

**U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 5**

Purpose: Pretreatment and Industrial Storm Water Compliance Evaluation Inspection

Facility: Mapei Corporation
530 Industrial Drive
West Chicago, IL 60185

Permit: General Stormwater Permit ILR007033 and ICIS Pretreatment Tracking Number
ILP000424

Date of Inspection: September 12 - 13, 2023

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INTRODUCTION & FACILITY DESCRIPTION

The purpose of this inspection report is to describe, evaluate, and document compliance with parts of the Clean Water Act (CWA) with respect to Mapei Corporation located at 530 Industrial Drive in West Chicago, Illinois. The Mapei Corporation (“Mapei” or “facility”) manufactures adhesives and sealants and both water-based adhesives, composites, and dry products such as grouts, mortars, and binders for commercial construction and home improvement retailers.

Mapei's wet polymer, adhesive products and spray dryer processes react monomers to make vinylic or acrylic aqueous polymers. Mapei's dry materials process blends dry products in dry process air blenders. A portion of the bulk dry raw material is sent to the compounding portion of the wet material processing for use as additives. Manual hand additions are also blended into the process per material formulation.

Mapei is an indirect discharger and discharges to the West Chicago Regional WWTP. The City of West Chicago Regional WWTP does have an approved Pretreatment Program with Special Condition 11 in the NPDES Permit No. IL0023469. The City of West Chicago has issued a Wastewater Discharge Industrial User Permit to Mapei as a Significant Industrial User and Non-Categorical User with permit No. 0301 with an effective date of July 1, 2021, and an expiration date of June 30, 2025, according to Mapei's Fact Sheet.

Mapei Corporation is permitted as a Significant Industrial User and not a Categorical Industrial User, and the total amount of process wastewater generated and discharged from their operations is an average of 47,000 GPD and to the Outfall 001, per Mapei Fact Sheet.

Mapei's Fact Sheet described that Process wastewater is generated from the manufacturing of mastics, carpet and resilient adhesives with eco sub brand, liquid latex additives, powder products, and dry and liquid polymer. All facility floor drains discharge into Mapei's pretreatment system, along with the polymer line, latex line, tank farm pits, mixer pits, and resin pits.

According to Mapei's Fact Sheet, Mapei Corporation operates a pretreatment system. All facility floor drains and trenches, pits, and polymer and latex lines discharge to the pretreatment system. The system consists of two settling tanks. pH is tested upon entry into the pretreatment system. Water flows from Settling Tank 1 to Settling Tank 2, where pH is adjusted using formic acid or caustic soda. Coagulant is added and wastewater is run through a filter press. Filter press sludge gets mixed in with grout process waste and hauled by Allied Waste. The pretreatment system discharge valves are locked after 2nd shift to prevent 3rd shift discharges. Tank wash-downs, floor wash-downs, non-contact cooling, compressed air condensate, and pits and trenches all contribute to the pretreatment system. Tank cleanings and wash-downs are the largest contributors. See the Wastewater Treatment Plan Schematic Flow Diagram (Attachment 2) and the Waste Treatment Flow Sheet (Attachment 3).

The facility has three separate production areas: the Polymer Operation, the Spray Drying Operation, and the Liquid/Paste Operation (Mastic/ECO). See the Operations Descriptions of the Paste production, Polymer production, and Spray Dryer production (Attachment 4) and the Powder Production Flow Sheet, the Mastic & ECO Production Flow Sheet, and the Latex Production Flow Sheet (Attachments 5, 6, and 7).

Mapei has reported the following nine chemicals in the 2021 and 2022 Toxic Inventory Release (TRI) Reports: 1. Vinyl Acetate; 2. Styrene; 3. Methyl Methacrylate; 4. Lithium Carbonate; 5. Ethyl Acrylate; 6. certain Glycol Ethers; 7. Butyl Acrylate; 8. Acrylic Acid; and 9. Acrylamide.

Mapei operates twenty-four (24) hours a day, five to six days a week. Mapei employs 145 people, with seventy (70) employees on first shift, forty (40) employees on second shift, and thirty-five (35) employees on third shift at 530 Industrial Drive facility.

SITE INSPECTION

Opening Conference

Around 8 to 8:30 am September 12, 2023, Ms. Cher Benisek (MMI Lead), Mr. Danny Nguyen (Air RMP), Mr. Greg Chomycia (Air RMP), Mr. Freddie Arocho-Perez (EPCRA), Ms. Claudia Niess and Ms. Angie Bouche (TSCA) and I (CWA) met at the Mapei facility to conduct an unannounced multi-media compliance evaluation inspection. The multimedia inspection involved were the Clean Air Act – Risk Management Program, (RMP) Clean Water Act National Pollutant Discharge Elimination System (NPDES), Emergency Planning and Community Right-To-Know Act (EPCRA) 313, and Toxic Substances Control Act. This inspection was conducted to evaluate compliance with federal pretreatment requirements and any industrial storm water requirements under the Clean Water Act. We showed our credentials to facility representatives: Mr. Robert Taylor, Plant Manager, Ms. Anna Kryczka, Polymer Production Manager, Mr. Gene Ruminski, Corporate EHS Manager, Ms. Jazmin Ibarra, EHS Specialist, and Ms. Amaury Mendez, Corporate QEHS Manager. EPA MMI Project Lead Ms. Cher Benisek led the opening conference and explained the purpose of our multimedia inspection and went around for personnel introductions.

Mapei facility presented the slides about the company history, products, and facility operations. Mr. Robert Taylor stated that he will check with his counsel for any Confidential Business Information (CBI) specifics and inform EPA upon submission of any documents or submittals where it was claiming CBI. We were informed that a Illinois RCRA inspector came for an inspection at this Mapei facility on August 14, 2023.

Then we conducted document reviews for each media. I asked for a facility layout, manufacturing operation diagrams, wastewater processes diagrams, wastewater treatment systems, chemicals and raw materials used, etc., and the list of documents Ms. Cher Benisek has prepared for this inspection as a lead. Mr. Gene Ruminski, Corporate EHS Manager stated that

the facility EHS manager left the facility sometime ago and that they were having difficulty locating some of documents requested. But he said he will try to locate some of documents if he can with the engineering department. Ms. Anna Kryczka, Polymer Production Manager and Ms. Jazmin Ibarra, EHS Specialist provided a facility layout (See Attachment 1), manufacturing Process Diagrams, and information on Mapei's wastewater discharges to the City of West Chicago Regional WWTP.

Ms. Kryczka went over the layout of the facility and explained the process diagrams to understand its process operations. Ms. Kryczka provided a copy of the Process Description of Polymer Department which included the following: 1. Raw Material Storage and Movement; 2. Process Equipment; and 3. Polymerization Process (Attachment 8). Ms. Kryczka also was able to provide the Polymer Vinyllic Block Flow Diagram (Attachment 9) and the Polymer Acrylic Block Flow Diagram (Attachment 10). Mr. Fernando Mantilla, Wastewater Certified Operator joined the meeting and explained the wastewater treatment plant operations. Ms. Kryczka stated that the treatment plant does six (6) runs a day for sludge filter press and generates approximately 5400 lbs per day of sludge.

Mapei has a General Stormwater Permit ILR007033 has a SWPPP completed on Feb 20, 2022. It required quarterly and monthly inspections, benchmark monitoring reports, etc. I asked for stormwater inspection reports conducted for the facility per SWPPP requirements.

Mr. Ruminski provided the June 2022 Stormwater Quarterly Inspection report for Stormwater Detention Pond and the Monthly Stormwater Pollution Prevention Inspection was conducted for the following seventeen (17) areas: 1. Storm Water Detention Pond; 2. Main Employee Parking Lot; 3. Loading/Unloading Area – Outdoor Tank Farm; 4. Outdoor Tank Farm Open Air Enclosure and Containment Area; 5. Pumphouse Building; 6. Paved Area by Blowdown tanks; 7. Driveway; 8. Railroad Spurs; 9. Glycol Chiller; 10. Dry Silos Storage and Transfer Area; 11. Bulk Material Loading/Unloading; 12. Dumpster area: Metal scrap and three (3) grout boxes; 13. Receiving Dock; 14. North Property Boundary (Prairie Path); 15. Office Ancillary Employee Parking Lot; 16. Shipping Dock; and 17. Rooftop Activities. Mapei also conducted the Stormwater SWPPP's Best Management Practice (BMPs) inspection on July 15, 2022.

Facility Walkthrough

On September 12, 2023, Ms. Anna Kryczka and Ms. Jazmin Ibarra and I went out to the facility operations and looked at the Spray Dryer operation which was very dusty (Photos #1, #2, and #3). We also observed the three Cyclones for collecting powder products in the Spray Dryer Operation (Photo #4), the dust collector (Photo #5), and the final products bagged (Photo #6) for the Spray Dry Operation.

Then we walked to the Wastewater Treatment Plant and saw sludge tanks (Photo #7) and the sludge filter press (Photo #8). We went upstairs on September 13, 2023. No photos were taken because the inspection camera was depleted. We observed that a certified operator was manually reporting pH readings after manually testing with pH litmus strips. According to Mapei's Fact Sheet, the system consists of two settling tanks. pH is tested upon entry into the pretreatment

system. Water flows from Settling Tank 1 to Settling Tank 2, where pH is adjusted using formic acid or caustic soda. Coagulant is added and wastewater is run through a filter press.

It appeared that a sufficient retention time to coagulate for sludge settling may not have occurred since the sludge filter press area was wet throughout. It was not clear if the process wastewater treatment was treating wastewater adequately and if sludge was being generated, removed, and disposed of as necessary.

According to Ms. Kryczka, Polymer Production Manager, the first sludge treatment tank was used to lower pH to 4 for reaction, and the second sludge treatment tank was used to raise pH to 8-9 to bind the solids with coagulant.

Ms. Kryczka stated that the daily monitoring requirements for wastewater were for Total Dissolved Solid (TDS), Total Suspended Solid (TSS), pH and Temperature.

Then we went to see the Polymer Production area but there was restricted entry. I took a picture at the entrance (Photo #9). The Polymer Production is a batch process and there are two independent reactor systems designated as the acrylic and the vinylic production line. We also observed raw material storage tanks (Photo #10). The bulk monomers are received via tank truck and off-loaded into dedicated storage tanks in the outdoor tank farm, or indoor tank farm in the case of acrylic acid, methacrylic acid and acrylamide. Surfactants, catalysts, and specialty monomers and additives are received in totes, drums, or bags and stored in designated raw material storage areas (Photos #11, #12, #13, and #14). We observed dry material spilled on the ground in the raw material storage area (Photo #13). Then we observed an Emergency Eyewash (Photo #15). I also noticed that it seemed not practical to use the emergency eye washers. Then we walked to the outside to see the final sampling location Outfall 001 (Photo #16) and observed the sampling bottle collecting wastewater (Photo #17). The sampler was not refrigerated. The samples collected in this manner can cause invalid analytical results. 40 CFR 136 requires that samples be maintained below a specified temperature. We then saw the ISCO Flowmeter for effluent which discharge to the West Chicago POTW (Photo #18) and the Stormwater Detention Pond completely covered (Photo #19).

On September 13, 2023, we went to the operations area and observed the Spray Dryer Operation with the Dust Collector F-5158 with a green light-on and the surrounding area was significantly less dusty than on September 12. (Photos #20 and 21).

Documents Reviewed

- Facility Layout
- Spill Prevention, Control and Countermeasure (SPCC) Plan
- Daily pH Sampling Logs
- Stormwater Inspection Reports – Monthly, Quarterly, and Pollution Plan Inspection
- Monthly Water Consumption Data with Production for Paste and Polymer Departments
- Non-hazardous wastewater, wash water, and sludge Manifests

Mapei provided the documents on October 19, 2023. Below are findings from a preliminary review:

- **Daily pH Sampling Log sheets from September 2021 through August 2023:**

The pH log sheet showed daily sample type, 3-point calibration for pH 4, 7, and 10, sample collection time, sample analyzed time, pH results and temperature, and analyst initial.

- **Monthly Water Consumption Data with Production for Paste and Polymer Departments:**

The 2022 monthly water usage data showed total water usage ranged from 2.4 million gallons (2,443,049.29 gallons) to 3.9 million gallons (3,911,144.82 gallons). See attachment 11.

- **Non-hazardous wastewater, wash water, and sludge Manifests:**

Mapei submitted non-hazardous sludge manifests for the year 2021 (total 2750 gallons reported), for 2022 (total 8800 gallons reported) and for 2023 (total 3556 gallons reported for Jan, Feb and April). Based on the review of sludge manifests, there are several discrepancies regarding sludge generated and removed from the wastewater treatment plant operations which can potentially indicate treatment capabilities. See attachment 12.

- **Spill Prevention, Control and Countermeasure (SPCC) Plan:**

Mapei's Spill Prevention, Control and Countermeasure (SPCC) Plan dated June 3, 2022 was submitted on October 19, 2023. The SPCC Plan indicated in Section 4.3.2 Facility Drainage that stormwater and sanitary/process wastewater discharges are generated at the facility. Stormwater is discharged through three Outfalls at the 530 site and four outfalls at the 430 site. All storm water outfalls are connected to the City storm sewer network, which discharge into Kress Creek. Sanitary and process wastewater is discharged to the City of West Chicago publicly owned treatment works (POTW) via a separate network.

According to the SPCC Plan, sumps are also located in all the covered unloading docks. The dock floors are sloped to collect any spills or leaks occurring during unloading of oil. The sump in the southwest receiving dock is equipped with a water level alarm with remote monitoring to prevent overflow to the exterior of the building in the event the sump is filled beyond its capacity. Water collected in this sump is routed to the wastewater pretreatment system before discharge to the municipal sanitary sewer system.

The SPCC Plan Section 4.3.12.1 Monthly Facility Inspection indicated that there is a monthly plant walk-through and visual inspection to be conducted and documented and there is no monitoring reporting requirement for Mapei facilities (530 Industrial Drive and 430 Industrial Drive).

Closing Conference

The CWA site inspection was completed at approximately 2:30 PM on September 13, 2023. At the end of day 2, a brief closing conference was held and the preliminary areas of concern by each media were discussed. EPA discussed Confidential Business Information (CBI) and asked Mapei to identify if any of the information/documents submitted are considered as CBI. Mr. Ruminski said he will follow-up with his counsel and inform EPA if any submittals should be considered CBI.

AREAS OF CONCERN

Wastewater Treatment Plant Treatability and Capability

The certified operator was testing manually for pH using pH strips and operating the plant manually. Manual operations could potentially cause unexpected issues which could result in inadequately treated wastewater and unsettled sludge.

The 2022 monthly Water Usage Data for the Paste and Polymer Departments indicated that there was consistent usage of water for the Paste and Polymer Departments and the production data showed consistent outputs; yet, the sludge manifests reviewed showed inconsistent amounts of sludge removed for disposal. Not having an automated feeding system for coagulants to ensure proper detention time and not having an automated pH measurement system, could result in inadequate wastewater treatment and settling of sludge and may result in discharging pollutants to the West Chicago POTW.

The Spray Dry/Powder Operation

The Spray Dry Operation has three (3) dust collectors that did not seem to be in operation on the first day (dustiness observed and documented in Photos #1 and #2). On September 13, 2023, the dust collectors were operating and the area was significantly less dusty. EPA is concerned that process dust and fugitives could cause cross-media contamination to storm water and wastewater.

Stormwater Pollution Prevention Plan (SWPPP)

General Stormwater Permit ILR007033 has a SWPPP completed on Feb 20, 2022. The SWPPP requires quarterly and monthly inspection, and Benchmark monitoring reports. We have received the monthly and quarterly inspections conducted by the facility. EPA did not receive any benchmark monitoring reports.

Housekeeping

EPA observed spilled material in the Raw material/chemical storage area (Photo #13).

The Emergency Eyewash

EPA observed in the Raw material/chemical storage area an emergency eyewash (Photo #15). The emergency eyewash did not appear ready for use.

LIST OF ATTACHMENTS:

1. Facility Layout
2. Wastewater Treatment Plan Schematic Flow Diagram
3. Waste Treatment Flow Sheet
4. Operations Descriptions of the Paste production, Polymer production, and Spray
Dryer production
5. Powder Production Flow Sheet
6. Mastic & ECO Production Flow Sheet
7. Latex Production Flow Sheet
8. Process Description of Polymer Department
9. Polymer Vinylic Block Flow Diagram
10. Polymer Acrylic Block Flow Diagram
11. The 2022 monthly Water Usage Data for Paste and Polymer Departments
12. Non-hazardous wastewater, wash water, and sludge Manifests
13. Photo Log