



REGION 5

CHICAGO, IL 60604

MEMORANDUM

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Bostik Inc., Calumet City, Illinois

FROM: Sasa Dunovic, Inspector/Enforcement Officer
AECAB (IL/IN)

THRU: Nathan Frank, Section Supervisor
AECAB (IL/IN)

TO: File

BASIC INFORMATION

Facility Name: Bostik Inc.

Facility Location: 14303 Paxton Ave, Calumet City, IL 60409

Date of Inspection: December 12, 2024

EPA Inspector(s):

1. Sasa Dunovic, Inspector/Enforcement Officer
2. Meaghan Pashen, Environmental Engineer
3. Maggie Nutter, Physical Scientist

Other Attendees:

1. Jesse Sowder, Plant Manager
2. Jeff Spamier, Plant Engineer

Contact Email Address: jesse.sowder@bostik.com

Purpose of Inspection: To investigate compliance with Synthetic Minor limits for hazardous air pollutants (HAPs)

Facility Type: Phenolic and Acrylic Resin Manufacturing

Facility Name: Bostik Inc.
Facility Location: 14303 Paxton Ave, Calumet City, IL 60409
Date of Inspection: December 12, 2024

Regulations Central to Inspection: HAP emissions and regulatory requirements associated with the Clean Air Act Permit Program (CAAPP) Permit number 96030071, the state implementation plan (SIP), and 40 CFR Part 63 Subpart OOO, National Emission Standards for Hazardous Air Pollutant Emissions: Manufacture of Amino/Phenolic Resins. According to the CAAPP permit, the Phenolic Resin Reactor System is considered affected facility under Subpart OOO.

Arrival Time: 9:10 a.m.

Departure Time: 12:30 a.m.

Inspection Type:

- ☒ Unannounced Inspection
- ☐ Announced Inspection

OPENING CONFERENCE

- ☒ Presented Credentials
- ☒ Stated authority and purpose of inspection
- ☒ Small Business Resource Information Sheet not provided. Reason: Not a Small Business
- ☒ Provided CBI warning to facility

Was any information collected during the inspection claimed as CBI?

☐ Yes ☒ No.

The following information was obtained verbally from Bostik's personnel unless otherwise noted.

Company Ownership: Bostik, a subsidiary of Arkema, acquired the facility in January 2022.

Process Description:

Bostik manufactures water- and solvent-based acrylic resins as well as phenolic resins used in adhesives. Raw materials arrive at Bostik via trucks, drums, totes, and rail cars. Materials arriving via rail car are off-loaded into bulk, fixed-roof storage tanks. There are two phenolic resin reactor systems (R-401 and R-601), two solvent-based acrylic resin reactor systems (R-301 and R-501), and one water- and solvent-based acrylic reactor system (R-201). Reactors are fully batched processes, with batches being completed every 8-20 hours, approximately, dependent on the product.

Raw materials for the acrylic reactors include acrylic monomers, vinyl acetate, catalysts, toluene, hexane, and additional solvents. Each of the three acrylic reactors feeds into blend tanks before final packaging. Emissions from each reactor and blend tanks are sent to a single bladder tank, which acts as a containment tank before a blower moves the collected emission to the direct fire thermal oxidizer.

Raw materials for the phenolic reactors include phenol, formaldehyde, paraformaldehyde, solvents, and special additives. Each of the two phenolic reactors feeds into the "C" tank farm for storage or three intermediate tanks for final packaging. The reactors are rinsed with water and caustic solutions

between each batch. Emissions from each reactor are sent to separate, single-pass scrubbers, which use city water as scrubbing fluid. Each phenolic reactor has two rupture disks, which act as pressure relief devices.

Staff Interview:

The acrylic resin reactor part of the facility operates continuously, 24/7/365, while the phenolic resin reactor system operates continuously, 24/5/365, Monday – Friday. Currently, 57 employees support the facility's operations, working in three shifts. The production at the plant was suspended prior to the inspection for an annual inventory, and the facility was preparing to restart operations on the day of the inspection.

Temperature of the thermal oxidizer is monitored continuously with performance tests completed every 5 years. An interlock between the bladder tank and the thermal oxidizer prevents emissions from being transferred to the thermal oxidizer if the combustion temperature falls below the set point of 1650-degrees Fahrenheit. The scrubbers are equipped with continuous flow and pressure drop monitoring. The pH of the rinse water is monitored and adjusted before being sent to the municipal water treatment plant.

The phenolic reactors' pressure relief devices (rupture disks) are hard-piped to catch tanks (301/401/501 tank and 601 tank). These tanks are designed to contain the liquid and solid content released from the reactor and vent the vapors into the atmosphere.

The facility established a Leak Detection and Repair (LDAR) program to reduce fugitive emissions from the phenolic reactor system. A third party, Montrose Environmental, conducts periodic monitoring of the components included in the LDAR program and maintains the electronic database. According to Bostik's personnel, instances of finding components that leak above the regulatory threshold are rare.

Environmental Monitoring Technology (EMT) conducts quarterly sampling and analysis of heat exchange cooling water to detect the presence of organic hazardous air pollutants (HAP) and volatile organic compounds (VOCs), as these indicate potential leaks.

The facility conducts weekly visual inspections of the agitator seal and open-ended lines in the phenolic reactor system.

TOUR INFORMATION

EPA Toured the Facility: Yes

Data Collected and Observations:

EPA first observed the outdoor solvent unloading tank farms along with the direct fire thermal oxidizer and related controls before moving to the reactor units, working our way up each floor. The thermal oxidizer was operating during the site tour, and its control panel indicated temperatures between 1646- and 1659-degrees Fahrenheit.

During the site visit, both scrubbers, R-401 and R-601, were operational. The control room screen displayed water flows of 5.5 gallons for R-401 and 5.9 gallons for R-601. At the same time, the differential pressure measurements indicated -0.2 inches of water column for scrubber R-401 and 0.7 inches of water column for scrubber R-601.

EPA observed all five reactors during the site tour; however, none of them were operational at the time. Additionally, EPA observed the pressure relief devices, specifically rupture disks, associated with their respective catch tanks and the conservation vent exhaust for tank 609. Furthermore, we observed R-401, R-601, and BT-609 agitators, along with pumps in liquid service.

At the base of the reactors, we observed various tagged LDAR components. As we made our way up the floors of the reactor units, LDAR tags were not observed.

Photos and/or Videos: were taken during the inspection and are listed in Appendix A.

Field Measurements: were not taken during this inspection.

RECORDS REVIEW

- January – June 2024 Semiannual report.
- Blank check list for weekly visual inspections of agitators R-401, R-601, and BT-609.
- Phenol resin system open-ended lines inspection checklist.

CLOSING CONFERENCE

☒ Provided U.S. EPA point of contact to the facility

Requested documents:

1. Monitoring data recorded between January 1, 2023, and December 12, 2024, for the following process and control devices:
 - o Records from R-401 and R-601 scrubbers' continuous flow rate monitoring devices averaged over the same time period as the performance test.
 - o Records from R-401 and R-601 scrubbers' static pressure drop monitoring devices.
 - o The average combustion chamber temperature of the thermal oxidizer measured continuously and averaged over the same time period as the performance test.
 - o Results of the monitoring following a pressure release.
 - o Results of the monitoring Heat exchange systems.
2. Backup copy of all facility LDAR records management databases used during the five (5) years prior to the date of the inspection.
3. Records of each pressure release to the atmosphere.

APPENDIX A: DIGITAL IMAGE LOG AND DIGITAL VIDEO LOG

Inspector Name: Maggie Nutter **Archival Record Location:** [Images](#)

Image Number	File Name	Date and Time (CST)	Description of Image
1	IMG_0724.JPG	12/12/2024 11:00	Raw materials storage
2	IMG_0725.JPG	12/12/2024 11:00	Raw materials storage aisle
3	IMG_0726.JPG	12/12/2024 11:02	"E" Tank Farm: raw material (toluene, ZEHA) unloading
4	IMG_0727.JPG	12/12/2024 11:04	Thermal oxidizer control panel
5	IMG_0728.JPG	12/12/2024 11:05	"Delta V" thermal oxidizer system
6	IMG_0729.JPG	12/12/2024 11:07	"C" Tank Farm: phenolic finished product
7	IMG_0730.JPG	12/12/2024 11:11	Caustic solution and water rinse tanks
8	IMG_0731.JPG	12/12/2024 11:15	Pump P-609
9	IMG_0732.JPG	12/12/2024 11:16	Pump P-601: pumps from reactor to tank
10	IMG_0733.JPG	12/12/2024 11:17	Bag filters tagged for LDAR
11	IMG_0734.JPG	12/12/2024 11:19	Phenolic and acrylic final packaging
12	IMG_0735.JPG	12/12/2024 11:21	Pump P-401
13	IMG_0736.JPG	12/12/2024 11:24	"A" Tank Farm: bulk finished product
14	IMG_0737.JPG	12/12/2024 11:28	Bladder tank
15	IMG_0738.JPG	12/12/2024 11:32	Thermal oxidizer control system
16	IMG_0739.JPG	12/12/2024 11:37	Scrubber
17	IMG_0740.JPG	12/12/2024 11:42	PM-613 vacuum pump
18	IMG_0741.JPG	12/12/2024 11:44	R-401 Reactor rupture disks with monitors, vented to 301/401/501 catch tank
19	IMG_0742.JPG	12/12/2024 11:48	Drip from raw material hose
20	IMG_0743.JPG	12/12/2024 11:50	R-601 Reactor rupture disk
21	IMG_0744.JPG	12/12/2024 11:50	R-601 catch tank
22	IMG_0745.JPG	12/12/2024 11:53	Scrubber control system
23	IMG_0746.JPG	12/12/2024 11:57	R-501 rupture disks, vented to catch tank
24	IMG_0747.JPG	12/12/2024 11:59	Catch tank pressure relief (R-301. R-501)
25	IMG_0748.JPG	12/12/2024 12:01	401 agitator
26	IMG_0749.JPG	12/12/2024 12:02	601 agitator
27	IMG_0750.JPG	12/12/2024 12:05	609 agitator
28	IMG_0751.JPG	12/12/2024 12:07	609 conservation vent exhaust