

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

N0465
FY2018 Sched Insp

N046545364

FACILITY: Bix Furniture Service East		SRN / ID: N0465
LOCATION: 27950 Harper, ST CLAIR SHRS		DISTRICT: Southeast Michigan
CITY: ST CLAIR SHRS		COUNTY: MACOMB
CONTACT: Nancy McInnes ,		ACTIVITY DATE: 07/18/2018
STAFF: Iranna Konanahalli	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: FY2018 scheduled inspection of Bix Furniture Services, Inc. ("Bix")		
RESOLVED COMPLAINTS:		

Bix Furniture Services, Inc. (N0465)
27950 Harper Ave.
Saint Clair Shores, MI 48081-1543

VNs: AQD issued Violation Notices (VNs) dated March 26, 2002, for failure to keep lacquer usage records and July 20, 2018, for Rule 336.1201 (Methylene Chloride Stripper) & 336.1910 (the lacquer booth filters not installed properly, gaps and holes were present).

PTI void: PTI No. 437-82 for lacquer spray booth (approved: 04/13/1983 & voided: 04/18/2002). Current (FY 2018) lacquer usage is $\approx 20 \ll 200$ gallons per month.

Subject to: NESHAP / MACT 6H, 40 CFR, Part 63, Subpart HHHHHH, National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources; Final Rule (Page 1738 Federal Register / Vol. 73, No. 6 / Wednesday, January 9, 2008 / Rules and Regulations / Final Rule). The NESHAP is for area sources engaged in paint stripping, and miscellaneous surface coating operations. AQD has no delegation of these standards and therefore no attempt has been made evaluate Bix's compliance with NESHAP / MACT 6H. Bix performs methylene chloride paint /varnish stripping from principally wood surface. For the purposes of this NESHAP / MACT 6H rule, paint stripping operations are those that perform paint stripping using MeCl for the removal of dried paint (including, but not limited to, paint, enamel, varnish, shellac, and lacquer) from wood, metal, plastic, and other substrates at area sources.

Not Subject to: NESHAP/ MACT T, National Emission Standards for Hazardous Air Pollutants: Halogenated Solvent Cleaning (40 CFR, Part 63, Subpart T; NESHAP/ MACT T); Correction; 29484 Federal Register / Vol. 60, No. 107 / Monday, June 5, 1995 / Rules and Regulations; amended National Air Emission Standards for Hazardous Air Pollutants: Halogenated Solvent Cleaning (40 CFR, Part 63, Subpart T); Final Rule; Page 25138 Federal Register / Vol. 72, No. 85 / Thursday, May 3, 2007 / Rules and Regulations. According to US EPA, the solvent / methylene chloride stripper is not cold-cleaner because wood finish is not soil.

On July 18, 2018, I conducted a level-2 **FY2018 scheduled inspection** of Bix Furniture Services, Inc. ("Bix"), located at 27950 Harper Ave., Saint Clair Shores, MI 48081-1543. The inspection was conducted to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act,

1994 PA 451; and Michigan Department of Environmental Quality, Air Quality Division (MDEQ -AQD) administrative rules.

During the FY 2018 inspection, Ms. Nancy McInnes (Phone: 586-775-0430; Fax: 586-775-7468; Cell: NA; E-mail: BFSMI@Yahoo.com), Owner, assisted me. Also, Mr. Daren Kimbal, Wood Surface Finisher, Mr. Dan Aiuto, Wood Surface Stripper, assisted me. Mr. Steve Matouk, Manager, was not present.

The purpose of inspection was to inspect a company that has not been inspected for over a decade by MDEQ-AQD.

Founded in 1974, Bix Furniture Services, Inc. ("Bix") is in the business of repairing and restoring antique / old furniture. Services include stripping, repairing, refinishing, upholstery, etc. The furniture restoration involves old paint and varnish (wood finish) stripping using methylene chloride and spray application of lacquer for finishing restored product.

In the past (since 1980s), Bix had been alleged source of odors. The neighbors lodged numerous odor complaints.

8 ft * 8 ft Spray Booth / Room.

One 8 ft. Width x 8 ft. Depth x 10 ft. Height paint spray both / room equipped with a back-draft dry filter system is present. The filter system, for lacquer overspray particulate control, consists of 24 filter panels. During the May 2018 inspection, I observed that the dry filters were not installed properly. There were lots of holes and gaps in the filter system.

I asked Mr. Kimbal to install the filters such that they fit, at all times, snugly without gaps and holes. Duct / painter's tape may be used to cover the gaps. I also asked him to keep records of paint / varnish and solvent usage. The paint, varnish, stain and solvent usage records are not available. However, the usage is about 20 gallons per month (<< 200 gallons per month) based upon estimates from the purchase records. HVLP (High Volume Low Pressure) guns are not used. But, LVHP (Low Volume High Pressure) guns are used.

The booth is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1287(2)(c) provided filter system is operated properly and lacquer usage records are kept. AQD issued Rule 910 violation notice (July 20, 2018) for failure to install the filters properly.

Mohawk Finishing Products (Phone: 800-522-8266) of Hickory, NC 28602 Lacquer M545-4087

40-55% aromatic hydrocarbons (CAS # 64742-95-6); 10-25% 1,2,4- trimethyl benzene (CAS # 95-63-6); 2-10% aromatic hydrocarbons (CAS # 64742-94-5); and other minor components.

100% VOC solvent. Flash Point (FP) = 108 °F TCC (Tag Closed Cup). Auto Ignition = NA °F. Boiling Point (BP) = 100 °F @ 760 mm Hg. Vapor Pressure (VP) = NA mm Hg at 68 °F. Specific Gravity (SG, Water = 1.0) = 0.952. Density (ρ) @ 68 °F = 7.9 pounds / gallon (0.952 kg /L). Flammability range = NA %v (LEL) – NA%v (UEL).

5 ft * 10 ft Paint / Varnish Stripper

Methylene chloride paint stripper consists of 5 ft. Wide * 10 ft. Length * < 1 ft. Height open top tank. From the stripping tank, spent solvent is collected at one corner by gravity flow in a 5-gallon pail. The collected solvent is reused / recycled. As Bix installed, about April 2017, at one corner of the stripper tank, ventilation system with fan (≈\$20,000.00), evaporation of methylene chloride is mechanically assisted. The capture system is attached to the stripper tank because MeCl stays close to the floor. Bix should have installed refrigerated condenser to recover solvent as well such that recovered solvent could be reused. Because MeCl is expensive, payback period for solvent recovery condenser could be short. In addition, the stripper room is equipped with one floor ventilation system as methylene chloride is nearly three times heavier than air (MeCl vapor density = 2.93, air = 1).

Based upon estimates from purchase records, Bix uses about 100 gallons (2 55-gallon drums) of MeCl stripper per month. Estimated actual MeCl emissions assuming 100% MeCl stripper = 100 gallons per month (usage) * 11 pounds of MeCl per gallon (density) = 1,100 pounds per month = 13,200 pounds per year = 6.6 ≈ 7 tons of MeCl emissions per year. Hence, Bix may be a Major MACT source based upon Potential-to-Emit (PTE) until it obtains an opt-out permit. AQD issued Rule 201 violation notice (July 20, 2018).

According to US EPA, the solvent / methylene chloride stripper is not cold-cleaner because wood finish is not soil.

Chemisphere Corporation of St. Louis, MO 63139, MeCl Stripper

50-100% Methylene chloride (CAS # 75-09-2)

10-40% Methanol (CAS # 67-56-1)

100% VOC solvent (principally halogenated, MeCl). Flash Point (FP) = NA °F TCC (Tag Closed Cup). Auto Ignition = 556 °C = 1,033 °F. Boiling Point (BP) = 40 °C = 104 °F @ 760 mm Hg. Vapor Pressure (VP) = 353 mm Hg at 20 °C = 68 °F. Specific Gravity (SG, Water = 1.0) = 1.32. Density (ρ) @ 68 °F = 11 pounds per gallon (1.32 kg /L). Flammability range = 12 %v (LEL) – NA%v (UEL). Vapor density (Air =1) = 2.93, i.e. nearly 3 times heavier than air.

Methylene chloride (CAS # 75-09-2, CH₂Cl₂) aka DCM or dichloromethane, methylene dichloride

Flash Point (FP) = NA (does not burn easily) °F TCC (Tag Closed Cup). Auto Ignition = 556 °C = 1,033 °F. Boiling Point (BP) = 39.6 °C = 103.3 °F @ 760 mm Hg. Vapor Pressure (VP) = 57.3 kilopascal (kPa) at 25 °C = 77 °F. Specific Gravity (SG, Water = 1.0) = 1.33. Density (ρ) @ 68 °F = 11.09 pounds per gallon (1.33 kg /L). Flammability range = 13 %v (LEL) – 23%v (UEL). Viscosity = 0.413 cP at 25 °C = 77 °F. Vapor density (Air =1) = 2.9, i.e. nearly 3 times heavier than air. PEL (Permissible) = 25 ppm 8-hour average and 125 ppm 15-minute average. IDLH (immediate danger) = 2,300 ppm CA. 1 ppm = 3.47 milligrams per cubic meter.

MDEQ-WMRPD, MDEQ-RRD, MIOSHA may conduct further investigation.

Conclusion

AQD issued July 20, 2018, Violation Notice for Rules 201 and 910.

NAME Blennerhall DATE 07/30/2018 SUPERVISOR Joyce St