

B4145 - SAR - 20150330

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

B414531263

FACILITY: AkzoNobel Coatings Inc		SRN / ID: B4145
LOCATION: 120 Franklin, PONTIAC		DISTRICT: Southeast Michigan
CITY: PONTIAC		COUNTY: OAKLAND
CONTACT: Jeffrey Poniewierski, Process Improvement Supervisor		ACTIVITY DATE: 03/30/2015
STAFF: Francis Lim	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT:		
RESOLVED COMPLAINTS:		

On March 30, 2015, AQD staff Francis Lim and Kerry Kelly conducted an inspection at Akzo Nobel Coatings, Inc. The purpose of the inspection was to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) Administrative Rules; and Permit-to-Install No. 184-06. Jeff Poniewierski, HSE Manager is the new facility contact. Peter Onyskiw is no longer with the facility.

Previously, Akzo Nobel had 3 different facilities at this Pontiac site: Transportation Coatings (30 Brush St), Car Refinish (27 Brush St), and Decorative Coatings (25 Brush St). Each facility was a separate stationary source. Because the facilities are adjacent to one another, under common control and have the same 2-digit major group code associated with the primary activity, all three facilities were combined and considered as one stationary source. A renewable operating permit, ROP No. 199700018 was issued.

Facility is now a minor source. Opt out Permit No. 184-06 was issued on August 18, 2006. Since the facility is no longer a major source for HAPs, it is not subject to the Miscellaneous Coating Manufacturer MACT. The ROP was voided on October 24, 2006.

Transportation Coatings has been demolished. Their operations were integrated into Car Refinish (27 Brush St). This plant located at 27 Brush St is now known as Akzo Nobel Automotive and Aerospace Coatings. Official address also changed from 27 Brush St to 120 Franklin Rd. Decorative Coatings operations was moved to Akzo Nobel's Huron, Ohio plant in 2012.

The coating manufacturing operations at Automotive and Aerospace Coatings use portable and fixed tanks, letdown tanks (final blending tanks prior to packaging), fixed and portable mixers, receiving tanks, dynamills, and high speed dispersal (HSD) mixers. Dynamills are used for dispersing the coating mixture made up of solvents, resins, additives, and pigments. Many of the fixed tanks are sealed and nitrogen blanketed to prevent moisture buildup and for safety as well (prevent explosive mixtures). Conservation vents (released outdoors) are installed on the fixed tanks for pressure relief. Fixed tanks are usually dedicated by colors. Finished products are filled in either paint cans or totes.

Waste solvent from manufacturing and tank cleaning is processed by Tier Environmental LLC. Waste solvent generated is kept in drums. Recycled solvent processed is sent back to Akzo Nobel to be used for tank and other miscellaneous cleaning. Typically, about 4,000 gallons are shipped out per week for recycling – with about 50% recovery. See attached records. Recycled solvents are stored in a 12,000 gallon storage tank located at the tank farm.

To estimate emissions from the facility, PirnieAIR, a commercially available software is used. The program uses process-specific information and USEPA-published equations or AP-42 emission factors to calculate batch emissions. The rate of emissions is dependent upon the chemicals in the process and the physical processes involved. In the development of emission factors, emissions were calculated for each step of the manufacturing process. About 90 manufacturing steps are involved in calculating the emission factors. Manufacturing steps include addition of each solvent, mixing, dispersion heating, and "gas sweeps". During a gas sweep, solvent vapors are evacuated during mixing of the product for employee protection and also to prevent explosive mixtures of solvent vapors. Emissions from gas sweeps account for almost half the emissions for the large batch. Emission factors for large batch manufacturing are about 8 times more than a small batch. Large batch has more solvent vapors to be displaced into the atmosphere during manufacturing.

An intermediate is a large premixed batch that is later used as a premixed raw material resulting in a more efficient operation. The addition of the ingredients of the intermediate is accounted for in the manufacturing steps to calculate the emission factors.

In determining the appropriate PirnieAir emission factors, the weighted average of the VOC and HAP content for each formulation was determined (higher VOC content, higher quantity manufactured will be weighted more). The formulation with the highest weighted VOC and HAP content (reasonable worst case) was used as the basis for calculating PirnieAIR

emission factors. In calculating emission factors for the following, each was assigned a formulation that would yield a reasonable worst case: small batch solvent pigmented coatings (topcoat), small batch solvent non-pigmented coatings (clearcoat), small batch waterborne coatings, large batch solvent pigmented coatings, large batch solvent non-pigmented coatings, large batch waterborne coatings, and CBU operations. Same formulation is used for calculating VOC and HAPs emission factor. When formulating emission factors involving 2-component coatings, the activator is considered solvent non-pigmented coatings. The emissions from large fixed tank cleanup are included in the emission factor for the large batch manufacturing.

Small batch manufacturing is done in portable tanks. The calculation of the emission factor for the small batch is done the same way. Emissions are calculated for each step and added up to determine the emission factor. Typically, the small batch manufacturing process involves about 55 steps only.

Open portable tanks are cleaned by a churn washer manufactured by Hockenmeyer. Clean recycled solvent is sprayed into the portable tank. A rotating brush is brought down and seals the tank opening. Spent solvent is collected in the waste solvent drum. About 5 gallons of solvent is used during the cleanup. Majority of the cleanup solvent is recovered. A PirnieAir emission factor was generated for the Hockenmeyer portable tank cleaning.

For large tank cleanup, the solvent used for cleaning is used as raw material for the next batch. Large tank cleanup is included in the manufacturing steps to determine PirnieAir emission factor for large batch.

The Color Blending Unit (CBU) manufactures small batches (usually less than 250 gallons) within a short lead time, usually 1-2 days. These can be done because the formulation usually includes a premixed raw material called intermediates. The intermediates are manufactured in the main floor. The Color Blending Unit keeps in stock many premixes so that it can make a finished product at a short notice. The CBU manufactures coatings for automotive plastics and for commercial application. For smaller batches, coating is manufactured and mixed in drums. Facility produces about 8 drum batches per month. The Color Blending Unit has its own portable tank cleaning equipment. Instead of a rotating brush that comes down on the portable tank, a "whirly bird" attached to a cover comes down on the portable tank, spins and sprays the recycled solvent for cleaning the tank. The same PirnieAir emission factor for the Hockenmeyer portable tank cleaning is used.

The pilot process laboratory is where small batches of new formulations are manufactured before it goes to production. Typically, a new formulation will be manufactured 3 times in the pilot process laboratory before it is pushed to production. Emissions are estimated using the PirnieAir small batch emission factor.

The R & D lab has 5 paint spray booths (3 automatic, 2 manual) used for spray painting of small rectangular panels used for testing purposes. Spray guns are cleaned in small gun cleaning pails. During line purging, solvent is sprayed into the paint booth. Acetone is used for gun cleaning, line purging and bench top cleaning (using bench top safety cans) of lab utensils. In 2014, approximately 890 gallons of acetone was used for bench top cleaning and for spray gun cleaning and line purging. Actual paint usage in the spray booths is very small, since quantity of paint used is usually measured in cups, sometimes quarts.

Akzo Nobel is in compliance with Rule 630. All covers for tanks with finished products are in place. Stainless steel covers are used for portable tanks, except for empty clean portable tanks where polyethylene "shower caps" are used to prevent dust and contaminants from entering the clean tank. Fixed tanks have built-in covers. Aluminum foil is used for covering small portable tanks to seal smaller openings when a side mounted portable mixer is used.

In the past, recycled solvents are used to clean floors. Facility now uses a commercial surfactant, although for spill cleanup, recycled solvents are still used.

There are 8 storage tanks in the tank farm. A vapor balance system is installed for use during fill up of the tank.

Emissions from the coating manufacturing include, VOC, HAPs and particulates. Particulate emissions occur during the solids addition to the batch vessel.

#### **Permit No. 184-06**

This permit is for the manufacturing process located at 120 Franklin Rd (Automotive and Aerospace Coatings). It also includes synthetic minor limits for the stationary source.

The permit requires the facility to keep records for the following paint types:

- Small batch pigmented
- Small batch nonpigmented
- Large batch pigmented
- Large batch nonpigmented
- Water based small batch pigmented

Water based large batch pigmented  
Color Blending Unit

#### Section 1

Special conditions apply to the parts washer. A parts washer is a specially designed cleaning equipment which Akzo Nobel has not installed yet. Since the equipment has not been installed, special conditions do not apply.

#### Section 2

Special conditions apply to the cold cleaners, and cleaning of portable and fixed tanks.

Special Condition 2.1. Organic solvents are only used if the tanks being cleaned are completely covered.

Special Condition 2.2. Wash solvents are stored in closed containers.

Special Condition 2.3. On October 23, 2006, Akzo Nobel submitted the work practice standards for both the Hockenmeyer tank cleaner and the CBU tank cleaner.

Special Condition 2.4. All portable and fixed tank covers are in place. Stainless steel covers are used, except to cover clean empty tanks where flexible polyethylene "shower caps" are used as covers to protect the clean tanks from contamination. Aluminum foil is used for covering small portable tanks to seal smaller openings when a side mounted portable mixer is used.

Special Condition 2.5. Number of portable tanks cleaned is monitored through production records. Production records give information on the portable tanks used. PirnieAir emission factor is used to calculate emissions by multiplying portable tanks used times emission factor.

Special Condition 2.6. Permittee keeps a record of the number of cold cleaners. EPA emission factor is used to calculate emissions.

Special Condition 2.7. Emission factors are kept and recorded. Emission factors are used to calculate VOCs and HAPs. VOC emission factor for the cold cleaner is 280 lbs/year/unit; for HAPs, 89.6 lbs/year/unit. Currently, facility use 8 cold cleaners.

Special Condition 2.8. All emission calculations are done through a spreadsheet. For the 12-month period ending in December 2014, portable tank cleaning VOC emissions are 8,343 lbs and HAPs emissions are 2,670 lbs. Cold cleaner VOC emissions are 163.33 lbs per month; HAPs emissions are 52.27 lbs per month. Emissions from cold cleaners are: 2240 pounds/year VOC, 717 pounds per year HAPs.

#### Section 3

Special conditions apply to the paint manufacturing operations.

Special Condition 3.1. PM limit is not exceeded assuming dust collector control device, which are equipped with secondary filters is operating properly. Dust collector pressure drop is properly monitored and recorded. Dust collector operates only when solids are being charged to the blending tank. Weekly pressure drop readings for all dust collectors are done. Pressure drop reading logs are kept. List of dust collectors is attached to this report.

Special Condition 3.2a. Limit of 2,200,000 gallons per year for small batch coatings is not exceeded. Volume manufactured is 684,586 gallons based on a rolling 12-month period ending in February 2015. Records are attached.

Special Condition 3.2b. Limit of 5,086,764 gallons per year for large batch coatings is not exceeded. Volume manufactured is 3,159,349 gallons based on a rolling 12-month period ending in February 2015. Records are attached.

Special Condition 3.2c. Limit of 1,256,000 gallons per year for waterborne coatings is not exceeded. Volume manufactured for small batch and large batch waterborne coatings is 126,292 gallons based on a rolling 12-month period ending December, 2014. Facility manufactures only a small percentage of waterborne coatings. Records are attached.

Special Condition 3.2d. Limit of 300,000 gallons per year for Color Blending Unit is not exceeded. Volume manufactured is 154,933 gallons based on a rolling 12-month period ending December, 2014. Records are attached.

Special Condition 3.3. Organic solvent is used for tank cleaning. During the solvent cleaning, tanks are completely covered to minimize VOC emissions.

Special Condition 3.4. Wash solvent is stored in closed drums.

Special Condition 3.5. During the inspection, staff noted that covers for portable and fixed tanks are in place. Aluminum foil is used for covering small portable tanks to seal smaller openings when a side mounted portable mixer is used.

Special Condition 3.6. Dust collectors, which are equipped with secondary filters, are used for particulate control only during charging of solids. Dust collectors are expected to operate properly since routine and scheduled maintenance are performed on the dust collectors and pressure drop readings across the dust collector (magnehelic readings) are conducted and recorded every week.

Special Condition 3.7. Flexible polyethylene plastic covers are no longer used except to cover empty, clean portable tanks. Stainless steel covers are now used.

Special Conditions 3.8 and 3.10. A magnehelic gage to measure pressure drop is installed on dust collectors. A weekly record of pressure drop readings is kept.

Special Condition 3.9. Permittee keeps a record of production for each paint type, based on a rolling 12-month period. Staff verified this through electronic records.

Special Condition 3.11. This permit condition requires that prior to making a change in the paint manufacturing process which results in a meaningful increase in emissions, the emission factors should be recalculated. Jeff has just recently taken over this position. He has not recalculated emission factors since he does not think there has been a change in manufacturing process that resulted in increase in emissions. A copy of the emission factors used is attached..

Special Condition 3.12. Staff verified that VOC and HAP 12-month rolling emissions are recorded and calculated using an emissions program. Emissions are calculated as follows: a record of monthly production by batch is kept; production records are downloaded to the program that calculates emissions; the downloaded production data is categorized by paint type; emissions are then calculated using the appropriate emission factors. Monthly emissions are added to calculate rolling 12-month emissions. Emission factors used are attached to this report.

Special Condition 3.13. Stack dimensions appear to comply with permit requirements.

Section 4

Special conditions apply to FG-Facility. FG-Facility now only includes Automotive and Aerospace Coatings.

Special Conditions 4.1, 4.2, and 4.3. Total VOC emissions limit is 60 tons based on a rolling 12-month time period. Individual HAP emissions limit is 9 tons based on a rolling 12-month time period and aggregate HAPs emissions limit is 22.5 tons based on a rolling time period. For the period ending December 2014, facility reported 23,159 pounds VOC. In MAERS 2014, reported emissions were 23,574 pounds VOC. Total HAPs are 5.35 tons. Receipts are attached.

NAME J. Smith DATE 09-29-15 SUPERVISOR CTE