

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

N651537970

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: 12/15/2016
STAFF: Kurt Childs	COMPLIANCE STATUS:	SOURCE CLASS: MAJOR
SUBJECT: 2017 FCE site inspection and records review.		
RESOLVED COMPLAINTS:		

On December 15, 2016, 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 and review the status of the source prior to renewing the ROP. 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 126-12a for the replacement of EULAYUP2 and installation of a robotic spray lay-up booth was issued on 2/23/2016 and PTI 126-12b, which superseded 126-12a, to allow simultaneous use of a hand held spray applicator in the robotic spray lay-up booth was issued on 7/5/2016. PTI 126-12B will be incorporated into the ROP during renewal and will add EUROBOTLAYUP to FGLAYUP and FGMACT in the ROP.

**On-site Inspection:**

At the time of the inspection it was partly sunny and 9°F with 10-15 mph winds from the West. 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.

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 fan shroud 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 one shift.

EURTM is the Resin Transfer Molding (RTM) process used to make small parts for the boat industry and some smaller fan shroud parts. 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. A Gelcoat pumping system is used to deliver gelcoat from drums located in the material storage room to the booths.

There is also a separate booth used for applying tooling gel for new mold production. This booth vents through the gel booth stacks. tooling gelcoat usage and emissions are included in FGELCOAT.

Open Molding lamination currently takes place in one of two booths (EULAYUP1 and EULAYUP2) that are also 3-sided booths with 60 foot exhaust stacks. EULAYUP2 will eventually be replaced by EUROBOTLAYUP. Chopped fiberglass and resin are sprayed into the molds using mechanical applicators. The sprayed fiberglass/resin is rolled out by hand. The parts are pulled out of the mold and sent to Finishing. A new robotic water jet booth has been added to the Finish area to trim the parts after lay-up. It is also vented indoors and has reduced the amount of dust in this area of the plant. EULAYUP1 and EULAYUP2 booths are also equipped with panel filters that were in good condition. Resin is stored in large tanks and pumped into the day tanks where any additives are mixed in. Resin is then pumped from the day tanks to the booths through a system of pipes.

Finishing operations take place in the two robotic water jet booths or in the open on the plant floor. Finishing involves trimming, drilling and sanding and may include some touch-up work. There is no exterior exhaust ventilation associated with this process.

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 January 2016 through November 2016 and the annual summary from January 2016 through November 2016 are attached.

Specific ROP Emission Unit Requirements

A. Source-Wide Conditions

I. Emission Limits

Pollutant	Emission Limit	Calculated Emission Range 1/01/2016 – 11/30/2016	Compliant?
Acetone PPH	21.8	9.6 - 20.4	Yes
Acetone TPY (12 mos. rolling time period)	22.6	17.9 - 19.8	Yes
VOC PPH	58.9	11.8 - 25.4	Yes
VOC TPY (12 mos. rolling time period)	79.6	20.3 - 23.5	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 Moding Process.

I. Emission Limits

Pollutant	Emission Limit	Calculated Emission Range 1/01/2016 – 11/30/2016	Compliant?
Styrene PPH	5.1	0.27 - 0.60	Yes
Styrene TPY (12 mos. rolling time period)	7.8	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. 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. SC VI.2 requires that the usage rate be recorded daily, this appeared to be an error in the ROP identified during the last FCE. The current ROP Renewal application has requested a change to monthly usage rates. The original recordkeeping requirement from PTI490-97 was monthly as was the requirement in ROP.

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 EURTM process.

C. **FGLAYUP:** Spray Lay-up operations consisting of two spray booths and associated application equipment. EULAYUP2 is still in service, EUROBOTLAYUP (PTI 126-12B) has not been installed yet but the robot is on site as is a second robot for a potential future project. Installation of EUROBOTLAYUP is expected to be completed in March or April of 2017.

**I. Emission Limits:**

Pollutant	Emission Limit	Calculated Emission Range	Compliant?
		1/01/2016 – 11/30/2016	
VOC TPY (12-mos. Rolling time period)	22.7	9.1 - 10.8	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	43.96%	Yes
Non-Corrosion Resistant Resin	37.0% by weight	33.53%	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 January 2016 – November 2016. 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. As mentioned above, there is also a third spray booth used for mold production and application of tooling gelcoat. This spray booth has not been identified in any of the previous Permits to Install and vents through the other two gelcoat booths. Materials that are used in the tooling spray booth are accounted for in FGGELCOAT. This spray booth probably needs to be permitted to incorporate it into the ROP.

I. Emission Limits:

Pollutant	Emission Limit	Calculated Emission Range 1/01/2016 – 11/30/2016	Compliant?
VOC TPY (including styrene and MMA, 12-mos. Rolling time period)	17.4	10.7 - 12.2	Yes

II. Material Limits

Material – Gel coat	Styrene Content Limit %	VOC Content Limit %	Maximum Styrene Content Actual %	Maximum VOC Content Actual %
White	31	37	27	36.9
Pigmented	40	45	37.86	37.86
Clear	39	49	38.49	48.49
Tooling	44	45	39.47	39.47

III. Process Operational Restrictions

III.1 The FGGELCOAT spray booths appeared to be in good condition and maintained well.

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. The AQD reviewed the Associated records from January 2016 through November 2016 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 FGELCOAT 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 FGELCOAT.

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	?	497 lbs./ton (Mechanical) 238 lbs./ton (Manual)

The spreadsheet generates a combined weighted emission limit for all of the process streams (cell F13).

A weighted emission factor is also calculated (cellF14) 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.

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 emissionfactor 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. The monthly spreadsheets now include the applicable Table 3 emission limit for each gelcoat so it is easier to compare the emission factor to the emission limit.

## II. Material Limits

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 with the exception of the presence of the unpermitted tooling gelcoat booth.

NAME  DATE 12-20-16 SUPERVISOR 