DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

A070372320

FACILITY: AXIUM GROUP LLC		SRN / ID: A0703
LOCATION: 708 Sherman, CASSOPOLIS		DISTRICT: Kalamazoo
CITY: CASSOPOLIS		COUNTY: CASS
CONTACT: Doug Elliott , Environmental Compliance Project Manager		ACTIVITY DATE: 05/20/2024
STAFF: Mariah Scott	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: On May 20, 2024, Air Quality Division staff conducted an unannounced air quality inspection of the Axium Group, LLC (A0703) facility.		
RESOLVED COMPLAINTS:		

On May 20, 2024, Air Quality Division (AQD) staff (Mariah Scott and Cody Yazzie, hereafter Staff) conducted an unannounced air quality inspection of the Axium Group, LLC (A0703) 708 Sherman Ln, Cassopolis, MI facility (hereafter Axium Group). Staff arrived at 11:25 am, made initial contact with Andrew Ellis, and stated the purpose of the visit. In the facility driveway of Axium Group, a paint scent was observed by staff, but this scent was not detected in the facility parking lot or nearby residential areas. It was a partly cloudy day, around 82°F, with a wind of 14 mph wind from the SSW. The facility was operating with multiple open doors. During the inspection, Staff were accommodated by Douglas Elliott, Environmental Compliance Senior Project Manager of D&B Environmental Consulting, Ted Brothers, the Axium Group Plant Manager, Tim Reardon, and Andrew Ellis, the Axium Group Office Manager. Douglas Elliot needed to travel 30 minutes to the site, while Staff answered questions. Staff observed the emission units and pollution control equipment at the facility as part of the onsite inspection.

Axium Group is a stationary wood parts coating operation and a synthetic minor source of organic HAPS and VOCs. The facility was subject to the Title V program until they voided the ROP and obtained their 200-18 PTI in June of 2019. The facility has an estimated 27 staff, operating 1 shift a day for 8 hours or less 4-5 days a week.

Staff asked and Axium Group stated that the facility does not have any boilers, emergency generators, or cold cleaners. Axium Group was last inspected by the AQD on September 10, 2020, and appeared in compliance at that time with Permit #200-18.

The walk-through inspection required steel toe boots and safety glasses as personal protective equipment. Staff observations, information stated by Axium Group, and review of the records provided by Axium Group during and following the inspection are summarized below:

FGWOODCOATING Conditions

Five wood parts coating lines. Each spray booth and flat line are equipped with dry fabric filters. The material used include stains, paints, sealers, topcoat, and cleanup and purge solvents. The filter types on-site were a PA15423 15-gram Fiberglass Paint Arrestor fiberglass filter, a 3266 SPRA-GARD High Efficiency Paint Arrestor paper and fiberglass filter, or Paint Pockets blue filters.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Filters used	Associated stacks
EUSPRAYBOOTHA	A wood parts coating line consisting of one spray booth equipped with dry fabric filters. This line applies stains, paint/topcoat, sealers/topcoats, and cleanup/purge solvents.	A single layer of the fiberglass filters.	Spray booth A Stack (filtered)

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Filters used	Associated stacks
EUSPRAYBOOTHB	A wood parts coating line consisting of one spray booth equipped with dry fabric filters. This line applies stains, paint/topcoat, sealers/topcoats, and cleanup/purge solvents.	A single layer of the fiberglass filters.	Spray booth B Stack (filtered)
EUSPRAYBOOTHC	A wood parts coating line consisting of one spray booth equipped with dry fabric filters. This line applies stains, paint/topcoat, sealers/topcoats, and cleanup/purge solvents.	A single layer of the fiberglass filters.	Spray booth C Stack (filtered)
EUFLATLINE1	A flat wood coating line consisting of one spray booth equipped with dry fabric filters, a flash off tunnel, and three cure ovens. This line applies stains, paint/topcoats, and cleanup/purge solvents. Three curing ovens gradually increase temperature through the curing process (between 100-110 degrees F), which finishes with ultraviolet light exposure. The applicators are arranged in a circular setup to ensure consistent coating across all pieces on the line.	The three fiberglass, paper and fiberglass, and paint pocket layers combined.	Flat Line 1 Coating Station Stack 1 (filtered), Flat Line 1 Stack Vent Cure Tunnel Vent, Final Air Extra 1 & 2
EUFLATLINE2	A flat wood coating line consisting of one spray booth equipped with dry fabric filters, and two cure ovens. This line applies sealers/topcoats and cleanup/purge solvents. Coating occurs in a linear manner and the line has two curing ovens that operate in a stacked curing process, finishing with ultraviolet exposure. Typically, parts require multiple runs through a line for complete coverage.	Three fiberglass layers or a paper and fiberglass, fiberglass, and paper and fiberglass layers combined.	Flat Line 2 Coating Station Stack (filtered), Flat Line 2 Curing Oven & C

Emission Limits (Records provided included compliance monitoring logs for FGWOODCOATING and the individual emission units of FGWOODCOATING, as well as the FGFACILITY Total HAPs Emissions Log)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Appear Compliant?
1. VOC	61.2 tpy	12-month rolling time period as determined at the end of each calendar month	FGWOODCOATING	Yes
2. VOC, acetone from coatings only (CAS No. 67-64-1), t-butyl acetate	116.0 tpy	12-month rolling time period as determined at the end of each calendar month	FGWOODCOATING	Yes

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Appear Compliant?
(CAS No. 540-88-5), dimethyl carbonate (CAS No. 616-38-6) combined				
3. VOC, acetone from coatings only (CAS No. 67-64-1), t-butyl acetate (CAS No. 540-88-5), dimethyl carbonate (CAS No. 616-38-6) combined	37.9 tpy	12-month rolling time period as determined at the end of each calendar month	Any single emission unit of FGWOODCOATING	Yes
4. Acetone from purge & clean up only (CAS No. 67-64-1)	8.3 tpy	12-month rolling time period as determined at the end of each calendar month	FGWOODCOATING	Yes
5. formaldehyde (CAS No. 50-00-0)	0.07 tpy	12-month rolling time period as determined at the end of each calendar month	FGWOODCOATING	Yes

Material Limits (Records provided included the manufacturer's formulation data of the five most used coatings and the amounts of all coatings used in March 2024)

Material	Limit	Time Period / Operating Scenario	Equipment	Appear Compliant?
1. VOC content of Stain	6.4 lb/gal (minus water)[a] as applied	Instantaneous	FGWOODCOATING	-*
2. VOC content of Paint	4.5 lb/gal (minus water)[a] as applied	Instantaneous	FGWOODCOATING	Yes, for L437-0182, L437-0192, and L522-0024
3. VOC content of Sealer	4.9 lb/gal (minus water)[a] as applied	Instantaneous	FGWOODCOATING	-*
4. VOC content of Topcoat	4.9 lb/gal (minus water)[a] as applied	Instantaneous	FGWOODCOATING	Yes, for L4370194
*The five most used coatings did not include any stains or sealers, and therefore the VOC contents of those were not evaluated				

While not represented in these categories, the 873-0870 Catalyst product the facility uses has a VOC content of 6.03 lb/gal (minus water)[a] as applied.

Process/operational restriction(s) (Records provided included compliance monitoring logs for FGWOODCOATING)

Permit requirement	Appear Compliant?
The permittee shall recover and reclaim, recycle, or dispose of, in accordance with all applicable regulations, a minimum of 90 percent by weight of all purge solvents used for FGWOODCOATING.	Yes, more acetone was consistently recovered in the purge and cleanup recovery than used in the cleanup alone, due to both the acetone in the coating and purge and cleanup process being included in the final calculations.
The permittee shall capture all waste stains, paints, sealers, topcoats, purge and cleanup solvents (materials) and shall store them in closed containers. The permittee shall dispose of all waste materials in an acceptable manner in compliance with all applicable state rules and federal regulations.	Yes
The permittee shall dispose of spent filters in a manner which minimizes the introduction of air contaminants to the outer air.	Spent filters are bagged and stored in a dumpster behind the facility.
The permittee shall handle all VOC and/or HAP containing materials, in a manner to minimize the generation of fugitive emissions. The permittee shall keep containers covered at all times except when operator access is necessary.	During the inspection, a one-gallon water-based coating container was found open and unattended. This container was closed during the inspection.

The facility has two acetone recyclers. The larger of the two was installed as a condition of a Secondary Environmental Project (SEP).

Axium Group described their production line process to Staff. A waste receptacle along the lines captures excess product that is continuously scraped off into five-gallon buckets and stored in drums after collection on the line platform. The lines are rinsed out completely between pigment changes and at least daily. The filters on the flat lines are changed every day or as needed. All booths and lines in operation at the time of inspection were equipped with properly fitted fabric filters. The filters on the booths are changed out as needed to ensure proper ventilation for the operators during use.

Design/equipment parameter(s) (Records provided included a purchase order for test caps)

Permit requirement	Appear Compliant?
The permittee shall not operate each spray booth of FGWOODCOATING unless all respective exhaust filters are installed, maintained and operated in a satisfactory manner.	Yes, see filter descriptions above
The permittee shall equip and maintain each spray booth with HVLP applicator or comparable technology with equivalent transfer efficiency. For HVLP applicators, the permittee shall keep test caps available for pressure testing.	Test caps were not found on site. The facility purchased this after the inspection. Single cup paint sprayers and pumps had their own gauges.

Testing/sampling (Records provided included the manufacturer's formulation data of coatings)

Permit requirement	Appear Compliant?
The permittee shall determine the VOC content, water content and density of any material, as applied and as received, using federal Reference Test Method 24. Upon prior written approval by the AQD District Supervisor, the permittee may determine the VOC content from manufacturer's formulation data. If the Method 24 and the formulation values should differ, the permittee shall use the Method 24 results to determine compliance.	AQD has given written approval for the facility to use the manufacturer's formulation data, after facility conducted Method 24 testing.

Monitoring/recordkeeping (Records provided included compliance monitoring logs for FGWOODCOATING and the individual emission units of FGWOODCOATING. For the month of March 2024, the facility also provided the monthly report by emission unit by CAS, monthly report by emission unit by CAS- non exempt, monthly report by emission unit by formula, monthly HAPs summary, monthly VOC summary report by emission unit, monthly cleaner VOC report by emission unit, monthly HAPs summary report by emission unit, permitted emissions tracked by emission unit, formaldehyde coating summary, HAPs in lbs by coating summary, and cleaner recovery and ratio)

Permit requirement	Appear Compliant?
The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the 30th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition.	Yes
The permittee shall maintain a current listing from the manufacturer of the chemical composition of each material, including the weight percent of each component. The data may consist of Safety Data Sheets, manufacturer's formulation data, or both as deemed acceptable by the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request.	Records provided included the manufacturer's formulation data of the five most used coatings and amounts of all coatings used in March 2024
The permittee shall keep the following information separate for each emission unit and combined for FGWOODCOATING on a calendar month basis: a) VOC content (minus water and with water) of each material as applied. b) Acetone, t-butyl acetate, and dimethyl carbonate content of each material as applied. c) VOC, acetone, t-butyl acetate, and dimethyl carbonate separate and combined mass emission calculations determining the monthly emission rate in tons per calendar month. d) VOC, acetone, t-butyl acetate, and dimethyl carbonate separate and combined mass emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.	Yes

The permittee shall keep the records using mass balance, or an alternative method and format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request.	
The permittee shall keep the following information on a calendar month basis for the use of acetone as a purge and clean-up solvent associated with FGWOODCOATING: a) Gallons of acetone used and reclaimed. b) Acetone mass emission calculations determining the monthly emission rate in tons per calendar month. c) Acetone mass emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month. d) Calculation of the percentage of purge solvents recovered, reclaimed, recycled or disposed of. The permittee shall keep the records using mass balance, or an alternative method and format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request.	Yes
The permittee shall keep the following information on a calendar month basis for FGWOODCOATING: a) Gallons (with water) of each formaldehyde (CAS No. 50-00-0) containing material used. b) Where applicable, gallons (with water) of each formaldehyde (CAS No. 50-00-0) containing material reclaimed. c) Each formaldehyde (CAS No. 50-00-0) content (with water) in pounds per gallon of each material used. d) Formaldehyde (CAS No. 50-00-0) mass emission calculations determining the monthly emission rate in tons per calendar month. e) Formaldehyde (CAS No. 50-00-0) mass emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month. The permittee shall keep the records using mass balance, or an alternative method and format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request.	Yes

FGWOODCOATING stacks and vents do not appear to have been modified since the previous inspection September 10, 2020. The stacks and vents appear in compliance with PTI 200-18.

Exempt Emission Units

Non-permitted, exempt equipment at the facility consisted of the temporarily shut down stain dip-coating tank, a newly installed roll-coater, and three exempt spray booths for repairs, specialty projects, and research and development of new color combinations or for

product presentation. The Permit to Install Evaluation Document written by Vrajesh Patel May 15, 2019, suggested the equipment would be exempt under Rule 287(2)(c). Douglas Elliott requested to use the Rule 290(2)(a) exemption instead. The facility provided the monthly reports by emission unit by CAS for January 2022, July 2022, January 2023, and March 2024 to document compliance with the Rule 290(2)(a) conditional exemption. These records were checked by Staff for compliance with the Rule 290(2)(a) exemption given the overall VOC emissions reported, as well as the initial threshold screening levels and initial risk screening levels categories of the chemicals emitted. The overall VOCs were above the limits allowed to qualify for the Rule 290(2)(a) conditional exemption in January 2022 for the research and development spray booth (1303.18 lbs of uncontrolled VOCs in a month) and in July 2022 for the repair spray booth (1022.1 lbs of uncontrolled VOCs in a month). The facility has reduced the use of these spray booths since 2022, so no violation notice will be sent at this time. The emissions of the exempt emission units are tracked by Axium Group and included in the FGFACILITY calculations.

Axium Group updated Staff that the only major modifications, removals, or installations since the last inspection was the newly installed roll-coater. This emission unit was installed around a year before the inspection and had been operating for six-months. The roll-coater has two roll-coater applicators and two UV curing banks. Axium Group anticipates this emission unit will produce minimal VOC emissions, as it coats products in solid coatings. The roll-coater is not run with a filter.

Axium Group informed Staff that the three exempt spray booths for repairs, specialty projects, and research and development have their single layer of fiberglass filter changed daily if the booth is being used and overall as needed. There are three filtered stacks associated with the Repair Booth, Specialty Booth.

There are various units for wood finishing processes located throughout the facility, but all are exempt units as they are exhausted into bag filters within the plant boundaries. The wood finishing processes appear to be exempt under Rule 281(2)(a)m as they go through a filter and are exhausted within the building. Some cabinets, doors, frames, and other small wooden designs are manufactured on site. Most of the wood product is received raw and is only processed by sanding for an even finish or removing excess paint product along the lines.

FGFACILITY conditions

Source-wide to all process equipment including equipment covered by other permits, grand-fathered equipment and exempt equipment.

POLLUTION CONTROL EQUIPMENT

All spray booths were observed to be equipped with dry fabric filters. The facility policy for each spray booth is previously listed.

Emission Limits (Records provided included FGFACILITY Total HAPs Emissions Log and Axium source wide summary)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Appear Compliant?
1. Each Individual HAP	8.9 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	Yes

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Appear Compliant?
2. Aggregate HAPs	22.4 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	Yes
3. VOC	89.9 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	Yes

Material limit(s) (Records provided included the 2023 MiEnviro Annual Emissions Report)

Permit requirement	Appear Compliant?
The permittee shall not operate each emission unit of FGFACILITY for more than 4,000 hours per 12-month rolling time-period as determined at the end of each calendar month.	Yes, their maximum hours for an emission unit were 2080 in 2023. They also do not claim to operate for 4,000 hours per year.

Testing/sampling (Records provided included the from manufacturer's formulation data of coatings)

Permit requirement	Appear Compliant?
The permittee shall determine the HAP content of any material, as received and as applied, using manufacturer's formulation data. Upon request of the AQD District Supervisor, the permittee shall verify the manufacturer's HAP formulation data using EPA Test Method 311.	Yes
The permittee shall determine the VOC content, water content and density of any material, as received and as applied, using federal Reference Test Method 24. Upon prior written approval by the AQD District Supervisor, the permittee may determine the VOC content from manufacturer's formulation data. If the Method 24 and the formulation values should differ, the permittee shall use the Method 24 results to determine compliance.	The facility has a letter from AQD stating they could use manufacturers information instead of only Method 24 data.

Monitoring/recordkeeping (Records provided included compliance monitoring logs for FGFACILITY Total HAPs Emissions Log and Axium source wide summary, as well as the 2023 MiEnviro Annual Emissions Report. For the month of March 2024, the facility also provided the monthly report by emission unit by CAS, monthly report by emission unit by CAS- non exempt, monthly report by emission unit by formula, monthly HAPs summary, monthly VOC summary report by emission unit, monthly cleaner VOC report by emission unit, monthly HAPs summary report by emission unit, permitted emissions tracked by emission unit, formaldehyde coating summary, HAPs in lbs by coating summary, and cleaner recovery and ratio)

Permit requirement	Appear Compliant?
The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the 30th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition.	Yes

The permittee shall keep the following information on a calendar month basis for FGFACILITY: a) Gallons or pounds of each HAP containing material used. b) Where applicable, gallons or pounds of each HAP containing material reclaimed. c) HAP content, in pounds per gallon or pounds per pound, of each HAP containing material used. d) Individual and aggregate HAP emission calculations determining the monthly emission rate of each in tons per calendar month. e) Individual and aggregate HAP emission calculations determining the annual emission rate of each in tons per 12-month rolling time-period as determined at the end of each calendar month. The permittee shall keep the records using mass balance, or an alternative method and format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request.	Yes
The permittee shall keep the following information on calendar month basis for FGFACILITY: a) Gallons or pounds of each VOC containing material used and, if applicable, reclaimed. b) VOC content, in pounds per gallon of each VOC containing material used. c) VOC emission calculations determining the monthly emission rate in tons per calendar month. d) VOC emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month. The permittee shall keep the records using mass balance or an alternate method and format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request.	Yes
The permittee shall keep, in a satisfactory manner, a log of yearly hours of operation for each emission unit of FGFACILITY. The permittee shall keep all records on file at the facility and make them available to the Department upon request.	Yes

Axium Group reported no abnormal conditions, start-ups, shutdowns, or malfunctions that resulted in the emissions of hazardous or toxic air pollutants.

At the time of the inspection and based on a review of records obtained during or following the inspection, the facility appears in compliance with Permit #200-18. The facility will need to ensure they comply with the Rule 290(2)(a) requirements for their exempt emission units in the future. Staff stated to Douglas Elliot, that a report of the inspection would be sent to Axium Group for their records. -MWS

NAME Mariah Scott DATE 06/26/2024 SUPERVISOR