

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

A622026745

FACILITY: Intertape Polymer Group		SRN / ID: A6220
LOCATION: 317 Kendall Avenue, MARYSVILLE		DISTRICT: Southeast Michigan
CITY: MARYSVILLE		COUNTY: SAINT CLAIR
CONTACT: Melissa Oakley , EHS Manager		ACTIVITY DATE: 09/04/2014
STAFF: Sebastian Kallumkal	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MAJOR
SUBJECT: Onsite Inspection.		
RESOLVED COMPLAINTS:		

On September 4 2014, at about 11:00 AM, I conducted an annual targeted inspection at Intertape Polymer Group located at 317 Kendall Avenue, Marysville, Michigan. The purpose of the inspection was to verify facility's compliance with requirements of Article II, Air Pollution Control, Part 55 of Act 451 of 1994, the Renewable Operating Permit (ROP) No.: MI-ROP-A6220-2009, the Order of Consent AQD No. 10-1997, AQD Consent Order No. 28-2008, and 40 CFR 63, Subpart JJJJ-National Emission Standards for Hazardous Air Pollutants: Paper and Other Web Coating.

At the facility I met Ms. Melissa Oakley, EHS Manager and Michael Deitering, Maintenance Manager. I introduced myself and stated the purpose of the inspection.

The facility produces pressure sensitive adhesive tape products. The primary emission units at the facility include (3) pressure sensitive tape manufacturing (coating) lines and one pilot line (FGCOATINGLINES: EUCOATINGLINE1, EUCOATINGLINE3, EUCOATINGLINE4 and EUPILOTLINE) and associated adhesive wet mix and WHIP processes (EUWETMIX&WHIP-OPERATIONS), Facility operates two air pollution control devices, to control volatile organic compounds (VOC) on portions of the adhesive coating lines, namely a vapor phase Carbon Adsorption Solvent Recovery System (SRS) and a Regenerative Thermal Oxidizer (RTO). Other processes include dry ingredient Mixer (EUCOMPOUNDING) controlled by two baghouses (North and South), two 20,000 gal underground solvent storage tanks (FGSTORAGETANKS), various (5) parts washers (soak tanks) (FGCOLDCLEANERS), a Rule 287(c) paint booth (FGRULE287), and the tote cleaning process. In October 2013, facility recently installed a pilot line which includes adhesive manufacturing unit and a coating line. Mr. Deitering told me that this process is a pilot line for solvent-less coating. The process is not operational yet.

During the pre-inspection meeting we discussed facility's operations. In May 2013, it started the installation of AMR Extrusion Unit. It is a combined process which would replace the mixers and rubber grinding process to make the adhesive. AQD received permit to install (PTI) application for this process on April 16, 2014. It appears that the facility started the installation of this process prior to obtaining a PTI. I informed them that unless the process is exempt from PTI (R336.1201) requirements, this is a violation of the Rule 201. The process is currently in the installation stage and plan to start operation by end of September. After the initial meeting, both accompanied me for an inspection of the facility

Initially we inspected the coating lines. Coating Line 1 and Coating Line 3 were operating at the time of inspection

Coating Line 3 was operating at the time of my inspection. In Line 3, the R-Unit Hood (R-Unit Floor) where water based Release Coat is applied and IPA/QBX unit hood where QBX (mostly IPA) coating is applied are not controlled and the emissions are released directly to the atmosphere. The emissions from dryer 1 after the R-Unit Hood and QBX Unit hood are directly vented to the RTO. The A-Unit Hood, B-Unit Hood, and C-Unit Hood where solvent based adhesive coatings are applied and the subsequent Dryer 2, Dryer 3 and dryer 4 are continuously controlled by SRS. A base coat adhesive would be applied at the A-Unit hood if reinforced tape products are made. This is a thin coat of solvent adhesive. The Dryer 5 emissions are controlled by RTO. The exit hood (operator station) emissions are vented to the atmosphere directly. The LEL for the dryer emissions are monitored. Similarly the vents for these dryers are also monitored for bypass monitoring. The operator cannot accidentally or intentionally direct the Line 3

vents to bypass while the process is running. The dryers on Line 3 are natural gas fueled.

The turn switch for dryer and oven vents are calibrated on a monthly basis by some one physically inspecting the dampers on the roof, the operator switch and the CPMS display. The system will alarm at the coater station, in maintenance, in the solvent recovery control room and over the plant radio system if not in collect while running. Line 3 was manufacturing reinforced Mylar coating tape at the time of my inspection.

I also inspected the two parts washers in the area. The covers for both parts washers were closed and the operating procedure was posted nearby

#### Coating Line 3: Static Pressure:

Dryer 5 Zone 1 "collect" 0.8 "water (D5Z1) (limit 0.59)  
 Dryer 5 Zone 2 "collect" 1.0 "water (D5Z2) (limit 0.6)  
 Dryer 5 Zone 3 "collect" 0.9 "water (D5Z3) (limit 0.53)  
 Dryer 5 Zone 4 "collect" 0.8 "water (D5Z4) (limit 0.3)

#### %LEL

D1Z1- 1 PPM, 100oF D2Z1 - 1 PPM, 200oF D3Z1 - 14 PPM 140oF D4Z1 - 15 PPM, 100oF  
 D1Z2 -1 PPM, 100oF D2Z2 - 2 PPM, 200oF, D3Z2 - 7 PPM,250oF D4Z2 - 6 PPM, 225oF  
 D2Z3 - 1 PPM, 200oF D3Z3 - 2 PPM, 250oF D4Z3 - 4 PPM, 250oF  
 D5Z1 - 0 PPM, 150oF D5Z3 275 0F  
 D5Z2 - 1 PPM, 150oF D5Z4 260oF

Next I inspected Coating Line 4. This coating line was not operating at the time of my inspection. In this line, the web goes through the R-unit hood where Release Coat/silicone coating is applied (uncontrolled – water-based). It then goes through the R-oven (uncontrolled due to water-based coating). From there the web travels to the A-Unit hood where an adhesive base coat is sometimes applied. The base coat contains minimal amount of VOC and HAP. If basecoat is applied, the oven will stay in collect mode and solvent laden air (SLA) goes to the RTO. This A-oven can manually be switched to atmosphere but will also automatically switch to RTO if LEL's of 10% or more are detected. This material usage is included in the VOC and HAP calculations.

The B-Unit Hood where solvent based adhesive coatings are applied and the B-Unit Oven emissions are vented to the SRS while the C-Ovens (C1, C2 and C3 ovens) emissions are vented to the RTO. The LEL for all oven emissions are monitored. The static pressures for these ovens are monitored to verify capture efficiency of the control equipment. Similarly the vents for these ovens are also monitored to verify bypass. The ovens are electrically heated.

Next I inspected Coating Line 1. It was operating at the time of my inspection. It has a single hood for release coat/silicone coat (R-unit hood) and base coat (A-unit hood). The emissions from the R-Unit Hood and A Unit Hood are uncontrolled and those emissions are vented to the atmosphere. The R-unit Oven/A-unit Oven emissions are always vented to the RTO unless the operator puts the A/R-oven in bypass mode. While in bypass mode the coater will automatically switch to RTO collect if SLA is detected at 10% or more LEL. B-Unit Hood where solvent based adhesive coatings are applied and the B-Unit Oven emissions are vented to the SRS while the C-Ovens (C1 and C2 ovens) emissions are vented to the RTO. The Exit oven emissions are vented to the atmosphere. The ovens are electrically heated.

#### Static Pressures:

A-Oven 2.0 "WC, Limit (0.71); C1-Oven 1.2 "WC, Limit (0.89); C2-Oven 0.9 "WC Limit (0.37)

**LEL****A-Oven- 0 ppm****B1 Oven – 42 ppm****B2 Oven- 32 ppm****B3 Oven - 50 ppm****C1 Door – 11 ppm**

Next I inspected the EU-COMPOUNDING. In this Banburry process the natural rubber (301L) is grounded into smaller pieces and mixed with dry powder fillers, and zinc oxide, to produce dry stocks. The process is controlled by two baghouses (north and south). They operate the process three shifts a day and five to six days per week. During the inspection, I observed that differential pressures were 1.2" WC for the South Shaker baghouse and 1.8" WC for North Shaker baghouse. The process was operating at the time of my inspection. The operators usually shake the bags during second shift. They keep logs of the pressure drop readings before and after each shake.

Next I visited the Wet Mix area. In the mixer, the ground natural rubber is mixed with toluene, antioxidants, stabilizers and resin. This mix is then transferred to a churn for further high speed mixing to make the adhesive. The process also uses nitrogen blanket to control toluene emissions. The adhesive is transferred to totes. The facility has four mixers (No. 3 to No. 6) and five churns.

In the WHIP room, additives (curing agents and catalysts) are added to the adhesive totes to obtain the correct specifications. The totes are placed on WHIP stand with large WHIPs. The adhesive totes are then connected to each coating lines. The facility has two large WHIPs and three small WHIPs. Ms. Oakley explained to me that the totes are covered while whipping and when the process is complete the employee goes up on the stand and takes a sample. During this process of collecting samples, the tote covers are opened and solvent vapors are released in the room. WHIP room emissions are included in the emission calculations.

The totes are cleaned in the Tote Cleaning Stand using toluene. It is a closed loop system. The spent solvent is reused in the wet mix process as required. The cover of the wash tank was closed at the time of my inspection. I also inspected a parts washer located in that area. The cover was kept closed and the procedures were posted nearby. The cleaning solvent (Toluene) is recycled through a surge tank.

Next I inspected the regenerative thermal oxidizer (RTO) which controls VOC emissions from the Line 1-R or A Oven, Line 1- C Ovens, Line 4-A Oven, Line 4-C ovens, Line 3 Dryer 1, Line 3-Dryer 5 and the pilot line. The RTO contains 3 chambers which aids in the regeneration of heat. The solvent laden process exhaust travels through one of the chambers, warms up due to heat exchange, undergo thermal incineration and cools down through another chamber and vented out through the stack. The third chamber is in "STANDBY" mode during this process. The combustion temperature is continuously recorded both electronically and on the paper chart. I walked around the RTO system. I did not observe any visible emissions from the RTO stack. The external structure of the RTO appears to be in good condition with no obvious deformities, leaks, or other irregularities. RTO Temperature: Burners were at 1469°F and 1467°F.

Next I inspected the solvent recovery system (SRS). The solvent laden exhaust air initially goes through filters and coolers to remove any particulates and to reduce the temperature for adsorption. Then the air goes through three of the four carbon beds. While three of the four beds are adsorbing, the other one will be desorbing. The temperature and VOC concentration of the exhaust from carbon beds are monitored. The VOC concentration in the exhaust determines which bed is absorbing and desorbing. The beds are desorbed using steam. The condensed steam and solvents are decanted. The solvent are stored in the underground storage tanks. I walked around the SRS system. Each bed has an exhaust vent. I did not

observe any visible emissions from the vents. The external structure of the SRS appears to be in good condition with no obvious deformities, leaks, or other irregularities.

The solvent recovered is measured by two meters connected in series. The readouts for these meters are located inside the control room. The operators read the meters at 1 am daily.

The facility continuously monitors the VOC concentration in the SRS exhaust and is used to step the process ahead. These readings are not recorded. The instantaneous readouts from SRS control:

132 Stack	130 Stack	116 Stack	120 Stack	
0	140	0	0	ppm Stack Emissions

FT#1: 22666.451 gallons

FT#2: 22682.328 gallons

Next I inspected the pilot line and the paint booth. Ms. Oakley told me that they haven't used the paint spray booth for long time. The filters seemed wrinkled, dirty and out of place. I advised them to have the filters replaced by new filters, so that someone won't accidentally use the booth with improperly installed filters. He agreed to comply with my suggestion soon. The pilot line uses solvent based adhesive. It is used 2- 3 times per week and 8 hours per day. The pilot line or the paint booth was not being used at the time of my inspection. The paint booth did not appear to have used for some time. They are using a paper saturator, about 1-2 times per month.

I also inspected the parts washer in the maintenance area. The cover was closed and the procedure was posted.

Next we inspected the new pilot line which is a combination of adhesive manufacturing process and coating line. They told me it is not operational yet. They are trying to make solvent-less adhesive to use in the coating line.

Next we visited the new AMR extruder. They told me this will replace the wet mixing process and rubber grinding process. Even after the start of the new process, they would still be using the mixers for some time. The emissions from mixing the solvents in the mixers and churns would be reduced due to the new process. We also visited the locations where the rubber grinding equipment and solvent storage tanks are installed.

Facility uses Compliance Monitoring System (CMS) which includes various Continuous Parameter Monitoring System (CPMS) required to monitor pursuant to 40 CFR 63.3350(e).time. The CPMS monitors RTO temperature (instantaneous, hourly and 3-hour average), Liquid (solvent) flow from the SRS, damper positions for the oven/dryers/hoods (vent/collect), baghouse differential pressures, vent static pressures, and dryer/oven LEL.

Facility keeps a database for coating information, raw material information, product information and VOC calculations. A product refers back to the coating and coating will include the materials used. They know how much coated and use this data to calculate the lb VOC/gallon coating, or solids, etc.

During a post inspection meeting Ms. Oakley informed me that they did not have any recent RTO malfunctions. We also discussed the installations of the new pilot line and the AMR extruder. The pilot line was installed in October 2013, and appears to be exempt from permit to install requirements pursuant to R336.1283(1)(a)(5).

#### **EUCOMPOUNDING:**

The baghouses are shaken every 2 hours and pressure differential readings are taken every shift. The audible alarm is set for above 3"WC. The collected dust is reused in the process. In the company's Preventive Maintenance Plan (PMP) for the baghouses the pressure drop range is was identified as from

0.75"WC to 3.0"WC. The company keeps records of the pressure drop readings data. Review of this data shows that the pressure drop was within the range. The shake outs are still done manually.

#### **FGCOATINGPROCESS:**

The flexible group includes three web coating lines (Line 1, Line 3 and Line 4) and one pilot web coating line. The three web coating lines are controlled by a vapor-phase carbon control adsorption solvent recovery system (SRS) and a regenerative thermal oxidizer (RTO) unit. The adhesive coating hoods and dryer zones emissions are controlled by the SRS and cure zone emissions are controlled by the RTO. When ever the water based coatings (silicone coatings) are used, the emissions are uncontrolled and vented to the atmosphere. The static pressures for the oven/dryer vents which are controlled by the RTO is monitored continuously.

The pilot line is used for testing the coatings. It was not in-use at the time of my inspection. It is located in a separate room than the other coating lines. The emissions from the pilot line are controlled by RTO.

#### **FGRULE287:**

This covers a spray booth which is located in the same building as the pilot line. The company uses very little coating and keeps records of the coating usage. They use this to test the "painter's tape". The booth was not in use at the time of our inspection.

#### **FGCOLDCLEANERS:**

The facility has five cold cleaners (soak tanks) onsite. I inspected four of these cold cleaners. The covers for the parts washers near the coating lines were closed. Mr. Deitering told me that the parts washer in the maintenance uses mineral spirit. He informed me that they keep the cover for all the soak tanks closed and the operating procedures are posted. Toluene is used as the cleaning solvent. The spent solvent is used in the adhesive making process.

#### **Compliance Review:**

#### **EUCOMPOUNDING:**

The process emissions are controlled by two fabric filter baghouses. The facility has installed the pressure drop indicators and has been monitoring, and keeping records of the pressure drops across the baghouse as required by the ROP. The records show the pressure drops are within the established ranges. Also see discussion above under EUCOMPOUNDING.

#### **FGCOATINGPROCESS:**

The web coating lines comprise the affected source that is subject to the Paper and Other Web Coating (POWC) Maximum Achievable Control Technology (MACT) Standard (40 CFR Part 63, Subpart JJJJ). The flexible group is an existing web coating affected source for the purposes of the POWC MACT standard.

The VOC emissions are limited to 4.79 pounds per gallon of solids applied based on a 24-hour averaging period. The emission calculations (New ROP-MACT Calculation Spreadsheet/*ROP Summary Report tab*) show that the VOC emissions from each coating line comply with this emission limit. Data reviewed August 1, 2012-September 2, 2014.

The VOC emissions from EUPILLOT-LINE are limited to 32.87 pounds per hour and 65.74 tons per year. The emission calculations (New ROP-MACT Calculation Spreadsheet/*MACT Monthly Report tab*) for the pilot coater show that the VOC emissions are well below the emission limits. The total HAP emissions for January – December 2013 from this emission unit were 24 lb.

The POWC MACT provides several emission limit options for the facility to comply with. Facility chose the HAP limit of "no more than 20% of the mass of coating solids applied". The monthly calculations

(New ROP-MACT Calculation Spreadsheet/*MACT Monthly Report tab*) show that the facility is in compliance with the emission limit. The highest recorded emission concentration was 0.114 kg HAP emitted/kg solid coated in August 2013.

The % LEL of A-Unit Oven on EUCOATINGLINE1 and A-Unit Oven on EUCOATINGLINE4 are monitored continuously and are controlled by RTO when the %LEL is above 10%. The cure zone emissions from the EUCOATINGLINE1, EUCOATINGLINE3 and EUCOATINGLINE4 are controlled by the RTO. The facility keeps a minimum temperature of 1400°F in the combustion chamber of the RTO. The SRS and the RTO are installed in a satisfactory manner.

The facility conducted the testing for capture efficiency of the VOC capture system and the destruction efficiency of the RTO during May 9, 10, 11 & 12, 2012. On May 9<sup>th</sup>, they performed destruction efficiency testing operating all three lines. However, the capture efficiency testing was done on May 10-12 by operating individual coating lines. AQD received the test report on July 26, 2012.

Facility makes its own adhesives. VOC emissions are mostly HAP and Toluene is predominant HAP in the formulation. Ms. Oakley informed me that they don't perform USEPA Method 24 for VOC content, but they are using technical data sheet for the information. It is keeping records as necessary.

Facility keeps separate records of the daily usage rate of all materials used in EUCOATINGLINE1, EUCOATINGLINE3 and EUCOATINGLINE4.

Facility calculates and records pounds of VOC per gallon of applied coating solids on each coating line, based on a 24-hour averaging period.

For EUPILOT-LINE, they informed me that they calculate and records the pound per hour VOC emission rates on a monthly basis and tons per year.

Facility calculates and keeps records of the cure zone emissions three coating lines. The emissions are reported monthly to AQD.

Facility continuously monitors and keeps records of the temperature from the RTO and maintains the 3-hour average combustion temperature above the temperature limit. It also monitors the %LEL A-Unit Ovens, on a continuous basis. The coating lines are equipped with alarms which will sound if the %LEL of the exhaust gases vented to RTO from A-Unit oven exceeds 10%. Facility maintains RTO and SRS as required by the ROP and implements the requirements of the Malfunction Abatement Plan.

Facility keeps daily records of the solvent usage in the three coating lines and calculates the pounds of VOC per gallon of solids applied on each coating line, based on a 24-hour averaging period. The calculated results show compliance with the permit limit (4.79 lb/gallon coating solids). The facility calculates the SRS recovery efficiency as needed.

Facility's coating lines have never-controlled and always-controlled workstations. The work stations are "always controlled" while solvent based coatings are used, but "never-controlled" while water based coatings are used. The work stations for release coat are not controlled. It has identified "static pressure" of the collection system as the operating parameter to be monitored to ensure the capture efficiency. It is monitoring the static pressure on a continuous basis and calibrated (valve monitoring) on a monthly basis.

The facility has installed two meters in series to measure the accumulative solvent flow from the SRS system.

The combustion temperature is the operating parameter to monitor for the continuous compliance of the RTO. The facility calculates 3-hour averages of the operating temperature. Records review (2014 Chart Recorder History) shows that the facility operated the RTO Retention Chamber temperature was above

1400oF while the coating lines were operating. The facility appears to be in compliance with the requirements of Special Condition 16.

Facility is keeping records of the malfunctions, maintenances, actions, etc. as required. It submits these information with semi-annual certification report and Start up, shut down and malfunction report.

The facility keeps control device and capture system operating parameters, keeps formulation data to calculate VOC and HAP content, capture and control efficiencies, material usage, organic HAP usage, volatile matter usage, and coating solids usage, etc.

Facility is keeping records of the liquid-liquid material balances performed in accordance with 40 CFR 63.3370. Ms. Oakley informed me that they are keeping computerized preventive maintenance work schedules.

Facility has submitted initial notification, performance testing notification, performance test report, initial compliance status, semi-annual compliance reports, start up, shut down, malfunction reports, as required.

Facility keeps a written Startup, Shutdown, Malfunction Plan and Continuous Monitoring System quality control program in file.

Facility uses the add-on controls option to show compliance with the emission limits. During the performance test, the capture efficiency and control efficiency were calculated. It calculates the emission limit on a monthly basis, as required.

The calculations show more than 95% capture and control efficiency on a monthly basis. The calculations show that the organic HAP emissions are less than 0.20 kg/kg coating solids. Facility uses the Equation in Appendix 10 of the ROP to show compliance with the HAP emission limits.

#### **FGRULE287(c):**

Facility keeps coating usage rate on a monthly basis. I advised Ms. Oakley to keep clean and properly installed filters, so that an operator will not use the booth without properly installed filters. The facility appears to be in compliance with the usage and emission limit requirements.

#### **FGCOLDCLEANERS:**

The facility has five soak tanks. It appeared that they were in compliance with the requirements. The cold cleaners I inspected were kept covered. The procedures are posted near the cleaners.

#### **FGSTORAGETNKS:**

Facility stores recovered toluene in the two 20,000 gal tanks. The facility is keeping records are required. The records were not verified during the inspection.

#### **Discussions:**

The facility started the installation AMR extruder process prior to obtaining a permit to install. This appears to be violation of the Michigan Administrative Rule R336.1201. A Notice of Violation seeking compliance is recommended.

#### **Conclusion:**

Based on the calculations, the facility appears to be in compliance with the monthly MACT limit and the coating VOC limit. A CD containing the emission calculations is included for review. Facility does not appear to be in compliance with applicable air quality regulations as discussed above.

NAME S. Kallamkal

DATE 9/10/14

SUPERVISOR CTE



Intertape Polymer Group  
Paint Booth Material Usage Record 2014

Date	Material Used	Volume in ounces	Initials	Comments
08/12/14	Boeing Paint	6.6	BJH	None
03/18/14	Boeing Paint	3.3	BJH	None
05/09/14	Auto Paint	19.8	BJH	None

**Note: Volume amount also includes solvent amount used in cleaning spray gun.  
To be safe the volume amount should be considered all V.O.C.**