



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604**

DATE: MAR 18 2019

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Powder Processing and Technology, LLC., Valparaiso, Indiana

FROM: Vicky Mei, Environmental Engineer
AECAB (IL/IN)

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

TO: File

BASIC INFORMATION

Facility Name: Powder Processing and Technology, LLC. (PPT)

Facility Location: 5103 Evans Ave., Valparaiso, Indiana

Date of Inspection: June 28, 2018

EPA Inspector(s):

1. Vicky Mei, Environmental Engineer
2. Sarah Clark, Environmental Engineer

Other Attendees

1. Brad Monton, Manager of Operations, Powder Processing and Technology

Contact Email Address: bmonton@pptechnology.com

Purpose of Inspection: Assess compliance with the Clean Air Act

Facility Type: Metal oxide product manufacturing

Arrival Time: 10:30AM

Departure Time: 1:11PM

Inspection Type:

- ☒ Unannounced Inspection

☐ Announced Inspection

OPENING CONFERENCE

- ☒ Credentials Presented
- ☒ CBI warning to facility provided

The following information was obtained verbally from Mr. Monton unless otherwise noted.

Process Description:

Since 2002, PPT has been owned by EJ Vestco Company. PPT processes powder in batches on a contract basis. Raw materials are primarily oxide-based, though PPT also processes nitrate-based materials and nickel-metal. Depending on the material and customer needs, PPT may process the oxide powders through a variety of units, such as direct- and indirect-fired calciners, spray dryers, kilns, and ball millers that are scattered throughout the plant in Areas A, B, and C. Nickel-metal is processed in calciners, Area C kiln, ball mill, and spray dryer, sequentially.

Calciners operate at high temperatures, up to 2000 °F, and are used for moisture removal and some phase change. The #6, #10, #11, and #12 Calciners can process nitrate-based products, though this is rare for #10. The #2 and #9 Calciners have been dedicated to processing iron oxide for catalyst applications for the past 5 years. The spray dryers are used to dry and reshape slurry materials, as follows: the Area A Spray Dryer makes materials more 'flowable' for use in the oil industry; within the Area B Spray Dryer, zinc oxide reacts with weak hydrochloric acid to produce zinc chloride, which is then dried and sold for use as a micronutrient in animal feed; and the Area C Spray Dryer, which only operated for six months in 2017, usually processes alumina into small beads. The spray dryers run at inlet temperatures of 500 to 800 °F and outlet temperatures of 220 to 600 °F. The Area C kiln is operated approximately once per month for two weeks for small 10-ton production batches consisting of electric powders or multilayer chip beads. Material is hand-loaded into a kiln car and heated up to 2400 °F. The North kiln was last operated 10 years ago, and the South kiln last operated in October 2017. The North and South kilns operate at higher temperatures of around 2800 °F. The pilot 14-inch diameter calciners and dryers in the Innovative Material Center pilot lab process low solids materials at a slow throughput rate.

Most units are controlled by pulse jet cartridge-style dust collectors, several of which (identified in PPT's Title V permit) are considered 'integral.' A NO_x scrubber, connected in series to a dust collector, controls the #6, #10, #11, and #12 calciners when nitrate-based products are processed. The scrubber operates at a box temperature around 550 °F and injects 19% ammonia at about 10 gallons per hour. The injection rate automatically adjusts to achieve 97% removal based on the measured inlet amount of NO_x.

Staff Interview:

According to Mr. Monton, the facility started as a powder processing plant in 1959. At some point in the company's recent history, a Phase 3 Environment remediation was completed which

included the digging out of two retention ponds that contained barium and removing hazardous waste barrels.

The ratio of nitrate to oxide materials processed at PPT is about 28:72, with majority of the materials being zinc oxide, iron oxide, and manganese oxide. The facility experienced a 40% increase in business in 2017.

The #12 Calciner was installed in June 2018. PPT conducted the first #12 Calciner trial run at the end of June and had another trial scheduled for July 2018.

The NO_x scrubber was installed in 2015. The most recent emissions test, conducted in December 2015 while running one calciner (#6), measured a control efficiency of 97-98%. Differential magnehelic pressure gauges on the dust collectors are checked daily and calibrated annually. The stacks are visually checked 4 times each day. No combustible dust is used.

At the time of the EPA inspection, the #7 and #11 Calciners and the Area B Spray Dryer were in operation.

TOUR INFORMATION

EPA toured the facility: Yes

Data Collected and Observations:

Calciner #11:

- Material feed rate: 400 pounds per hour

NO_x scrubber:

- Inlet measurements: 851.8 ppm of NO_x and 2.0% CO₂
- Outlet measurements: 0.0 ppm of NO_x and 0.4% CO₂
- Ammonia feed rate: 6.51 gallons per hour
- NO_x scrubber box temperature: 541.9° F
- Differential Pressure: 2.6 inches of water column

Calciner #12:

- The process area and equipment were caked in white powder (zinc).
- Mr. Monton explained that a trial run was cancelled, so manpower was diverted.

Area B Spray Dryer:

- The process area and equipment were dusty (zinc).
- Mr. Monton explained that the area is swept every day around 3 pm.

Dust Collector for Calciners #2 and #9:

- 2.4 inches of water column

Photos and/or Videos: were taken during the inspection.

Field Measurements: were not taken during this inspection.

CLOSING CONFERENCE

Requested documents:

- Most recent emissions tests for the NO_x scrubber and spray dryers
- Emission estimates and calculations 2017
- NO_x scrubber box temperatures and ammonia flow rates 2018
- Pressure logs for dust collectors 2018
- Maintenance logs of dust collector pressure gauges 2016-2017
- Toxic Release Inventory 2017
- Quarterly deviation report 2018
- Compliance Monitoring Report 2017
- Emergency Occurrence Reports 2017-2018
- Daily visual stack checks 2018

SIGNATURES

Report Author:  Date: 3/7/2019

Section Chief:  Date: 3/18/19

Facility Name: Powder Processing and Technology, LLC.
Facility Location: 5103 Evans Ave., Valparaiso, Indiana
Date of Inspection: June 28, 2018

APPENDICES AND ATTACHMENTS

1. Appendix A: Digital Image Log

Facility Name: Powder Processing and Technology, LLC.
Facility Location: 5103 Evans Ave., Valparaiso, Indiana
Date of Inspection: June 28, 2018

APPENDIX A: DIGITAL IMAGE LOG

1. Inspector Name: Sarah Clark	2. Date(s) of Inspection: June 28, 2018
3. Company/Facility Name: Powder Processing and Technology, LLC.	4. Street Address, City, State: 5103 Evans Ave., Valparaiso, Indiana
5. Number of Images: 15	6. Archival Record Location: CD-R, labelled "Powder Processing Technology, LLC Valparaiso, IN Inspection Photos 6-28-2018"

Image Number	File Name	Date and Time (CDT)	Latitude and Longitude	Description of Image
1	P6280001.JPG	6/28/2018 11:49	41.478333, -86.998056	Inlet NO _x Control
2	P6280002.JPG	6/28/2018 11:49	41.478333, -86.998056	Outlet NO _x Control
3	P6280003.JPG	6/28/2018 11:54	41.478333, -86.998056	#12 Calciner
4	P6280004.JPG	6/28/2018 11:54	41.478333, -86.998056	#12 Calciner
5	P6280005.JPG	6/28/2018 11:55	41.478333, -86.998056	#12 Calciner, overhead vent
6	P6280006.JPG	6/28/2018 11:56	41.478333, -86.998056	#12 Calciner, overhead vent
7	P6280007.JPG	6/28/2018 11:56	41.478333, -86.998056	#12 Calciner
8	P6280008.JPG	6/28/2018 12:06	41.478333, -86.998056	Area B slurry making
9	P6280009.JPG	6/28/2018 12:06	41.478333, -86.998056	Area B slurry making
10	P6280010.JPG	6/28/2018 12:10	41.478333, -86.998056	Area B Spray Dryer dust collector pressure drop
11	P6280011.JPG	6/28/2018 12:11	41.478333, -86.998056	Area B Spray Dryer cyclones
12	P6280012.JPG	6/28/2018 12:11	41.478333, -86.998056	Area B Spray Dryer cyclones
13	P6280013.JPG	6/28/2018 12:11	41.478333, -86.998056	Area B Spray Dryer cyclones and dust collector
14	P6280014.JPG	6/28/2018 12:13	41.478333, -86.998056	Area B Spray Dryer cyclones and dust collector
15	P6280015.JPG	6/28/2018 12:32	41.478333, -86.998056	Dust Collector for #2, #9 Calciner