

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Scheduled Inspection

N651532136

FACILITY: ADVANCED FIBERMOLDING INC		SRN / ID: N6515
LOCATION: 23773 14 MILE RD, LEROY		DISTRICT: Cadillac
CITY: LEROY		COUNTY: OSCEOLA
CONTACT: Dennis Webster, President		ACTIVITY DATE: 11/10/2015
STAFF: Kurt Childs	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: 2016 Full Compliance Evaluation including source inspection and records review.		
RESOLVED COMPLAINTS:		

On November 10, 2015, I conducted a Full Compliance Evaluation (FCE) of Advanced Fibermolding, Inc. (N6515) including on-site inspection and records review. The FCE was conducted to determine compliance with the Renewable Operating Permit (ROP) MI-ROP-N6515-2012a. The site is currently a major source for hazardous air pollutants (HAPs) because the potential to emit of any single HAP regulated by the federal Clean Air Act, Section 112, is equal to or more than 10 tons per year and/or the potential to emit of all HAPs combined is more than 25 tons per year. The site is also a major source for National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63 Subpart WWWW for Reinforced Plastic Composites Production. PTI 126-12 was issued on 10/02/2012 and incorporated into the ROP on 11/20/2014. The PTI added corrosion resistant resin to the material limits in FGLAYUP.

On-site Inspection:

At the time of the inspection it was partly sunny and 46°F with calm winds. Off-site observations were made and there were no odors or visible emissions detected. I met with Mr. Dennis (Denny), Webster, President of Advanced Fibermolding, Inc. I provided an inspection brochure to Mr. Webster and described the purpose of my visit.

Mr. Webster accompanied me through the facility to observe the permitted emission units and associated processes. Advanced Fibermolding, Inc. operates as a job shop producing fiberglass parts for various other industries. At the time of the inspection they were making small boat parts, agricultural fans components and restaurant seats. Production processes include Mold production, gelcoating, Resin Transfer Molding (RTM), Resin lay-up (chopped and mat), finishing and packaging. The plant is currently operating 10 hours per day Monday through Friday.

EURTM is the Resin Transfer Molding (RTM) process used to make small parts for the boat industry. Gelcoat is applied to the RTM molds in one of the two gelcoat application booths. The molds are then laminated with fiberglass and a foam core, closed and filled with resin under vacuum. Finishing of the small parts is accomplished using a robotic water jet to precisely and cleanly trim the part. The water jet booth is located in the RTM area and is not equipped with an exhaust vent. EURTM uses a specific resin that is delivered by piping from a remotely located "day" tank (tank holding the volume of resin for a day's work).

Gelcoat application for both RTM and open molding take place in one of two gelcoat spray booths (EUGELCOAT1 and EUGELCOAT2). The booths are open on one side and are equipped with panel filters on the opposite side for particulate control. They are each equipped with a fan and 60 foot tall exhaust stack. At the time of the inspection the filters appeared in good condition though the booths were being heavily used. Mr. Webster stated that the filters are changed out frequently. Gelcoats are used directly from drums at the spray booth locations.

Open Molding lamination takes place in one of two booths (EULAYUP1 and EULAYUP2) that are also 3-sided booths with 60 foot exhaust stacks. The production process follows a circular path into and out of the booth with gelcoated molds entering from one side and completed parts exiting the other. The parts are pulled out of the mold and sent to Finishing. The empty mold re-enters the production process. EULAYUP1 and EULAYUP2 booths are also equipped with panel filters that were in good condition given the workload. Resin is stored in large tanks and delivered to the booths from a remotely located day tank.

There is also separate booth with no ventilation that is used for tooling gel application (mold production).

Finishing operations take place in the open on the plant floor. Finishing involves trimming, drilling and sanding and may include some touch-up work. There is no exhaust ventilation associated with this process which makes this a dirty part of the process. Mr. Webster stated he would like to install another water jet booth to handle some of this work which would eliminate dust from parts finished in the booth.

Raw material storage is in a small enclosed room on the west side of the building. This area is open to a larger western extension of the building that houses the resin storage and day use tanks.

Mr. Webster described the material usage tracking methods Advanced Fibermolding uses. Purchase records are

maintained and a monthly inventory is conducted to determine the amount of each material on hand at the end of each month. This material accounting is used for the emissions calculations that are also generated on a monthly basis. These records are in the form of monthly spreadsheets that include: hours of operation; the calculated usage for each reinforced plastic composites production operation; the VOC, Styrene and MMA contents; the emission factor, and calculated emissions. Copies of the monthly records from October 2014 to October 2015 and an annual summary of the monthly and 12 month rolling time period from January 2015 to October 2015 are attached.

**Specific ROP Emission Unit Requirements**

**A. Source-Wide Conditions**

**I. Emission Limits**

Pollutant	Emission Limit	Calculated Emission Range	Compliant?
Acetone PPH	21.8	9.7 - 21.4	Yes
Acetone TPY (12 mos. rolling time period)	22.6	16.1 - 19.6	Yes
VOC PPH	58.9	8.2 - 21.2	Yes
VOC TPY (12 mos. rolling time period)	79.6	16.4 - 19.6	Yes

**II. – V. Material Limits, Process Operational Restrictions, Design/Equipment Parameters, and Testing/Sampling**

There are no applicable conditions for Material Limits, Process Operational Restrictions, Design/Equipment Parameters, and Testing/Sampling conditions.

**VI. Monitoring/Recordkeeping**

VI.1: Records of VOCs (including styrene) and acetone from all processes are being recorded in pounds per hour and tons per year based on a 12-month rolling time period. The emissions are recorded at the end of each month.

**VII. Reporting**

Reporting of any deviations, semi-annual reports, and annual compliance reports for ROP certification were reviewed as they were received and were submitted in a timely manner with proper certification.

**VIII. Stack/Vent Restrictions**

Stack/ vent restrictions are not applicable under Source-Wide Conditions.

**IX. Other Requirements**

All waste containers observed during the inspection were closed. Acetone is reclaimed on site.

**B. EURTM: Resin Transfer Molding Process.**

**I. Emission Limits**

Pollutant	Emission Limit	Calculated Emission Range	Compliant?
Styrene PPH	5.1	0.16 - 0.56	Yes
Styrene TPY (12 mos. rolling time period)	7.8	0.4 - 0.5	Yes

**II. – V. Material Limits, Process Operational Restrictions, Design/Equipment Parameters, and Testing/Sampling**

There are no applicable conditions for EURTM for Material Limits, Process Operational Restrictions, Design/Equipment Parameters, and Testing/Sampling conditions.

**VI. Monitoring/Recordkeeping**

VI.1, VI.2 and VI.3: Daily records of hours of operation are maintained. As indicated above, monthly records of material usage, styrene content and emissions are also maintained. The resin usage is determined by monthly inventories and records were available for review. However, SC VI.2 requires that the usage rate be recorded daily, it appears this is an error in the ROP. The original recordkeeping requirement from PTI490-97 was monthly as was the requirement in ROP 2000000001. MI-ROP-N6515-2007 did not specify a usage recordkeeping frequency. The requirement changed to daily in MI-ROP-N6515-2012 but ROP documents indicate that emission calculations in VI.3 were daily in the working draft but changed to monthly in the draft version. I believe VI. 2 should have been corrected to monthly as well at that time. Material usage recordkeeping in all other EU's is monthly and, as indicated, usage is determined through monthly stock inventories.

**VII. Reporting**

VII.1 – VII.3: Reporting of any deviations, semi-annual reports, and annual compliance reports for ROP certification were reviewed as they were received and were submitted in a timely manner.

**VIII. & IX. Stack/Vent Restrictions and Other Requirements**

Stack/ Vent Restrictions and Other Requirements are not applicable for the EURLM process.

C. **FGLAYUP**: Spray Lay-up operations consisting of two spray booths and associated application equipment.

**I. Emission Limits:**

Pollutant	Emission Limit	Calculated Emission Range	Compliant?
VOC TPY (12-mos. Rolling time period)	22.7	8.8 – 9.0	Yes

**II. Material Limits**

Material Styrene Content Limit	Limit	Recorded Content	Compliant
Tooling Resin	45.0% by weight	43.96	Yes
Corrosion Resistant Resin	45.0% by weight	35.39 – 43.96	Yes
Non-Corrosion Resistant Resin	37.0% by weight	34 – 36.84	Yes

**III. Process Operational Restrictions**

III.1 and III.2: At the time of the inspection, all material and waste containers were stored closed. The spray booths appeared to be in good condition and maintained well with filters changed frequently.

**IV. Design/Equipment Parameters**

IV.1: The FGLAYUP spray booths were equipped with mechanical non-atomized applicators as required.

**V. Testing**

There are no Testing requirements for FGLAYUP.

**VI. Monitoring/Recordkeeping**

VI.1 – 3: Monthly records which identified: each resin; catalyst used in the process; VOC content; and emission calculations for the period between October 2014 – October 2015. The records obtained from the facility are complete and meet the requirements of these Special Conditions.

**VII. Reporting**

VII.1 – 3: Reporting of any deviations, semi-annual reports, and annual compliance reports for ROP certification were reviewed as they were received and were submitted to the DEQ in timely manner.

**VIII. Stack/Vent Restrictions**

VIII.1 & 2: At the time of the inspection, the stack associated with FGLAYUP appeared to be at least 60 feet above ground surface and not greater than 24 inch diameter, which is in accordance with the ROP. No visible emissions or odors were present outside of the facility.

**IX. Other Requirements**

There are no Other Requirements for FGLAYUP.

D. **FGGELCOAT**: The spray gel coating operation consisting of two spray booths and associated application equipment. Gel coat application on parts too large for the spray booths is performed in the area between the two spray booths.

**I. Emission Limits:**

Pollutant	Emission Limit	Calculated Emission Range	Compliant?
VOC TPY (including styrene and MMA, 12-mos. Rolling time period)	17.4	7.9 – 10.1	Yes

**II. Material Limits**

Material – Gel coat	Styrene Content Limit %	VOC Content Limit %	Maximum Styrene Content Actual %	Maximum VOC Content Actual %
White	31	37	30	37
Pigmented	40	45	37.9	38
Clear	39	49	38.5	48.5
Tooling	44	45	39.5	39.5

**III. Process Operational Restrictions**

III.1 The FGGELCOAT spray booths appeared to be in good condition and maintained well. The filters for the spray booths are changed frequently according to Mr. Webster.

**IV. & V. Design/Equipment Parameters and Testing/Sampling**

There are no applicable conditions for Design/Equipment Parameters and Testing/Sampling for FGGELCOAT.

**VI. Monitoring/Recordkeeping**

VI.1-3: Identity of each gel coat and catalyst used in the process, Styrene, MMA and VOC content, and emission calculations are recorded on a monthly basis. DEQ reviewed the associated records from October 2014– October 2015 which are attached. The records obtained from the facility are completed in accordance with DEQ standards.

**VII. Reporting**

VII.1 – 3: Reporting of any deviations, semi-annual reports, and annual compliance reports for ROP certification were reviewed as they were received and were submitted to the DEQ in timely manner.

**VIII. Stack/Vent Restrictions**

VIII.1 & 2: At the time of the inspection, the stack associated with FGGELCOAT appeared to be at least 60 feet above ground surface and not greater than 24 inch diameter, which is in accordance with the ROP. No visible emissions or odors were present outside the facility.

**IX. Other Requirements**

There are no Other Requirements for FGGELCOAT.

E. **FGMACT**: All processes at the facility engaged in open molding, closed molding, mixing, cleaning of equipment,

storage of HAP-containing materials, and repair work on parts that have been manufactured.

**I. Emission Limits**

FGMACT emission limits and compliance options are based on emission factors in lb/ton for each individual process stream which is any combination of material (resin or gelcoat), operation type and application method, and control technique. For resin materials AFM is choosing to use the weighted average method 63.5810(c) to determine compliance with the emission limits in Table 3 of 40 CFR 63, Subpart WWWW. The spreadsheet indicates that there are 4 process streams that are being averaged. The process streams are:

Material	Operation	Application	Organic HAP Emission Limit
Corrosion Resistant(CR) Resin	Open Molding	Mechanical Application	113 lbs./ton Resin
Non-CR Resin	Open Molding	Mechanical Application	88lbs./ton Resin
Tooling Resin	Open Molding	Manual Application	157 lbs./ton Resin
Low-flame Spread/Low-smoke (Fire Retardant) Resin	Open Molding	Mechanical Application	497 lbs./ton (Mechanical)

The spreadsheet generates a combined weighted emission limit for all of the process streams (located in cell F13 of the spreadsheet in the shaded area "MACT Emission Limits, Calculate Weighted EML").

A weighted emission factor is also calculated (Cell F14 "Calculate Weighted Factor") based on the pounds emitted per pound of usage for each process stream.

If the weighted emission factor is less than the weighted emission limit they are MACT compliant. The monthly spreadsheets indicate that this has been the case. I noted two concerns with the calculation, the spreadsheet uses an organic hap emission limit of 112 lbs./ton for Open Molding CR Mechanical but the MACT limit is 113 lbs./ton. Also the spreadsheet refers to Fire Retardant resin but the MACT only includes Low-flame spread/Low-smoke resin. I did not know if these were the same, the MACT emission limits are significantly higher than the 88 lbs./ton used in the spreadsheet. It would favor the company to use the higher emission limits. I requested additional information from AFM consultant Chris Griffin on 11/19/2015 which was provided and indicated that the spreadsheets are updated at the beginning of each year and he will make the adjustments to the emission limits at that time. This is acceptable as the limits currently in use are more conservative.

Compliance with Gelcoat emission limits is demonstrated by using the individual gelcoat demonstration method 63.5810(a). Based on the styrene and MMA % content and material usage an emission factor is calculated using the equation in Table 1(g) of Subpart WWWW. This emission factor in units of HAP emissions lb/ton gelcoat applied is compared to the emission limits in Table 3(6) of Subpart WWWW to determine compliance for each process stream.

**SUBPART WWWW TABLE 3 EMISSION LIMITS**

Material	Operation	Organic HAP Emission Limit
Tooling gel coating	Open Molding	440 lbs./ton gelcoat
White/off white pigmented gel coating	Open Molding	267bs./ton gelcoat
All other pigmented gel coating	Open Molding	377 lbs./ton gelcoat
CR/HS or high performance gel coat	Open Molding	605 lbs./ton gelcoat
Fire retardant gel coat	Open Molding	854 lbs./ton gelcoat
Clear production gel coat	Open Molding	522 lbs./ton gelcoat

I reviewed the formulas in the spreadsheet and the calculated emission factors. The formulas and calculations were correct. I compared the calculated emission factors to the applicable emission limit for selected records and determined the process streams were compliant with the applicable emission limits. I requested that the monthly spreadsheets be updated next year to include the applicable Table 3 emission limit for each gelcoat in order to make the review easier in the future.

**II. Material Limits**

# MACES- Activity Report

There are no applicable conditions for Material Limits for FGMACT.

### III. Process/Operational Restrictions:

III.1-8: The facility only uses acetone for cleaning purposes. During the site inspection, the facility appeared to be clean, and maintained. HAP storage materials were stored properly in the western portion of the building, no visible gaps were observed in the mixers, and no mixer lids were open.

### IV. & V. Design/Equipment Parameters and Testing/Sampling

There are no applicable conditions for Design/Equipment Parameters and Testing/Sampling for FGMACT.

### VI. Monitoring/Recordkeeping

VI.1-6: As indicated above, all required records and calculations required by 40 CFR Part 63, Subpart WWWW were maintained and were made available. These records were up to date, complete, and contained the necessary information to demonstrate compliance with record keeping requirements and emission limits.

### VII. Reporting

VII.1 – 3: Reporting of any deviations, semi-annual reports, and annual compliance reports for 40 CFR Part 63 Subpart WWWW were submitted in timely manner and were reviewed as they were received.

### VIII. Stack/Vent Restrictions

Stack/vent restrictions are not applicable for FGMACT.

### IX. Other Requirements

IX. 1 & 2: Based on the field inspection and records review, the facility appears to be in compliance with the organic HAP limits and work practice standards of 40 CFR 63 Subpart WWWW.

### Summary:

The activities covered during the Full Compliance Evaluation including source inspection and records review indicate the source was in compliance with ROP MI-PTI-N6515-2012a and 40 CFR Part 63 Subpart WWWW at the time of the review.

NAME 

DATE 11-19-15

SUPERVISOR 