Missouri Department of dnr.mo.gov
NATURAL RESOURCES
Michael L. Parson, Governor Carol S. Comer, Director

FEB 1 9 2019

Mr. Chad Gilliatt
Sr. EHS Specialist
Missouri Smelting Technology, Inc.
50 Cherry Blossom Way
Troy, MO 63379

RE: New Source Review Permit - Project Number: 2018-07-028

Dear Mr. Gilliatt:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application, and with your amended operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: http://dnr.mo.gov/regions/. The online CAV request can be found at http://dnr.mo.gov/cav/compliance.htm.

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission, whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oa.mo.gov/ahc.

If you have any questions regarding this permit, please do not hesitate to contact Ryan Schott, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:rsj

Enclosures

c: St. Louis Regional Office
PAMS File: 2018-07-028

Permit Number: 022019-002

MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: 022019-002

Project Number: 2018-07-028
Installation Number: 113-0046

Parent Company: Toyota Tsusho America, Inc.

Parent Company Address: 700 Triport Road, Georgetown, KY 40324

Installation Name: Missouri Smelting Technology, Inc.

Installation Address: 50 Cherry Blossom Way, Troy, MO 63379

Location Information: Lincoln County (S36, T39N, R1W)

Application for Authority to Construct was made for:
The modification of melt furnace operation and the revision of baghouse conditions. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

☐ Standard Conditions (on reverse) are applicable to this permit.

☑ Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

Director or Designee
Department of Natural Resources

FEB 19 2019

Effective Date

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Enforcement and Compliance Section of the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Enforcement and Compliance Section of the Department's Air Pollution Control Program of the anticipated date of startup of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department's regional office responsible for the area within which you are located within 15 days after the actual startup of this (these) air contaminant source(s).

A copy of the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit using the contact information below.

Contact Information:
Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176
(573) 751-4817

The regional office information can be found at the following website:
http://dnr.mo.gov/regions/

SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted to the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Missouri Smelting Technology, Inc.
Lincoln County (S36, T39N, R1W)

1. Superseding Condition
   A. The conditions of this permit supersede the following special conditions found in construction permits previously issued by the Air Pollution Control Program.
      1) Special Condition 3 Construction Permit No. 102000-037A
      2) Special Condition 3 Construction Permit No. 0797-003B

2. $PM_{2.5}$ Emission Limitation
   A. Missouri Smelting Technology, Inc. shall emit less than 10.0 tons of $PM_{2.5}$ in any consecutive 12-month period from the five melt furnaces (EP-3.1) and fluxing (EP-3.2).

   B. Attachment A or an equivalent form, such as an electronic form, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 2.A.

3. Control Device Requirement – Baghouse
   A. Missouri Smelting Technology, Inc. shall control emissions from the emission points in Table 1 using baghouses, as specified in the permit application.

Table 1. Emission Units Controlled by Baghouses

Emission Point	Description	Maximum Design Rate (ton/hr)	Control Device ID	Description
EP-3.1	Melt Furnace #1	4.08	CD-5.1	South Lime-Injection Baghouse
	Melt Furnace #2	4.08		
	Melt Furnace #3	6.06	CD-5.2	North Lime-Injection Baghouse
	Melt Furnace #4	6.06		
	Melt Furnace #5	9.92		
EP-3.2	Fluxing	0.01	CD-5.1/ CD-5.2	South/North Lime-Injection Baghouses

SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

B. The south lime-injection baghouse (CD-5.1) shall be operated at all times when melt furnaces #1 & #2 are operating as group 1 furnaces, according to 40 CFR 63, Subpart RRR. Melt furnaces #1 & #2 may operate without baghouse control only when they are operating as group 2 furnaces charging clean scrap, according to 40 CFR 63, Subpart RRR. The north lime-injection baghouse (CD-5.2) shall be operated at all times when melt furnaces #3, #4 & #5 are operating as group 1 furnaces, according to 40 CFR 63, Subpart RRR. Melt furnaces #3, #4 & #5 may operate without baghouse control only when they are operating as group 2 furnaces charging clean scrap, according to 40 CFR 63, Subpart RRR.

C. The baghouses shall be operated and maintained in accordance with the manufacturer's specifications. The baghouses shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that Department of Natural Resources' employees may easily observe them.

D. Replacement filters for the baghouses shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).

E. Missouri Smelting Technology, Inc. shall monitor and record the operating pressure drop across the baghouses at least once every 24 hours, while they are operating. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.

F. Missouri Smelting Technology, Inc. shall maintain a copy of the baghouse manufacturer's performance warranty on site.

G. Missouri Smelting Technology, Inc. shall maintain an operating and maintenance log for the baghouses, which shall include the following:
   1) Incidents of malfunction, with impact on emissions (tons), duration of event, probable cause, and corrective actions; and
   2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.

4. Reclassification Notification Requirement
   Missouri Smelting Technology, Inc. shall notify the Air Pollution Control Program's Compliance/Enforcement Section no later than 10 days after each occurrence of a melt furnace changing classification from a group 1 to a group 2 furnace or from a group 2 to a group 1 furnace.

SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

5. Record Keeping and Reporting Requirements

A. Missouri Smelting Technology, Inc. shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.

B. Missouri Smelting Technology, Inc. shall report to the Air Pollution Control Program's Compliance/Enforcement Section at P.O. Box 176, Jefferson City, MO 65102 or by email at AirComplianceReporting@dnr.mo.gov, no later than 10 days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW
Project Number: 2018-07-028
Installation ID Number: 113-0046
Permit Number: 022019-002

Installation Address:
Missouri Smelting Technology, Inc.
50 Cherry Blossom Way
Troy, MO 63379
Lincoln County (S36, T39N, R1W)

Parent Company:
Toyota Tsusho America, Inc.
700 Triport Road
Georgetown, KY 40324

REVIEW SUMMARY

- Missouri Smelting Technology, Inc. has applied for authority to modify operation of the melt furnaces and revise baghouse conditions.
- The application was deemed complete on August 1, 2018.
- HAP emissions are expected from the proposed equipment. HAPs of concern from this process include hydrogen chloride.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- 40 CFR 63, Subpart RRR – *National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production* applies to the installation.
- Lime-injection baghouses are being used to control particulate and hydrogen chloride emissions from the five melt furnaces and fluxing.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are conditioned below de minimis levels.
- This installation is located in Lincoln County, an attainment area for all criteria pollutants.
- This installation is classified as item number 19 (Secondary metal production plants) on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 100 tons per year and fugitive emissions are counted toward major source applicability.
- Emissions testing is not required for the equipment as a part of this permit. Testing may be required as part of other state, federal, or applicable rules.

- Submittal of an amendment to your Intermediate Operating Permit is required within 90 days of equipment startup.

- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Missouri Smelting Technology, Inc. (MOST) operates a secondary aluminum processing facility in Troy, Missouri. The installation receives aluminum scrap from machining operations. The scrap is cleaned, dried, and crushed prior to being melted. The melted aluminum is poured into molds to form the final products: ingots or portable holding crucibles. The installation is a minor source for PM, PM_{10}, $PM_{2.5}$, NO_x, and VOCs and a de minimis source for SO_x, CO, and HAPs. Missouri Smelting Technology, Inc. currently has an Intermediate Operating Permit (OP2014-006) that expires on April 28, 2019. The following New Source Review permits have been issued to Missouri Smelting Technology, Inc. from the Air Pollution Control Program.

Table 2: Permit History

Permit Number	Description
0797-003	New scrap aluminum processing plant
0797-003A	Reinstate Permit No. 0797-003 and include additional emission points
102000-037	New reverberatory and in-line chlorine fluxer
102000-037A	Reinstate Permit No. 102000-037 and include additional emission points
0797-003B	Reinstate Permit No. 0797-003A and include additional emission points
022016-002	New scrap metal crusher
122016-010	Modification of the scrap metal crusher

PROJECT DESCRIPTION

Missouri Smelting Technology, Inc. has historically operated five melt furnaces (EP-3.1) and a fluxing operation (EP-3.2), collectively controlled by two lime-injection baghouses (CD-5.1 & CD-5.2). The melt furnaces have been exclusively classified as group 1 furnaces, according to 40 CFR 63, Subpart RRR, and thus, were required to be controlled by lime-injection baghouses at all times. Conditions have arisen where one or both of the baghouses have been rendered temporarily inoperable, and so there exists a need to operate the furnaces without baghouse control. According to 40 CFR 63, Subpart RRR, the melt furnaces are allowed to switch classification from controlled group 1 furnaces to uncontrolled group 2 furnaces, under certain circumstances. Therefore, in a scenario where a lime-injection baghouse is rendered inoperable, Missouri Smelting Technology, Inc. may continue to operate the melt furnaces that were controlled by that specific baghouse, as long as only clean scrap is charged and no reactive flux is used. The melt furnaces may be reclassified from group 2 furnaces back to group 1 furnaces and return to normal operation after the lime-injection baghouse controlling them becomes operational again.

[For reference, 40 CFR 63, Subpart RRR defines a group 1 furnace as a furnace of any design that melts, holds, or processes aluminum that contains paint, lubricants, coatings, or other foreign materials with or without reactive fluxing, or processes clean charge with reactive fluxing; and defines a group 2 furnace as a furnace of any design that melts, holds, or processes only clean charge and that performs no fluxing or performs fluxing using only nonreactive, non-HAP-containing/non-HAP-generating gases or agents.]

EMISSIONS/CONTROLS EVALUATION

Potential PM, PM_{10}, $PM_{2.5}$, and VOC emissions from the five melt furnaces (EP-3.1) were calculated using emission factors taken from WebFIRE, the EPA's emission factor database, under SCC 3-04-001-03. Hydrogen chloride emissions were calculated using emission factors obtained from stack testing conducted in June 2013. A 99% control efficiency for PM, PM_{10}, and $PM_{2.5}$ and a 95% control efficiency for hydrogen chloride was applied when the melt furnaces are classified as group 1 furnaces and the lime-injection baghouses are in use. When the melt furnaces are classified as group 2 furnaces and the lime-injection baghouses are not in use, no control efficiencies are given, and no HAP emissions are expected because reactive flux is not used.

Potential PM, PM_{10}, and $PM_{2.5}$ emissions from fluxing (EP-3.2) were calculated using emission factors taken from WebFIRE, under SCC 3-04-001-04. A 99% control efficiency for PM, PM_{10}, and $PM_{2.5}$ was applied when all melt furnaces are classified as group 1 furnaces and the lime-injection baghouses are in-use. When any of the melt furnaces are classified as group 2 furnaces and either of the lime-injection baghouses are not in use, no control efficiency is given.

Potential emissions from four operating scenarios were calculated. Scenario 1 occurs when the five melt furnaces are classified as group 1 furnaces and both lime-injection baghouses are in operation. Scenario 2 occurs when melt furnaces #1 & #2 are classified as group 2 furnaces and the south lime-injection baghouse (CD-5.1) is not in operation, while melt furnaces #3, #4 & #5 are classified as group 1 furnaces and the north lime-injection baghouse (CD-5.2) is in operation. Scenario 3 occurs when melt furnaces #1 & #2 are classified as group 1 furnaces and the south lime-injection baghouse (CD-5.1) is in operation, while melt furnaces #3, #4 & #5 are classified as group 2 furnaces and the north lime-injection baghouse (CD-5.2) is not in operation. Scenario 4 occurs when all five melt furnaces are classified as group 2 furnaces and neither lime-injection baghouses are in operation. During scenario 1, none of the potential emissions exceed the de minimis level; however, during scenarios 2, 3, and 4, non-operation of the lime-injection baghouse(s) causes PM, PM_{10}, and $PM_{2.5}$ emissions to exceed de minimis levels. In all of these cases, $PM_{2.5}$ emissions are limited below the de minimis level, which subsequently limits PM and PM_{10} emissions below their respective de minimis levels.

Potential emissions from the combustion of natural gas in the five melt furnaces were not reevaluated as part of this project. The amount of natural gas combusted in the melt furnaces is not expected to change when the melt furnaces change group classification, and combustion emissions are not affected by the operation of the lime-injection baghouses. No other equipment or processes at the facility will be affected by the modification to the melt furnaces or the operation of the lime-injection baghouses.

The following table provides an emissions summary for this project. Existing potential emissions were taken from the installation's previous construction permit (122016-010). Existing actual emissions were taken from the installation's most recent EIQ. Potential emissions of the project represent the potential of the worst-case operating scenario for the melt furnaces and lime-injection baghouses, assuming continuous operation (8,760 hours per year). Conditioned potential emissions of the project account for a voluntary $PM_{2.5}$ de minimis limit applied to the worst-case operating scenario.

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory *De Minimis* Levels	Existing Potential Emissions	Existing Actual Emissions (2017 EIQ)	Potential Emissions of the Project	Conditioned Potential Emissions of the Project
PM	25.0	42.10	N/D	612.59	22.91
PM_{10}	15.0	26.58	9.04	367.22	13.49
$PM_{2.5}$	10.0	22.25	7.16	294.43	<10.0
SO_x	40.0	0.57	0.88	N/A	N/A
NO_x	40.0	75.78	29.49	N/A	N/A
VOC	40.0	52.11	15.15	26.46	26.46
CO	100.0	79.82	19.89	N/A	N/A
Hexane	10.0	1.71	N/D	N/A	N/A
Hydrogen Chloride	10.0	1.09	N/D	0.32	0.32
Total HAPs	25.0	14.16	0.31	0.32	0.32

N/A = Not Applicable; N/D = Not Determined

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are conditioned below de minimis levels.

APPLICABLE REQUIREMENTS

Missouri Smelting Technology, Inc. shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Start-Up, Shutdown, and Malfunction Conditions,* 10 CSR 10-6.050
- *Operating Permits*, 10 CSR 10-6.065
- *Submission of Emission Data, Emission Fees, and Process Information,* 10 CSR 10-6.110
  - Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.
- *Restriction of Emission of Odors*, 10 CSR 10-6.165
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220

SPECIFIC REQUIREMENTS

- *MACT Regulations*, 10 CSR 10-6.075
  - *National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production* – 40 CFR 63, Subpart RRR

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, it is recommended that this permit be granted with special conditions.

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated July 9, 2018, received July 11, 2018, designating Toyota Tsusho America, Inc. as the owner and operator of the installation.

Attachment A – $PM_{2.5}$ Compliance Worksheet

Missouri Smelting Technology, Inc.
Lincoln County (S36, T39N, R1W)
Project Number: 2018-07-028
Installation ID Number: 113-0046
Permit Number: 022019-002

This sheet covers the period from ________________ to ________________.
(month, year) (month, year)

Month	Melt Furnaces	Furnace Classification	Baghouse Operating	Amount of Aluminum Processed[1] (tons)	Emission Factor (lb/ton)	Individual Monthly Emissions[2] (tons)	Total Monthly Emissions[3] (tons)	12-Month Rolling Total Emissions[4] (tons)
	#1 & #2	Group 1	Yes		0.0223			
		Group 2	No		2.2259			
	#3, #4 & #5	Group 1	Yes		0.0223			
		Group 2	No		2.2259			
	#1 & #2	Group 1	Yes		0.0223			
		Group 2	No		2.2259			
	#3, #4 & #5	Group 1	Yes		0.0223			
		Group 2	No		2.2259			
	#1 & #2	Group 1	Yes		0.0223			
		Group 2	No		2.2259			
	#3, #4 & #5	Group 1	Yes		0.0223			
		Group 2	No		2.2259			
	#1 & #2	Group 1	Yes		0.0223			
		Group 2	No		2.2259			
	#3, #4 & #5	Group 1	Yes		0.0223			
		Group 2	No		2.2259			

[1]Enter the amount of aluminum processed in each commonly operated/controlled set of melt furnaces during each type of group classified operation in the given month.
[2]Multiply the amount of aluminum processed by the respective emission factor and divide by 2,000. The emission factors include emissions from fluxing.
[3]Add together all individual monthly emissions, plus any Startup, Shutdown, and Malfunction emissions, as reported to the Air Pollution Control Program's Compliance/Enforcement Section, according to the provisions of 10 CSR 10-6.050.
[4]Add the current total monthly emissions to the total monthly emissions of the previous 11 months. A total of less than 10.0 tons of $PM_{2.5}$ per consecutive 12-month period is necessary for compliance with Special Condition 2.

APPENDIX A

Abbreviations and Acronyms

% ..... percent
°F ..... degrees Fahrenheit
acfm ..... actual cubic feet per minute
BACT ..... Best Available Control Technology
BMPs ..... Best Management Practices
Btu ..... British thermal unit
CAM ..... Compliance Assurance Monitoring
CAS ..... Chemical Abstracts Service
CEMS ..... Continuous Emission Monitor System
CFR ..... Code of Federal Regulations
CO ..... carbon monoxide
CO_2 ..... carbon dioxide
CO_2e ..... carbon dioxide equivalent
COMS ..... Continuous Opacity Monitoring System
CSR ..... Code of State Regulations
dscf ..... dry standard cubic feet
EIQ ..... Emission Inventory Questionnaire
EP ..... Emission Point
EPA ..... Environmental Protection Agency
EU ..... Emission Unit
fps ..... feet per second
ft ..... feet
GACT ..... Generally Available Control Technology
GHG ..... Greenhouse Gas
gpm ..... gallons per minute
gr ..... grains
GWP ..... Global Warming Potential
HAP ..... Hazardous Air Pollutant
hr ..... hour
hp ..... horsepower
lb ..... pound
lbs/hr ..... pounds per hour
MACT ..... Maximum Achievable Control Technology
$\mu g/m^3$ ..... micrograms per cubic meter
m/s ..... meters per second
Mgal ..... 1,000 gallons
MW ..... megawatt
MHDR ..... maximum hourly design rate
MMBtu ..... Million British thermal units
MMCF ..... million cubic feet
MSDS ..... Material Safety Data Sheet
NAAQS ..... National Ambient Air Quality Standards
NESHAPs National Emissions Standards for Hazardous Air Pollutants
NO_x ..... nitrogen oxides
NSPS ..... New Source Performance Standards
NSR ..... New Source Review
PM ..... particulate matter
$PM_{2.5}$ ..... particulate matter less than 2.5 microns in aerodynamic diameter
PM_{10} ..... particulate matter less than 10 microns in aerodynamic diameter
ppm ..... parts per million
PSD ..... Prevention of Significant Deterioration
PTE ..... potential to emit
RACT ..... Reasonable Available Control Technology
RAL ..... Risk Assessment Level
SCC ..... Source Classification Code
scfm ..... standard cubic feet per minute
SDS ..... Safety Data Sheet
SIC ..... Standard Industrial Classification
SIP ..... State Implementation Plan
SMAL ..... Screening Model Action Levels
SO_x ..... sulfur oxides
SO_2 ..... sulfur dioxide
SSM ..... Startup, Shutdown & Malfunction
tph ..... tons per hour
tpy ..... tons per year
VMT ..... vehicle miles traveled
VOC ..... Volatile Organic Compound

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	CD-5.1	CD-5.2
Baghouse Operating?	YES	YES

Emission Point	Description of Unit	Maximum Design Rate	Units	Emission Factor (lb/ton)					Control Device ID	Control Device Description	Particulate Control Efficiency	HAP Control Efficiency
				PM	PM10	PM2.5	VOC	HCl				
EP-3.1	Melt Furnace #1	4.08	ton/hr processed	4.300	2.600	2.160	0.200	0.108	CD-5.1	South Lime-Injection Baghouse	99%	95%
	Melt Furnace #2	4.08	ton/hr processed	4.300	2.600	2.160	0.200			South Lime-Injection Baghouse		
	Melt Furnace #3	6.06	ton/hr processed	4.300	2.600	2.160	0.200	0.165	CD-5.2	North Lime-Injection Baghouse	99%	95%
	Melt Furnace #4	6.06	ton/hr processed	4.300	2.600	2.160	0.200			North Lime-Injection Baghouse		
	Melt Furnace #5	9.92	ton/hr processed	4.300	2.600	2.160	0.200			North Lime-Injection Baghouse		
EP-3.2	Fluxing	0.01	ton/hr Cl2 added	1000	532	199	-	-	CD-5.1/CD-5.2	South/North Lime-Injection Baghouses	99%	-

Melt furnace emission factors taken from WebFIRE SCC 3-04-001-03; Fluxing emission factors taken from WebFIRE SCC 3-04-001-04

HCl emission factors taken from June 2013 stack test:

Release Point	HCl Emission Rate (lb/hr)	Production Rate (ton/hr)	Controlled Emission Factor (lb/ton)	Uncontrolled Emission Factor (lb/ton)
South Baghouse	0.025	4.623	0.00541	0.108
North Baghouse	0.093	11.300	0.00823	0.165

Emission Point	Description of Unit	Potential Emissions (ton/yr)				
		PM	PM10	PM2.5	VOC	HCl
EP-3.1	Melt Furnace #1	0.768	0.465	0.386	3.574	0.097
	Melt Furnace #2	0.768	0.465	0.386	3.574	
	Melt Furnace #3	1.141	0.690	0.573	5.309	0.218
	Melt Furnace #4	1.141	0.690	0.573	5.309	
	Melt Furnace #5	1.868	1.130	0.939	8.690	
EP-3.2	Fluxing	0.438	0.233	0.087	-	-
Total		6.13	3.67	2.94	26.46	0.32
Limited Total		6.13	3.67	2.94	26.46	0.32

Emission Release Point	Emission Factor (lb/ton processed)	
	Uncontrolled	Controlled
CD-5.1 (Melt Furnaces #1 & #2)	2.1600	0.0216
CD-5.2 (Melt Furnaces #3, #4 & #5)	2.1600	0.0216
CD-5.1 (Fluxing)	0.0659	0.0007
CD-5.2 (Fluxing)	0.0659	0.0007
CD-5.1 (Composite)	2.2259	0.0223
CD-5.2 (Composite)	2.2259	0.0223

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	CD-5.1	CD-5.2
Baghouse Operating?	NO	YES

Emission Point	Description of Unit	Maximum Design Rate	Units	Emission Factor (lb/ton)					Control Device ID	Control Device Description	Particulate Control Efficiency	HAP Control Efficiency
				PM	PM10	PM2.5	VOC	HCl				
EP-3.1	Melt Furnace #1	4.08	ton/hr processed	4.300	2.600	2.160	0.200	0.000	CD-5.1	South Lime-Injection Baghouse	0%	0%
	Melt Furnace #2	4.08	ton/hr processed	4.300	2.600	2.160	0.200			South Lime-Injection Baghouse		
	Melt Furnace #3	6.06	ton/hr processed	4.300	2.600	2.160	0.200	0.165	CD-5.2	North Lime-Injection Baghouse	99%	95%
	Melt Furnace #4	6.06	ton/hr processed	4.300	2.600	2.160	0.200			North Lime-Injection Baghouse		
	Melt Furnace #5	9.92	ton/hr processed	4.300	2.600	2.160	0.200			North Lime-Injection Baghouse		
EP-3.2	Fluxing	0.01	ton/hr Cl2 added	1000	532	199	-	-	CD-5.1/CD-5.2	South/North Lime-Injection Baghouses	0%	-

Melt furnace emission factors taken from WebFIRE SCC 3-04-001-03; Fluxing emission factors taken from WebFIRE SCC 3-04-001-04

HCl emission factors taken from June 2013 stack test:

Release Point	HCl Emission Rate (lb/hr)	Production Rate (ton/hr)	Controlled Emission Factor (lb/ton)	Uncontrolled Emission Factor (lb/ton)
South Baghouse	0.025	4.623	0.00541	0.005
North Baghouse	0.093	11.300	0.00823	0.165

Emission Point	Description of Unit	Potential Emissions (ton/yr)				
		PM	PM10	PM2.5	VOC	HCl
EP-3.1	Melt Furnace #1	76.843	46.463	38.600	3.574	0.000
	Melt Furnace #2	76.843	46.463	38.600	3.574	
	Melt Furnace #3	1.141	0.690	0.573	5.309	0.218
	Melt Furnace #4	1.141	0.690	0.573	5.309	
	Melt Furnace #5	1.868	1.130	0.939	8.690	
EP-3.2	Fluxing	43.800	23.302	8.716	-	-

Total	201.64	118.74	88.00	26.46	0.22
Limited Total	22.91	13.49	10.00	3.01	0.02

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	CD-5.1	CD-5.2
Baghouse Operating?	YES	NO

Emission Point	Description of Unit	Maximum Design Rate	Units	Emission Factor (lb/ton)					Control Device ID	Control Device Description	Particulate Control Efficiency	HAP Control Efficiency
				PM	PM10	PM2.5	VOC	HCl				
EP-3.1	Melt Furnace #1	4.08	ton/hr processed	4.300	2.600	2.160	0.200	0.108	CD-5.1	South Lime-Injection Baghouse	99%	95%
	Melt Furnace #2	4.08	ton/hr processed	4.300	2.600	2.160	0.200			South Lime-Injection Baghouse		
	Melt Furnace #3	6.06	ton/hr processed	4.300	2.600	2.160	0.200	0.000	CD-5.2	North Lime-Injection Baghouse	0%	0%
	Melt Furnace #4	6.06	ton/hr processed	4.300	2.600	2.160	0.200			North Lime-Injection Baghouse		
	Melt Furnace #5	9.92	ton/hr processed	4.300	2.600	2.160	0.200			North Lime-Injection Baghouse		
EP-3.2	Fluxing	0.01	ton/hr Cl2 added	1000	532	199	-	-	CD-5.1/CD-5.2	South/North Lime-Injection Baghouses	0%	-

Melt furnace emission factors taken from WebFIRE SCC 3-04-001-03; Fluxing emission factors taken from WebFIRE SCC 3-04-001-04

HCl emission factors taken from June 2013 stack test:

Release Point	HCl Emission Rate (lb/hr)	Production Rate (ton/hr)	Controlled Emission Factor (lb/ton)	Uncontrolled Emission Factor (lb/ton)
South Baghouse	0.025	4.623	0.00541	0.108
North Baghouse	0.093	11.300	0.00823	0.008

Emission Point	Description of Unit	Potential Emissions (ton/yr)				
		PM	PM10	PM2.5	VOC	HCl
EP-3.1	Melt Furnace #1	0.768	0.465	0.386	3.574	0.097
	Melt Furnace #2	0.768	0.465	0.386	3.574	
	Melt Furnace #3	114.134	69.011	57.332	5.309	0.000
	Melt Furnace #4	114.134	69.011	57.332	5.309	
	Melt Furnace #5	186.833	112.969	93.851	8.690	
EP-3.2	Fluxing	43.800	23.302	8.716	-	-

Total	460.44	275.22	218.00	26.46	0.10
Limited Total	21.12	12.62	10.00	1.21	0.00

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	CD-5.1	CD-5.2
Baghouse Operating?	NO	NO

Emission Point	Description of Unit	Maximum Design Rate	Units	Emission Factor (lb/ton)					Control Device ID	Control Device Description	Particulate Control Efficiency	HAP Control Efficiency
				PM	PM10	PM2.5	VOC	HCl				
EP-3.1	Melt Furnace #1	4.08	ton/hr processed	4.300	2.600	2.160	0.200	0.000	CD-5.1	South Lime-Injection Baghouse	0%	0%
	Melt Furnace #2	4.08	ton/hr processed	4.300	2.600	2.160	0.200			South Lime-Injection Baghouse		
	Melt Furnace #3	6.06	ton/hr processed	4.300	2.600	2.160	0.200	0.000	CD-5.2	North Lime-Injection Baghouse	0%	0%
	Melt Furnace #4	6.06	ton/hr processed	4.300	2.600	2.160	0.200			North Lime-Injection Baghouse		
	Melt Furnace #5	9.92	ton/hr processed	4.300	2.600	2.160	0.200			North Lime-Injection Baghouse		
EP-3.2	Fluxing	0.01	ton/hr Cl2 added	1000	532	199	-	-	CD-5.1/CD-5.2	South/North Lime-Injection Baghouses	0%	-

Melt furnace emission factors taken from WebFIRE SCC 3-04-001-03; Fluxing emission factors taken from WebFIRE SCC 3-04-001-04

HCl emission factors taken from June 2013 stack test:

Release Point	HCl Emission Rate (lb/hr)	Production Rate (ton/hr)	Controlled Emission Factor (lb/ton)	Uncontrolled Emission Factor (lb/ton)
South Baghouse	0.025	4.623	0.00541	0.005
North Baghouse	0.093	11.300	0.00823	0.008

Emission Point	Description of Unit	Potential Emissions (ton/yr)				
		PM	PM10	PM2.5	VOC	HCl
EP-3.1	Melt Furnace #1	76.843	46.463	38.600	3.574	0.000
	Melt Furnace #2	76.843	46.463	38.600	3.574	
	Melt Furnace #3	114.134	69.011	57.332	5.309	0.000
	Melt Furnace #4	114.134	69.011	57.332	5.309	
	Melt Furnace #5	186.833	112.969	93.851	8.690	
EP-3.2	Fluxing	43.800	23.302	8.716	-	-
	Total	612.59	367.22	294.43	26.46	0.00
	Limited Total	20.81	12.47	10.00	0.90	0.00