

M4808
MANILA

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

ACTIVITY REPORT: On-site Inspection

M480859926

FACILITY: BASF Corporation		SRN / ID: M4808
LOCATION: 1609 BIDDLE AVE., WYANDOTTE		DISTRICT: Detroit
CITY: WYANDOTTE		COUNTY: WAYNE
CONTACT: Bryan Hughes , EHS Team Leader		ACTIVITY DATE: 09/14/2021
STAFF: Samuel Liveson	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled inspection.		
RESOLVED COMPLAINTS:		

On Tuesday September 14, 2021, AQD staff (Sam Liveson and Jeff Korniski) conducted an announced, scheduled inspection of BASF Corporation - Labs and Application Centers (BASF), located at 1609 Biddle Avenue in Wyandotte, Michigan. The purpose of this inspection was to determine the facility's compliance with the federal Clean Air Act; Part 55, Air Pollution Control, of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; the Michigan Air Pollution Control Rules; the conditions of Renewable Operating Permit (ROP) No. MI-ROP-M4808-2019.

Due to the ongoing COVID pandemic, to minimize exposure and ensure that safety protocols were followed, the inspection was announced. AQD called BASF staff beginning on August 20, 2021 to schedule the inspection. Mr. Bryan Hughes provided pre-registration information on September 3. AQD virtually viewed a safety video and completed pre-registration before visiting the facility.

Facility records were provided via email to AQD staff Todd Zynda during the week of March 8, 2021.

Pre-Inspection Meeting and Facility Overview

AQD met with Mr. Bryan Hughes, EHS Team Leader, at the Main Administration Building (east off of Biddle Avenue). AQD parked at the small oval parking lot south of the Main Administration Building and walked to the building's front entrance off of Biddle Avenue.

1. General Facility Overview

BASF Labs and Application Centers appears to have three main areas. These are (1) the main Research and Development building, (2) the Urethane Applications Building (UAB), and (3) the Advanced Material Innovation Center (AMIC). There are also various quality assurance/quality control (QA/QC) labs appended to each process. Laboratories on site appear to include the Woodbinder Lab, the Home Care Lab, the Packaging Application Laboratory, and the Thermoplastic Urethane Plant Laboratory.

2. Site History: Stationary Source Determination

For New Source Review (NSR) purposes, BASF is considered three sources due to the facilities having three different major SIC codes. For hazardous air pollutant (HAP) purposes, BASF Wyandotte is considered one source.

2.1. NSR Stationary Source Determination

Under the AQD administrative rules at R 336.1119(r), a stationary source is defined, in part, as "all buildings, structures, facilities, or installations which emit or have the potential to emit 1 or more air contaminants, which are located at 1 or more contiguous or adjacent properties, which are under the control of the same person, and which have the same 2-digit [SIC] major group code associated with their primary activity."

The BASF Wyandotte manufacturing and research site at 1609 Biddle Avenue is considered a single facility within the BASF corporate structure. However, under AQD Rule 119(r) the Wyandotte site is split into three stationary sources assigned SRNs B4359, M4777, and M4808 comprising, respectively, the chemical manufacturing activities (SIC major grouping 28), the plastics manufacturing activities (SIC major grouping 30) and the research and development activities (SIC major grouping 87).

2.2. HAP Stationary Source Determination

Regardless of SIC major groupings, the group of stationary sources B4359, M4777, and M4808 is a single entity when evaluated for "major source" applicability under Section 112 of the CAA and 40 CFR, Part 63.

Under Section 112 of the Clean Air Act (CAA), the definition for a "major source" of hazardous air pollutants is, in part: "any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous pollutant or 25 tons per year or more of any combination of hazardous air pollutants." Per this definition, SIC code is not a criterion in determining a major source of hazardous air pollutants.[1]

3. Site History: Major Source Determination for M4808

Prior to February 7, 2006, the group of stationary sources at BASF Wyandotte were considered a major source for HAPs. BASF operates polyether polyols manufacturing process units at B4359 that became an existing affected source under 40 CFR 63, Subpart PPP, the MACT standard for Polyether Polyols Production on the initial compliance date of June 1, 2002 (40 CFR 63.1422(c)). BASF Wyandotte operates a flexible polyurethane foam process at M4777 that became an existing affected source under 40 CFR 63, Subpart III, the MACT standard for Flexible Polyurethane Foam Production on the initial compliance date of October 8, 2001 (40 CFR 63.1291(a)).

On February 7, 2006, BASF obtained legal, enforceable permit limits (Permits to Install Nos. 289-05 for B4359, 314-05 for M4808, and 315-05 for M4777) for the group of stationary sources to restrict the potential to emit of any single HAP to less than 10 tons per year and the potential to emit of all HAPs combined to less than 25 tons per year so that each stationary source at BASF Wyandotte is an area source of HAPs. However, BASF has yet to inform the AQD of an intent to reclassify to an area source of HAPs for MACTs PPP and III. Until such time, the group of stationary sources remains major for these two MACT standards; therefore, the individual stationary source M4808 must obtain and continue to operate in compliance with a ROP.

4. Exemption Information

BASF asserts that the operations at M4808 are exempt from the requirement to obtain a permit to install through Rule 283(2)(a) and Rule 283(2)(b).

R 336.1283(2) is provided below:

- (2) The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the following:
 - (a) Pilot processes or process equipment utilizing T-BACT used for any of the following:
 - (i) Chemical analysis.
 - (ii) Physical analysis.
 - (iii) Empirical research.
 - (iv) Theoretical research.
 - (v) The development of process or process equipment design and operating parameters.
 - (vi) The production of a product for field testing.
 - (vii) The production of a product for clinical testing of pharmaceuticals.
 - (viii) The production of a product for use as a raw material in the research and development of a different product.
 - (b) laboratory equipment.

R 336.1283(3) provides restrictions on the exemption at (2)(a), noting the rule does not include pilot processes or process equipment used for: (a) the production of a product for sale, unless such sale is only incidental to the use of the pilot process or process equipment; (b) the repetitive production of a product using the same process or process equipment design and operating parameters; (c) the production of a product for market testing or market development; (d) the treatment or disposal of waste which is designed, by listing or specified characteristic, as hazardous under federal regulations or state rules.

R 336.1278 precludes the exemptions from applying to any of the following:

- (1)(a) any activity subject to major New Source Review (Part 18 or Part 19 of the AQD rules);
- (1)(b) any activity resulting in an increase in actual emissions greater than the Rule 119 significance levels;
- (2) construction or reconstruction of a major source of HAPs (40 CFR 63.2 and 63.5(b)(3));
- (3) construction or modification of a HAP source at 40 CFR 61.

5. NESHAP for Chemical Manufacturing Area Sources, 40 CFR Subparts A and VVVVV

The Labs and Applications Centers (M4808) uses methylene chloride, but appears to be classified as a research and development facility and therefore does not appear to be subject to 40 CFR 63 Subpart VVVVV - National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources.

At 40 CFR 63.11494(c)(3) and (4), the standard does not apply to research and development facilities (as defined in Section 112(c)(7) of the Clean Air Act) or to quality assurance and quality control operations. Section 112(c)(7) of the Clean Air Act defines a research or laboratory facility as “any stationary source whose primary purpose is to conduct research and development into new processes and products, where such source is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for commercial sale in commerce, except in a de minimis manner.”

Facility Walkthrough and Compliance Status

1. Facility Walkthrough

1.1. Woodbinder Laboratory

AQD visited the woodbinder lab at around 2:15 PM. From talking with staff at the laboratory, research related to resins for wood binding appears to take place here. The lab may make small size wood pieces. There appeared to be blending (mixing) chambers, a hydraulic press, as well as asphalt testing with fume hoods.

1.2. Home Care Laboratory

AQD visited the home care lab around 2:30 PM. From talking with staff at the laboratory, this lab appears to research additives for companies like Tide, to improve products. Home care products are manufactured at other BASF facilities like White Stone, South Carolina. AQD observed scales, small heaters, ovens, hoods, lab benches, as well as dishwashers and washing machines.

1.3. Urethane Applications Building (UAB)

From talking with facility staff, UAB researches polyurethanes and foams. This research relates to isocyanates and polyols, since their combination produces polyurethanes. The monomer business that works with isocyanates provides raw materials here for research. Laboratory bench hoods emit to ambient air.

1.4. Advanced Material Innovation Center (AMIC)

AMIC researches new products. It appears the facility also monitors and provide trials of products. There appear to be many hoods, wet chemistry, and analysis.

1.5. Central R&D Building

At the Central R&D Building, there appears to be research into plastics, monomers, and polymers. AQD observed an area where materials for use in 3D printing appear to be researched. From discussions with staff at the facility, there appears to be research into ultraviolet resins and initiators that relate to sunlight.

2. MI-ROP-M4808-2019 Conditions and Compliance Status

2.1. MI-ROP-M4808-2019 General Conditions and Compliance Status

GC(s)	Brief Condition Summary	Determination	Explanation

9, 10	Collected air contaminants shall be removed to maintain controls at required collection efficiency; air cleaning devices installed and operated in a satisfactory manner.	Compliance	Controls were installed and operating in accordance with T-BACT during the inspection.
11	Visible emissions limited to 20% over a six-minute average, with the exception of one 27% opacity per hour unless otherwise specified in the ROP or in a federal new source performance standard. This limit applies to point source (non-fugitive) emission units at the plant.	Compliance	Visible emissions were not observed exceeding 20% opacity during the inspection.
12	Nuisance emissions prohibited	Compliance	No citizen complaints have been received by the AQD's Detroit Office for BASF Corporation - Labs and Application Centers since at least the last facility inspection.
19 through 23, 25	Prompt reporting of deviations; semiannual reporting of deviations; annual certification of compliance status.	Compliance	On September 1, 2020, AQD received the facility's semiannual report for the period of January 1, 2020 through June 30, 2020. No deviations were reported. On March 15, 2021, AQD received the facility's semiannual report for the period of July 1, 2020 through December 31, 2020. No deviations were reported. On March 15, 2021, AQD also received the facility's annual certification on that during the reporting period from January 1, 2020 through December 31, 2020, the source was in compliance with all conditions of the ROP.
24	Submissions to the Emissions Inventory	Compliance	The AQD received this facility's 2019 and 2020 MAERS databases on March 16, 2020 and March 15, 2021. Please see MACES reports M480853082 and M480857456.

2.2. MI-ROP-M4808-2019 Special Conditions and Compliance Status

BASF provided monthly and 12-month rolling HAP emissions information for individual HAPs and aggregate HAPs for January of 2019 through December of 2020. From talking with staff on site, it appears that HAP emissions are based upon the facility's chemical inventory system of chemicals stored and disposed. A detailed review of the inventory and calculated emissions was not conducted.

SC(s)	Brief Condition Summary	Determination	Explanation
I.1	Emission limit of less than 10.0 tons per year (tpy) of individual HAPs per 12-month rolling time period	Compliance	The highest 12-month rolling individual HAP emissions appear to be 2.66 tons of acrylic acid in January of 2019. This appears to be below the facility-wide limit of 10 tons of individual HAPs per 12-month rolling time period.

I.2	Emission limit of of less than 25.0 tons per year (tpy) of aggregate HAPs per 12-month rolling time period	Compliance	The highest 12-month rolling aggregate HAP emissions appear to be 14.1 tons in June of 2019. This appears to be below the facility-wide limit of 25 tons of total HAPs per 12-month rolling time period.
VI.1	Keep records of individual and total HAPs on a monthly and 12-month rolling basis.	Compliance	BASF provided monthly and 12-month rolling HAP emissions information for individual HAPs and aggregate HAPs for January of 2019 through December of 2020.
VII.1-3	Prompt reporting of deviations; semiannual reporting of deviations; annual certification of compliance status.	Compliance	On September 1, 2020, AQD received the facility's semiannual report for the period of January 1, 2020 through June 30, 2020. No deviations were reported. On March 15, 2021, AQD received the facility's semiannual report for the period of July 1, 2020 through December 31, 2020. No deviations were reported. On March 15, 2021, AQD also received the facility's annual certification on that during the reporting period from January 1, 2020 through December 31, 2020, the source was in compliance with all conditions of the ROP.

2.3. Rule 283(2)(a) T-BACT Discussion

CER equipment that share production and R&D activities was in operation at CER during the 2021 inspection. Based on observations on September 14, 2021, the CER operations appear to be in compliance with the requirements within the B4359 ROP:

1. The T-110 scrubber and the vacuum jets were installed and operating during the September 14, 2021 inspection.
2. The scrubber pump outlet pressure was continuously monitored and registered less than 2.0 bar, as seen by the 0.96 bar reading observed during the September 14, 2021 inspection.
3. The monthly pH monitoring has been conducted and the pH has been less than 3.0, as seen by the 2.08 pH reading as noted in log entry dated December 1, 2020.
4. The monthly water content monitoring has been conducted and measured greater than 60%, as noted in the log entries where the minimum water concentration in the scrubber solution of 99.0% on December 1, 2020.
5. It appears that vacuum jets have been in operation and have measured consistently less than 113°F (N/S jets) and 140°F (E/W jets). West vacuum jet temperatures provided for December 10, 2020 were continually less than 21.5°C (70.7°F). (The south jets were not in operation on December 10, 2020 and therefore data was not provided on temperature for that day.)

Because CER operations have met the emissions control, monitoring, and recordkeeping requirements of the B4359 ROP when under commercial operations, it is presumed the R&D operations have met the T-BACT requirements under Rule 283(2)(a).

Conclusion

Based on the AQD inspection and records review, it appears that BASF is in compliance with the federal Clean Air Act; Part 55, Air Pollution Control, of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; the Michigan Air Pollution Control Rules; and ROP No. MI-ROP-M4808-2019.

[1] Section 112 defines an "area source" as "any stationary source of hazardous air pollutants that is not a major source." A "stationary source" under Section 112 has the same meaning as under Section 111 (a): "any building, structure, facility, or installation which emits or may emit any air pollutant." These

