

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

B860647536

FACILITY: DAVIDSON PLYFORMS INC		SRN / ID: B8606
LOCATION: 5505 33RD ST SE, GRAND RAPIDS		DISTRICT: Grand Rapids
CITY: GRAND RAPIDS		COUNTY: KENT
CONTACT: Dean Huizenga, Manufacturing Engineer		ACTIVITY DATE: 01/09/2019
STAFF: David Morgan	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT:		
RESOLVED COMPLAINTS:		

At 1:00 P.M. on January 9, 2019, AQD staff Dave Morgan conducted an unannounced scheduled inspection of Davidson Plyforms located at 5505 33rd Street in Grand Rapids. The purpose of the inspection was to determine the facility's compliance with state and federal air pollution regulations as well as Permit to Install (PTI) No. 28-09B. Accompanying AQD staff on the inspection was Dean Huizenga, Manufacturing Engineer.

FACILITY DESCRIPTION

Davidson Plyforms manufacturers wood furniture parts such as seat backs and bottoms. The company has various adhesive machines, presses, woodworking equipment, and finishing booths. The facility's potential to emit of hazardous air pollutants (HAPs) and volatile organic compounds (VOCs) is limited to below the major source thresholds. Because the company is a synthetic minor source of HAPS, the facility is not subject to 40 CFR Part 63, Subpart JJ for Wood Furniture Manufacturing. All equipment is permitted under PTI No. 28-09B.

COMPLIANCE EVALUATION

Woodworking Machines (FGPRESSES):

The company has various woodworking machines covered under PTI 28-09B used to shape, route, bore and assemble plywood office furniture parts. Each machine is equipped with an air vacuum hose or collector in which particulate is routed to two cyclones then through a baghouse. There are three baghouses at the facility (referred to as Nos. 1, 2, and 5) that have roughly 40,000 cfm airflow capacity. At the time of the inspection, exhaust from units 1, 2 and 5 were being vented back into the plant during for heat recovery, therefore, no visible emissions were observed from the baghouses. There was one housekeeping issue identified under unit 1. Mr. Huizenga indicated it was the result of a blockage of sawdust, that was cleaned out that day that resulted in sawdust on the ground. Other than that, the baghouses appeared to be operating properly and no other issues were identified. According to Mr. Huizenga, bags in one baghouse are replaced each year and each baghouse has bags replaced on a rotating schedule in the fall and spring. All stacks meet permit requirements.

Magnahelic gauges are used to monitor the pressure drop across each baghouse. In addition, daily pressure drop records are kept in accordance with the permit. At the time of the inspection, Unit 1 had a pressure drop of 1.4 inches of water, Unit 2 had a pressure of 2.8 inches of water, and Unit 5 had a pressure of 1.0 inches of water.

Glue spreaders and molding presses (FGPRESSES):

PTI No. 28-09B covers seventeen glue spreaders and various plywood molding presses used to adhere various layers of veneer that are then pressed into shaped plywood to form the furniture piece. According to Mr. Huizenga, there are currently only 12 spreaders in production with 4 others being repaired. The glue spreaders are essentially roll coaters, with high transfer efficiency, which apply a thin film of adhesive to each layer of veneer. Both the roll coaters and molding presses are vented to the general in-plant environment. This process and adhesive used by the facility has not changed since the last AQD inspection.

According to Mr. Huizenga, Davidson Plyforms still uses the same Akzo Nobel 1203 glue, with no reformulation. The adhesive has a VOC content of 0.04 pounds of VOC per gallon of coating which is in compliance with the 0.04 lb/gal limit. The company uses an alternate emission factor to calculate mass emissions of formaldehyde from the adhesive. The site specific factor (0.036% by wt.) was derived from an AQD approved test that the company conducted in 2008. The test was undertaken to determine the amount of formaldehyde actually released versus the amount retained in the product. The adhesive formaldehyde content is calculated to be 0.004 lb/gal which is well below the applicable formaldehyde content limit of 0.02 lb/gal.

The company is maintaining emissions and material usage records. According to company records, emissions from January 2018 through December 2018 were as follows:

Unit	Parameter	Actual	Limit	Compliance
FGPRESSES	VOC	1.69 tpy	2.1 tpy 12-month rolling	Y
	VOC content of adhesive	< 0.04 lb/gal	0.04 lb/gal (minus water)	Y
	formaldehyde content of adhesive	0.004 lb/gal	0.02 lb/gal (minus water)	Y
	PM	NA	0.01 lbs/1,000 lbs of exhaust	Proper operation
	PM2.5	NA	5.9 pph	Proper operation
	PM10	NA	5.9 pph	Proper operation

Wood Spray Finishing (FGCOATING):

FGCOATING under PTI No. 28-09B covers two coating lines. Line 1 (EUCOATING01) consists of three manual spray booths, one used to apply stain, one used to apply a two part conversion varnish, and an offline booth used to apply stain on larger parts. This line has an infrared curing oven. Each booth consists of two sets of filters. This includes panel filters and a sheet filter which is changed at least every week on the stain booth and changed every shift on the varnish booth. All spent filters are disposed of in accordance with the permit.

Line 2 (EUCOATINGLINE02) consists of four manual spray booths used to apply stain and a two part conversion varnish. This line also has an infrared curing oven. Although this line was not operating at the time of the inspection, filters were installed in the booths.

The company uses Devilbiss - Compact model high volume low pressure (HVLP) spray applicators across all finishing booths in accordance with the permit. All stacks meet permit requirements.

The company is maintaining emissions and material usage records. According to company records, emissions from January 2018 through December 2018 were as follows:

Unit	Parameter	Actual	Limit	Compliance
FGCOATING	VOC	20.64 tpy	44.8 tpy 12-month rolling	Y
	Acetone	9.92 tpy	14.9 tpy 12-month rolling	Y
	VOC content solvent based stain	<7.14 lb/gal	6.9 lb/gal (minus water)	No - 6 coatings had a VOC content above the limit ranging from 7.01 lb/gal to 7.14 lb/gal
	VOC content water-based stain	<5.7 lb/gal	5.7 lb/gal (minus water)	Y
	VOC content acrylic/lacquer topcoat	<5.6 lb/gal	5.6 lb/gal (minus water)	Y
	VOC content varnish topcoat	<5.1 lb/gal	5.1 lb/gal (minus water)	Y
	VOC content water-based topcoat	<2.23 lb/gal	2.1 lb/gal (minus water)	No - 1 coating had a VOC content above the limit at 2.23 lb/gal
	VOC content vinyl sealer topcoat	<5.51 lb/gal	5.6 lb/gal (minus water)	Y
FGFACILITY	Individual HAP (xylene)	<2.14 tpy	9.0 tpy 12-month rolling	Y
	Aggregate HAP	3.29 tpy	22.5 tpy 12-month rolling	Y
	Formaldehyde	0.18 tpy	0.6 tpy 12-month rolling	Y
	Low-use Coating	10 gallons	55 gallons/yr (12-month rolling)	Y

The company uses manufacturer's formulation data in their emissions calculations which has been approved by AQD. It is noted that the company determined a discrepancy in the VOC content (minus water and exempt solvents) on the certified product data sheets from the coating vendor, Rollie Williams. The company provided updated records on February 6, 2018. As stated by the company, updated information from Rollie Williams included "the correction of some prior data quality issues that were acknowledged by Rollie Williams. The end result is that approximately 11% (by volume) of the coatings reviewed have revised VOC contents on a less water and exempt solvents basis that slightly exceed the site-specific RACT VOC content limits.

There are 9 total materials that comprise these materials... These materials exceed the RACT VOC content limits

by 0.07 to 0.28 lb/gal, which is between 1 and 4% greater than the corresponding RACT content limit." The company is in the process of quality assuring all coating records and has indicated that they will seek reformulations where necessary. All records and supporting correspondence provided by the company will be attached to this report in the AQD file.

Miscellaneous:

The company has a plastic chair molding process. Essentially the company purchases ground up recycled plastic, heats it so that the plastic melts together and becomes pliable and fluid. Then the company puts the heated plastic in a mold press to form the seat. The company has a three-stage particulate filter including a charcoal filter to minimize steam and smoke from the process. This system is exhausted out of the plant. This process is exempt under Rule 286(2)(b).

EVALUATION SUMMARY

Davidson Plyforms will be sent a Violation Notice for violations identified above. Company records are attached to this report.

NAME [Signature] DATE 2/6/19 SUPERVISOR [Signature]