

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

B860629736

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: 06/10/2015
STAFF: David Morgan	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT:		
RESOLVED COMPLAINTS:		

At 9:00 A.M. on June 10, 2015, 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 No. 28-09B. Accompanying AQD staff on the inspection was Dean Huizenga, Manufacturing Engineer. A DEQ inspection brochure was presented at the start of the inspection.

**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 HAPs and 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. In 2009, all previously permitted equipment at the facility was consolidated into a single permit, PTI No. 28-09 which was subsequently revised and reissued in November 2014 as 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. Two other baghouses (Nos. 3 and 4) are on site, but are no longer attached or used. Exhaust from units 1 and 2 are returned back into the plant during the winter for heat recovery. At the time of the inspection, no visible emissions were observed from the baghouses and good housekeeping practices were noted. In addition, the baghouses appeared to be operating properly. According to Mr. Huizenga, bags in one baghouse are replaced each year and each baghouse has bags replaced on a rotating schedule. 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 1.2 inches of water, Unit 2 had a pressure of 2.4 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 veneer in varying layers and then press these layers into plywood to be shaped to exact specifications. The glue spreaders are essentially roll coaters, with high transfer efficiency, which apply a thin film of adhesive to each layer of veneer. The veneers are layered together and then pressed to form the furniture piece. 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.

Company records indicate that the adhesive (Akzo Nobel 1203) 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. During the period of June 2014 through May 2015, VOC emissions from all adhesive coating machines was 1.61 tons which is in compliance with the 2.1 ton per year limit.

**Wood Spray Finishing (FGCOATING):**

FGCOATING under PTI No. 28-09B covers two coating lines. Line 1 (EU COATING01) 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. A slight gap was noted at the top of the sheet filters in each booth. Mr. Huizenga was advised that maintenance action would be necessary on these filters.

Line 2 (EU COATINGLINE02) 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. Again, slight gaps were noted on some of the filters. These also need maintenance attention.

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 June 2014 through May 2015 were as follows:

Pollutant	Limit	Actual	Compliance?
VOC	44.8 tpy (12-month rolling)	18.6 tpy	Y
Acetone	14.9 tpy (12-month rolling)	8.32 tpy	Y
VOC content solvent based stain	6.9 lb/gal (minus water)	< 6.9 lb/gal (minus water)	Y
VOC content water-based stain	5.7 lb/gal (minus water)	< 5.7 lb/gal (minus water)	Y
VOC content acrylic/lacquer topcoat	5.6 lb/gal (minus water)	<5.3 lb/gal (minus water)	Y
VOC content varnish topcoat	5.1 lb/gal (minus water)	< 5.1 lb/gal (minus water)	Y
VOC content water based topcoat	2.1 lb/gal (minus water)	< 2.1 lb/gal (minus water)	Y
VOC content vinyl sealer topcoat	5.6 lb/gal (minus water)	0.0	Y

The company uses manufacturer's formulation data in their emissions calculations which was approved by AQD.

**FGFACILITY:**

Records for FGFACILITY are maintained and show the following for June 2014 through May 2015:

Parameter	Limit	Actual	Compliance
Individual HAP	9.0 tpy (12-month rolling)	< 2.58 tpy	Y
Aggregate HAP	22.5 tpy (12-month rolling)	6.57 tpy	Y
Formaldehyde	0.6 tpy (12-month rolling)	0.19 tpy	Y
Low-Use Coating	55 gallons/yr (12-month rolling)	19.5 gallons	Y

**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(b).

**EVALUATION SUMMARY**

Davidson Plyforms is in compliance with all applicable requirements. Company records are attached to this report.

NAME  DATE 6/15/15 SUPERVISOR PAB