



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

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Olson Aluminum Castings, Rockford, Illinois

FROM: Tess Russell, Environmental Engineer
AECAB (MN/OH)

THRU: Brian Dickens, Section Supervisor
AECAB (MN/OH)

TO: File

BASIC INFORMATION

Facility Name: Olson Aluminum Castings

Facility Location: 2135 15th Street, Rockford, IL 61104

Date of Inspection: 3/22/2022

EPA Inspector(s):

1. Tess Russell, Environmental Engineer
2. Dakota Prentice, Environmental Engineer
3. Vicky Mei, Environmental Engineer

Other Attendees:

1. Zachary Utsinger, Olson Aluminum Castings – Vice President, Sales and Engineering

Contact Email Address: zutsinger@olsonalum.com

Purpose of Inspection: To determine Clean Air Act (CAA) compliance with Illinois state implementation plan and applicability of NESHAP Subpart ZZZZZZ

Facility Type: Aluminum foundry

Regulations Central to Inspection: 40 C.F.R. Part 63, Subpart ZZZZZZ – NESHAP for Area Source Standards for Aluminum, Copper, and Other Nonferrous Foundries

Arrival Time: 10:30 AM

Departure Time: 12:05 PM

Inspection Type:

- ☒ Unannounced Inspection
- ☐ Announced Inspection

OPENING CONFERENCE

- ☒ Presented Credentials
- ☒ Stated authority and purpose of inspection
- ☒ Provided Small Business Resource Information Sheet
- ☒ Provided CBI warning to facility

The following information was obtained verbally from Olson Aluminum Castings representatives unless otherwise noted.

Process Description:

Olson Aluminum Castings is an aluminum foundry with about 60 employees. It generally operates Monday through Friday, 6:00am-4:30pm, and occasionally on Saturdays. The facility's product is aluminum castings for various industrial uses.

Aluminum alloy ingots are melted in one of five gas furnaces (1.7 million BTU burners) and are set to a final temperature in one of 13-14 electric holding furnaces. Magnesium, titanium boron, and a flux are added to the holding furnaces to meet final alloy specifications and remove impurities. Additional hydrogen impurities are removed at the holding furnaces by bubbling argon gas through the molten metal. The molten aluminum alloy is then poured into molds from the two lines and cooled to create aluminum castings. A "hot-top" is sometimes used to keep aluminum risers molten while casts are cooling. The cooling process on the green sand line can take between two to three hours.

There are two mold lines. The first is the green sand line which creates molds from silica sand with small amounts of oil and bentonite clay. The second line is the Air Set ("no-bake") line. This line operates with raw inputs of silica sand, a phenolic ester resin, and a catalyst which are mixed to create molds without heat.

After cooling, the molds go through "shake out" to separate the metal castings from the molds, at which point the facility can reclaim sand and resin. The castings then go through final processing, including shot blasting, grinding and heat treatment.

The facility has three core machines. The core machines chemically bond sand to make internal characteristics of the molds, or placeholders, so final casts can be more complex in shape. Carbon dioxide is used to cure the cores.

Staff Interview: Aluminum alloy ingots arrive at the facility in 40-pound blocks from established aluminum suppliers. Aluminum alloys 356 and 319 make up majority of the company's production. The company remelts gates and risers generated during casting production. According to the facility representative, the facility's approximate annual melt production is three million pounds (1,500 tons/year) of aluminum.

The green sand line, Air-Set line, all furnaces, and core machines have no specific air pollution controls. Two electronic cleaning units in the green sand line building help filter the air during the winter months; these cleaning units do not run in the summer when doors can be opened. The filter in each of the two electric cleaning units is replaced three to four times per year, and the internal electro plating is washed annually.

The facility representative stated slight odors result from the curing of casts on the Air-Set line. With no specific air pollution controls, there is only air turnover from the 14 exhaust fans in the roof.

There is one dust collector over the Air Set line's mechanical shake out. Pressure differential is read off a visible gauge, and the dust collector is cleaned annually. The room containing the Air-Set line's mechanical shaker has been below all Occupational Safety and Health Administration (OSHA) limits for silica dust. There are also two dust collectors at the three Wheelabrator steel shot blasting machines: one dust collector for the tableblast machine (with its multiple internal hanging bags cleaned every 3-4 years), and one dust collector for the two tumbleblast machines (with its 55-gallon bag changed weekly). This area has tested below OSHA limits, but above action limits.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:

EPA observed the 40-pound blocks from established aluminum suppliers as well as workers collecting internal scrap to be re-used in the melting process. These sources of aluminum may qualify as Clean Charge, defined at 40 C.F.R. Part 63, Subpart RRR.

There are no ventilation hoods on any of the electric holding furnaces; the furnaces exhaust into atmosphere.

There were visible emissions at the cooling stage on the green sand line.

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

Field Measurements: were not taken during this inspection.

CLOSING CONFERENCE

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

Requested documents:

- Currently active ROSS air permit
- Initial ROSS permit application, which determined Ross Permit applicability (and includes emissions calculations)
- All air construction permits issued by IEPA
- MSDS for the “hot-top” material
- Manufacturer’s recommendations/specifications for all dust collectors
- Any applicability documents pertaining to federal foundry rules (NESHAP or MACT), this may include the NESHAP for Aluminum, Copper, and Other Nonferrous Foundries (see: <https://www.epa.gov/stationary-sources-air-pollution/aluminum-copper-and-other-nonferrous-foundries-national-emission>)

Compliance Assistance: EPA instructed the facility to ensure whether or not they are subject to any federal aluminum foundry regulations.

DIGITAL SIGNATURES

Report Author: Russell, Tess Digitally signed by Russell, Tess
Date: 2022.05.13 08:33:49 -05'00'

Section Supervisor: Brian Dickens Digitally signed by Brian Dickens
Date: 2022.05.12 15:40:28 -05'00'

Facility Name: Olson Aluminum Castings

Facility Location: 2135 15th Street, Rockford, IL 61104

Date of Inspection: March 22, 2022

APPENDICES AND ATTACHMENTS

1. Appendix A: Digital Image Log

Facility Name: Olson Aluminum Castings
Facility Location: 2135 15th Street, Rockford, IL 61104
Date of Inspection: March 22, 2022

APPENDIX A: DIGITAL IMAGE LOG

1. Inspector Name: Vicky Mei	2. Archival Record Location: <i>OneDrive</i>
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Image Number	File Name	Date and Time (incl. time zone and DST)	Description of Image
1	IMG_0004.JPG	2022:03:22 10:31:59	55-gallon bag system
2	IMG_0005.JPG	2022:03:22 10:33:07	Dust collectors with multiple hanging bags
3	IMG_0006.JPG	2022:03:22 10:38:56	Cooling green sand line molds
4	IMG_0007.JPG	2022:03:22 10:47:31	Temperature control of melters, reading 1300-1450° F
5	IMG_0008.JPG	2022:03:22 10:52:10	Cooling air-set molds
6	IMG_0009.JPG	2022:03:22 10:52:35	Cooling air-set molds
7	IMG_0010.JPG	2022:03:22 10:54:18	Knock-out room
8	IMG_0011.JPG	2022:03:22 10:55:38	Label on “hot-top” sand container