



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

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Crystal Finishing Systems Inc, Schofield, Wisconsin

FROM: Jacob Herbers, Environmental Engineer
AECAB (MI/WI)

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

TO: File

BASIC INFORMATION

Facility Name: Crystal Finishing Systems, Inc. (Crystal)

Facility Location: 2610 Ross Ave, Schofield, Wisconsin

Date of Inspection: 3/21/2023

EPA Inspector(s):

1. Brittany Cobb, Environmental Engineer
2. Jacob Herbers, Environmental Engineer

Other Attendees:

1. Lee Bergmann, Environmental Engineer, Crystal
2. Bob Rhode, Vice President, Crystal

Contact Email Address: lee.bergmann@crystalfinishing.com

Purpose of Inspection: To determine compliance with the Clean Air Act and perform a full compliance evaluation.

Facility Type: Metal and plastic parts coating and fabrication manufacturer

Regulations Central to Inspection: 40 C.F.R. Part 63, Subpart PPPP – National Emission Standards for Hazardous Air Pollutants for Surface Coating of Plastic Parts and Products; 40 C.F.R. Part 63, Subpart MMMM – National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products; and the Wisconsin State Implementation Plan.

Arrival Time: 8:25 AM CT

Departure Time: 3:25 PM CT

Inspection Type:

☒ Unannounced 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

The following information was obtained verbally from Lee Bergmann and Bob Rhode unless otherwise noted.

Process Description:

The Crystal Facility in Schofield performs aluminum extrusion, aluminium fabrication and coats metal and plastic parts with paint and powder. There are six plants housed at the Facility.

Plant 1 contains the main coating line (14 Spray Guns) and curing/drying ovens, in addition to the small jobs coating line (4 Spray Guns) and curing/drying ovens. Emissions from both coating lines are controlled by a shared regenerative thermal oxidizer (RTO), 4 stage filter systems, and dry filter system.

Plant 2 contains aluminum extrusion lines which include aluminum billet heaters, tempering ovens and presses. There are no air pollution control devices.

Plant 3 is primarily empty and has a small maintenance station with no air pollution control devices.

Plant 4 contains the powder coating lines, cure oven, parts washer, and dryer, all which have no air pollution control devices. There is also a coating line with 4 spray guns and a cure oven, that has not been used in a year, emissions are controlled by a filter. In addition, there is an aluminum decor line that vents into the building and has no stack or air pollution control device.

Plant 5 also contains aluminum extrusion lines which include aluminum billet heaters, tempering ovens and presses. There are no air pollution control devices.

Plant 6 contains the plastic coating line (12 spray guns), emissions are controlled by an overspray filter systems and RTO.

Staff Interview:

There are approximately 680 employees at the Schofield Facility, and over 1,000 companywide. The main coating line operates 5:45 AM – 1:00 PM.

The main coating line in Plant 1 was built over 30 years ago, the small jobs coating line was built in 2006, and the plastic coating line in Plant 6 was built in 2016. The main coating line and plastic coating line each have a permanent total enclosure (PTE). The coating line in plant 4 has not been operated since May 2022. The burn-off oven in plant 6 is listed in the permit but has not been constructed.

The facility uses 100% soluble chrome in the washers and therefore doesn't track chrome emissions for the washers.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:

Plant 1

EPA observed the pressure drop for the filters in each booth of main coating line:

Booth number	Pressure drop (in. WC)
1	0.1
2	0.2
3	0.4
4	0.3
5	0.2
6	0.5
7	0.1
8	0.2

Booths 1 and 2 use paint containing chromium.

EPA observed the temperature of the RTO was 1480 °F. The pressure drop of the filter before the RTO was 1.4 inches of water column (in. WC). The pressure drop of the natural draft opening (NDO) on the main coating line was -0.005 in. WC. EPA observed two spray guns operating at the time of the inspection. The temperature of the burn-off ovens were 1,700 °F and 1475 °F.

EPA observed the pressure drop for the filters in each booth of the small jobs coating line:

Booth number	Pressure drop (in. WC)
1	0.3
2	0.3

There was one spray gun operating at the time of the inspection.

Plant 6

EPA observed the temperature of the RTO in plant 6 to be 1,539 °F. Crystal calibrated the pressure sensors for the filter located before the RTO while the RTO was operating and during the inspection. After the sensors were calibrated, EPA observed the pressure drop to be 0.4 in.

WC. EPA observed the pressure drop for the entrance to the topcoat NDO to be -0.006 in. WC, the entrance to the primer to be -0.007, the exit of the topcoat booth to be -0.006 in. WC. EPA observed 2 spray guns operating during the inspection.

EPA observed the pressure drop for the filters in each booth of the plastic coating line:

Booth #	Pressure drop (in. WC)
1	1.3
2	1.14
3	1.5
4	1.1

The total pressure drop gauges for the filters in booths 2 and 3 malfunctioned. EPA added up the pressure drops across each filter to get the total pressure drop for booths.

EPA observed the burn-off oven was off, the exhaust temperature was 1540 °F and the operating temperature was 787 °F.

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

Field Measurements: were not taken during this inspection.

RECORDS REVIEW

Plant 1

1. September 2022, January 2023, and February 2023 daily filter inspections
2. Specification sheet for all spray guns
3. Stack drawing to evaluate stack heights
4. Documentation of filter efficiency
5. PTE evaluations
6. Volatile Organic Compound (VOC) capture and destruction efficiency stack test reports for the RTO
7. RTO temperature logs
8. Semiannual report
9. Pressure drop across the enclosure
10. SDS of solutions for parts washer (Oakite, Cryscoat, and Permatreat products)
11. Burn-off oven temperature logs (2)

Plant 2

12. Specifications indicating the fuel usage design of the aluminum extrusion lines is for gas
13. Internal inspections

Plant 4

14. Design documents of aluminum decor line indicating emissions are not exhausted to ambient air
15. Design documents of powder coating booths indicating there is no stack
16. Name plate on powder coating line indicating gas is used for fuel
17. SDS of powdering coatings

18. Burn-off oven temperature log (1)

Plant 6

19. VOC Capture and Destruction efficiency stack test report for the RTO

Facility-wide

20. CAM Plan

21. MPAP

CLOSING CONFERENCE

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

Requested documents:

- Copy of 2020 PTE evaluation for Plant 1
- Temperature and exhaust fan current records for RTO from March 1, 2021 to March 21, 2023
- VOC content of each coating or solvent used from February 1, 2023 to March 21, 2023
- Temperature logs for paint hook burn-off oven (P05) from March 1, 2021 to March 21, 2023
- Manufacturer specifications for paint hook burn-off oven (P05)
- Manufacturer specifications for Plant 1 RTO and Plant 6 RTO
- Record of the number of spray guns operated during each day from March 1, 2022 to March 21, 2023
- CAM Plan
- MPAP

Concerns:

- EPA identified concerns that Crystal did not have documentation showing the transfer efficiency of Aerobell 168 and Ransburg spray guns to be at least 65%.
- EPA identified concerns that the PTE for the main coating line has less than 100% capture.

DIGITAL SIGNATURES

Report Author: Herbers, Jacob Digitally signed by Herbers, Jacob
Date: 2023.05.17 13:18:57 -05'00'

Section Supervisor: DANIEL
SCHAUFELBERGER Digitally signed by DANIEL
SCHAUFELBERGER
Date: 2023.05.17 13:13:58 -05'00'

APPENDICES AND ATTACHMENTS

1. Digital Image Log

Facility Name: Crystal Finishing Systems Inc.
Facility Location: S 2610 Ross Ave, Schofield, WI
Date of Inspection: March 21, 2023

APPENDIX A: DIGITAL IMAGE LOG

1. Inspector Name: Jacob Herbers	2. Archival Record Location: <i>EPA Electronic Records</i>
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Image #	File Name	Date and Time	Description of Image
1	IMG_1464.JPG	2023:03:21 10:16:56	Product on the P03 painting line
2	IMG_1465.JPG	2023:03:21 10:21:03	P03 paint booth #5 using two bells
3	IMG_1466.JPG	2023:03:21 10:23:43	Air handler with filter on paint booth #5
4	IMG_1467.JPG	2023:03:21 10:24:43	Residue / corrosion on side of multi cleaner
5	IMG_1468.JPG	2023:03:21 10:27:04	Paint booth #1 control screen
6	IMG_1469.JPG	2023:03:21 10:27:35	Chrome coating area with residue
7	IMG_1470.JPG	2023:03:21 10:29:15	View into line of paint booths
8	IMG_1471.JPG	2023:03:21 10:31:55	RTO temperature reading and control panel
9	IMG_1472.JPG	2023:03:21 10:32:52	Filters connected to RTO outside
10	IMG_1473.JPG	2023:03:21 10:34:14	Ductwork into RTO
11	IMG_1474.JPG	2023:03:21 10:34:26	Ductwork into RTO
12	IMG_1475.JPG	2023:03:21 10:35:03	Residue on side of Permanent Total Enclosure (PTE)
13	IMG_1476.JPG	2023:03:21 10:36:34	Accidental blurry photo
14	IMG_1477.JPG	2023:03:21 10:36:44	Dusty filters on PTE air intake
15	IMG_1478.JPG	2023:03:21 10:39:43	Portable air fans next to paint hanger monorail line
16	IMG_1479.JPG	2023:03:21 10:46:22	Burn-off ovens
17	IMG_1480.JPG	2023:03:21 10:49:12	P03 offline paint booth
18	IMG_1481.JPG	2023:03:21 10:51:02	Main duct from paint booth to RTO with oven in background
19	IMG_1482.JPG	2023:03:21 10:53:29	Ductwork on side of paint booth
20	IMG_1483.JPG	2023:03:21 10:56:14	Small jobs painting line
21	IMG_1484.JPG	2023:03:21 10:58:49	Attempt to manually measure flow with streamer in small jobs line
22	IMG_1485.JPG	2023:03:21 11:25:16	Product sanding area with large air duct above
23	IMG_1486.JPG	2023:03:21 11:26:11	Same duct leading to filters outside
24	IMG_1487.JPG	2023:03:21 11:31:56	PTE with exhaust filters? Inside + outside
25	IMG_1488.JPG	2023:03:21 11:40:29	Robot painter in tunnel, with product in paint line - CBI
26	IMG_1489.JPG	2023:03:21 11:41:49	Residue on seam of PTE
27	IMG_1490.JPG	2023:03:21 11:44:21	PTE appears to exhaust some into atmosphere, and some into large duct
28	IMG_1491.JPG	2023:03:21 11:45:48	Air compressor with filters
29	IMG_1492.JPG	2023:03:21 11:47:40	Gauges for air filters 12, 13, and 14
30	IMG_1493.JPG	2023:03:21 11:49:45	Residue below PTE window
31	IMG_1494.JPG	2023:03:21 11:50:13	Residue below different PTE window

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32	IMG_1495.JPG	2023:03:21 12:02:49	P19 paint line, accidentally included worker
33	IMG_1496.JPG	2023:03:21 12:03:50	Residue on air ducts above P19 entrance
34	IMG_1497.JPG	2023:03:21 12:04:33	Large amounts of debris on ceiling in gap on other side of P19 line
35	IMG_1498.JPG	2023:03:21 12:05:25	Debris on PTE seam
36	IMG_1499.JPG	2023:03:21 12:05:53	Debris on duct above PTE
37	IMG_1500.JPG	2023:03:21 12:12:48	Pressure gauges on exhaust