

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

P008955361

FACILITY: BASF Toda America LLC		SRN / ID: P0089
LOCATION: 4750 West Dickman Rd, BATTLE CREEK		DISTRICT: Kalamazoo
CITY: BATTLE CREEK		COUNTY: CALHOUN
CONTACT: David Sheaves , Environmental Protection Expert		ACTIVITY DATE: 08/26/2020
STAFF: Cody Yazzie	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: Schedule Inspection		
RESOLVED COMPLAINTS:		

This inspection was conducted in two separate portions to best accommodate for social distancing guidelines that are set by the operating facility and the State of Michigan in response to the COVID-19 virus pandemic. The first portion consist of the records review that are associated with any Permit to Install that may have active currently along with any permit exempt equipment that may require recordkeeping. The second part of the inspection would include the on-site visit in which staff could observe the emission units on a typical operation day.

BASF Toda America (hereafter BASFTA) is a stationary source that produces the cathode portion of the lithium-ion powdered mixture that is used to make the cathodes in lithium-ion batteries. This stationary source is a minor source based on Potential to Emit; however, this facility is subject to 40 CFR Part 63 Subpart VVVVV – National Emission Standards for Hazardous Air Pollutants (NESHAP) for Chemical Manufacturing Area Sources. In this NESHAP 63.11494(e) requires that any source that installed a federally-enforceable control device on an affected Chemical Manufacturing Processing Unit (CMPU) is required to obtain a Title V permit if the control device on the affected CMPU is necessary to maintain the source's emissions at area source levels. BASFTA in a new owner audit to the United States Environmental Protection Agency (USEPA) identified that the facility is subject to NESHAP VVVVV and should have completed and applied for a Title V permit no later than December 21, 2013.

On August 21, 2018 a meeting was held in the Kalamazoo District Office to discuss a number of compliance issues that the facility was having with NESHAP VVVVV. In the meeting it was discussed that on March 8, 2018 at the time BASF entered into a collaborative agreement with Toda America, Inc. that gave BASF majority ownership of the facility's assets and would now call their facility BASFTA. BASFTA further discussed in the meeting about the new owner audit disclosed to USEPA, Region V for their review and consideration that detailed the non-compliance issues at the facility related to the CMAS regulations at that date and time.

Under the State of Michigan AQD Rule 960 it is stated that the facility NESHAP VVVVV is adopted by reference in R 336.1902. This gives the AQD delegation of authority to enforce the standards of this federal regulation. Since AQD has delegation of authority for NESHAP VVVVV AQD sent a Violation Notice on November 7, 2018 for the non-compliance issues detailed in the new owner audit that was disclosed to USEPA, Region V. The facilities response outlined a timeline/schedule for compliance to address these issues. Since BASFTA disclosed the new owner audit information to USEPA Region V, AQD is using discretion and differing any enforcement actions related to the new owner audit agreement and the NESHAP VVVVV non-compliance issues to USEPA so long as BASFTA continues to work with AQD meeting their compliance schedule.

On April 30, 2019 the Kalamazoo District Office received the initial ROP application for BASFTA. The initial ROP application submitted had changes made to a PTI No. 70-10A which staff indicated would need to go through the AQD Permit Section. These changes lead to the approval of PTI No. 70-10B which covered administration changes and combined PTI No. 10-19A which covered the pack out rooms line one and line two. BASFTA does not appear to have been inspected by the AQD since the facility started operation.

Records Review Conducted (August 18, 2020):

On July 28, 2020 Air Quality Division (AQD) staff (Cody Yazzie) sent an email to David Sheaves, BASFTA,

Environmental Protection Expert, requesting recordkeeping associated with PTI No. 70-10B. Mr. Sheaves did request a 14-day extension to allow the facility time to prepare the necessary records, since BASFTA maintains continuous records and the fact that the facility would have to coordinate "virtually" staff thought it was appropriate to allow the 14-day extension. Staff's summary of the review is included below.

EULINE1:

This emission unit includes all Line 1 equipment that handles the raw material, weighing, mixing, filtering, calcination process, processing, and pack out room used in the manufacturing of lithium-ion battery cathode material. This line was installed on December 6, 2010.

BASFTA is required to monitor on a continuous basis and record on a calendar day basis the pressure drop reading for each fabric filter for EULINE1; these include the following A1BF010, A1BF020, A1BF030, A1BF210, A1BF330, A1BF650, and A1BF720. In addition to this the facility must also monitor on a continuous basis and record on a calendar day basis the liquid flow rate of each EULINE1 wet scrubber associated with EULINE1 when it is in operation. To check compliance with these recordkeeping requirements Staff asked BASFTA to provide the liquid flow rate of the scrubbers and pressure drop reading of each fabric filter for several random dates dating back to May 15, 2019. In the records response BASFTA indicated for the dates provided that there are times when the monitoring device records a zero value. The facility indicated that this is due to the fact that the equipment operating on a batch basis. When the value is recording a zero value the equipment is not in operation. BASFTA also indicated that all pressure drop values for dry media systems are evaluated for compliance by comparing against a range of 0.1 to 6.0 inches of water column pressure drop. The scrubber systems are evaluated against the permit value of 0.22 gal/minute of scrubber water flow.

The facility provided all fabric filter differential pressure records except for A1-BF-030 this is do to the fact that at the time of the inspection A1-BF-030 did not discharge to atmosphere. The facility will be connecting this device to the HEPA filters located on the east side of the facility during the outage starting in September of 2020. Staff found the reviewed differential pressure records showed that the differential pressures of each fabric filter were maintained in the accepted operation range for the reviewed dates. The only exception is for A1-BF-650 in which there were intermittent times that the value recorded with in a range less than 0.1 inches of water column. During these dates in the Bag Leak Detection System data provided there were no indications that a baghouse element was having a leak. Mr. Sheaves explained that the during this time the equipment is in a recycle phase and not discharging to atmosphere. In discussion with Mr. Sheaves Staff was told that the facility plans to re-permit this device as a recovery device.

The facility provided all scrubber flow rate records that are associated with EULINE1. Staff found that a majority of the time scrubbers had a flow rate greater than 0.22 gallons per minute while they were in operation, however staff did find a few dates and times in which the scrubber flow rate were lower than the 0.22 gallons per minute required by PTI No. 70-10B. The found dates and times in which the scrubbers were found to be lower than the 0.22 gallons per minute flow rate are identified as the following: August 20, 2019 from 21:37 to 21:43 (6 minutes) for both FIT-1-960-1A and FIT-1-960-2A; January 26, 2020 from 6:01 to 6:10 (9 minutes) for both FIT-1-960-1A and FIT-1-960-2A; January 26, 2020 from 6:21 to 6:29 (8 minutes) for both FIT-1-960-1A and FIT-1-960-2A. Most of the dates reviewed the scrubbers were in operation for 24 hour or close to it. Staff mentioned to Mr. Sheaves that under the permitted limit the facility must maintain these scrubber water flows above 0.22 gallons per minute while the equipment is in operation. Due to the fact that the as of September 2020 the facility was undergoing construction to replace the wet particulate scrubbers with bag filters to control PM emissions under exemption Rule 285(2)(d) which is used for the reconstruction or replacement of air pollution control equipment with equivalent or more efficient equipment. Staff would consider the issue resolved with the scrubbers no longer existing at the facility and moving to a more efficient PM pollution Control equipment.

BASFTA is required to maintain visible emission readings for any baghouse that is not using a bag leak detection system (BLDS) at least once per calendar month. The visible emission readings are allowed to be either certified or non-certified. EULINE1 only has one baghouse that does not have the BLDS operating on it. This baghouse is A1-BF-330 as lithium compounds are used exclusively in the section of the process. Lithium compounds are not considered a HAP therefore are not calculated as a part of metal HAP emissions and do not require the BLDS. Staff was provided with weekly with weekly visible emission records starting in October until 2018 through August 2020. These records included Date, Name of the Observer, and if there were any visible emission. During the reviewed period the facilities records showed that there were no visible emissions when the

observations were taken.

EULINE2:

This emission unit includes all Line 2 equipment that handles the raw material, weighing, mixing, filtering, calcination process, processing, and pack out room used in the manufacturing of lithium-ion battery cathode material. This line was installed on September 29, 2014. One major difference to EULINE2 is that the device that supports the addition of lithium compounds to the process is not permitted under EULINE2 in PTI No. 70-10B. Instead the facility is claiming exemption Rule 290 for emissions that are associated with stack and bag filter A2-BF-330. Emissions from this stack are evaluated in the Rule 290 portion of the Records review.

BASFTA is required to monitor on a continuous basis and record on a calendar day basis the pressure drop reading for each fabric filter for EULINE2; these include the following A2BF010, A2BF015, A2BF020, A2BF030, A2BF650, and A2BF720. In addition to this the facility must also monitor on a continuous basis and record on a calendar day basis the liquid flow rate of each EULINE2 wet scrubber associated with EULINE2 when it is in operation. To check compliance with these recordkeeping requirements Staff asked BASFTA to provide the liquid flow rate of the scrubbers and pressure drop reading of each fabric filter for several random dates dating back to May 15, 2019. In the records response BASFTA indicated for the dates provided that there are times when the monitoring device records a zero value. The facility indicated that this is due to the fact that the equipment operating on a batch basis. When the value is recording a zero value the equipment is not in operation. BASFTA also indicated that all pressure drop values for dry media systems are evaluated for compliance by comparing against a range of 0.1 to 6.0 inches of water column pressure drop. The scrubber systems are evaluated against the permit value of 0.22 gal/minute of scrubber water flow.

The facility provided all fabric filter differential pressure records. Staff found the provided differential pressure records showed that the differential pressures of each fabric filter were maintained in the accepted operation range for the reviewed dates. The only exception is for A2-BF-650 in which there were intermittent times that the value recorded with in a range less than 0.1 inches of water column. During these dates in the Bag Leak Detection System data provided there were no indications that a baghouse element was having a leak. Mr. Sheaves explained that the during this time the equipment is in a recycle phase and not discharging to atmosphere. In discussion with Mr. Sheaves Staff was told that the facility plans to re-permit this device as a recovery device.

The facility provided all scrubber flow rate records that are associated with EULINE2. Staff found that a majority of the time scrubbers had a flow rate greater than 0.22 gallons per minute while they were in operation, however staff did find a few dates and times in which the scrubber flow rate were lower than the 0.22 gallons per minute required by PTI No. 70-10B. The found dates and times in which the scrubbers were found to be lower than the 0.22 gallons per minute flow rate are identified as the following: August 20, 2019 from 21:21 to 21:26 (5 minutes) for FIT-2-960-A1, FIT-2-960-A2, FIT-2-960-B1, and FIT-2-960-B2; August 20, 2019 from 21:37 to 21:43 (6 minutes) for FIT-2-960-A1 and FIT-1-960-2A; October 16, 2019 from 5:33 to 5:36 (3 minutes) for FIT-2-960-B2; October 16, 2019 from 5:50 to 5:59 (9 minutes) for FIT-2-960-B2; January 26, 2020 from 6:01 to 6:10 (9 minutes) for FIT-2-960-A1, FIT-2-960-A2, FIT-2-960-B1, and FIT-2-960-B2; January 26, 2020 from 6:21 to 6:29 (8 minutes) for FIT-2-960-A1, FIT-2-960-A2, FIT-2-960-B1, and FIT-2-960-B2. Most of the dates reviewed the scrubbers were in operation for 24 hour or close to it. Staff mentioned to Mr. Sheaves that under the permitted limit the facility must maintain these scrubber water flows above 0.22 gallons per minute while the equipment is in operation. Due to the fact that the as of September 2020 the facility was undergoing construction to replace the wet particulate scrubbers with bag filters to control PM emissions under exemption Rule 285(2)(d) which is used for the reconstruction or replacement of air pollution control equipment with equivalent or more efficient equipment. Staff would consider the issue resolved with the scrubbers no longer existing at the facility and moving to a more efficient PM pollution Control equipment.

BASFTA is required to maintain visible emission readings for any baghouse that is not using a bag leak detection system (BLDS) at least once per calendar month. The visible emission readings are allowed to be either certified or non-certified. EULINE2 does not have any bag filters that do not have the BLDS installed.

FGLINES:

This flexible group includes special conditions that include both EULINE1 and EULINE2. Special conditions that apply to both emission units are a set of bag leak detection requirements that specify things such as to what concentration the BLDS must be certified to detect PM emissions to, what type of alarm system must be installed, the initial adjustment of the BLDS, and where the BLDS sensors must be installed. This flexible group also has a 12-month rolling Nickel emission limit.

For this emission limit the facility is required to maintain a monthly and 12-month rolling record of Nickel emissions calculations. Staff was provided monthly EULINE1 and EULINE2 Nickel emissions and 12-month rolling Nickel Emissions that combine both EULINE1 and EULINE2. The 12-month rolling Nickel emissions show that the facility does exceed the Nickel emission limit of 145 pounds year. Records were provided from December 2017 through July 2020. Based on the emission records the facility first exceed the 145 pound per year limit in March of 2019 where the facility recorded 147.78 and this exceedance continues to occur through to July 2020. The largest exceedance occurred in February 2020 which the facility calculated emissions to be 320.84 pounds per year. This is a violation of Special Condition I.1.

The nickel emissions at the plant are trending back down toward the permitted limit. BASFTA explains that this is due to the additions of the HEPA filters which showed in the stack test that concluded on July 16, 2019 to help improve the control efficiency of the fabric filters. BASFTA indicated that with the facility planning on not operating for the last three months of 2020 that it would help the 12-month rolling nickel emissions to come closer to the limit. Staff was told that BASFTA has projected that that they should be compliant with the nickel emission limit sometime 2021. Staff indicated to Mr. Sheaves that with the based on how long the facility has been out of compliance with the limit and the issue is on going that the facility would receive a violation notice.

Staff did request to review the BLDS data for the same several random dates that were requested for the review of the differential pressure readings on the fabric filters. Mr. Sheaves indicated that the BLDS data is given in a reading of picoAmps. It was stated that a leaking dust collector element is identified when the BLDS records 5 minutes of continuous data greater than 30 picoAmps. During the reviewed dates Staff did not find any continuous 5-minute periods in which the facility recorded BLDS data greater than 30 picoAmps. Staff did find occasionally one data point every so often that was slightly above 30 picoAmps.

Rule 290:

The device supports the addition of lithium compounds to the process. The process is essentially a manual add hopper and a mixing vessel, that is then connected to the precursor line. From there the products are blended to create the pre-calcined cathode material. There are two compounds processed through this emission source which are Lithium Hydroxide and Lithium Carbonate. This emission source is expected to emit both based on the recipe that BASFTA is manufacturing. Emissions from this source are controlled by a bag filter that the facility recognizes as A2-BF-330. Lithium Hydroxide has an ITSL of 0.25 micrograms per cubic meter. This classifies this pollutant in the range of ITLS that have screening levels greater than 0.04 micrograms per cubic meter but less than 2.0 micrograms per cubic meter. Under this classification in Rule 290 the facility is only allowed to emit 10 pounds per month of controlled emission of this pollutant. There was no established AQD ITSL for Lithium Carbonate at the time of the inspection. The most recent Department Rule 290 guidance allow for pollutants without an established AQD screening level that they be emitted at 500 pounds per month category for controlled emissions.

In the initial records provide the facility was calculating the total amount of lithium that was being emitted from the baghouse. Staff had a discussion with Mr. Sheaves indicating that Rule 290 requires the individual compounds be calculated. This is important in BASFTA case as lithium hydroxide has a more stringent allowable emissions per Rule 290 than lithium. BASFTA was able to promptly revised recordkeeping for calculated emission of both lithium hydroxide and lithium carbonate. The calculated emissions of lithium hydroxide occurred in September 2019 in which 0.29 pounds per month of lithium hydroxide emissions were recorded. The calculated emissions of lithium carbonate occurred in both May 2018 and July 2018 in which 0.82 pounds per month of lithium carbonate emissions were recorded. These records appear to be in compliance with permit exemption Rule 290.

Other NESHAP 6V Records:

The NESHAP VVVVV requires that the facility follow some management practices that require recordkeeping. These management practices include quarterly inspections with recordkeeping of these inspections and

documentation of any equipment malfunctions.

Staff was provided of documentation of the previous year's quarterly inspections. The months that inspections occurred were in September 2019, November 2019, March 2020, and June 2020. These inspection records include the equipment/process ID, a description of the equipment, if it was inspected, an indication if there were leaks detected, comments/updates relating to the repair or condition of the equipment, the actual date of the inspection, date of the repair, and the initials of the inspector. These recordkeeping practices appear to comply with the requirements of 63.11501(c)(i). In section 63.11495(a)(3)(i-v) specify how and when the inspections should be conducted for compliance with NESHAP VVVVVV.

Section 63.11501(c)(1)(vii) of NESHAP VVVVVV outline the recordkeeping requirements for each malfunction of operation process equipment, control devices, recovery devices, or continuous monitoring systems apart of the CMPU subject to the federal regulation. There were two dates that the facility discussed that there was a malfunction of equipment. The first malfunction discussed was on August 23, 2018 in which A2-BF-675 had a malfunction. BASFTA quantified the malfunction to being less than 1 pound of HAP containing particulate that was estimated by weighing the material collected during clean up. The next malfunction occurred on September 7, 2018 and was associated with the bag filter A2-BF-630 in which 30 pounds of HAP containing particulate was released. Both bag filters no longer convey emissions. During the most recent PTI modification the bag filters were changed to product recover devices that now convey emissions to the respective control devices on EULINE2.

Onsite Inspection Summary Conducted (August 26, 2020):

On August 26, 2020 AQD staff arrived at 4750 West Dickman Road Battle Creek, Michigan at 9:00 AM to conduct an announced air quality inspection of BASFTA. Staff made initial contact with Mr. Sheaves and signed in at the front logbook station. After signing in Staff was escorted to a conference room where staff was shown a safety video. After the video Staff conducted a pre inspection meeting which outlined what equipment staff was wanting to observe during the inspection. After the pre-inspection meeting Staff was escorted around the facility by Mr. Sheaves and Mr. Ivor Bull, BASFTA, Plant Manager. Observations during the inspection are noted as follows.

BASFTA requires that anyone that enter the manufacturing area at the facility be fitted with a full respirator protection. BASFTA offered to provide the full respirator protection so long as Staff could show a medical card that cleared them to wear the provided respirator protection provided. At the time of the inspection Staff did not have the medical card clearance necessary nor does EGLE AQD have full respirator protection that is available to be provided to Staff. This meant that during the inspection staff did not observe any of the equipment in the manufacturing area. Staff's inspection was limited to walking around the facility and observing pollution control equipment and stacks.

During the inspection Staff was shown the location for the stacks in which the facility was rerouting emissions as a part of PTI No. 70-10B. During the inspection Staff observed no visible emissions coming out of any of the stacks. This appears to be compliant with Special Condition I.18 and Special Condition I.21 in EULINE1 and EULINE2 respectively. These Special Conditions require that the facility emit no visible emissions from any of the stacks associated with EULINE1 and EULINE2.

During the inspection Staff was also able to record readings for the scrubber flow rates on EULINE2 which were in operation. During the inspection Staff got measurements for the differential pressure of the scrubbers and the scrubber flow rates the measurements are as follows:

<u>Scrubber Name</u>	<u>Differential Pressure (in H2O)</u>	<u>Scrubber Flow Rate (gal/min)</u>
A2-SCR-960-A1	7.9	0.51
A2-SCR-960-A2	7.3	0.46
A2-SCR-960-B1	7.3	0.42
A2-SCR-960-B2	7.0	0.47

Based on the observations during the inspection the Scrubber Flow Rate was operating above the required 0.22 gallons per minute flow rate require by PTI No. 70-10B. Staff was observing one of the last days of operation for the scrubbers as the facility was scheduled to remove these pollution control devices and replace them fabric

filters starting September 1, 2020.

At the time of the inspection and based on a review of records obtained during or following the inspection, the facility appears to be in non-compliance with PTI No 70-10B. Staff stated to Mr. Sheaves that a violation notice for the Nickel emissions exceedances and a report of the inspection would be sent to the facility for their records. Staff concluded the onsite inspection at 10:00 AM.-CJY

NAME Cody Yung

DATE 9/29/20

SUPERVISOR RIL 10/5/20