

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

M355439814

FACILITY: General Formulations, Inc.		SRN / ID: M3554
LOCATION: 320 S. Union St., SPARTA		DISTRICT: Grand Rapids
CITY: SPARTA		COUNTY: KENT
CONTACT: Denis Fodrocy, Technical Lab Manager		ACTIVITY DATE: 04/26/2017
STAFF: Adam Shaffer	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled, unannounced inspection.		
RESOLVED COMPLAINTS:		

Air Quality Division (AQD) staff Adam Shaffer (AS) and Steve LaChance (SL) arrived at the facility the morning of April 26, 2017 to conduct an unannounced, scheduled inspection. The purpose of this inspection was to determine compliance with applicable air quality rules and regulations.

Prior to entering the facility, odor and visible emission observations were completed. No visible emissions or odors were identified from offsite. AQD staff met with Mr. Denis Fodrocy, Technical Lab Manager, and Mr. Rob Bachholzky, Chemist. The purpose of this inspection was briefly discussed with Mr. Fodrocy and Mr. Bachholzky, and included a facility walk through, with a final discussion at the end of the facility inspection. General Formulations is a coating and laminating operations facility that creates products for various advertising and marketing industries. The facility is under an Opt-Out Permit No. 192-03F. The layout of the plant consisted of the west side, which was office and finishing areas, and the east side, which is the coating operations and storage.

### Compliance Evaluation

#### **EU-CoaterUV**

This coater is a 61-inch wide, ultraviolet (UV) coating and curing station on a plastic cling laminator. The coating at this machine is applied via method of reverse gravure with an enclosed doctor blade. All material and waste containers surrounding the coating machine appeared to be properly stored and disposed of at the time of the inspection. One stack was observed venting externally, which was verified during the inspection of the rooftop. Though the stack was not measured, the dimensions appeared consistent with Opt-Out Permit No. 192-03F. The 12-month rolling emission limit for volatile organic compounds (VOCs) is 4.6 tons per year (tpy). As of February 2017, the VOC emissions were 0.03 tpy per a 12-month total rolling period. Additionally, VOCs are limited to an instantaneous limit of 0.16 lb/gal (minus water) as applied. A letter from General Formulations, dated January 27, 2014 was received by AQD requesting the use of formulation data sheets to determine VOC content. A letter, dated November 2011, from the supplier to General Formulations was provided to AQD and states that the one coating material utilized by EU-CoaterUV has 0.16 lbs/gal of VOCs. General Formulations stated in emails that are attached to this report that this is the most comprehensive information available. However, per Special Condition (SC) V.1, it states that Test Method 24 or formulation data sheets are to be utilized to determine VOC content. General Formulations shall in the future utilize Test Method 24 or formulation data sheets to determine the VOC content of all coating materials. While reviewing the records provided, several instances were noted where the VOC content of the coating was over 0.16 lb/gal. When this was mentioned to Mr. Fodrocy, it was concluded to be a typo and 0.16 lb/gal was the correct value. Several dates in the 12-month rolling totals were not updated when appropriate, which was also stated as a typo after speaking with Mr. Fodrocy on the issue. General Formulations appears to be keeping track of its usage rates for all coating materials used, VOC contents and VOC emissions. No reclaim of coating materials was identified for this emission unit.

#### **EU-CoaterE**

This coater is a 60-inch wide, roll to roll laminator with gravure and wire rod coating stations and a single zone natural gas-fired oven. This coater only utilizes water-based coatings. All material and waste containers surrounding the coating machine appeared to be properly stored and disposed of at the time of the inspection. Spent filters were observed being properly stored prior to disposal. One stack was observed venting externally, which was verified during the inspection of the rooftop. Though the stack was not measured, the dimensions appeared consistent with Opt-Out Permit No. 192-03F. The associated one zone oven was in operation at the time of the inspection. The oven temperature was observed at 219°F. Mr. Fodrocy stated that the maximum operating temperature for the oven is 220°F. The 12-month rolling emission limit for VOCs is 22.9 tpy.

Additionally, VOC coating content is limited to 0.8 lbs/gal (minus water) as applied. A letter from General Formulations, dated January 28, 2011 was received by AQD requesting the use of formulation data sheets to determine VOC content. Formulation data sheets and/or Test Method 24 results were requested for the top five coating materials used for EU-CoaterE. Documents were provided stating VOC contents that consisted of letters from suppliers, Test Method 24 and formulation data sheets. General Formulations shall in the future utilize Test Method 24 or formulation data sheets to determine the VOC content of all coating materials. The results from the documents provided appear to show VOC contents for each coating material to be below 0.8 lbs/gal. General Formulations appears to be keeping track of usage rates, VOC contents and VOC emissions; however, during the review of the records provided for EU-CoaterE, AQD staff was unable to, based on the format presented, verify specifics for select coating materials. Additionally, errors were identified when comparing the VOC contents identified in supporting documents to VOC contents used in the calculations. This is a violation of Special Condition (SC).VI.3.b-d. No reclaim of coating materials was identified for this emission unit.

#### **EU-CoaterF**

This coater is a 64-inch wide, roll to roll laminator with gravure and wire rod coating stations, and a natural gas-fired oven. This coater only utilizes water-based coatings and the emissions from this unit are uncontrolled. All material and waste containers surrounding the coating machine appeared to be properly stored and disposed of at the time of the inspection. One stack was observed venting externally, which was verified during the inspection of the rooftop. Though the stack was not measured, the dimensions appeared consistent with Opt-Out Permit No. 192-03F. The associated one zone oven was in operation at the time of the inspection. The oven temperature was observed at 231°F. Mr. Fodrocy stated that the maximum operating temperature for the oven is 231°F. When asked about the usage of gravure and wire rod coating applicators, Mr. Fodrocy stated that the wire rods were never installed, and instead utilize only gravure rolls. The 12-month rolling emission limit for VOCs is 40.0 tpy. The VOC content of the coating is limited to 0.8 lb/gal (minus water) as applied. A letter from General Formulations, dated January 28, 2011 was received by AQD requesting the use of formulation data sheets to determine the VOC content for coating materials. Formulation data sheets and/or Test Method 24 results were requested for the five most used coating materials. Several documents were provided including letters from suppliers, formulation data sheets and a memorandum dated October 6, 2005 from NTH to General Formulations that stated VOC contents. General Formulations shall in the future utilize Test Method 24 or formulation data sheets to determine the VOC content of all coating materials. The records provided identified VOC contents below the 0.8 lb/gal (minus water) instantaneous limit. However, errors were identified with VOC contents stated in supporting documents and VOC contents used. Additionally, during the review of the records provided for EU-CoaterF, AQD staff was unable to, based on the format presented verify specifics for select coating materials. Based on this, the format is considered unacceptable and is a violation of Special Condition (SC).VI.3.b-d. No reclaim of coating materials was identified for this emission unit.

The Hydrotreated Distillates (CAS No. 64742-46-7) are subject to a 20 lbs/8 hour limit per calendar day. It appears that only the coating material Arosset 2546 uses Hydrotreated Distillate (CAS No. 64742-46-7) based on records reviewed, which has a content of 0.002356 lbs Hydrotreated Distillate (CAS # 64742-46-7) per gallon. The highest Hydrotreated Distillate (CAS No. 64742-46-7) emission rate per 8 hours for February 2017 was 3.43 lbs. The Hydrotreated Distillate (CAS No. 64742-46-7) records from January 2016 through February 2017 were reviewed and identified all within the 20.0lb/8-hrs emission limit. General Formulations appears to be keeping track of its usage rates, VOC contents, and VOC/Hydrotreated Distillates (CAS No. 64742-46-7) emissions.

#### **FG-SolventBased**

This flexible group consists of EUCoaterB, EUCoaterD, EUCoaterG and EU-Mixroom.

#### **EU-CoaterB**

This coater is a 30-inch wide, roll to roll laminator with knife-over-roll or wire rod coating stations and a two zone natural gas-fired oven. This coater utilizes only solvent based coatings. At the time of the inspection open containers were observed adjacent to the coating machine. AQD staff advised General Formulations staff on limiting the amount of open containers to prevent excessive fugitive emissions. Mr. Fodrocy stated that filters for this coater are replaced on an as needed basis. This particular coater uses a two stage oven. The observed temperature at the time of the inspection for stage 1 was 200°F, with a maximum temperature of 220°F. The observed temperatures at the time of the inspection for stage 2 were 152°F, with a maximum temperature of 190°F.

#### **EU-CoaterD**

This coater is a 62-inch wide, 140-feet per minute roll to roll laminator with a knife-over-roll and two gravure coating stations and a three zone natural gas-fired oven. This coating utilizes water and solvent based coatings. All material and waste containers surrounding the coating machine appeared to be properly stored and disposed of at the time of the inspection. This particular coater uses a three stage oven. The observed temperatures at the time of the inspection were 150°F, 180°F, and 195°F. Spent filters were observed being properly containerized and are sent to Waste Management for disposal.

#### EU-CoaterG

A 64-inch wide, roll to roll laminator with comma coating stations, a reverse gravure of wire rod coating stations, a natural gas-fired oven, and a reverse gravure topcoat station with a natural gas-fired oven. This emission unit was only capable of utilizing water based coatings at the time of the inspection. All material and waste containers surrounding the coating machine appeared to be properly stored and disposed of at the time of the inspection. This particular coater uses a three stage oven. The observed temperatures at the time of the inspection were 211°F, 220°F, and 232°F, with the respective settings at 210°F, 220°F, and 230°F. Spent filters were observed being properly stored prior to disposal.

#### EU-Mixroom

This unit consists of four mixers and two dispersing mills equipped with an enclosed recirculated solvent spray tub wash operations. Though the mixroom appeared to be properly sealed, there is no monitoring to verify this. General Formulation intends to test and verify that a negative pressure is being maintained when they test EU-CoaterG upon the switch to solvent based coating materials. At the time of the operation three mixers were in operation and the lids were covered. The fourth mixer was inactive with no container in place. A three roll mill machine was observed in the mixing room. Mr. Fodrocy stated this unit takes pigments and blends them into adhesive coatings. The pigments are initially in powder form prior to mixing. A solvent recycler was observed adjacent to the three roll mill machine. Mr. Fodrocy stated that the recycler has a batch capacity of 55-gallons. Dirty cleaning solvents are reclaimed at this unit, with the waste remaining sent off site as hazardous waste. This unit appears to be exempt per Rule 285(2)(u). Containers observed in the mixroom were properly stored and sealed. Two parts washers were observed in the mixroom. One part washer was observed closed at the time of the inspection, with the remaining parts washer in use. Materials utilized by the cold cleaners are a mix of cyclohexalane and PM acetate. No cold cleaner operating procedures labels were observed on each cold cleaner within EU-Mixroom. AQD staff provided General Formulations staff with cold cleaner operating procedures labels. Based on the size of the parts washers (<10ft<sup>2</sup>), they both appear to be exempt per Rule 281(2)(h). The tub washing machine was observed next. This is an enclosed container that also uses cyclohexalane and PM acetate.

FG-SolventBased is subject to a limit of 487.6 lbs/day of VOCs and 89.0 tpy of VOC per a 12-month rolling time period. Additionally, the sum of EU-CoaterD and EU-CoaterG are subject to a VOC emission limit of 62.3 tpy per a 12-month rolling time period during periods of RTO bypass and a VOC content limit of 0.8 lb/gal (minus water) as applied uncontrolled for each coating material used. A letter from General Formulations, dated January 28, 2011 was received by AQD requesting the use of formulation data sheets to determine the VOC content for each coating material. Formulation data sheets and/or Test Method 24 results were requested for the five most frequently used waterborne coating materials; five most frequently used solvent based coating materials, and five other random coating materials that were tested per year. Several documents stating Test Method 24 results for the calendar year 2017 were provided and it appeared that the remaining documents stating VOC contents were provided in various other emails for different emission units; though this was never verified. General Formulations shall in the future utilize Test Method 24 or formulation data sheets to determine the VOC content of all coating materials. The records provided identified VOC contents below the 0.8 lb/gal (minus water) instantaneous limit. During the review of the records provided for FG-SolventBased and the sum of EU-CoaterG and EU-CoaterD, AQD staff was unable to, based on the format presented, verify specifics for coating materials. Additionally, errors were identified when comparing the VOC contents identified in supporting documents to VOC contents used in the calculations. This is a violation of SC.VI.3.d-g and SC.VI.4.d-f. Several dates in the 12-month rolling totals were not updated when applicable, which appeared to be most likely typos based on similar occurrences with EU-CoaterUV. It was also noted while reviewing the records provided that the emissions for EU-CoaterG were not included in verifying the limits for FG-SolventBased.

The sum of Hydrotreated Distillate CAS # (64742-46-7) emissions for EU-Coaters D and G are subject to a daily limit of 40.4 lb/8-hr. Records were provided from January 2016 through February 2017. It appears that only the coating material Aroset 2546 contains Hydrotreated Distillate (CAS No. 64742-46-7) based on records reviewed with a content of 0.002356 lbs Hydrotreated Distillate (CAS # 64742-46-7) per gallon of coating. The records

provided did not calculate the sum of EU-Coaters D and G. After further review of the records provided; however, if the emissions of the two coating machines were added, it appears that General Formulations would be in compliance with the daily limit of Hydrotreated Distillate CAS # (64742-46-7) emissions of 40.4 lb/8-hr.

Coatings produced in EU-Mixroom are limited to 11,169 tons per 12-month rolling time period. As of February 2017, 399.42 tons of coating materials had been produced.

FG-SolventBased is subject to having in place a Preventative Maintenance (PM) and Malfunction Abatement Plan (MAP). A PM/MAP was requested from General Formulations and a copy, dated May 2, 2017 was provided. Reviewing the PM/MAP, several errors were identified. A revised PM/MAP will be requested from General Formulations along with the violation notice (VN) response.

The EU-Mixroom, EU-CoaterB, and EU-CoaterD are connected to and controlled by a regenerative thermal oxidizer (RTO). The EU-CoaterG is not currently connected to the RTO but General Formulations staff stated that this will be completed in the future. The most recent testing of the RTO was completed on March 20, 2002. The destruction efficiency (DE) for the RTO was calculated to be 98.47%, with a permitted minimum DE limit of 95% at the time. A control panel for the RTO was observed adjacent to the EU-CoaterB which had monitors for each emission unit's status. An observation/office area is also used to monitor the RTO. The minimum operating temperature for the RTO is 1400°F. The setpoint stated by General Formulations staff is 1450°F and the observed operating temperature at the time of the inspection was 1616°F. While discussing the RTO it was stated to AQD staff that if the RTO temperature falls below the set point it will not automatically shut down. An audio alarm will sound off and staff must manually shut down the RTO if it is necessary. Each event the RTO goes below 1450°F is recorded and was available. Records were reviewed back to early 2016. The events identified in records were determined to be acceptable reasoning's such as a power outage. A visual inspection of the RTO in operation, which is located on the rooftop, was then completed, with no concerns identified.

At the time of the inspection EU-CoaterG was in operation utilizing only water based coating materials and was still in the process of switching to using solvent based coating materials. Future testing of the RTO will be completed to verify the capture efficiency (CE) and DE.

RTO bypass times are to be completed on a daily and monthly time basis for EU-CoaterD and EU-CoaterG; however, EU-CoaterG currently uses only water based coating materials and is not connected to the RTO. Daily records back to January 2016 were reviewed for EU-CoaterD. General Formulations appear to be adequately keeping track of the bypass times for EU-CoaterD.

General Formulations appear to be keeping track of coating usage rates, VOC contents, daily, monthly and 12-month rolling VOC emissions, for FG-SolventBased and specifically the sums of EU-CoaterD and EU-CoaterG. Only dirty cleaning solvents are reclaimed in EU-Mixroom and it appears that no coating materials are reclaimed. Also it appears that General Formulations is keeping track of Hydrotreated Distillate CAS # (64742-46-7) usage rates, content and emission rates.

Three stacks were observed venting externally, which was verified during the inspection of the rooftop. Though the stacks were not measured, the dimension and formations appeared consistent with Opt-Out Permit No. 192-03F.

### **FG-Facility**

This flexible unit covers all emissions units on site. Several potentially exempt pieces of equipment were identified during the course of the inspection that have the potential for emitting HAP and/or VOC emissions and were not included in the appropriate record sections. These potentially exempt units are listed at the end of this report. AQD will require that from now on General Formulations includes these emission units in the applicable recordkeeping requirements.

FG-Facility has an emission limit of less than 9.0 tpy and less than 22.5 tpy per a 12-month rolling time period for individual and total aggregate HAPs respectively. Formulations data sheets were requested for the top five HAP containing coating materials used. General Formulations does appear to be keeping track of usage rates of each HAP containing material used; however, several errors were identified between HAP contents and supporting documents. Based on the errors identified, the records were determined to be incomplete and emission limits could not be verified, which is a violation of SC.VI.2.c-e. Reclaim of dirty cleaning solvents was stated by Mr. Fodrocy to occur in the EU-Mixroom; however, records were requested and not provided; therefore, this is a violation of SC.VI.2.b.

Additionally, FG-Facility has an emission limit for VOCs of less than 90 tpy per a 12-month rolling time period. A letter from General Formulations, dated January 28, 2011 was received by AQD requesting the use of formulation data sheets to determine the VOC content for each coating material. Formulation data sheets were requested for the top five VOC containing coating materials and reviewed. General Formulations does appear to be keeping track of usage rates for each VOC containing material used; however, several errors were identified between VOC contents and supporting documents. Based on the errors identified, the records were determined to be incomplete and emission limits could not be verified, which is a violation of SC.VI.3.c-e. Reclaim of dirty cleaning solvents was stated by Mr. Fodrocy to occur in the EU-Mixroom; however, records were requested and not provided; therefore, this is a violation of SC.VI.3b.

FG-Facility has an emission limit of 0.5 tpy of Benzophenone (CAS No. 119-61-9) per a 12-month rolling time period. Emissions are based off a 2% weight percent of Benzophenone (CAS No. 119-61-9) due to reactivity. EU-CoaterUV is the only process that utilizes Benzophenone (CAS No. 119-61-9) containing coating materials. For the month of February 2017 the total emissions were 0.00012 tons. The total emissions of Benzophenone (CAS No. 119-61-9) since February 2017 were 0.00462 tpy per a 12-month rolling total time period. General Formulations appears to be keeping adequate track of their Benzophenone (CAS No. 119-61-9) containing material usage rates, content, monthly and 12-month rolling total emissions. No reclaim was identified for this emission unit.

### Additional observations

- It was stated during the inspection that General Formulations does not have any backup generators.
- Approximately eight 6,000 gallon tanks were observed on site. From information provided during the inspection and emails following, the eight tanks are empty or contain Aroset 3250, Dow Rebond 8915M and/or Aroset 3312. The tanks were installed approximately 4-5 years ago. Vapor pressures for the tanks in use were provided by General Formulations staff. The true vapor pressures were less than 1.5 psia. Based on these findings it appears the tanks are exempt per Rule 284(2)(i).
- Several drill presses, grinders, and/or saw machines were identified throughout the inspection for minor maintenance. These units appear to be exempt per Rule 285(2)(l)(vi)(B).
- One 1.05 MmBTU sized boiler was observed in the maintenance area. The boiler was listed as constructed in 2000 and is natural gas only. The boiler appears to be exempt per Rule 282(2)(b)(i).
- Solvent based and water based chemical storage areas were observed on the east side of the facility.
- Approximately eight slitting machines, four sheeting machines and one puncher machine were observed in the converting area. General Formulations staff stated that these units have no emissions.
- Two printers were observed in the east side of the facility. General Formulations staff stated that the printers use water or solvent based materials respectively and the printers are used for testing. General Formulation's shall provide a potential exemption, if available, for the two printers in their VN response.

### Conclusion

A final discussion was completed with AQD staff, Mr. Fodrocy and Mr. Bachholzky. Based on the review of the records provided and the facility walk through, General Formulations is not in compliance with Opt Out PTI No. 192-03F. A VN will be sent.

### Recommendations

The following are items identified during the inspection and/or reviewing records that, though are not violations, will need to be completed.

- After review of records provided, it was concluded that General Formulations was not using Test Method 24 and/or Formulation Data Sheets to determine the VOC content for each coating material. General Formulations shall in the future utilize Test Method 24 or formulation data sheets to determine the VOC content of all coating materials.

- After review of records provided, it was concluded that General Formulations was not using Formulation Data Sheets to determine the HAP content for each coating material. In the future General Formulations shall utilize Formulations Data Sheets to determine the HAP content for each emission unit on site.
- Several potentially exempt pieces of equipment were identified during the course of the inspection that have the potential for emitting HAP and/or VOC emissions and were not included in the appropriate record sections. AQD will require that from now on General Formulations includes these emission units in the applicable recordkeeping requirements.

NAME Adam E. Myler

DATE 06/27/17

SUPERVISOR [Signature]