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

N687432333

FACILITY: Quantum Composites, Inc.- A. Schulman		**SRN / ID:** N6874
LOCATION: 1310 South Valley Center Drive, BAY CITY		**DISTRICT:** Saginaw Bay
CITY: BAY CITY		**COUNTY:** BAY
CONTACT: Duane Gohr , Shift Supervisor		**ACTIVITY DATE:** 11/24/2015
STAFF: Gina McCann	**COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Full Compliance Evaluation for MI-ROP-N6874-2011		
RESOLVED COMPLAINTS:		

I (glm) conducted an announced inspection of Quantum Composites, Inc.-Citadel Plastics in Bay City, MI. Mr. Duane Gohr, Director of Manufacturing accompanied me during my site visit. The facility was issued MI-ROP-N6874-2011 to limit VOC and HAP emissions. The facility is subject to 40 CFR Part 63 Subpart WWWW, Reinforced Plastic Composites Production.

The AQD received an administratively complete ROP application on September 9, 2015. A working draft was sent on November 23, 2015. The working draft had small changes including the addition of the boiler MACT (40 CFR Part 63 Subpart DDDDD) for three boilers and the RICE MACT (40 CFR Part 63 Subpart ZZZZ) for one emergency generator. This compliance evaluation does not include compliance checks for these standards.

The facility is a sheet molding compound (SMC) and bulk molding compound BMC) manufacturing facility. Resinous paste, filers, and product enhancers are mixed in batches in one of seven mixers that range in size from five gallons to 300 gallons. The emissions from the mixers are controlled by a VTI dust collector which then vents to the energy recovery unit. The paste mixture is transferred to one of the three molding compound machines. Fiberglass or carbon fiber may be added to the paste mixture for reinforcement and the paste mixture is spread between layers of carrier film. Heat and chilling may be used to control reaction rates. The product is packaged and shipped or placed in a cooler. Production equipment is cleaned with solvents. The used solvents are temporarily stored on site until disposed. There are also quality assurance and product development testing laboratories, which are exempt from obtaining a PTI.

All in plant air is vented to the VTI dust collector which is then vented to the 2.8 MMBTU energy recovery unit.

FGSMCBMC (EUSMCI, EUSMCII, EUSMCIII, EUMIXERS, EUBMCMIXER, EUSOLVENT, EUPRESS): Non-Compliant

All three sheet molding compound processes are similar.

During the November 24, 2015 visit the plant was not in operation. The facility's production has slowed lately and the down time is used to clean and maintain equipment. During this visit I viewed records and discussed the ROP working draft. I returned for a walk through visit on Tuesday, December 8th, 2015 and that activity report is dated 12/11/2015.

The facility is currently operating one shift. The floor run records are used for production records and environmental reporting by updating the facility's record keeping system "MRP", for material usage including maleic anhydride and polystyrene. I viewed 12-month rolling ending July 2014, July 2015, October 2014 and October 2015 as well as monthly records for these months.

The EUSMCI process starts with the application of a bottom layer of resin mixture. Carbon fiber or fiberglass fibers are added on top of the resin. A film is rolled on top of the resin/fiber material. The mixture begins to cure as it travels along a conveyor. EUSMCI has the ability to heat the sheet molding compound with emissions exhausted to SV-14. The curing sheet of material can then be chilled to curtail the speed of the curing. All emissions after the heated portion of the process are vented to the in plant air which is then vented to the energy recovery unit.

The mixed formulations are specific to each customer's needs and must be accurate to obtain desired characteristics. The production material use values for air pollution records assume 100% of the material purchased is used in production. The facility tracks styrene percent by product group and emission unit. I reviewed 12-month rolling records for July 2014, October 2014, July 2015, and October 2015. The emission unit EUMIXERS for the product group Polyester, with the formulation ID 569, has a styrene monomer content of 69.67%. The permit limits the styrene monomer content to 30%.

Product Shop Hours are recorded by each employee. Each employee records the amount of time spent on a run including cleanup time when solvents are used.

The facility has emission limits of 37.2 tpy VOC and pound per hour limits for styrene, methanol, and PM10. The production information from the Formulation & Mix Log and the employee time record is used to generate a site compliance report with hours of operation and pounds of each formulation used by process equipment/emission unit.

The facility had actual VOC emission rates below 5 tpy for July 2014, October 2014, July 2015, and October 2015. I spot checked the hourly styrene emission rate records for July 2014, July 2015, October 2014, and October 2015. The emission rate ranges from 0.50 pounds per hour to 1.43 pounds per hour. The facility's ROP contains site specific calculations in Appendix 7 for emissions from FGSMCBMC.

FGSMCBMC Emission Limits					
Pollutant	**Limit**	**12-month rolling time period 7/31/2014 (tpy)**	**12-month rolling time period 7/31/2015 (tpy)**	**12-month rolling time period 10/31/2014 (tpy)**	**12-month rolling time period 10/31/2015 (tpy)**
VOC	37.2 (tpy)	4.83	4.43	4.81	4.07
Styrene	8.8 pph	0.5-1.43	0.51-1.35	1.11-1.36	0.50-1.40
Styrene	none	0.85	0.84	0.9	0.77
Methanol	59.0 pph	1.87	1.56	1.6	1.6
Maleic Anhydride	none	0.006	0.006	0.007	0.005
Formaldehyde	none	0	0	0	0
Organic HAP-FGMACT	100 tpy	2.08	2.02	2.30	1.67

The operation and emission records are attached for July 2014, July 2015, October 2014, and October 2015. The table below compares material usage and permitted material limits. The site has pounds per hour processing rate limits or 64,600,000, 180,000 and 1,000,000 for EUMIXERS, EUBMCMIXER, and EUPRESS respectively.

FGSMCBMC Material Limits					
MATERIAL LIMITS	**Combined Polyester, Epoxy, and Phenolic Resins Processing Rate Limits 12-month rolling (lbs/yr)**	**12-month rolling time period 7/31/2014**	**12-month rolling time period 7/31/2015**	**12-month rolling time period 10/31/2014**	**12-month rolling time period 10/31/2015**
EUMIXERS	64,600,000	432,445	389,330	450,929	319,810
EUBMCMIXER	180,000	Did not operate	Did not operate	Did not operate	Did not operate
EUPRESS	1,000,000	Did not operate	Did not operate	Did not operate	Did not operate

Short term solvents usage is determined by a measuring stick correlated to the containers volume. The liquid height is recorded by floor workers, converted to volume used, and recorded. A copy of the solvent use record for October 2014 is attached. Annual solvent usage is based on amount of solvent used minus amount of solvent sent for disposal. Special Condition II.2 limits the net cleaning solvent usage rate to less than 100 gallons per month. We reviewed electronic records for solvent usage, disposal & emission calculations.

Net Solvent Usage ≥ 100 gallons per month			
Jul-14	Jul-15	Oct-14	Oct-15
87	73	96	53

Waste Sent to Chemical Solvents, Inc.										
	10/29/2015		7/16/2015		10/30/2014		10/9/2014		7/17/2014	
	# of Containers	Gallons	# of Containers	Gallons	# of Containers	Gallons	# of Containers	Gallons	# of Containers	Gallons
Acetone	2	110	1	55	5	330	5	275	6	330
Ethyl Acetate	7	385	7	385	1	55	1	55	1	55
Waste Resin Solution	6	330	0	0	1	550	0	0	0	0
Total Gallons		825		440		935		330		385

EUSMCI has a Torit dust collector used to control particulate matter from fiber chopping. The Torit dust collector is vented to the in plant air. The Torit dust collector is used to collect dust from carbon fiber cutting operations. There is no pressure gauge on the Torit. I was told the Torit cartridges are cleaned periodically and replaced as needed. This is usually just a few times each year based on a visual inspection. the facility is currently working with the manufacturer to determine if the Torit can be retrofitted with a pressure gauge. If so, the monitoring/recordkeeping condition will be added into the renewal ROP.

The VTI has an automated pulse jet cleaning cycle. The differential pressure gauge has an indicated proper operating range of 0.1 to 2.5 inches Hg. At the time of the inspection the equipment was not operating.

FGMACT (EUSMCI, EUSMCII, EUSMCIII, EUMIXERS, EUBMCMIXER, EUSOLVENT, EUPRESS): **Compliant**
We viewed electronic emission records including calculations for 12 month rolling averages for HAPs. The facility maintains a separate database to provide year to date information.

The facility has potential emissions for styrene of over 22 ton per year and for methanol over 10 ton per year. The flexible group has a 12 month rolling limit of less than 100 tons per year of HAPs. The facility is considered a "synthetic minor" source in regards to Prevention of Significant Deterioration regulation of 40 CFR 52.21 because the stationary source accepted legally enforceable permit conditions limiting the potential to emit to less than 100 tons per year. Operational limits per the requirements of Rule 205 restrict the VOC potential to emit. We viewed the electronic records for FGSMCBMC. Total emissions are listed below.

FGSMCBMC HAP Emissions and Limits					
Pollutant	**Limit**	**12-month rolling time period 7/31/2014 (tpy)**	**12-month rolling time period 7/31/2015 (tpy)**	**12-month rolling time period 10/31/2014 (tpy)**	**12-month rolling time period 10/31/2015 (tpy)**
Styrene	8.8 pph	0.5-1.43	0.51-1.35	1.11-1.36	0.50-1.40
Styrene	none	0.85	0.84	0.9	0.77
Methanol	59.0 pph	1.87	1.56	1.6	1.6
Maleic Anhydride	none	0.006	0.006	0.007	0.005
Formaldehyde	none	0	0	0	0
Organic HAP-FGMACT	100 tpy	2.08	2.02	2.30	1.67

A summary of VOC and HAP emissions by emission unit and flexible group is attached..
The facility provided Notification of MACT WWWW Applicability on May 17, 2011. The facility is subject to the work practice standards in Table 4 of 40 CFR, Part 63, Subpart WWWW (attached). Work practice were observed during the walk through inspection on December11th, 2015.

NAME Lisa L. Moon DATE 12/16/15 SUPERVISOR C. Hare