

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

N565654723

FACILITY: NYLOK LLC		SRN / ID: N5656
LOCATION: 15260 HALLMARK Court, MACOMB		DISTRICT: Warren
CITY: MACOMB		COUNTY: MACOMB
CONTACT: Martin Lewis , General Manager		ACTIVITY DATE: 08/20/2020
STAFF: Joe Forth	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: On-site Inspection		
RESOLVED COMPLAINTS:		

On August 20, 2020, AQD Staff Joseph Forth, conducted a scheduled inspection of Nylok, LLC (SRN: N5656) located at 15260 Hallmark Court, Macomb, Michigan. The purpose of the inspection was to determine the facility's compliance with the requirements of the Federal Clean Air Act Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451; Michigan Department of Environment, Great Lakes, and Energy -Air Quality Division (EGLE-AQD) Administrative Rules; and conditions of the facility's Renewable Operating Permit (MI-ROP-N5656-2020).

Opening Introduction/Facility Tour

I arrived at the facility at approximately 1:00 p.m. and met with Mr. Martin Lewis, General Manager. I introduced myself and presented my identification and credentials and stated the purpose of my visit.

Nylok owns and operates various coating lines for application of coatings and adhesives to miscellaneous metal fasteners. Mr. Lewis indicated the facility specializes in galvanic corrosion issues that typically occur when the steel fasteners are used to join dissimilar materials. He indicated this can be used on a variety of materials including stainless steel, aluminum, and chromium. These products are commonly associated with automotive, aerospace, military, and agricultural equipment.

Some of these product types include mechanical locking and thread sealing products, which is a self-locking element comprised of nylon permanently bonded onto the threads of a fastener, resulting in a positive resistance to vibration and loosening. In addition, the bolts and nuts can be masked which prevents materials from adhering to the threads, resulting in increased installation torque.

Other products the facility specializes in are lubricant products. They are used to reduce initial installation torque to prevent galling and ease of disassembly after heat exposure up to 1300 degrees Fahrenheit. In addition, sealant coatings are applied under the heads of fasteners eliminating the need to assemble O'rings or gaskets. The following is the product breakdown for the items;

Mechanical Locking and Thread Sealing Products: Nylok Blue Nylon (Torq-Patch), Nylok Blue Nylon Pellet, Nylok Blue Nylon Strip, Nylok Torq-Patch Locknut, Nytemp.

Chemical Adhesives for Thread Locking and Sealing: Precote 30, Precote 80, Precote 85, 3M Fastener Adhesive 2353, 3M Fastener Adhesive 2510.

Thread Protection and Masking: Nycote, Nycote Nycrest.

Assembly Retention Coating: Nystay.

Lubricant Products: Nytorq, Nyplate.

Under-the-Head Sealants: Nyseal, Precote 200, Nyplas.

Thread Sealant Products: Precote 5, 3M Thread Sealant 4291.

Powder Coating: Nylok Powder Coating.

The powder coatings prevent galvanic corrosion on fasteners and liquid coatings enhance the lock-ability of fasteners. Nylok operates a permanent total enclosure (PTE) and regenerative thermal oxidizer (RTO) for controlling VOC and HAP emissions from nine (9) of the facility's existing coating lines. The

PTE is inclusive of a dedicated room where the nine (9) coating lines operate. Organic HAP emissions from coating lines are kept within the PTE and routed to the RTO. Air inside the room is ducted to the RTO and make-up air is provided to the RTO. In addition, five (5) other coating lines are utilized outside the PTE and these do not contain HAPS and are water-based coatings.

Coating material is cycled through the line and is reused. In FG-COATINGLINEA, toluene is added to the coating line materials for dilution. The RTO is equipped to maintain sufficient destruction efficiency, and the PTE is used capture the HAP containing exhaust from the coating lines and route it to the RTO for destruction.

The Macomb Nylok location is the company headquarters and research and development facility. The company also has locations in Illinois, California, New Jersey, and Mexico. Mr. Lewis indicated the company has roughly 30 employees at this location and operates three (3) 8-hour weekday shifts with some weekend work occurring on Saturdays.

Environmental Compliance per MI-ROP-N5656-2020

EUMIXING

This emission unit has been removed from the facility. The mixing of this toluene adhesive occurs offsite at Precote U.S.A, LLC located in Romeo. The room is now used as storage facility.

Sealed containers of Toluene are stored in this room and there is no air pollution control equipment in the room. Mr. Lewis indicated mixing has not occurred here in the facility in over five (5) years.

FGCOATINGLINEA

This flexible group consists of nine (9) coating lines; EUPR1, EUPR5, EUPR6, EUPR7, EUPR8, EUPR9, EUPR10, EUPRB1, EUPRN3.

I. EMISSION LIMITS

The VOC emission limit is 5 tons/yr with a 12-month rolling time period as determined at the end of each calendar month. From August 2019 through July 2020, the VOC emissions from FGCOATINGLINEA were 0.4 tons. The highest rolling total experienced since the last inspection was 0.6 tons (occurred in multiple months).

III. PROCESS/OPERATIONAL RESTRICTION(S)

The facility captures all waste materials and stores them in closed containers. All drums in the storage room were covered and closed. The facility appears to also minimize the generation of fugitive emissions with the handling of all VOC and HAP containing materials.

Mr. Lewis provided a waste manifest from an outside vendor who handles the disposal of these materials. In addition, at the time of inspection a water pressure differential -0.0250 inches H₂O existed between the PTE and the adjacent area indicating air cannot flow out of the room into adjacent rooms. The facility must maintain a minimum of - 0.007 inches H₂O.

The permittee appears to be operating the PTE and RTO in accordance with the facility's Startup, Shutdown, and Malfunction Plan/Work Practice Plan

IV. DESIGN/EQUIPMENT PARAMETER(S)

It appears the facility is maintaining and operating the RTO in a satisfactory manner by maintaining a minimum combustion chamber temperature of 1,550°F and a minimum retention time of 0.5 seconds. During inspection, the RTO temperature was 1660 degrees °F. The retention time gauge read 0.65 seconds during the inspection visit.

The facility maintains a gauge to continuously record the RTO temperature and calibrates it quarterly.

The PTE operates at 100% capture efficiency and the RTO destruction efficiency is 97.7% per stack testing which occurred in January 2016. In addition, the facility maintains the PTE at a pressure lower than all adjacent areas as the room static pressure gauge during inspection read -0.0250.

V. TESTING/SAMPLING

According to department records, the AQD has permitted the facility to determine the VOC content, water content, and density of any coating as applied from the manufacturer's formulation data. Mr. Lewis indicated 2 coatings, Precote 80 and 85, had their VOC content determined using Reference Test Method 24.

The AQD retains the right to request Nylok to verify, via testing, the destruction efficiency of the RTO and the capture efficiency of the PTE. At this time, the AQD does not request said testing.

VI. MONITORING/RECORDKEEPING

The facility monitors the temperature in the combustion chamber of the RTO on a continuous basis with a monitoring device. Data provided by the facility shows temperature data recording less than 15 minutes for each reading. The facility provided the most recent calibration report for the RTO.

No bypasses have occurred for either control device in the time period reviewed (since last inspection).

The facility maintains a current listing from the manufacturer the chemical composition of each coating, reducer, and purge/clean-up solvent including the weight percent of each component on Safety Data Sheets. Several were provided electronically by Mr. Lewis.

The facility maintains records of the following;

a. Gallons of each coating, reducer and purge/clean-up solvent used and reclaimed. The facility keeps records of each coating used in each EU within FGCOATINGLINEA.

b. VOC content, in pounds per gallon, of each coating, reducer and purge/clean-up solvent used. Mr. Lewis provided SDSs for all coatings used. Coating line EUPR5 record for coatings Precote 80 and Precote 85 indicate totals of 2.69 lb/gal and 2.72 lbs/gal, respectively.

c. VOC mass emission calculations determining the monthly emission rate in tons per calendar month for the flexible group. For example, in July 2020, 0.0435 tons of VOCs were emitted.

d. VOC mass emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month for the flexible group. Records indicate a August 2019-July 2020 total of 0.4 tons.

The facility records the pressure differential between the PTE for FGCOATINGLINEA and the outside area, on a continuous basis, to verify that air is entering the PTE. The facility provided a computer graph readout which records the pressure from the monitoring device. This is current with the facility's Startup, Shutdown, and Malfunction Plan / Work Practice (SSM) Plan. Records were not viewed regarding the pressure differential between the PTE and the adjacent area, however, the monitoring device indicated a negative pressure reading of -0.0250 during the inspection.

The facility is maintaining and implementing a CAM plan for FG-COATINGLINEA (rolled into the SSM plan). Mr. Lewis provided a copy of the SSM plan. The facility has reported no excursions of the CAM requirements to monitor and ensure the RTO maintains 1,550°F and a minimum retention time of 0.5 seconds and the PTE differential pressure exceeds no greater than negative -0.007 inches of water. But in the event an excursion occurs, have procedures explained in the SSM plan to return to proper operation.

Mr. Lewis provided records of inspections for the RTO and PTE.

VII. REPORTING

The facility maintains there were no excursions from the CAM plan and no deviations from the emission limitation and operating limitations during the most recent reporting period of January 2020 to June 2020. There were no periods during which the Continuous Parameter Monitoring Records were out-of-control during the reporting period. Additionally, there were no deviations from the work practice standards and work practice plan.

VIII. STACK/VENT RESTRICTION(S)

There did not appear to be any issues or obstructions with stack SV-RTO.

IX. OTHER REQUIREMENTS

The permittee has exhibited compliance with the provisions of NESHAPs 40 CFR 63 Subparts A and MMMM and 40 CFR 64 by meeting compliance with the special conditions of FG-COATINGLINEA.

The permittee has not experienced an excursion or exceedance to warrant modification of the ROP or CAM plan at this time.

FGCOATINGLINEB

This flexible group consists of five (5) coating lines; EUNTQ1, EUPB3, EUWN3, EUWN9, EUHDN1.

I. EMISSION LIMITS

The VOC emission limit is 2,000 lbs/month (1.0 ton/month) for each coating line and all associated purge and clean-up materials. According to facility records the highest month of VOC emissions, since the previous inspection, occurred in November 2019 with line EUNTQ1 at 0.023 tons or 46 pounds.

The VOC emission limit is 10 tons/year for each coating line and all associated purge and clean-up materials with a 12-month rolling time period as determined at the end of each calendar month. According to facility records, the highest 12-month rolling total, since the previous inspection, occurred in March 2019 with line EUNTQ1 at 0.163 tons.

The VOC emission limit is 30 tons/year for the entire coating line on 12-month rolling time period as determined at the end of each calendar month. According to facility records, the highest 12-month rolling total, since the last inspection, occurred in March 2019 at 0.192 tons.

III. PROCESS/OPERATIONAL RESTRICTION(S)

The facility captures all waste materials and stores them in closed containers for all coating lines in flexible groups Coating Lines A and B. All drums in the storage room were covered and closed. The facility appears to also minimize the generation of fugitive emissions with the handling of all VOC and HAP containing materials.

V. TESTING/SAMPLING

According to department records, the AQD has permitted the facility to determine the VOC content, water content, and density of any coating as applied from the manufacturer's formulation data. Mr. Lewis indicated 2 coatings, Precote 80 and 85, had their VOC content determined using Reference Test Method 24.

VI. MONITORING/RECORDKEEPING

The facility maintains a current listing from the manufacturer the chemical composition of each coating, reducer, and purge/clean-up solvent including the weight percent of each component on Safety Data Sheets.

The facility maintains records of the following:

- a. Gallons of each coating, reducer and purge/clean-up solvent used and reclaimed. The facility provided records showing usage for each specific material used.
- b. VOC content, in pounds per gallon, of each coating, reducer and purge/clean-up solvent used.
- c. VOC mass emission calculations determining the monthly emission rate in pounds per calendar month and tons per calendar month for each coating line.
- d. VOC mass emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month for each coating line and all coating lines combined.

VII. REPORTING

The facility maintains there were no deviations from the emission limitation and operating limitations during the reporting period for this flexible group in 2019 and 2020 so far. There were no periods during which the Continuous Parameter Monitoring Records were out-of-control during the reporting period. Additionally, there were no deviations from the work practice standards and work practice plan.

VIII. STACK/VENT RESTRICTION(S)

There did not appear to be any issues or obstructions with stack SV-01 and SV-02.

IX. OTHER REQUIREMENTS

The permittee has exhibited compliance with the provisions of NESHAPs 40 CFR 63 Subparts A and Mmmm and 40 CFR 64 by meeting compliance with the special conditions of FG-COATINGLINEB.

FG-MACT Mmmm

All fourteen (14) coating lines are subject to the requirements of the NESHAP for Surface Coating of Miscellaneous Metal Parts and Products (40 CFR Subpart Mmmm). The compliance date for an affected source such as Nylok is August 13, 2002.

I. EMISSION LIMITS

Organic HAP limit of 2.6 lbs per gallon of coating solids used per 12-month rolling time period as determined at the end of each calendar month. HAP emission rate has not exceeded 0.22 lbs/gal since the time of the last inspection.

The facility complies with the add-on controls option through the usage of the RTO. The RTO has two (2) chambers and is natural gas fired. All coating operations appear to be in compliance with the facility's startup, shutdown, and malfunction plan and work practice plan. The facility meets the applicability criteria of 40 CFR 63.3890(b)(1);

(b) For an existing affected source, you must limit organic HAP emissions to the atmosphere from the affected source to the applicable limit specified in paragraphs (b)(1) through (5) of this section, except as specified in paragraph (c) of this section, determined according to the requirements in §63.3941, §63.3951, or §63.3961.

(1) For each existing general use coating affected source, limit organic HAP emissions to no more than 0.31 kg (2.6 lb) organic HAP per liter (gal) coating solids used during each 12-month compliance period.

II. MATERIAL LIMITS

FG-COATINGLINEA does utilize toluene as a thinner, but that flexible group is controlled by the PTE and RTO. FG-COATINGLINEB does not utilize.

III. PROCESS/OPERATIONAL RESTRICTION(S)

The facility established an operating temperature of 1550 °F during the performance test in 2016. During

the inspection the RTO was viewed at 1660 °F. Records show that the temperature is maintained above 1550 °F, except during times of start-up or shut-down.

The facility also maintains air flow at all times into the enclosure (PTE) and the pressure drop is maintained at -0.007 inches of H₂O.

The ROP states:

For any coating operation(s) using the emission rate with add-on controls option, the permittee shall develop and implement a work practice plan, to minimize the organic HAP emissions from the storage, mixing and conveying of coatings, thinners and/or other additives, and cleaning materials used in, and waste materials generated by the controlled coating operation(s). The work practice plan shall specify practices and procedures to ensure at a minimum the following elements are implemented:

The facility maintains and has implemented the following per the Work Plan;

a. All organic HAP containing coatings, thinners and/or other additives, cleaning materials, and waste materials must be stored in closed containers: The facility maintains that all drums and containers are inspected to ensure they are properly secured, and all inspections are documented in the maintenance logbook.

b. Spills of organic HAP containing coatings, thinners and/or other additives, cleaning materials, and waste materials must be minimized. The facility maintains that containers are properly labeled, and funnels are used as a means of preventing spills when transferring and capturing.

c. Organic HAP containing coatings, thinners and/or other additives, cleaning materials, and waste materials must be conveyed from one location to another in closed containers or pipes. The facility maintains these materials are conveyed from one location to another in closed containers or pipes.

d. Mixing vessels which contain organic-HAP-containing coatings and other materials must be closed except when adding to, removing, or mixing the contents. The facility maintains this condition is followed. I did not view any open containers during the inspection.

e. Emissions of organic HAPs must be minimized during cleaning of storage, mixing, and conveying equipment. I did not view any of these occurring during the inspection.

The facility maintains a start-up, shutdown, and malfunction plan on site. The corrective actions taken in the event of a malfunction of the emission capture system or the add-on control device include inspecting the PTE for air leaks, or other conditions suspected to cause an increase in emissions, sealing off defective portions of the PTE if the problem can be isolated to allow for a restart of coating lines that are not affected by the problem, replacing or repairing portions of the PTE and RTO as necessary such as RTO heat exchange media, and replacing sensors if they are found to be triggering false alarms.

The facility maintains the coating operations operate according to 40 CFR 63.3892 regarding the following;

For the following device	You must meet the following operating limit	And you must demonstrate continuous compliance with the operating limit by
1. Thermal oxidizer	a. The average combustion temperature in any 3-hour period must not fall below the combustion temperature limit established according to §63.3967 (a)	i. Collecting the combustion temperature data according to §63.3968(c); ii. Reducing the data to 3-hour block averages; and iii. Maintaining the 3-hour average combustion temperature at or above the temperature limit.

The above was viewed during the inspection and a continuous monitoring printout was provided. The facility maintains the average operating temperature established during the performance test in 2016.

The facility maintains all coating operations using the emission rate with add-on controls are compliant with 40 CFR 63.3893 per the facility's Work Plan;

(1) All organic-HAP-containing coatings, thinners and/or other additives, cleaning materials, and waste materials must be stored in closed containers.

(2) Spills of organic-HAP-containing coatings, thinners and/or other additives, cleaning materials, and waste materials must be minimized.

(3) Organic-HAP-containing coatings, thinners and/or other additives, cleaning materials, and waste materials must be conveyed from one location to another in closed containers or pipes.

(4) Mixing vessels which contain organic-HAP-containing coatings and other materials must be closed except when adding to, removing, or mixing the contents.

(5) Emissions of organic HAP must be minimized during cleaning of storage, mixing, and conveying equipment.

IV. DESIGN/EQUIPMENT PARAMETER(S)

The facility operates and maintains the RTO by recording the combustion chamber temperature in an electronic data collection system from a temperature monitor, and it is checked once per shift by the supervisor during walk through.

V. TESTING/SAMPLING

Per the performance test, the facility heats up the RTO to a minimum of 1550 °F and maintains that temperature at or above during the facility's operations. The facility maintains a 100% capture efficiency with the PTE and an RTO destruction efficiency of 97.7% was set per the performance test.

VI. MONITORING/RECORDKEEPING

The facility maintains a copy of each notification and report that is submitted to comply with Subpart Mmmm, and the documentation supporting each notification and report.

The facility maintains SDS to determine the mass fraction of organic HAPs and the density of each coating, thinner and/or other additive, cleaning material, and the volume fraction of coating solids for each coating. Method 24 was used on Precote 80 and 85.

The add-on control with the RTO is the only compliance option used by the facility.

The facility maintains the calculations of the total mass of organic HAP emissions for the coatings, thinners and/or other additives, and cleaning materials used each month per 40 CFR 63.3930(c)(4)(i).

The facility maintains the name and the mass or volume of each coating, thinner and/or other additive, cleaning material used for the add-on control, and the volume fraction of coating solids for each coating used during each compliance period. This is maintained on spreadsheets provided by the facility. In addition, the density of each material is maintained and used in recordkeeping via the SDS.

The facility documents the time, date, and duration of each deviation. Records required in 40 CFR 63.3930(k)(1) through 40 CFR 63.3930(k)(8) are maintained per the Startup, Shutdown, Malfunction Plan and Work Practice Plan, RTO continuous monitoring systems (CMS), facility recordkeeping requirements for materials used, and the semi-annual reports.

The facility also demonstrates continuous compliance with the operating limits via the CMS as well. All HAP emission limits by the facility have been met per the records provided.

The facility established an operating temperature of 1550 °F during the performance test in 2016. During

the inspection the RTO was viewed at 1660 °F. Records show that the temperature is maintained above 1550 °F, except during times of start-up or shut-down, and averages over 1550 °F during 3-hour periods.

The facility also maintains, monitors, and records air flow at all times into the enclosure (PTE) and the pressure drop is maintained at -0.007 inches of H₂O.

VII. REPORTING

The facility has submitted the semi-annual and annual reports indicating the reporting of monitoring and deviations, the HAP emission rate, and the notification of compliance status of 40 CFR Part 63 Subparts A and MMMM. The facility records indicate no deviations or Start-up, Shutdown, or Malfunction events have occurred in 2019 and 2020 so far. The facility reports include the HAP emission rates and the coating lines associated with the RTO.

VIII. STACK/VENT RESTRICTION(S)

There did not appear to be any issues or obstructions with SV-RTO.

IX. OTHER REQUIREMENTS

The permittee has exhibited compliance with the provisions of NESHAPs 40 CFR 63 Subparts A and MMMM and 40 CFR 64 by meeting compliance with the special conditions of FG-MACT MMMM.

Conclusion

Based on the inspection and records review, Nylok is currently in-compliance with requirements of the Federal Clean Air Act, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451; Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (MEGLE-AQD) Administrative Rules; and conditions of the facility's Renewable Operating Permit (MI-ROP-N5656-2020).

NAME *Joseph M. Full*

DATE 9-28-20

SUPERVISOR *Sebastian Kallumkal*