

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

B300743136

FACILITY: THIERICA, INC.		SRN / ID: B3007
LOCATION: 900 CLANCY AVE., NE, GRAND RAPIDS		DISTRICT: Grand Rapids
CITY: GRAND RAPIDS		COUNTY: KENT
CONTACT: Daane Blouw , Engineering Manager		ACTIVITY DATE: 01/25/2018
STAFF: David Morgan	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT:		
RESOLVED COMPLAINTS:		

At 12:45 P.M. on January 25, 2017, AQD staff Dave Morgan conducted a scheduled inspection of Thierica located at 900 Clancy Street NE in Grand Rapids. The purpose of the inspection was to determine the facility's compliance with Permit to Install (PTI) No. 37-09A as well as state and federal air pollution regulations. Accompanying staff on the inspection was Gene Kramer, Materials Manager; and Daane Blouw, Engineering Manager.

FACILITY DESCRIPTION

Thierica mainly coats small plastic parts for the automotive industry along with a small number of parts for the aviation industry. The facility consists primarily of plastic injection molding machines, two stencil coating lines, various pad printers, some small paint booths, and laser etching equipment. The facility operates three short shifts, five sometimes six days per week. The facility is considered a synthetic minor source for hazardous air pollutants (HAPs) and volatile organic compounds (VOCs).

COMPLIANCE EVALUATION

Mr. Kramer guided AQD staff from the beginning of the process to the end. Process equipment were observed in the order following.

Plastic Injection Molding Machines:

The company has approximately 12 plastic injection molding machines, used to create automotive dials, which are exempt from permitting under Rule 286(2)(b).

Laser Etching:

There are at least ten laser etch stations where a low power laser is used to cut through a thin layer of paint on the surface of a part allowing the under coat to be visible and allowing light to shine through the part. Although these stations are externally vented, emissions are expected to be minimal and no emission factors are available. There are two separate exhaust systems that vent outside the plant. These units can be considered exempt from permitting under Rule 285(2)(l)(vi), provided fabric filters are installed and maintained properly.

Pad Printing:

Throughout the facility there are various pad printing stations used to stamp parts. These operations are exempt from permitting under Rule 285(2)(l)(ix).

FGSTENCILCOATB:

FGSTENCILCOATB is permitted under PTI No. 37-09A and consists of a corona treatment robot, four robot coating booths in series (EUSTENCILCOATB1, EUSTENCILCOATB2, EUSTENCILCOATB3, EUSTENCILCOATB4) and an oven (EUIRBAKEOVENB). In the process plastic parts are racked onto the conveyerized line, then go through a corona (or plasma) treatment which is a high frequency electric discharge that changes the surface energy of the plastic and improves coating adhesion. There are no air emissions with this process. Next basecoat paint is applied in the following three booths then a clearcoat is applied in the fourth booth. PTI No. 37-09A requires that high volume low pressure (HVLP) spray guns or similar technology with comparable or better transfer efficiency be used on the robot booths. The spray booths use an automatic recirculating pressure pot spray system and HVLP spray applicators in accordance with the permit. In addition, each spray booth is equipped with a waterwash system to collect overspray, which were operating properly in accordance with Special Condition IV.1. Parts are cured in an oven at less than 185°F and therefore considered 'air-dried'.

The company uses two component coatings that are mixed by the supplier and metered at the booth. Coatings are mixed electronically to create an exact color match to the customer's product (measured in cubic centimeters or

cc's). Special colors used in smaller quantities may be done in mixing pots prepared off-line.

Lines are flushed using acetone as the purge solvent which is drained into a bucket in the paint booth. The company uses acetone for other clean-up as well. It appeared that the company was minimizing fugitive emissions in accordance with the permit. Coating usage and VOC emissions records are discussed below.

Staff made observations from around the building. The exhaust gases from the stacks appeared to be unobstructed vertically upward and meet the dimensions in the following table.

Stack & Vent ID	Maximum ExhaustDiameter/ Dimensions (inches)	Minimum HeightAbove Ground (feet)
1. SV-StencilCoatB1	30	62.5
2. SV-StencilCoatB2	30	62.5
3. SV-StencilCoatB3	30	62.5
4. SV-StencilCoatB4	30	62.5
5. SV-IRBakeOvenB	8	62.5

FGSTENCILCOATC:

FGSTENCILCOATC is permitted under PTI No. 37-09A and is essentially the same process as FGSTENCILCOATB except on a smaller scale and with one less booth. This coating line consists of a corona treatment robot, three coating booths in series (EUSTENCILCOATC1, EUSTENCILCOATC2, EUSTENCILCOATC3). Each booth applies a basecoat and the third booth can apply a clearcoat. This is a smaller line than the FGSTENCILCOATB.

Staff made observations from around the building. The exhaust gases from the stacks appeared to be unobstructed vertically upward and meet the dimensions in the following table.

Stack & Vent ID	Maximum ExhaustDiameter/ Dimensions (inches)	Minimum HeightAbove Ground (feet)
1. SV-LineCWhite	24	51
2. SV-LineCBlack1	24	51
3. SV-LineCBlack2	24	51
4. SV-LineCBakeOven	10	51
5. SV-LineCCureOven	10	51

EUROBOTICSPRAY2A:

EUROBOTICSPRAY (also known as Robot #2) is located on the second floor and according to MAERS was installed in 1995. This booth is considered exempt from permitting under Rule 287(2)(c). It is noted that an additional spray booth on the second floor, Robot #1, has been removed.

EUMANUAL:

There are two small booths also on the second floor that are used to test coatings and color matching. These are exempt from permitting under Rule 283(2)(a).

Located on the third floor are five small table top booths with dry filters and two small associated ovens that are used to paint aviation parts. These booths are exempt under Rule 287(2)(c).

EUAVIATION3&4:

Also located on the third floor are two telephone booth sized rooms with one small table top coating booth in each and two small ovens outside of the rooms used to paint aviation parts. Each of these booths use a small amount of coating and can be considered exempt under Rule 287(2)(c).

Solvent Recovery Unit:

There is a small solvent distillation unit used to recover spent solvents. This unit is considered exempt from permitting under Rule 285(2)(u).

Boilers:

The company has two small 750,000 Btu/hour natural gas-fired, low NOx boilers which are exempt under Rule 282 (2)(b)(i).

Recordkeeping for FGs:

The company maintains coating, thinning and clean-up solvent usage records as well as VOC and HAP emissions calculations. The company primarily uses spreadsheets to record and track emissions.

Historically, the company has been approved to use manufacturer formulation data to determine the VOC content of coatings. Method 24 testing was not requested during this compliance inspection. The permittee maintains a list of the chemical composition of each coating and solvent.

According to company records, for the period from January 2017 through December 2017 the company had the following emissions or usage:

Equipment	Pollutant	Actual	Limit	COMPLIANCE (Y/N?)	Comments
FG-StencilCoatB	VOC	23.88 tons	35.0 tons per 12-month rolling	Y	
FG-StencilCoatB	VOC	8.27 tons	14.0 tons per 12-month rolling for any single emission unit within the FG	Y	The highest VOC emissions were 8.27 tons from EUSTENCILCOATB3
FG-StencilCoatB	VOC	<5.88 lb/gal	6.15 lb/gal as applied (minus water/exempt solvent) - instantaneous	Y	It is noted that 0.39 gallons of coatings were sprayed during the period where the VOC content was above 6.15 lbs/gal. This amounted to approximately 3.5 lbs of VOC emissions which is approximately 0.007% of the total VOC emissions from the line. The company indicated it would address these coatings.
FG-StencilCoatB	acetone	1.5 tons	1.9 tons per 12-month rolling	Y	
FG-StencilCoatB	hindered amine	0.0	480 lbs per 12-month rolling	Y	
FG-StencilCoatB	dimethyl glutarate	0.0	712 lbs per 12-month rolling	Y	
FG-StencilCoatB	benzotriazol dimehtylpropyl	0.0	786 lbs per 12-month rolling	Y	
FG-StencilCoatC	VOC	15.98 tons	34.0 tons per 12-month rolling	Y	

FG-StencilCoatC	VOC	5.63 tons	14.0 tons per 12-month rolling for any single emission unit within the FG	Y	The highest VOC emissions were 5.63 tons from EUSTENCILCOATC3
FG-StencilCoatC	VOC	<5.82 lb/gal	6.15 lb/gal as applied (minus water/exempt solvent) - instantaneous	Y	It is noted that 7.85 gallons of coatings were sprayed during the period where the VOC content was above 6.15 lbs/gal. This amounted to approximately 57 lbs of VOC emissions which is approximately 0.12% of the total VOC emissions from the line. The company indicated it would address these coatings.
FG-StencilCoatC	acetone	1.64 tons	1.9 tons per 12-month rolling	Y	
FG-StencilCoatC	dimethyl-2-heptanone	0.0	519.4 lbs per 12-month rolling	Y	
EUROBOT2A	Coating	< 82.2 gallons	200 gallons/month	Y	highest usage in November 2017
EUAVIATION1&2	Coating	<1.7 gallons	200 gallons/month	Y	highest usage in January 2017
EUAVIATION3&4	Coating	<.19 gallons	200 gallons/month	Y	highest usage in January and November 2017
FGFACILITY	VOC	40.93 tons	90.0 tons per 12-month rolling	Y	
FGFACILITY	VOC Stencil coating usage	27,291.5 gallons	29,268 gallons	Y	
FGFACILITY	HAP individual	<0.31 tons (toluene)	9.0 tons per 12-month rolling	Y	
FGFACILITY	HAP aggregate	0.33 tons	22.5 tons per 12-month rolling	Y	

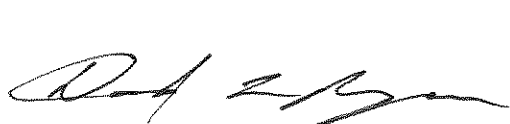
Attached to this report are company records.

Miscellaneous:

No visible emissions were observed from the facility.

SUMMARY

Thierica appears to be in compliance. Attached to this report are records obtained during the compliance evaluation.



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Supervisor: 