

RCRA Inspection Report

1) Inspector and Author of Report

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U.S. Environmental Protection Agency, Region 4
Enforcement and Compliance Assurance Division
Chemical Safety and Land Enforcement Branch
RCRA Enforcement Section
61 Forsyth Street, SW
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2) Facility Information

Arkema Inc. (Arkema)
4444 Industrial Parkway
Calvert City, Kentucky 42029
Marshall County

EPA ID# KYD006370159
NAICS# 32512 – Industrial Gas
Manufacturing

3) Responsible Officials

Clint Stone
Environmental Manager
Arkema Inc.
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(270) 395-6313

4) Inspection Participants

Timothy Steward, Arkema, Principal Environmental Engineer
Dalton Richards, Arkema, EHS Records
Laken Travelstead, Arkema, EHS Air
Clint Stone, Arkema, Environmental Manager
Greg Watson, Arkema, Principal Environmental Engineer
Amber Stewart, KDEP
Scott Gerstner, KDEP
Raj Aiyar, US EPA

5) Date of Inspections

December 11, 2024, 9:00 a.m.

6) **Applicable Regulations**¹

Resource Conservation and Recovery Act (RCRA) Sections 3002 (42 U.S. Code – Annotated U.S.C.A. 6925 and 6927), and 40 Code of Federal Regulation (C.F.R.) Parts 260 - 270, 273, 278, & 279; Kentucky Revised Statutes Title XVIII, Chapter 224, Subchapter 46-Hazardous Waste *et seq.* (2006), and Title 401 of the Kentucky Administrative Regulations (K.A.R.) Chapters 30 through 38, 43 and 44 (2006)

Pursuant to 401 KAR 39:005, Section 1 [40 C.F.R. § 260.10], a large quantity generator (LQG) of hazardous waste is a generator who generates greater than or equal to 1,000 kilograms (2,200 pounds) of non-acute hazardous waste in a calendar month.

Pursuant to 401 K.A.R. 32:080 Section 1(1) [40 C.F.R. § 262.15(a)], a generator may accumulate as much as 55 gallons of non-acute hazardous waste in containers at or near the point of generation where wastes initially accumulate, which is under the control of the operator of the process generating the waste, without a permit or without having interim status, as required by KRS § 224.46-520 [Section 3005 of RCRA, 42 U.S.C. § 6925], and without complying with 401 KAR 39:080, [40 C.F.R. § 262.16(b)], except as required in 401 KAR 39:080, Section 1(1) [40 C.F.R. § 262.15(a)(7) and (8)], provided that the generator complies with the satellite accumulation area conditions listed in 401 KAR 39:080, Section 1(1) [40 C.F.R. § 262.15(a)] (hereinafter referred to as the “SAA Permit Exemption”).

Pursuant to 401 KAR 39:080, Section 1(1) [40 C.F.R. § 262.17], an LQG may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status, as required by KRS § 224.46-520 [Section 3005 of RCRA, 42 U.S.C. § 6925], provided that the generator complies with the conditions listed in 401 KAR 39:080, Section 1(1) [40 C.F.R. § 262.17] (hereinafter referred to as the “LQG Permit Exemption”).

Pursuant to 401 KAR 39:080, Section 3(1) [40 C.F.R. § 273.9], a small quantity handler of universal waste (SQHUW) is a universal waste handler who does not accumulate 5,000 kilograms or more of universal waste (batteries, pesticides, mercury-containing equipment, lamps, or aerosol cans, calculated collectively) at any time.

7) **Purpose of Inspection**

The purpose of this inspection was to conduct an unannounced compliance evaluation inspection to determine Arkema’s compliance with the applicable requirements of RCRA and the corresponding Kentucky regulations. This was an EPA lead inspection.

8) **Facility Description**

¹ As the State’s authorized hazardous waste program operates in lieu of the federal RCRA program, the citations of those authorized provisions will be to the authorized State program. However, for ease of reference, the federal citations will follow in brackets.

Arkema is located at Calvert City Industrial Complex adjacent to the Tennessee River. The site began operations in 1949 as Pennsylvania Salt Manufacturing Company. Subsequent corporate names for the facility included Pennsalt, Pennwalt, Atochem North America Inc., Elf Atochem North America, Inc. and ATOFINA Chemicals, Inc. The facility became Arkema on October 4, 2004. The site owned by Arkema is approximately 836 acres. Arkema currently produces Hydrochlorofluorocarbons (Forane HCFCs), hydrofluorocarbons (Forane HFC), Hydrofluoroolefins (Forane HFO), hydrochloric acid (HCL), polyvinylidene fluoride (Kynar PVDF), and vinylidene fluoride (VF₂) at the Calvert City Plant. The refrigerants currently produced at the facility includes F-32, F-141b and F-142b. The F-134a refrigerant unit was shut down in 2022, a new refrigerant, 1233ZD would be produced soon. These products and co-products have wide range of application in automotive, aerospace and construction industry. Kynar is widely used in the chemical process industry, oil and gas piping, water filtration membranes, construction coatings and more. Forane refrigerants are used as coolants in air conditioners and refrigeration equipment. They are also used as insulation for transportation, appliances and construction. The HCL is used as food grade additives, other applications include refining ore, electroplating, cleaning metal products, textiles, rubber industry and more. All raw material for production purposes is received by rails cars and via barges with tanker trucks serving as a back-up and stored in tanks until used in the process.

Arkema currently has approximately 250 employees plus contractors and operates 24/7. The facility stores hazardous waste generated on-site from the production of the chemicals mentioned above in six above ground storage tanks. The hazardous waste stored in these tanks is then disposed of in the on-site facility's incinerator. There is no waste from outside disposed of at the incinerator and only waste not permitted to be incinerated onsite is shipped off-site for appropriate treatment. The facility has a RCRA Operating Permit, and a Title V Air Permit issued by KDEP. The RCRA Operating Permit, KYD006370159 issued by KDEP issued on January 13, 2023, covers the incinerator and the tank storage. The Title V Air Permit, #V-23-021 covers the incinerator.

Hazardous waste routinely generated by the process includes waste vinyl acetate (D001); waste isopropyl alcohol (D001) and sodium hydroxide (D002). Other waste generated includes used oil and universal waste (spent aerosol cans, waste batteries and waste lamps) and occasionally waste paint generated by onsite painting operation conducted by the site contractors. The waste codes for the waste generated at Arkema are D001, D002, D003, D004, D006, D007, D008, D019, D020, D022, D028, D029, D034, D039, D040 and D043. Records indicate that the quantity of hazardous waste shipped approximately in Calendar year 2022, 2023 and 2024 was 78.6 kg, 337 kg and 124 kg. Arkema uses Clean Harbors El Dorado LLC (ARD069748192), Clean Harbors, La Porte (TXD982290140) and Clean Harbors Lone Mountain (OKD065438376) to dispose of their hazardous waste.

Drinking water is supplied by the City of Calvert and wastewater is treated onsite by a KDEP permitted wastewater treatment system. According to the facility personnel, Arkema is a member of CIMAP (Calvert City Industrial Mutual Aid Program). CIMAP is an organization composed of industrial facilities operating in the Calvert City, Kentucky industrial complex with

a purpose of establishing a plan of cooperative action whereby members can assist another member facility during an emergency which is beyond the member facility's ability to control.

Facility Process and Hazardous Waste Generation

Most of the hazardous waste generated onsite comes from the purges of the process reactors via phase separations and/or direct from the product column bottom and reactor bottom outlet. The reactors in production areas go through a periodic caustic wash and the caustic wash rinsate is neutralized through the on-site neutralization system.

The hazardous wastes generated onsite are stored in six hazardous waste tanks on site, four of the tanks are currently being used. The hazardous waste in these tanks is disposed of in the on-site facility's incinerator. The hazardous waste storage tanks are horizontal pressure vessels constructed of carbon steel. Tank Unit #1 V-0119 and Tank Unit #2 V-0119A has a storage capacity of 22,843 gallons and 22,850 gallons. The hazardous waste produced at Forane 141b, 142b and/or 32 plants are stored in liquid form in both these tanks. The waste stored in both these tanks exhibits reactivity (D003). Tank Unit #3 V-0121 and Tank Unit #4 V-0229 has a maximum storage capacity of 6,266 gallons and 6,000 gallons. Hazardous waste produced at the Kynar monomer plant is stored in liquid form in both these tanks. The waste stored in both these tank exhibits ignitability (D001). Tank Unit #5 V-6103 and Tank Unit #6 V-6103A has a maximum storage capacity of 23,688 gallons and 33,000 gallons. Hazardous waste produced at the 1233zd plant will be stored in liquid form in both these tanks. The waste stored in both these tanks would be exhibiting reactivity (D003).

According to the facility personnel as part of the tank maintenance and operation, tanks thickness checks are conducted annually and internal inspections every five years. A caustic wash is done similar to the process reactors and the caustic rinsate is neutralized through on-site KPDES permitted wastewater treatment system.

All the tanks have been provided with secondary containment systems consisting of concrete walls and floor surrounding the tank. All concrete floors inside the containment areas are coated with a coal tar epoxy to prevent leaks and to provide material compatibility with the waste stored in the tanks. All the tanks are equipped with safety cutoffs at both the reactor outlets and the storage tank inlets. These safety cutoffs take the form of manually operated valves as well as remotely controlled automatic valves from the control room. In addition, the tanks are equipped with liquid level detectors, if the tanks get full, the inlet valve automatically closes. There are no bypasses systems associated with feeding these tanks.

9) Previous Inspection History

Arkema was last inspected by KDEP on September 19, 2023, and by EPA on December 10, 2008. There were no deficiencies observed during both the inspections.

10) Opening Conference

On December 11, 2024, EPA Inspector, Raj Aiyar, accompanied by KDEP Inspectors, Amber Stewart and Scott Gerstner arrived at the Arkema facility at approximately 9:00 a.m. Facility Representatives Clint Stone, Arkema's Environmental Manager, Timothy Steward, Arkema's Principal Environmental Engineer, Laken Travelstead, Arkema's Environmental Specialist, Dalton Richards, EHS Records and Travis Griffith, Waste/Water Specialist immediately received and escorted the inspectors to a conference room. The inspectors introduced themselves, showed their credentials, stated the purpose of the visit. The inspectors discussed the scope of the inspection and described the anticipated use of equipment, a digital camera during the inspection. The inspectors later requested a list of records to be reviewed as part of the inspection.

The EPA inspector explained that the Small Business Regulatory Enforcement Fairness Act's classification of a "small business" is generally set by the Small Business Administration using the business' SIC/NAICS code and annual receipts or number of employees. A copy of the EPA's information sheet for small businesses can be found at <https://www.epa.gov/sites/production/files/2017-06/documents/smallbusinessinfo.pdf>.

The EPA inspector also discussed the facility's ability, pursuant to 40 C.F.R. § 2.203, to assert a business confidentiality claim for information submitted to EPA. The company did not assert a business confidentiality claim.

Clint Stone and Timothy Steward provided an overview of the facility's history and current operations during the opening conference. Others including Laken Travelstead, Travis Griffith and Dalton Richards covered the air, wastewater and the records portion of the facility. The inspection participants also discussed health and safety protocols and the required personal protective equipment. The facility personnel expressed safety and security concerns in their production area for photography. However, the facility agreed to take pictures on their intrinsically safe camera and share the pictures with the inspectors electronically. Tim Steward and Clint Stone led the inspectors on a tour of the facility's operations.

11) Inspection Observations

Contractor Area

The inspectors observed one 55-gallon satellite container had a funnel with a closed latch on a spill pallet storing paint related waste (Photo-1). The container was observed to be closed, labeled with the words "Hazardous Waste" and with indication of hazards of the contents. There were no leaks or spills observed near the container.

Hazardous Waste Tanks

There were four tanks in use at the time of inspection. Tank V-0119 and Tank V-0119A are used for storing liquid hazardous waste (Waste Forane) and Tank V-0229 and Tank V-0121 are used for storing waste Monomer Recycle Column Bottom (MRCB) from their Monomer plant. Tank V-6103 and Tank V-6103A was not in use at the time of inspection. All the tanks were observed to be labeled with the words "Hazardous Waste" along with indication of the hazards of the contents. According to the facility personnel, the tanks are dedicated to specific waste streams

destined for incineration. As part of the general tank operating requirements, the tanks spill prevention controls and overfill prevention controls (level sensing devices, high level alarms, feed cutoff) are checked on a regular basis. The tank walk-through is conducted every shift and inspection logs maintained. Besides the daily walk-through, the tank and its system are monitored and operated remotely from their control room.

All the tanks had secondary containment systems consisting of concrete walls and floor surrounding the tanks. The secondary containment for the tanks appeared to be free of cracks and gaps. The inspectors observed rust and signs of corrosion on some of the ancillary piping associated with the Tank V-0229 and Tank V-0121 system (Photo-2) and (Photo-3). The saddle support for Tank V-0229 was in disrepair (Photo-4).

Based on the review of the daily tank inspection logs, rust and corrosions and the saddle support in disrepair observed by the inspectors did not appear to be documented and on a schedule for a remedial action to prevent an environmental or human health hazard.

Pursuant to the Hazardous Waste Permit KYD-006-370-159, Module III.L – Tank System Management Practices, which incorporates III.L.9.1 Inspections and 401 KAR 39:090, Section 1 and Sections 1(1)-(7) [40 CFR Part 264.195], the permittee shall inspect each tank system, including but not limited to ancillary equipment and secondary containment as well as the area surrounding each tank specified in Attachment D and Attachment F. The inspection shall include above ground portion of the tank system, if any to detect corrosion or release of waste.

Pursuant to the Hazardous Waste Permit KYD-006-370-159, Module III.L.9 Inspections which incorporates III.L.9.5, and 401 KAR 39:090, Section 1 and Sections 1(1)-(7) [40 CFR Part 264.195] the Permittee shall remedy any deterioration or malfunction of equipment or structures which the inspection reveals on a schedule which ensures that the problem does not lead to an environmental or human health hazard, where a hazard is imminent or has already occurred, remedial action shall be taken immediately [40 CFR Part 264.15].

The facility personnel indicated that rust and corrosion on the ancillary piping and the saddle of the tank in disrepair shall be evaluated for appropriate remedial action.

The inspectors observed several tags for some of the equipment associated with the tanks to be in disrepair. The inspectors stated that each piece of equipment shall be marked in such a manner that it can be distinguished readily from other pieces of equipment. **This is an area of concern, the tags associated with the various equipment must be clear, visible and easily distinguishable from other pieces of equipment at all times.** The facility personnel stated that besides the tags, tank ancillary equipment could be identified based on the equipment identification number and the tanks system plans and schematics.

Central Accumulation Area (CAA)

The containers of hazardous wastes are stored in a covered concrete pad and a concrete berm (Photo-5). The inspectors observed a sign indicating the storage area and “No Smoking”. The storage area was equipped with a fire extinguisher and a spill kit. There were no containers of hazardous waste in the storage at the time of inspection (Photo-5).

Universal Waste

The inspectors observed two cardboard cylindrical containers containing four-foot universal waste lamps stored near the concrete berm exposed to precipitation. One of the universal waste containers was wrapped with duct tape at several places did not appear to be securely closed and had visible stains on the bottom exterior of the container (Photo-6).

Pursuant 401 KAR 39:080, Section 3(1) [40 C.F.R. § 273.13(d)], a SQHUW must manage universal waste lamps in a way that prevents releases of any universal waste or component of a universal waste to the environment.

The boxes were observed to be labeled and dated. The oldest date observed was 03/25/2024. The inspectors observed five 5-gallon buckets containing waste batteries near the universal lamps. The waste batteries were observed to closed, labelled and dated. The oldest date was observed to be 06/29/2024.

Kynar Lab

The analytical lab provides quality control testing for inbound samples from the production area and final outbound samples from the finished product. There is one CAA outside the Kynar Lab. There was one 30-gallon container at the time of inspection (Photo-7). The container was observed to be closed and labeled with the words "Hazardous Waste" and with indication of the hazards of the contents. The oldest accumulation date was observed to be 11/05/2024.

Used Oil

There were no used oil containers observed during the inspection.

Record Review

Once the inspectors completed the walkthrough of the facility, the inspectors were escorted to a conference room to conduct a review of the required documentation. The records reviewed for a two-year period included the following:

- Contingency Plan and Quick Reference Guide
- Personnel Training
- LDAR Records
- Tank Inspection Reports
- Weekly Hazardous Waste Inspection Log
- Hazardous Waste Manifests
- Waste Profiles
- Annual Report
- Hazardous Waste Reduction Plan
- Documents showing emergency arrangement with local authorities.

The 2023 Annual Report indicated that there were 89 shipments offsite for a total of 740,066 pounds. Clean Harbors (ARD069748192) and Clean Earth Specialty Waste Solutions Inc. (KYR000075531) are the listed disposal facilities. The waste generated and treated onsite via

incineration was 2,430,718 pounds. Hazardous wastewater generated and treated onsite in KPDES permitted wastewater treatment unit (WWTU) was 1,005,384,179 pounds. The facility has computer-based RCRA training program. Based on the review of the records, the records were observed to be complete.

12) Closing Conference

An exit briefing was conducted at the conclusion of the inspection. Clint Stone, Arkema, Timothy Steward, Arkema, Dalton Richards, Arkema, Laken Travelstead, Arkema, Greg Watson, Arkema, Amber Stewart, KDEP, Scott Gerstner, KDEP and Raj Aiyar, US EPA participated during the exit briefing. The observations made during the inspection were discussed and the inspection was concluded.

13) List of Attachments

Attachment A: Photographs of Arkema Inc.

14) Signed

RAJAGOPAL AIYAR

Digitally signed by RAJAGOPAL

AIYAR

Date: 2025.03.13 10:16:41 -04'00'

Raj Aiyar

Environmental Engineer

15) Concurrence

ARACELI CHAVEZ

Digitally signed by ARACELI

CHAVEZ

Date: 2025.03.13 10:19:35 -04'00'

Araceli B. Chavez

RCRA Enforcement Section

Attachment A
Photographs of Arkema Inc.
EPA ID# KYD-006-370-159
By: Timothy Steward, Arkema Inc.



Photo-1 SAA Container (Contractor Area)



Photo-2 Rust and Signs of Corrosion on Tank's Ancillary Equipment



Photo-3 Rust and Signs of Corrosion on the tank's ancillary equipment



Photo-4 Disrepair saddle on which one of the hazardous waste tank was mounted



Photo-5 No Waste Storage in CAA



Photo-6 Universal Waste Staging Area



Photo-7 Kynar Lab-CAA