0	0	0.34	1	1	1	0	0	8.5
Hi-Temp wax	46	0	0	0.6	1	1	1	0	0	27.6
TOTAL	**79132**						**Lbs.**	**3140.7**	**193.78**	**6714.15**
							Tons	**1.57**	**0.097**	**3.357**
							Lbs.	**Total VOC's**		**10048.654**
							Tons			**5.024**

YEAR: 2008

GLASSTREAM

VOC CONTAINING MATERIAL AND EMISSION LOG

MATERIAL CONTAING VOC'S	USAGE	VOC %			Emission Factor			Emissions		
		Styrene	MMA	Misc. VOC's	Styrene	MMA	Misc. VOC's	Styrene	MMA	Misc. VOC's
Production Resin	91601	0.338	0	0.09	0.0367	1	1	3361.8	0	8244.09
Exterior white	4050	0.29	0.05	0	0.08	0.05	1	324	162	0
Clear Gel Coat	0	0	0	0	1	1	1	0	0	0
Jet Black Gel Coat	225	0.28	0.04	0	0.0757	0.04	1	17.033	9	0
Black gel coat	0	0.31	0	0	1	1	1	0	0	0
Ice Blue Gel Coat	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Rape Yellow GC	45	0.36	0.04	0	0.11	0.03	1	4.95	0.072	0
Signal Red GC	0	0.36	0.04	0	0.11	0.03	1	0	0	0
UM Blue Gel Coat	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Traffic Blue GC	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Red Tooling Gel	195	0.44	0	0	0.148	1	1	28.86	7.8	0
Bondo	4	0.3	0	0.25	1	1	1	1.2	0	1
Adtech	6	0.34	0	0.15	1	1	1	2.04	0	0.9
Patch Booster	6	0.65	0	0	1	1	1	3.9	0	0
Webbing Solution	0	0	0	0.55	1	1	1	0	0	0
Bonding Putty	300	0.3	0	0	1	1	1	90	0	0
Graphics Paint	0	0	0	0.45	1	1	1	0	0	0
Clear Urethane	0	0.01	0	0	1	1	1	0	0	0
Paint Reducer	0	0	0	0.9	1	1	1	0	0	0
Quick sand primer	40	0.3	0	1	1	1	1	12	0	40
Bedding Putty	0	0.28	0	1	1	1	1	0	0	0
Fighting Lady GC	48	0.36	0.05	0	0.11	0.03	1	5.28	0.096	0
Pastel Green GC	0	0.3	0.1	0	1	0.1	1	0	0	0
White lo grade GC	550	0.36	0.04	0	0.11	0.03	1	60.5	0.99	0
Traffic Red GC	90	0.36	0.04	0	0.11	0.03	1	9.9	0.144	0
Purple Gel Coat	70	0.36	0.04	0	0.11	0.03	1	7.7	0.112	0
Partall Wax# 2	70	0	0	0.72	1	1	1	0	0	50.4
Partall Wax # 10	25	0	0	0.34	1	1	1		0	8.5
Hi Temp Wax	60	0	0	0.6	1	1	1		0	36
TOTAL	**97230**						**Lbs.**	**3929.1**	**180.21**	**8380.89**
							Tons.	**1.965**	**0.09**	**4.19**

							Lbs.	Total VOC.s		12490.223
							Tons.			6.245

YEAR: 2009

GLASSTREAM

HAP CONTAINING MATERIAL AND EMISSION LOG

MATERIAL CONTAING VOC'S	USAGE	VOC %			Emission Factor			Emissions		
		Styrene	MMA	Misc. VOC's	Styrene	MMA	Misc. VOC's	Styrene	MMA	Misc. VOC's
Production Resin	59824	0.338	0	0.09	0.0367	1	1	2213.5	0	5384.16
Exterior white	7700	0.29	0.05	0	0.08	0.04	1	616	308	0
Clear Gel Coat	0	0	0	0	1	1	1	0	0	0
Jet Black Gel Coat	0	0.28	0.04	0	0.076	1	1	0	0	0
Black gel coat	225	0.31	0	0	0.09	1	1	20.25	0	0
Ice Blue Gel Coat	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Rape Yellow GC	45	0.36	0.04	0	0.11	0.03	1	4.95	0.054	0
Signal Red GC	0	0.36	0.04	0	0.11	0.03	1	0	0	0
UM Blue Gel Coat	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Traffic Blue GC	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Red Tooling Gel	135	0.44	0	0	0.148	1	1	19.98	0	0
Bondo	0	0.3	0	0.25	1	1	1	0	0	0
Adtech	9	0.34	0	0.15	1	1	1	3.06	0	1.35
Patch Booster	0	0.65	0	0	1	1	1	0	0	0
Webbing Solution	8	0	0	0.55	1	1	1	0	0	4.4
Bonding Putty	840	0.3	0	0	1	1	1	252	0	0
Graphics Paint	0	0	0	0.45	1	1	1	0	0	0
Clear Urethane	0	0.01	0	0.2	1	1	1	0	0	0
Paint Reducer	0	0	0	0.2	1	1	1	0	0	0
Quick sand primer	40	0.3	0	1	0.08	1	1	3.2	0	40
Bedding Putty	0	0.28	0	1	1	1	1	0	0	0
Fighting Lady GC	45	0.36	0.05	0	0.11	0.03	1	4.95	0.0675	0
Pastel Green GC	0	0.3	0.1	0	1	1	1	0	0	0
White lo grade GC	0	0.23	0.07	0	1	1	1	0	0	0
Traffic Red GC	90	0.36	0.04	0	0.11	0.03	1	9.9	0.108	0
Purple Gel Coat	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Partallllll Wax # 2	75	0	0	0.72	1	1	1	0	0	54
Partall Wax # 10	0	0	0	0.34	1	1	1	0	0	0
HI Temp Wax.	0	0	0	0.6	1	1	1	0	0	0
TOTAL	**69036**						**Lbs.**	**3147.8**	**308.23**	**5483.91**
							Tons.	**1.5735**	**0.154**	**2.74**
							Lbs.	**Total VOC's**		**8939.9295**
							Tons.			**4.47**

YEAR: 2010

GLASSTREAM

VOC CONTAINING MATERIAL AND EMISSION LOG

MATERIAL CONTAING VOC'S	USAGE	VOC'S			Emission Factor			Emissions		
		Styrene	MMA	Misc. VOC's	Styrene	MMA	Misc. VOC's	Styrene	MMA	Misc. VOC's
Production Resin	64900	0.338	0	0.09	0.0367	0	1	2381.8	0	5841
Exterior white	8159	0.29	0.05	0	0.08	0.04	1	652.72	326.4	0
Clear Gel Coat	45	0.45	0	0	0.15	0.04	1	6.75	0	0
Jet Black Gel Coat	0	0.28	0.04	0	0.0757	0.03	1	0	0	0
Black gel coat	450	0.31	0	0	0.09	1	1	40.5	0	0
Ice Blue Gel Coat	90	0.36	0.04	0	0.11	0.03	1	9.9	2.7	0
Rape Yellow GC	45	0.36	0.04	0	0.11	0.03	1	4.95	1.35	0
Signal Red GC	0	0.36	0.04	0	0.11	0.03	1	0	0	0
UM Blue Gel Coat	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Traffic Blue GC	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Red Tooling Gel	270	0.44	0	0	0.148	1	1	39.96	0	0
Bondo	0	0.3	0	0.25	1	1	1	0	0	0
Adtech	60	0.34	0	0.15	1	1	1	20.4	0	9
Patch Booster	0	0.65	0	0	1	1	1	0	0	0
Webbing Solution	64	0	0	0.55	1	1	1	0	0	35.2
Bonding Putty	120	0.3	0	0	1	1	1	36	0	0
Graphics Paint	0	0	0	0.45	1	1	1	0	0	0
Clear Urethane	0	0.01	0	0.2	1	1	1	0	0	0
Paint Reducer	0	0	0	0.2	1	1	1	0	0	0
Quick sand primer	0	0.3	0	1	1	1	1	0	0	0
Bedding Putty	210	0.28	0	1	1	1	1	58.8	0	210
Fighting Lady GC	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Pastel Green GC	135	0.36	0.04	0	0.11	0.03	1	14.85	4.05	0
White lo grade GC	775	0.36	0.04	0	0.11	0.03	1	85.25	23.25	0
Traffic Red GC	95	0.36	0.04	0	0.11	0.03	1	10.45	2.85	0
Purple Gel Coat	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Gray Primer GC	45	0.36	0.04	0	0.11	0.03	1	4.95	1.35	0
Partall # 2 Was	100	0	0	0.72	1	1	1	0	0	72
Partall #10 Wax	0	0	0	0.34	1	1	1	0	0	0
Hi Temp Wax	0	0	0	0.6	1	1	1	0	0	0
TOTAL	**75563**						**Lbs.**	**3367.3**	**361.95**	**6167.2**
							Tons.	**1.68**	**0.181**	**3.08**
							Lbs.	**Total VOC's**		**9896.46**
							Tons.			**4.95**

YEAR: 2011

GLASSTREAM

VOC CONTAINING MATERIAL AND EMISSION LOG

MATERIAL CONTAING VOC'S	USAGE	VOC'S			Emission Factor			Emissions		
		Styrene	MMA	Misc. VOC's	Styrene	MMA	Misc. VOC's	Styrene	MMA	Misc. VOC's
Production Resin	87480	0.338	0	0.09	0.037	0	1	3210.5	0	6316
Exterior white	9350	0.29	0.05	0	0.08	0.04	1	748	374	0
Clear Gel Coat	45	0.45	0	0	0.15	0.04	1	6.75	0	0
Jet Black Gel Coat	0	0.28	0.04	0	0.076	0.03	1	0	0	0
Black gel coat	552	0.31	0	0	0.09	1	1	49.68	0	0
Ice Blue Gel Coat	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Rape Yellow GC	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Signal Red GC	46	0.36	0.04	0	0.11	0.03	1	5.06	1.38	0
UM Blue Gel Coat	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Traffic Blue GC	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Red Tooling Gel	90	0.44	0	0	0.148	1	1	13.32	0	0
Bondo	0	0.3	0	0.25	1	1	1	0	0	0
Adtech	90	0.34	0	0.15	1	1	1	30.6	0	13.5
Patch Booster	0	0.65	0	0	1	1	1	0	0	0
Webbing Solution	64	0	0	0.55	1	1	1	0	0	35.2
Bonding Putty	200	0.3	0	0	1	1	1	60	0	0
Graphics Paint	0	0	0	0.45	1	1	1	0	0	0
Clear Urethane	0	0.01	0	0.2	1	1	1	0	0	0
Paint Reducer	140	0	0	0.2	1	1	1	0	0	28
Quick sand primer	0	0.3	0	1	1	1	1	0	0	0
Bedding Putty	0	0.28	0	1	1	1	1	0	0	0
Fighting Lady GC	46	0.36	0.04	0	0.11	0.03	1	5.06	0.0552	0
Pastel Green GC	135	0.36	0.04	0	0.11	0.03	1	14.85	4.05	0.36
White lo grade GC	1100	0.36	0.04	0	0.11	0.03	1	121	33	0
Traffic Red GC	45	0.36	0.04	0	0.11	0.03	1	4.95	1.35	0
Purple Gel Coat	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Gray Primer GC	0	0.36	0.04	0	0.11	0.03	1	0	0	0
Ocean Night, GC	46	0.36	0.04	0	0.11	0.03	1	5	1.4	0
Nutmeg Gel Coat	46	0.36	0.04	0	0.11	0.03		5	1.4	
Partall # 2 Was	50	0	0	0.72	1	1	1	0	0	18
Partall #10 Wax	28	0	0	0.34	1	1	1	0	0	10
Hi Temp Wax	41	0	0	0.6	1	1	1	0	0	25
TOTAL	**99594**						**Lbs.**	**4279.8**	**416.64**	**6446.06**
							Tons.	**2.14**	**0.2085**	**3.223**
							Lbs.	**Total VOC's**		**11142.481**
							Tons.			**5.571**

GLASSTREAM INC.
Facility Narrative.

Glasstream Inc. manufactures fiberglass pleasure boats from 17 to 36 feet in length. At the present time, 39 production employees work at the facility producing approximately 100 boats per year. The only real manufacturing is the production of fiberglass parts which are trimmed to fit, assembled and hardware installed to create the finished product.

The fiberglass manufacturing process begins with the development of fiberglass open molds. The molds for the various hulls, decks and small parts are made from a combination of tooling gel coat, resin, fiberglass and either wood or steel reinforcement. When finished, the open mold surface is polished to a mirror like finish and wax or release agents applied to allow the production of the fiberglass boat parts that can easily be removed from the molds when cured.

After a mold is prepared for production, a thin, about 20 mil, layer of gel coat is sprayed onto the mold surface in the spray areas (EU1 and EU2) to create the colors and high gloss outer surface of the finished part. When the gel coat has been allowed to cure, a thin layer of resin (skin coat) is then applied over the first layer of gel coat which aids in the adhesion of the gel coat to the resin. The boat then enters the lamination process, still in EU#1 or # 2, where layers of unfilled resin, chopped fiberglass strands and glass mat are applied over the skin coat. Usually, several layers of resin/fiberglass are required to make up the finished laminate. In the hull molds, the largest single fiberglass part, a layer of foam is applied to the sides and corners of the part once the fiberglass has cured to provide floatation. The parts are then removed from the mold and trimmed for proper fit. The finished fiberglass boat parts are then assembled, and the motor and all necessary wiring and hardware is installed

There are a number of spray guns used in the gel coat / lamination area. All guns are non-atomized equipment utilizing FIT (Fluid Impingement Technology). All gun operators have been trained in the Controlled Spraying Techniques developed by the Composites Fabricators Association to reduce overspray and excessive use of materials. The only significant chemical emissions from this process is Styrene, which is emitted as a result of the chemical cross linking during the curing process. There is no specific

defined exhaust outlet or these fugitive styrene fumes. The catalyst (MEKP) used to create the cross liking process is contained in the cured fiberglass part and the emissions from the flotation foam that is applied to the cured part has been found to be insignificant.

The trim process for the fiberglass parts consists mainly of cutting and some sanding. The small amount of fiberglass dust that is created is swept or vacuumed regularly and properly disposed of. Very little of that dust enters the outside environment and no visible emissions occur. If at any time production increases to the level that visible emissions from the trim operation are observed, fiberglass filters with a 94 % capture efficiency rate will be installed.

All containers of VOC or HAP containing chemicals will be kept closed at all times except when adding or removing material.

Sales

M.V.P.

From: Susie Leonard
Sent: Friday, May 18, 2012 11:43 AM
To: Tom Eveland "Tom is area representative for Magnum which markets the
Subject: FW: Units gel coat and resin spray equipment."

From: Kruis Retherford [mailto:kruis@glasstream.com]
Sent: Friday, May 18, 2012 11:43 AM
To: Susie Leonard
Subject: Re: Units

AND ALL OF THESE UNITS ARE NON ATOMIZED?

On Fri, May 18, 2012 at 10:31 AM, Susie Leonard <SmLeonard@mvpind.com> wrote:

Systems you have gotten since 07.

1 MGS-PRO-22	12-07
1 MGS-PAT-15	02-08
1 SF-FIT-C-PAT-7	07-09
1 FIT-C-UPS-6	04-11
1 FIT-C-UPS-6	05-11

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Kruis Retherford

Glasstream Powerboats

kruis@glasstream.com

Controlled Spraying Training

Instructors Guide

September, 1998

Composites Fabricators Association
1655 N. Ft. Myer Dr., Arlington, VA 22209
(703)-525-0511

Instructors Guide

Table of Contents

Instructors Guide
Controlled Spraying Training Program

Introduction
Chapter 1

1.0 Introduction

Concept –
This program is designed to provide training guidelines for spray operators in the *open molding composites industry*, where styrene based resin and gel coat materials are used.

Critical Knowledge –
This program applies to all operations where polyester resins or gel coats are dispensed from a spray gun.

1.1 What is Controlled Spraying?

Concept –
Controlled spraying is a workpractice that is very effective in reducing styrene emissions from the open molding process. It is a pollution prevention method which benefits the environment, the manufacturing process, and plant personnel.

Critical Knowledge –
- Controlled spraying reduces styrene emissions by increasing material transfer efficiency and reducing overspray.
- This is accomplished by minimizing spray gun atomization and reducing overspray loss.
- There are three elements of controlled spraying, which work together to reduce emissions.
    - Operation of the spray gun at the lowest fluid tip pressure.
    - Operator training that teaches proper spray gun handling techniques.
    - The use of close containment mold flanges to minimize overspray off the mold.

1.2 Operator Training

Concept –
Spray gun operator training is an important aspect of a controlled spraying program.

Critical Knowledge -
Operators and production management are required to know how to properly set up a spray gun, and understand the proper methods of spray gun handling.

1.3 Where is Controlled Spraying Required?

Concept –
Controlled spraying should be used for all spray application of styrene based

Critical Knowledge –
This workpractice technique should be used as the standard manufacturing practice in open molding facilities, or in other cases, where atomized spraying is used.

1.4 Why is Controlled Spraying Important?

Concept -
Controlled spraying can provide a substantial reduction in styrene emissions, compared to typical uncontrolled spraying.

Critical Knowledge -
- Testing has demonstrated that controlled spraying can reduce gel coating emissions by up to 40%, and laminating resin emissions by up to 20%.
- Controlled spraying can be used in all circumstances where atomized spray application is required.
- Controlled spraying reduces emissions, creates a better working atmosphere, and promotes better product quality.

1.5 Emissions During the Molding Process

Concept –
About half of total emissions occur during the spraying process.

Critical Knowledge -
- Fluid stream atomization contributes to emissions during the spraying process. The greater the level of atomization (creating finer aerosol particle sizes) and the higher the fluid stream pressure, the more emissions will occur.
- Spray gun pressure is of primary importance.
- The lowest pressure that produces an adequate spray pattern will produce the lowest emissions.

1.6 Relationship Between Overspray and Emissions

Concept –
Wet surface area is a key element of emissions. The thickness does not matter.

Critical Knowledge –
- The larger the surface area, the greater the evaporative loss.
- The emissions from a thin film of overspray will be almost the same as from a thick laminate.
- Reducing surface area is a key element to reducing emissions.

Definitions
Chapter 2

2.1 Atomization

Critical Knowledge –

- In order to create a useful spray pattern, it is necessary to convert a pressurized stream of resin into an elliptical shape as it exits the spray gun fluid tip.
- Atomizing the fluid is to break the fluid stream into fine aerosol particle sizes, which converts the narrow fluid stream into a shaped spray pattern.
- In many cases the spray pattern also provides the means for external mixing of an initiator (catalyst) component with the resin stream.
- Any additional atomization beyond that required level to form an adequate fan pattern, should be considered excessive.
- Over-atomization results in an increase in emissions from increased monomer evaporation and decreased transfer efficiency associated with enlarging the "wet footprint" of overspray.

2.2 Gel Coat

Critical Knowledge -

- Gel coat is a specialized form of polyester or vinyl ester resin, which is used as an in-mold applied surface coating.
- Gel coat can only be applied by atomized spray application

2.3 Overspray

Critical Knowledge -

- Overspray is resin that is deposited off the mold surface during the spraying process.
- Overspray has the effect of increasing the resin surface area by creating an enlarged "wet footprint", which creates more emissions.

2.4 Resin

Critical Knowledge -

- In this context, resin refers to unsaturated polyester or vinyl ester laminating resin.
- Gel coat, which is a specialized form of resin used as an in-mold coating, can be generically referred to as resin..

2.5 Spray Gun

Critical Knowledge -

- A spray gun is a fluid-handling device, which converts a stream of fluid into a useful shaped spray pattern.
- There are a number of types of spray guns, which have application in the open molding composites industry. These include:
    - Conventional Air Atomizing
    - High Pressure Airless
    - Air-Assisted Airless (AAA)
    - High Volume Low Pressure (HVLP)

Spray Equipment
Chapter 3

3.1 Types of Spray Guns

Concept –
There are a number of different types of spray guns. Some produce higher emissions then others.

Critical Knowledge -
The general categories of spray equipment include:

- Conventional Air-Atomized Spray Guns
  - Siphon Cup Gun
  - Gravity Feed Gun
  - Pressure Pot Gun
- High Pressure Airless Gun
- Air-Assist Airless Gun
- High Volume Low Pressure (HVLP) Gun

3.2 Conventional Air Atomized Spray Gun Configurations

Concept –
Air atomized spray guns deliver resin to the spray tip at low pressure and use air streams to create a fan pattern.

Critical Knowledge –

- There are several different types of air atomized spray guns.
- They produce the highest emissions of all spray guns.
- Transfer efficiency is very low, waste is high.

3.2 High-Pressure Airless Spray Guns

Concept -
Airless spray guns use a pump to deliver the resin coat to the fluid tip at high pressure.

Critical Knowledge -

- As the high-pressure stream exits the small fluid tip, the sudden reduction in pressure causes the fluid to atomize into a spray pattern.
- Airless spray tips usually require a fluid pressure of at least 1000 psi to produce an adequate fan pattern.

3.3 Air-Assisted Airless Spray Guns

Concept -
These current technology spray guns are a combination of airless and air atomized guns, drawing the benefits of both types.

Critical Knowledge -

- Air-Assisted Airless guns use a pump to deliver the resin to the fluid tip, but with much less pressure then an airless gun. The partially shaped fan pattern is then fully formed with the introduction of "shaping" air with the air-assist.

- Air-assisted airless guns produce higher transfer efficiency then airless guns with reduced emissions.
- The lower pressure spray also enhances gel coat quality.

3.4 High Volume Low Pressure (HVLP) Spray Guns

Concept -
HVLP spray guns operate at very low air pressures.

Critical Knowledge -
- They operate with air atomizing pressures of 10 psi or less.
- The low air pressure is replaced with a high volume of airflow, which results in reduced emissions, and better transfer efficiency.

3.5 Fluid Pumps

Concept -
A fluid pump is used to deliver resin or gel coat to a spray gun.

Critical Knowledge -
- The most common type of resin pump is termed an air over fluid pump.
- An air driven piston drives a fluid piston, which forces the gel coat out to the spray gun at high pressure.
- The power of a pump is referred to as the pump ratio.
- The input air pressure multiplied by the pump ratio determines the fluid pressure.

Spray Gun Set-Up & Pressure Calibration
Chapter 4

4.1 Flow Rate

Concept -
Flow rate is the amount of material sprayed in a given period.

Critical Knowledge -
- The flow rate is controlled by:
    - The size of the spray tip
    - Pump pressure
    - Resin viscosity.

4.2 Determining the Proper Spray Gun Pressure

Concept –
Determining the ideal pump pressure for a specific combination of material and equipment is an important element of controlled spraying. The goal is to apply resin or gel coat at the lowest level of atomization, which produces a workable spray pattern.

Critical Knowledge -

- Sometimes operators feel they have to turn up the pressure to get an adequate flow rate – *this is an incorrect procedure.*
- The proper method is to maintain minimum pressure and to increase the size of the spray tip to match the required delivery rate.
- It is always an advantage to spray at the lowest possible pressure.
- The lowest pressure will:
    - Reduce Styrene Emissions
    - Minimize overspray
    - Create better working conditions
    - Enhance catalyst mixing
    - Reduce material usage
    - Reduce equipment wear
    - Reduce high pressure hazards
    - Reduce static charge build-up
    - Increase product quality
- Emphasize the saying *"Minimum Pressure For Maximum Performance"*

4.3 CFA Pressure Calibration Procedure

Concept –

There is a very specific method for setting-up a spray gun to operate at the lowest pressure. This procedure is appropriate for all production spray guns.

Critical Knowledge –

This procedure must be fully understood by all employees handling spray equipment.

- Verify that the resin is the correct temperature, and has been properly mixed within the manufacturers specified period.
- Verify that the spray tip is in good condition and suitable in flow rate range and fan pattern width for the given job.
- Aim the spray gun at a disposable surface on the floor, maintaining a distance of 12" to 18" and perpendicular to the floor.
- Turn the pump pressure down to zero and pull the trigger.
- Slowly begin to increase the pressure in 10 psi increments until the fan pattern is adequate.
- Record this pressure in the spray gun set-up log..
- *Do not* increase the pressure past this point. The result will be over-atomization and increased overspray, and poor transfer efficiency..

4.4 Determining the Proper Spray Pattern

Concept –

The size of a spray pattern results from a unique combination of orifice size, tip angle and resin flow characteristics. The required fan pattern width is specific to the size and configuration of the part being sprayed.

Critical Knowledge –

- The size of the spray pattern should match the spraying requirements.
- A proper fan pattern should have a symmetrical shape, where the material is distributed evenly across the length and width of the spray pattern.

Overspray Containment Flanges
Chapter 5

5.1 The Purpose of Containment Flanges

Concept –

The purpose of overspray containment is to minimize the wet footprint of material which could be deposited off the edge of the mold.

Critical Knowledge –

- Tthe specific configuration of the flanges may vary. As long as the flange is of a width and orientation to capture overspray, the specific configuration is of secondary importance.
- Extended flanges may be built into the mold as permanent extensions of existing flanges, or as an integral part of a mold designed specifically for controlled spraying.
- Perimeter masking may also be used to capture overspray. In this case, masking paper, plastic strips, cardboard or other materials are temporarily positioned around the mold perimeter during spraying operations.

Spraying Techniques
Chapter 6

6.1 Spraying Techniques

Concept –

Operator spraying technique is an essential factor in reducing emissions as well as producing a high quality work.

Critical Knowledge –

There are basic elements of spraying technique of which contribute to effective application of resin or gel coat. These are:

- Where you aim the spray gun is important.
- Spray the perimeter of the mold first, while maintaining overspray within the boundary of the close containment flange.
- Always begin by spraying the section nearest you.
- Avoid triggering the gel coat gun on and off as you would a paint spray gun. In addition the trigger should be "full-on or full-off" to maintain the proper material ratio. Do not "throttle" the gun with a partially open trigger.
- Always attempt to keep the fan pattern at right angles (perpendicular) to the mold surface. Follow the contour of the mold as closely as possible.
- Spray into corners on a 45^0 angle. Spray corners first, then flats.
- *Do not* assume you can apply the proper thickness by feel or experience. You must mil gauge every part, all of the time

- Applying the right film thickness is a function of time and motion. The operator must concentrate on maintaining a constant speed throughout the application.
- It is best to spray an area about as large as a comfortable arm swing. Avoid pivoting the gun with the wrist and do not bounce the spray pattern. The proper technique is to use smooth long strokes.

Operator Training and Performance Evaluation
Chapter 7

7.1 Operator Training Syllabus

Concept-
There are seven area of specific knowledge required for controlled spraying. These are listed in the syllabus:

Critical Knowledge -
The Controlled spray training program must transfer the following knowledge:

1. Understanding of the importance of controlled spraying.
2. Recognition of the effects of overspray on styrene emissions.
3. Recognition of the effects of spray gun pressure on emissions.
4. Understanding of the procedure to establish proper spray gun pressure.
5. Understanding of spraying techniques.
6. Understanding of the purpose of overspray containment flanges.
7. Completion of a performance evaluation.

7.2 Performance Evaluation Criteria

Concept-
Spray operators must demonstrate satisfactory performance in twelve areas.

Critical Knowledge –

1. Fluid Pressure Setting

Fluid settings of all spray equipment must be set at the lowest possible settings while achieving a symmetrical spray pattern with uniform distribution of the resin or gel coat across the spray pattern. For this evaluation, an adequate spray pattern will be defined as symmetrical shape with uniform material distribution throughout the spray pattern.

Air Atomized Spay Equipment:
Fluid settings must be set at a level to achieve a full even spray pattern. A spray pattern with a heavy fluid concentration in the center indicates too much fluid pressure. A spray pattern with a light concentration of fluid in the center and heavy at the ends indicates the fluid pressure has been set too low.

Airless Spray Equipment:
Fluid settings must be set at a level to achieve a full even spray pattern. A pattern with tails would indicate the fluid pressure is too low. Fluid pressures higher than that needed to eliminate tails will be considered excessive.

Air Assisted Airless Spray Equipment:
Fluid levels must be set only high enough to achieve an adequate spray pattern. Slight tails should be visible without the aid of shaping air. Fluid pressures higher than that needed to achieve adequate pattern shape and distribution will be considered excessive.

2. Air Pressure Setting

Air Atomized Spay Equipment:
Air pressure settings should be set only high enough to achieve adequate shaping of the spray pattern. Higher air pressure settings, those beyond what is needed to achieve adequate shape will be considered excessive.

Air Assisted Airless Spray Equipment:
Air pressure settings should be set only high enough to eliminate tails from the spray pattern. Higher air pressure settings will be considered excessive.

3. Body Position

The operators body position must be such as to allow for even gun strokes, with minimal amount of gun angle or arcing. Body positioning that requires the operator to arc the gun, use an excessive gun angle, or spray at excessive gun distances as described in this document, will be considered unsatisfactory.

4. Spray Gun Angle

The operator should maintain a spray gun angle of 90^0 when spraying mold areas *which allow this orientation.* In areas where a 90^0 orientation is feasible, the spray gun angle should remain within 30^0 of perpendicular to the surface being sprayed at all times. A gun angle in excess of 30^0 from perpendicular will be considered excessive. In areas where a 90^0 orientation is not possible, the operator should maintain a gun angle as close to 90^0 as feasible for that circumstance. Corners should sprayed down the length of the radius at a 45^0 angle to the corner. A gun angle in excess of 20^0 of the bisecting angle of a corner is considered excessive.

5. Gun Stroke

The operator should establish a gun stroke which is approximately an arm swing in width, without aering the spray gun at the beginning and end of the stroke. Small or medium sized surfaces should be sprayed in one stoke when possible. Larger pieces, surfaces where the use of a one stoke sequence will result in gun arcing, should be sprayed in multiple strokes. The use of multiple strokes on surfaces that could be sprayed in a single stroke will be considered unsatisfactory. Likewise, long gun strokes that result in gun arcing will also be considered unsatisfactory.

6. Gun Distance

Spray gun distance will be predicated on the configuration and size of the mold. With large molds, or molds of complex geometry, the operator will maintain a minimum distance from the surface as circumstances dictate. Given a mold of a size and configuration that the operator can reach within an arm length, the following gun distances from the mold will be considered satisfactory.

Air Atomized Spay Equipment:
Gun distances should range between twelve to eighteen inches. Gun distances in excess of eighteen inches will be considered excessive.

Airless Spray Equipment:
Gun distances should range between eighteen to twenty-four inches. Gun distances in excess of twenty-four inches will be considered excessive.

Air Assisted Airless Spray Equipment:
Gun distances should range between twelve and eighteen to ten inches. Gun distances in excess of eighteen inches will be considered excessive.

7. Gun Speed

Gun speed should be such as to allow for complete coverage of the substrate in a uniform thickness. Gun speed should remain consistent throughout the spraying operation. Under normal conditions, the use of multiple passes to achieve complete coverage that could have be achieved in a single pass will be considered the result of excessive gun speed and therefore unsatisfactory.

8. Overlap

Pattern overlap should be 50% for all resin application or gel coating operations. Less than 50% will be considered unsatisfactory. Likewise, overlap in excess of 75% will be considered unsatisfactory. Inconsistent overlapping on any one surface will be also be considered unsatisfactory.

9. Edge Control

The operator should demonstrate control of the spray pattern when spraying the mold perimeter. The spray pattern should be contained within the mold overspray containment flange. Solid wet resin coverage exceeding 50% of the flange width is considered excessive.

10. Spray Sequence

The spray band pattern should begin with spraying the perimeter of the mold, followed by filling in the interior sections, using a 50% overlap on each stroke. Spraying the interior of the mold before banding the perimeter will be considered unsatisfactory. The operator should use a spray sequence that allows for a complete coverage of the substrate, without multiple passes on any one area of the part during a single spray sequence. Spray sequences in which any one area of the part is sprayed more than twice during that sequence will be considered unsatisfactory. The same spray sequence should be used on all parts of like geometry. Significant variations in spray sequence on like geometry parts will be considered unsatisfactory.

11. Gun Triggering

Operators must pull the gun trigger to the full "on" position and release to the full "off" position. "Throttling" of the spray gun is considered unsatisfactory.

12. Thickness Measurement
Operators must demonstrate the use of a mil gauge or a chop thickness gauge to measure material thickness. Failure to measure laminate or gel coat thickness is unsatisfactory.

Controlled Spraying Performance Evaluation

Employee Name:_____

Company: _____ Facility: _____

Instructor: _____ Date: _____

Qualification For: Gel Coat Application [ ] Resin or Chop Application [ ] Both [ ]

Parameter	Performance Rating	
	Unsatisfactory	Satisfactory
Fluid Pressure Setting		
Air Pressure Setting		
Body Position		
Spray Gun Angle		
Gun Stroke		
Gun Distance		
Gun Speed		
Overlap		
Edge Control		
Spray Sequence		
Gun Triggering		
Thickness Gauging		

The employee named above has demonstrated satisfactory performance in demonstrating proficiency in each of the essential elements of controlled spraying.

Yes [ ] No [ ]

If "No" re-training and evaluation will be scheduled on: Date _____

Instructor:_____ Date: _____

Controlled Spraying Verification and Compliance
Chapter 8

8.1 Controlled Spraying Compliance

Concept-
Controlled spraying has specific requirements considered to be both effective and in compliance.

Critical Knowledge -
- Spray gun is operating at the lowest pressure which produces a symmetrical fan pattern.
- Pressure settings are documented in a daily log; Pressure settings are recorded and displayed on or near spray unit.
- Spray gun operators are documented as receiving required training in controlled spraying techniques.
- Close containment flanges are in place at mold perimeters.

8.2 Verification - Operation of spray gun at lowest applicable pressure setting.

Concept-
There is a specific procedure to determine pray gun pressure settings. *This procedure applies to all airless, air-assisted airless and HVLP spray equipment using fluid pump material delivery to the spray gun:*

Critical Knowledge –
Spray gun set-up procedure – spray operators must know this procedure:
- Select fluid tip.
- Set fluid pump pressure to "0"
- Position spray gun 12-18" and at a perpendicular orientation to a disposable surface
- Pull and hold trigger while increasing pump pressure in 10 psi increments, until a symmetrical spray pattern is developed.
- Release trigger. Record fluid pump pressure.
- Test the fan pattern. Position the spray gun over a clean disposable surface and quickly pull and release trigger to produce a "snapshot" of the spray pattern shape.
- An adequate fan pattern is symmetrical in shape and presents a width and length appropriate for the application.
- If required, adjust and refine the fan pattern by repeating steps 2,3,4 & 5.
- Record final pressure setting in daily log.

8.3 Verification – Operator Training

Concept –
Operator training must be documented in order to verify individual competency.

Critical Knowledge -
- Spray gun operators should be documented as receiving training, which includes the following workpractice elements:
  - Explanation of the importance of controlled spraying
  - Explanation of how overspray contributes to emissions.
  - The requirement to operate the spray gun at the lowest applicable pressure.
  - Proper spraying techniques including:

- General technique:
    - Spray gun orientation perpendicular to the mold
    - Establishing a proper coverage pattern
    - Spraying the mold perimeter
    - Spraying corners
    - Spraying large and small molds
    - Spraying male and female mold configurations
    - Spraying flat surfaces
    - Spraying curved surfaces

8.4 Verification - Close Containment of overspray

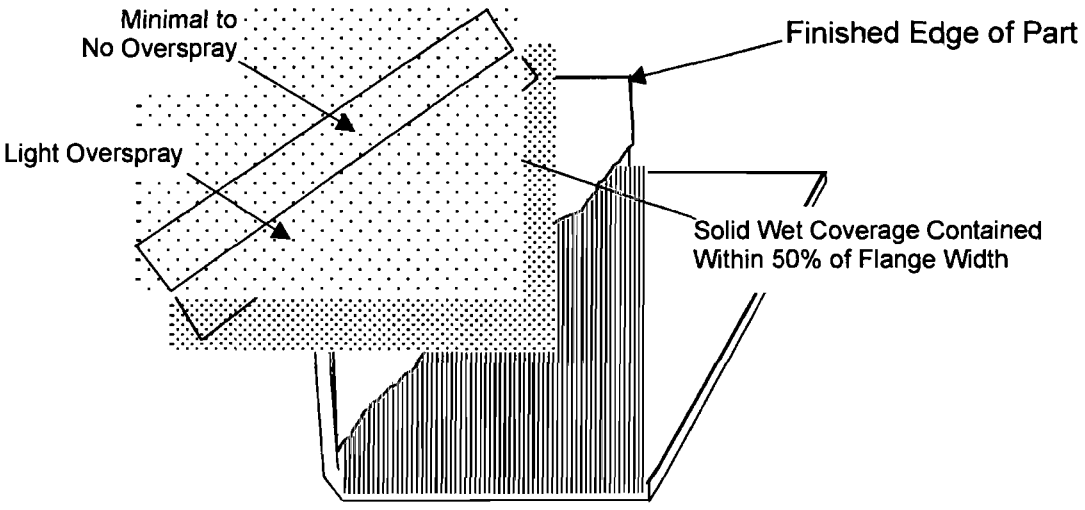
Concept –
Close containment flanges are a critical element of reducing overspray.

Critical Knowledge -
- Close containment is considered to be in compliance if any of the following configurations are in place, and solid (100% coverage) wet resin spray is terminated within one half of the width of the extended mold flange:
    - Extended built-in mold perimeter flange
    - Removable flange extension around the mold perimeter
    - Extended masking around the mold perimeter

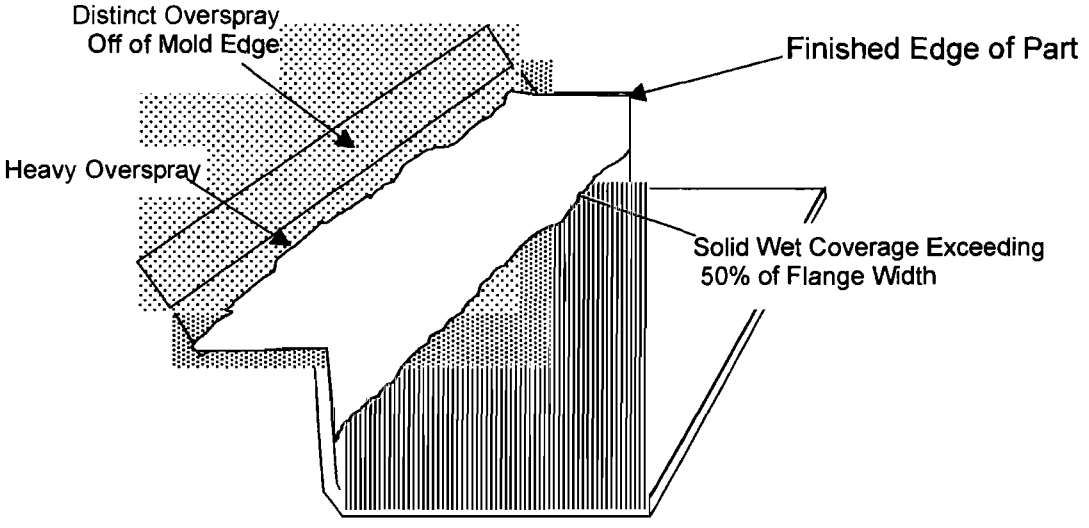
Concept –
It is vital for a spray operator to understand the practical aspects of overspray and limitations of spraying to the mold edge.

Critical Knowledge –
Solid wet resin or gel coat coverage should end as close to the finished edge of the part as possible. Wet coverage cannot exceed ½ the width of the flange, and no substantial amount of overspray should reach the outer edge of the flange.

Overspray Containment



Acceptable Overspray Containment



Unacceptable Overspray Containment

GLASSTREAM INC.

REASON FOR APPLICATION FOR SYNTHETIC MINOR PERMIT FROM PREVIOUSLY ISSUED MAJOR SOURCE PERMIT.

When Glasstream exceeded the maximum 76,000 pounds of resin and gel coat usage allowed by their General Permit in late 2007, a consulting company was retained to apply for a permit to take the company to the next level.

After evaluation of all material usage containing HAP's and VOC's the consultant determined that Glasstream would require a Major Source Permit due to their calculated high emission levels of Styrene and proceeded accordingly. The problem was that the engineer doing this work had not worked with a company using polyester resins and gel coats and was not aware that there were several well documented and established emission factors developed for Styrene emissions and accepted by the EPA.

Using the commonly used emission factors for other HAP's which assumes that all that 100 % of the HAP content is emitted during spray and cure, the Styrene emissions were overstated to the extent that almost ten times the actual emissions were reported which would have put Glasstream into the Major Source category for HAP emissions. (See Attachment "A")

Example as follows:

Styrene emissions calculated using assumption that all styrene is emitted from a resin containing 36 % Styrene.

Ton of Resin: (Resin = 2,000)(Styrene = 0.36 %): Styrene emissions = **720 #**

Styrene emissions using commonly used Emission Factor. (see attached document page # 25.)

Ton of Resin: EF = ((0.157)(% HAP = 36)*(-0.0165) = 0.04
Ton of Resin (Resin = 2,000)(Styrene = 0.36) = (0.04)(2,000) = **Styrene Emissions = 80 #**

Using the approved emission factor, Glasstream is not, and never has been a major source of Hazardous Air Pollutants and has always emitted significantly less than the ten ton threshold for a single HAP which determines the Major Source Category.

Attachment A.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1	**Actual monthly emissions of HAP's and VOC's for the Glasstream air operating permit**																					
2	**Material**	**Resin**	**Clear Gel-coat**	**Colored Gel-coat**	**A-Foam**	**B-Foam**	**Bondo**	**Adtech**	**Patch reducer**	**Webbing solution**	**Hi Temp Wax**	**#2 Partall Wax**	**#10 Partall wax**	**Clear catalyst**	**Red catalyst**	**Red tooling gel-coat**	**bonding puddy**	**graphics paint**	**Clear urethane**	**Paint reducer**	**HAP Emissions, lbs/year**	**HAP Emissions, tons/yr**
3	Styrene; CAS 110-42-5	2,945	341	10	0	0	29	32	62	0	0	0	0	0	0	16	19	0	1	0	**3,454**	**1.7**
4	methylmethacrylate; 80-62-6	95	66	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	**165**	**0.1**
5	4,4 Diphenylmethane Diisocyanate; 101-68-8	0	0	0	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**80**	**0.0**
6	Toluene; 108-88-3	0	0	0	0	0	0	0	0	38	0	0	0	0	0	0	0	0	0	19	**57**	**0.0**
7	Ethylbenzene; 100-41-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	10	1	**15**	**0.0**
8	Xylenes; 1330-20-7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	38	10	**67**	**0.0**
9	**Total**	3,040	407	12	80	0	29	32	62	38	0	0	0	0	0	18	19	24	48	29	**3,837**	**2**
10																						
11																					**Total HAP's Emissions, lbs/year**	**Total HAP's Emissions, tons/yr**
12	**HAP's**	3,040	407	12	80	0	29	32	62	38	0	0	0	0	0	18	19	24	48	29	**3,837**	**1.92**
13																						
14																					**Total VOC's, lbs/yr**	**Total VOC's, tons/yr**
15	**VOC**	3,895	407	12	80	34	52	47	62	90	57	68	32	95	186	18	19	67	67	115	**5,403**	**2.70**
16																						
17																						
18	**Sample Calculation: Styrene emissions from Resin usage**																					
19	Resin styrene concentration (%) X Resin usage (lbs) /100 = resin styrene emissions (lbs)																					
20	Raw Material Compositions cell B10 X Projected Raw Material Usages cell A3/100 = Resin Stryene emissions (lbs)																					
21	23.5% styrene X 450,000 lbs resin/100 = 105,750 lbs stryene emissions																					
22																						
23	**Sample Calculation: VOC emissions from Resin usage**																					
24	Resin VOC concentration (%) X Resin usage (lbs) /100 = resin VOC emissions (lbs)																					
25	Raw Material Compositions cell B47 X Projected Raw Material Usages cell A3/100 = Resin VOC emissions (lbs)																					
26	65.0% VOC X 450,000 lbs resin/100 = 105,750 lbs VOC emissions																					
27																						
28	Instructions:																					
29	Save the file with the month and year as part of the file name, such as, Glasstream Actual Emissions June 2010.																					
30	Save a separate file for each month																					
31	Enter the total monthly actual emissions of HAP's and VOC into the yearly emission summary spreadsheet																					

RECENT CHANGES TO THE EPA MACT RULE FOR COMPOSITES MANUFACTURING

For Composites 2005

September 29, 2005

Keith Barnett, Environmental Engineer
Office of Air Quality Planning and Standards
Emission Standards Division
Minerals and Inorganic Chemicals Group

What we are covering

- Rule information resources
- Rule Changes
- Rule applicability
- Covered operations
- RPC/Boat manufacturing interface
- Important dates
- Synthetic minor sources
- New or existing source determination
- General rule requirements
- Initial compliance demonstration
- Frequently asked questions

Rule information resources

- Rule web page is http://www.epa.gov/ttn/atw/rpc/rpcpg.html
- Rule text and implementation materials are available
- Implementation materials are added as they are developed
- State, local, or EPA regional office for applicability and interpretation questions
- barnett.keith@epa.gov for questions relating to rule development

Rule changes

- Added the following operations to the list of operations with no requirements
  - Polymer casting
  - RTM
  - Application of putties or polyputties
- Clarified that an existing area source that becomes major is still an existing source
- Clarified that facilities could use permit limits to demonstrate they are below 100 tpy threshold

Rule changes

- Revised the emissions standards section to clarify when the 95 percent control requirement applies

- Modified Table 3
  - Corrected round-off errors
  - Removed column of highest organic HAP contents
  - Revised footnote on manually applied gel coat
  - Revised footnote defining large pultruded parts (1000 reinforcement or glass weight)

- Removed the manual gel coat emission factor equation from Table 1

Rule changes

- Rewrote options for meeting open molding and centrifugal casting standards
  - Removed the term "compliant materials"
  - Allow some individual materials, as applied, to be compliant, while others are averaged.

- Require facilities using the same resins for all operation compliance option to use nonatomized mechanical resin application

- Pultrusion compliance options
  - Modified direct die injection and preform injection requirements
  - Clarified that averaging is allowed

Rule changes

- Corrected an error in the continuous lamination/casting equations
- Clarified compliance and reporting requirements
- Revised four definitions
  - High performance gel coat
  - Mixing
  - Neat resin plus
  - Polymer casting
- Corrected any typos or referencing errors that we found

Applicability

- This rule applies if you:
  - Manufacture reinforced plastics composites, and
  - Have your facility at a major source (10 tpy of any one HAP or 25 tpy of any combination of HAP), and
  - Use thermoset resins or gel coats, and
  - The resins or gel coats contain styrene

- The rule does not apply if you:
  - Use less than 1.2 tpy of styrene containing resins and gel coats, or
  - Only perform research and development, or
  - Only repair reinforced plastic composites, or
  - Are an area or synthetic minor source

Covered Operations with Requirements

- Open Molding
- Compression/injection Molding
- Centrifugal Casting
- Continuous Lamination/Casting
- SMC/BMC Manufacturing
- Pultrusion
- Mixing
- Storage
- Equipment Cleaning

Covered operation with no requirements

- Polymer Casting
- Resin Transfer Molding (RTM)
- Application of mold sealing and release agents, putties, or polyputties
- Mold stripping and cleaning
- Repair unrelated to your manufacturing operations
- Materials that do not contain resin or gel coat
- Personal activities not part of manufacturing operations
- Prepreg materials
- Non-gel coat surface coatings
- Research and development operations

RPC/Boat Manufacturing Interface

- The Boat Manufacturing NESHAP only applies if you manufacture boat hulls or decks, or molds for boat hulls or decks

- If you are not subject to the Boat Manufacturing NESHAP, you are subject to this rule if you meet the rule applicability criteria

- If you are subject to the Boat Manufacturing NESHAP, but make parts that are not part of your boats, the non-boat operations are subject to this rule

- You may elect to place all operations under the Boat Manufacturing NESHAP if that results in equal or lower HAP emissions

Important dates

- The final rule was published on April 21, 2003, the amendment was published on August 25, 2005
- Existing major sources must still comply by April 21, 2006
- Operating new major sources should have complied by April 21, 2003, or startup, whichever was later
- New major sources under construction must comply at startup

Synthetic Minor Sources

- If your potential to emit is above the major source threshold (10/25 tpy), you can still elect to obtain synthetic minor source status – and the NESHAP will not apply

- You must obtain and comply with Federally enforceable emission limits ensuring that actual and potential emissions are below major source thresholds

- You may use any combination of controls, reduced operating hours, and processes changes to achieve the required emission level

- You must accomplish this prior to the compliance date of April 21, 2006

New Source

- You commenced construction after August 2, 2001, and

- When you commenced construction, there were no reinforced plastic composites operations at the facility

- The definition above would include moving an existing facility

Existing Source

- Any source that is not new

- Existing sources are not considered new as a result of reconstruction

Overview of Controls

- Most operations at existing sources must
  - Use low HAP resins and gel coats
  - Use nonatomized application techniques
  - Cover open containers, mixers, resin baths

- Centrifugal casting operations at existing sources must meet a 95 percent emission reduction requirement if they emit over 100 tpy of HAP

- Continuous lamination/casting operations at existing sources
  - Must meet a 95 percent emission reduction requirement if they emit over 100 tpy of HAP
  - Otherwise meet a 58.5 percent emission reduction

Overview of Controls

- New sources with HAP emissions below the 100 tpy threshold meet the same limits as existing sources

- New sources at or above the 100 tpy threshold must control the operations below by 95 percent
  - Open Molding
  - Centrifugal Casting
  - Continuous Lamination/Casting
  - Pultrusion
  - SMC/BMC Manufacturing
  - Mixing

Large Parts Exemptions

- Two different large parts exemptions

- One applies only to existing pultrusion operations
  - Allows pultrusion machines making large parts to substitute "air flow management" for the 60 percent emission reduction requirement
  - In this exemption, a large part must have a cross sectional area of 60 inches or more and 1000 or more reinforcements

Large Parts Exemptions

- One applies only to operations at new sources otherwise subject to the 95 percent capture and control requirements

- Large part production operations are allowed to meet the limits in Table 3, rather then 95 percent capture and control

- A large open molding part must either exceed 250 cubic feet of volume, or 50 square feet on any one side

- A large pultruded part must exceed 24 inches outside perimeter, or 350 or more reinforcements

How Do I determine if I am above the 100 tpy HAP Emission Threshold ?

- Sum emissions from operations potentially subject to 95 percent control prior to any add-on controls (and only these operations)

- Calculate these emissions using
  - Equations in Table 1
  - Unified emission factors
  - Other published emission factors
  - Site specific factors if based on emission test data

Work Practice Standards

- Injection/Compression Molding - Cover Charges

- Equipment Cleaning - Cleaning materials may contain no HAP (except for closed systems, and cleaning cured resin from application equipment)

- Resin Storage - Cover storage containers

- Sheet Molding Compound – Nylon-containing film, cover resin delivery to doctor box

Work Practice Standards

- Resin Mixing and BMC Manufacturing - Cover the mixers, keep vents closed during mixing

- Pultrusion of large parts – air flow management

Initial Compliance Demonstration

- Emission limits - perform emission factor calculations as specified in the rule

- Work practice standards - submit a certified statement that the work practice is being performed

- Equipment standards - submit a certified statement that the equipment is in place and meet the requirements specified in the rule

Calculating Emission Factors

- Equations are presented in Table 1 of the rule
- Resin use may be based on purchase records
- Resin HAP content may be based on MSDS or resin specification sheets
- If averaging, you must determine the amounts of resin used for each specific operation

Example Emissions Factor Calculation

- Open molding - mechanical resin application - nonatomized - filled - noncorrosion resistant
  - Resin HAP content (from MSDS) is 36 percent
  - Emission factor equation from rule is
    - EF = ((0.157)(%HAP)-0.0165) x 2000
    - EF = ((0.157)(0.36)-0.0165) x 2000
    - EF = 80
  - Emission Limit is = 88 lb/ton
  - This resin, as applied, would be considered compliant
- Do not consider catalysts or promoters
- Do consider any additional monomer addition

Frequently Asked Questions

- If I use more than 1.2 tpy of resin and gel coat (combined) am I subject to the rule?
  - No, you must be a major source of HAP (i.e. area sources are not covered)
- If my emissions are less than 100 tpy am I exempt?
  - Not if you are a major source

Frequently Asked Questions

- What resin HAP content, hours of operation, and parts do I use to calculate PTE?
  - Generally you have to do a reasonable worst case analysis, but not make assumptions that would result in an impossible scenario

Frequently Asked Questions

- Should I use the UEF equation for MMA?
  - Not for purposes of complying with this rule. If you have a gel coat with 30 percent styrene, and 5 percent MMA, then the input to the equation in Table 1 is 0.35 (30 percent plus 5 percent, expressed as a decimal). This would include calculations to determine if you are above or below the 100 tpy threshold

Frequently Asked Questions

- Should I use the UEF equation for MMA when reporting emissions?
  - You should use the most accurate method available for reporting emissions for Title V purposes
- Can site specific factors be used in lieu of Table 1 factors.
  - Yes, if they are supported by actual facility emissions test data
- If my resins contain no styrene am I covered by the NESHAP?
  - No, unless you use styrene containing gel coats

Frequently Asked Questions

- If I move do I become a new source?
  - Yes, if the new location does not already have reinforced plastic composites operations.
- If I am an open molder below the 100 tpy emission level and move (becoming a new source), and several years after the move my emissions increase above 100 tpy, do the 95 percent capture and control requirements apply?
  - Yes

Frequently Asked Questions

- How do I know if my materials are resins, and/or thermoset resins?
  - We do not define "resin" and "thermoset resin" in the rule. If you have questions on your materials, ask the materials supplier.
- I use a putty-like filler, is this covered?
  - No.

Frequently Asked Questions

- What if I manually apply gel coat?
  - If you manually apply only, or you use manual and atomized spray application, treat the gel coat as if it were applied using atomized spray
  - If you use only manual gel coat and nonatomized gel coat application, treat as if you apply all manual gel coat using nonatomized spray
  - If you do manual, atomized, and nonatomized gel coat application, treatment will vary
  - We removed the equation for manual gel coat in Table 1
  - Use the most accurate method available for purposes of semi-annual emissions reporting

Frequently Asked Questions

- If I build a new building next to my current building, does the new building become a new source?
  - The best source to answer these questions is your permitting authority because the decision may rest on site specific factors.
- My gel coat contains alpha-methyl styrene. Should the percentage of this chemical be added to the styrene content?
  - No, alpha-methyl styrene is not a HAP.

What we covered

- Rule information resources
- Rule changes
- Rule applicability
- Covered operations
- RPC/Boat manufacturing interface
- Important dates
- Synthetic minor sources
- New or existing source determination
- General rule requirements
- Initial compliance demonstration
- Frequently asked questions

Other Questions?

Meeting P2 Standards Open Molding and Centrifugal Casting Option 1

- Change your resins and gel coats to ones that, as applied, meet the appropriate emission limits

- This is the simplest method and results in the least reporting and record keeping

Meeting P2 Standards Option 1 Example

- Prior to MACT
  - Atomized application of 45 percent HAP noncorrosion resistant filled resin (EF = 283, EL = 88)
  - Atomized application of a 35 percent HAP white gel coat (EF = 335, EL = 267)

- After MACT
  - Nonatomized application of 35 percent HAP noncorrosion resistant filled resin (EF = 77, EL = 88)
  - Atomized application of 30 percent HAP white gel coat or nonatomized application of 40.8 percent HAP white gel coat (EF = 267, EL = 267)

Meeting P2 Standards Open Molding and Centrifugal Casting Option 2

- Change your resins and gel coats so the weighted average emission factor is less than or equal to the weighted average emission limit

- Requires purchase records by resin type, and monthly average calculation

- Average is based on last 12 months of operation

Meeting P2 Standards Option 2 Example

- Prior to MACT
  - Currently use two corrosion resistant resins, one 42 percent HAP and one 55 percent HAP
  - nonatomized mechanical application
  - ratio of resin use is 60/40 (average EF = 115, EL = 112)

- After MACT
  - Replace 55 percent HAP resin with resin containing 52 percent HAP
  - maintain same 60/40 split (average EF = 111.4, EL = 112)

Meeting P2 Standards Open Molding and Centrifugal Casting Option 3

- Determine the highest resin HAP content allowable for each operation
- Use this resin for all operations
- Can not include gel coats or mix corrosion and noncorrosion resistant operations

Meeting P2 Standards Option 3 Example Prior to MACT

- Making corrosion resistant tanks
- Using atomized mechanical (end caps), filament winding (body), and manual application (joining parts)
- Using 50 percent HAP resin

Meeting P2 Standards Option 3 Example After MACT

- Determine MACT for each operation
  - Mechanical is 46.4 percent HAP resin nonatomized application
  - Filament winding is 42 percent HAP resin
  - Manual is 40 percent HAP resin

- Select highest allowable resin HAP level (46.4 percent)

- Maintain a weighted average resin HAP content of 46.4 percent or less for all three operations

How do I demonstrate Initial Compliance for add-on controls?

- If you are using add-on controls, you must perform a compliance test prior to the compliance date (or within 180 days after startup if a new source)

- Performance tests methods are EPA Method 18, 25, 25A

- The PTE must be certified using EPA Method 204

- If the PTE does not meet 204 criteria, you must test for capture using EPA Methods 204B-204E

How Do I Demonstrate Initial Compliance for a PTE?

- Determine the equivalent diameters of all NDO and exhausts

- Determine the equivalent diameters of all NDO from HAP emission points and exhausts from NDO (must be at least four)

- Measure PTE surface area (A_T) and NDO surface area (A_N). The ratio of AT/AN must 0.05 or less.

How Do I Demonstrate Initial Compliance for a PTE (Con't)?

- Measure all exhaust flows (Q_O) and all forced makeup air flows (Q_I) using EPA Method 2.

- Calculate the average NDO facial velocity as $FV = (Q_O - Q_I)/A_N$

- FV must be 200 fpm or more; or

- measure pressure differential across enclosure

- differential must be 0.007 inches of water or more

How Do I Demonstrate Initial Compliance for a PTE (Con't)?

- Verify direction of flow is inward for all NDO using streamers, smoke tubes, or tracer gases

- If FV is 500 or more, inward flow verification is not required

E. VISIBLE EMISSIONS INFORMATION
(Only Emissions Units Subject to a VE Limitation)

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: VE20	2. Basis for Allowable Opacity: [X] Rule [ ] Other
3. Requested Allowable Opacity: Normal Conditions: 20 % Exceptional Conditions: 20 % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: VISUAL OBSERVATION	
5. Visible Emissions Comment (limit to 200 characters):	

F. CONTINUOUS MONITOR INFORMATION
(Only Emissions Units Subject to Continuous Monitoring)

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[ ] Rule [ ] Other
4. Monitor Information: Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment (limit to 200 characters):	

Emissions Unit Information Section 4 **of** 4

Pollutant Detail Information Page 1 **of** 1

D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION

Potential Emissions

1. Pollutant Emitted: ALL VOC's		2. Pollutant Regulatory Code: VOC
3. Primary Control Device Code: 0	4. Secondary Control Device Code:	5. Total Percent Efficiency of Control: 0
6. Potential Emissions: lb/hour 50 tons/year		7. Synthetically Limited? [X]
8. Emission Factor: 100 % of VOC's used are emitted sxcluding MMA and Styrene Reference: United Emission Factors		9. Emissions Method Code: 1
10. Calculation of Emissions (limit to 600 characters): See Appendix "A"		
11. Pollutant Potential Emissions Comment (limit to 200 characters):		

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: ESCTV AND EXCTIII	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 50 TONS / YEAR	4. Equivalent Allowable Emissions: lb/hour 50 tons/year
5. Method of Compliance (limit to 60 characters): Monthly material usage log including rolling annual total of HAP and VOC emissions.	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

Emissions Unit Information Section 2 **of** 4

Pollutant Detail Information Page 1 **of** 1

D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION

Potential Emissions

1. Pollutant Emitted: STYRENE		2. Pollutant Regulatory Code: H163
3. Primary Control Device Code: 0	4. Secondary Control Device Code:	5. Total Percent Efficiency of Control: 0
6. Potential Emissions: lb/hour 10 tons/year		7. Synthetically Limited? [X]
8. Emission Factor: Reference: United Emission Factors for Open Molding of Composites		9. Emissions Method Code: 1
10. Calculation of Emissions (limit to 600 characters): See Attachment "A"		
11. Pollutant Potential Emissions Comment (limit to 200 characters):		

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code: ESCTV AND ESCTIII	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 10 TONS / YEAR	4. Equivalent Allowable Emissions: lb/hour 10 tons/year
5. Method of Compliance (limit to 60 characters): Monthly emission material usage log including total monthly HAP emissions and annual rolling total of emissions	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

Emissions Unit Information Section 3 **of** 4

Pollutant Detail Information Page 1 **of** 1

D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION

Potential Emissions

1. Pollutant Emitted: METHYL METHACRYLATE		2. Pollutant Regulatory Code: H125
3. Primary Control Device Code: 0	4. Secondary Control Device Code:	5. Total Percent Efficiency of Control: 0
6. Potential Emissions: lb/hour 10 tons/year		7. Synthetically Limited? [X]
8. Emission Factor: Reference: United Emission Factors for open molding of composites		9. Emissions Method Code: 1
10. Calculation of Emissions (limit to 600 characters): See Attachment "A"		
11. Pollutant Potential Emissions Comment (limit to 200 characters):		

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code: ESCTV AND ESCTIII	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 10 TONS / YEAR	4. Equivalent Allowable Emissions: lb/hour 10 tons/year
5. Method of Compliance (limit to 60 characters): Monthly material usage and emission log including rolling total of HAP emissions	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

B. FACILITY POLLUTANTS

List of Pollutants Emitted

1. Pollutant Emitted	2. Pollutant Classif.	3. Requested Emissions Cap lb/hour	tons/year	4. Basis for Emissions Cap	5. Pollutant Comment
HAP's	SM		25	ESCTIII	
SYTRENE H163	SM		10	ESCTIII	
MMA H125	SM		10	ESCTIIII	
VOC's	SM		50	ESCTIII	
particulates	PM			RULE	

Emissions Unit Information Section 1 **of** 4

Pollutant Detail Information Page 1 **of** 1

D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION

Potential Emissions

1. Pollutant Emitted: ALL HAP's	2. Pollutant Regulatory Code:	
3. Primary Control Device Code: 0	4. Secondary Control Device Code:	5. Total Percent Efficiency of Control: 0
6. Potential Emissions: lb/hour 25 tons/year		7. Synthetically Limited? [X]
8. Emission Factor: United Emission Factors for open molding of composits for Styrene and MMA, 100 % of HAP content emitted for all other chemicals Reference:		9. Emissions Method Code: 1
10. Calculation of Emissions (limit to 600 characters): See Attachment "A:		
11. Pollutant Potential Emissions Comment (limit to 200 characters):		

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code: ESCTV AND ESCTIII	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 25 TONS / YEAR	4. Equivalent Allowable Emissions: lb/hour 25 tons/year
5. Method of Compliance (limit to 60 characters): Monthly material usage log including total monthly HAP and VOC emissions as well as annual rolling total emissions	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	