



## REGION 5

CHICAGO, IL 60604

### **MEMORANDUM**

**SUBJECT:** CLEAN AIR ACT INSPECTION REPORT  
Royal Chemical Co, Macedonia, Ohio

**FROM:** Gunnar Brown, Environmental Scientist/Engineer  
AECAB (MI/WI)

**THRU:** Sarah Marshall, Section Supervisor  
AECAB (MI/WI)

**TO:** File

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### **BASIC INFORMATION**

**Facility Name:** Royal Chemical Company (RCC)

**Facility Location:** 8679 Freeway Dr, Macedonia, OH 44056

**Date of Inspection:** 10/29/2024

**EPA Inspector(s):**

1. Gunnar Brown, Environmental Scientist/Engineer
2. Erin DuMontelle, Environmental Engineer
3. Danny Nguyen, Environmental Engineer/Scientist

**Other Attendees:**

1. Jason Schiavoni, Director of Operations
2. Joe Brennan, Legal Counsel (UB Greensfelder)
3. Bill Robertson, Maintenance Manager

**Contact Email Address:** [Jason.schiavoni@royalchemical.com](mailto:Jason.schiavoni@royalchemical.com) and [jbrennan@ubglaw.com](mailto:jbrennan@ubglaw.com)

**Purpose of Inspection:** To assess compliance with the Chemical Accident Prevention Program at 40 C.F.R. Part 68

**Facility Type:** Chemical mixing for sanitation and cleaning products

**Facility Name:** Royal Chemical Co  
**Facility Location:** 8679 Freeway Dr, Macedonia, OH 44056  
**Date of Inspection:** October 29, 2024

**Regulations Central to Inspection:** The Clean Air Act, Part 68 – Chemical Accident Prevention Program

**Arrival Time:** 08:50 EDT

**Departure Time:** 13:30 EDT

**Inspection Type:**

- ☒ Unannounced Inspection  
☐ Announced Inspection

**OPENING CONFERENCE**

- ☒ Stated authority and purpose of inspection  
☒ Provided Small Business Resource Information Sheet - Provided with Inspection Report  
☐ Small Business Resource Information Sheet not provided  
☒ Provided CBI warning to facility

Was any information collected during the inspection claimed as CBI?

☐ Yes ☒ No.

The following information was obtained verbally from Jason Schiavoni and Joe Brenner unless otherwise noted.

**Process Description:**

Royal Chemical (the Facility) receives shipments of raw material in powder and liquid form. Raw materials are mainly stored in the warehouse or in silos at the manufacturing building. Royal Chemical will mix materials in batches to meet specifications provided by their customers. Royal Chemical does not mix or create its own formulas, all products are made by contract. Once the product is made in one of the mixing tanks, it will be tested to ensure it matches customer specifications. If the product meets the required specifications, it will either be stored onsite until the customer arranges for a pickup or placed immediately from the mixing tank into the tanker truck that is sent via a third-party trucking company. The mixtures that do not satisfy the customers' parameters will be remixed and tested until they are within the requirements. The Macedonia RCC facility has the ability to repackage powders and produce liquid mixtures for customers.

For loading product into to the tank truck, the bulk handler, a Royal Chemical employee, will match the paperwork from the driver with the sales sheet to make sure that the proper product is going into the outbound truck. The employee will complete the process of hooking the hoses up to the truck. Materials are mostly hard-piped to the loading dock which are marked to note where they are coming from. From the end of the hard pipe to the tank truck, Royal Chemical will use hoses. The driver of the truck does not participate in the loading process. Royal Chemical noted that many of the drivers are repeats who have completed pickups on numerous occasions.

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**Staff Interview:** There are five total facilities under Royal Chemical; this the Macedonia site is the only one that uses powders as a raw material. This Facility has 85 employees; it manufactures product four days a week between 05:30 and 15:30, while shipping operations take place between 07:00 and 16:30. The facility has 10 mixing tanks ranging in size from 500 to 5,000 gallons, and 10 holding tanks ranging in size from 5,000 to 10,000 gallons. There are no reactor tanks onsite. The facility is divided into three areas: the warehouse, the administration building, and the manufacturing building. The warehouse stores dry materials and small amounts of product; bulk materials are mainly brought in by tank truck or in super sacks. The administration building is used as office space and is connected to the warehouse. The manufacturing building is separate and used to store and use large amounts of liquid or powders as raw materials to create product. There is a rail spur that allows railcars to bring in material to be store in silos attached to the manufacturing building. Manufactured product is loaded into trucks from the mixing building from the holding tanks.

The Facility holds monthly training meetings that cover rotating topics. One of the topics covered was sodium hydroxide as a part of their HAZCOM training for incompatible materials. The most recent HAZCOM training was in November 2023 and covered what HAZCOM is as well as labels and pictograms. The facility has an onsite HAZMAT trained team for Emergency Response.

#### May 2024 Incident:

None of the interview participants were on-site during the May 15, 2024 incident that resulted in an aluminum tanker truck exploding but they were involved in post-discussions with other employees.

The morning of the incident was described as a normal day. The procedures for loading a tanker truck were followed, and a sodium hydroxide mixture was loaded into the tanker. The Royal Chemical employee responsible for loading the truck noticed gaseous fumes coming from the top of the tanker truck. The employee then shut off flow from RCC storage into the truck; 20,000-30,000 gallons of material had been transferred to the tanker. The tanker ruptured and sent parts of the tank into the manufacturing building. This splashed liquid caustic everywhere including into storm drains that lead to the nearby creek. There were two injuries from the explosion. The Fire Department arrived to control the situation and possibly evacuate neighboring facilities. RCC staff stated the highway did not have to be shut down due to the incident. NRC was not called after the incident.

Royal Chemical stated the root cause of the incident was the contact of a sodium hydroxide mixture pumped into an outbound aluminum lined tanker. Sodium hydroxide is highly reactive with aluminum and creates hydrogen gas as a byproduct. The sodium hydroxide pickup contract went through multiple steps of subcontracting by the client (not RCC) leading to an aluminum tanker being sent to pick up the incompatible sodium hydroxide mixture. RCC staff stated that no formal internal investigation was conducted. RCC staff were unsure if an internal incident report or corrective action plan had been documented/created for the May 2024 incident.

As a result of the May 2024 incident involving an aluminum tanker and a sodium hydroxide mixture, the production of the mixtures/products involved have been moved to a sister plant in Pennsylvania.

Sodium hydroxide is still brought in by totes for use in other products, but the amount onsite has decreased from a maximum of 8000 gallons. Additionally, the signs depicted in Image 2 have been placed around the truck loading bay, and RCC staff stated that the Facility made changes to their truck loading procedures and updated their emergency training as a result of the May 2024 incident.

The Facility uses a software to track and generate basic reports for any incidents, which includes close calls. The software does not track any changes or updates to SOPs or facility practices in response to the incident. Staff were not sure if the May 2024 tanker incident was entered into the tracking software. The facility also has a program to send out a notification to the plant if an incident or near miss occurs. This notification cannot reach employees since RCC does not collect employee email contact information. RCC staff stated that employees would find out about the incident through the news or by coming on-site.

**2019 Release:**

In 2019, powder sodium hydroxide was released during railcar operations. RCC is working with OEPA on clean-up efforts. Railcar shipments has not been used since the 2019 incident for inbound sodium hydroxide deliveries.

**TOUR INFORMATION**

**EPA Toured the Facility:** Yes

**Data Collected and Observations:**

The following observations were made during the tour of the Facility:

1. EPA Inspectors observed signs around the loading/unloading bay for trucks that stated "No Outbound Aluminum Tankers" captured in Image 2.
2. EPA Inspectors observed the pump used for truck loading and unloading operations in the mixing building. The pump, depicted in Image 4, is a moveable pump with moveable hose that connects to permanent piping for both the truck and storage tanks. Liquid was observed beneath the pump. Piping connected to holding tanks had infrequent labeling making it difficult to accurately identify contents of each section of piping.
3. EPA Inspectors observed a CO<sub>2</sub> tank onsite that is used for PH balancing of wastewater.

**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**

At the Inspection, Royal Chemical shared the documents that had been provided to OSHA for their investigation of the May 2024 Incident which included the following:

1. The RCC Health and Safety Program Manual and related Appendices;
2. Documentation regarding the HazCom & PPE Training for the site;
3. The 2020 Indoor Air Monitoring report;
4. Current Lockout /Tagout Procedures;
5. Current Lockout/Tagout Training Documentation;
6. Training Certificates for employees onsite;
7. The Combustion Research Study completed in 2021;
8. The Dust Collector Drawings;
9. Emergency Evacuation Training Attendance from 2022;
10. Program documentation for Fall Protection, Forklift Safety, and Respiratory Protection.

#### **CLOSING CONFERENCE**

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

#### **Requested documents:**

1. The updated SOP regarding the loading procedure for the tankers;
2. The SOP for cleaning the hoses in between each use;
3. An Example of an Incident Report that has been completed by the Facility;
4. The Incident Report that was completed by the Facility for the May Incident;
5. An Example of a completed Corrective Action Plan;
6. The Corrective Action Plan that was created for the May Incident;
7. Letter/Report from the Fire Department stating that they were onsite and what they did;
8. The Fire Department Report that was completed for the May Incident;
9. Appendix A Emergency Evacuation Maps from the Emergency Response Plan;
10. A Site Map;
11. The Inspection/Testing/Preventative Maintenance Program Records for the Facility;
12. Any emergency shutdown procedures within the facility that note scenarios when an operator should shutdown the process and what to do in those situations;
13. A list of the Engineering Codes and Standards that the Facility uses (e.g. Compressed Gas Association (CGA), American Petroleum Institute (API), American Society of Testing and Materials (ASTM));
14. Records of testing for the sprinklers and alarm system;
15. Quarterly Inspection reports for the PA system (provide any that were completed between 2022 and present); and
16. P&IDs of the holding tanks to the loading dock for the hard piping at the facility.

#### **DIGITAL SIGNATURES**

Report Author: **GUNNAR BROWN**

Digitally signed by GUNNAR BROWN  
Date: 2024.12.18 11:44:06 -06'00'

**Facility Name:** Royal Chemical Co  
**Facility Location:** 8679 Freeway Dr, Macedonia, OH 44056  
**Date of Inspection:** October 29, 2024

Section Supervisor: **SARAH MARSHALL** Digitally signed by SARAH MARSHALL  
Date: 2024.12.18 12:23:45 -06'00'

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**APPENDICES**

1. Appendix A: Digital Image Log and Digital Video Log

**Facility Name:** Royal Chemical Co  
**Facility Location:** 8679 Freeway Dr, Macedonia, OH 44056  
**Date of Inspection:** October 29, 2024

**APPENDIX A: DIGITAL IMAGE LOG AND DIGITAL VIDEO LOG**

**Inspector Name:** Erin DuMontelle    **Archival Record Location:** *EPA ERC*

| <b>Image Number</b> | <b>File Name</b> | <b>Date and Time (CDT)</b> | <b>Description of Image</b>                                                                      |
|---------------------|------------------|----------------------------|--------------------------------------------------------------------------------------------------|
| 1                   | PA290116.JPG     | 10/29/2024<br>11:41        | Outdoor hard-piping at truck loading and unloading area                                          |
| 2                   | PA290117.JPG     | 10/29/2024<br>11:42        | Same area as Picture 1 but from a wider angle to capture the “No Outbound Aluminum Tanker” signs |
| 3                   | PA290118.JPG     | 10/29/2024<br>11:53        | Sodium Hydroxide finished product storage with safety shower within secondary containment        |
| 4                   | PA290119.JPG     | 10/29/2024<br>11:56        | Pump used to move product from storage tanks to outbound tankers                                 |
| 5                   | PA290120.JPG     | 10/29/2024<br>11:59        | Railyard with windsock in top right of picture                                                   |
| 6                   | PA290121.JPG     | 10/29/2024<br>12:03        | Stormwater Area                                                                                  |
| 7                   | PA290122.JPG     | 10/29/2024<br>12:08        | Loading dock with active truck in area                                                           |