

Facility ID: 0204020428 Issuance type: Final State Permit To Operate

This version of facility specific terms and conditions was converted from a database format to an HTML file during an upgrade of the Ohio EPA, Division of Air Pollution Control's permitting software. Every attempt has been made to convert the terms and conditions to look and substantively conform to the permit issued or being drafted in STARS. However, the format of the terms may vary slightly from the original. In addition, although it is not expected, there is a slight possibility that a term and condition may have been inadvertently "left out" of this reproduction during the conversion process. Therefore, if this version is to be used as a starting point in drafting a new version of a permit, it is imperative that the entire set of terms and conditions be reviewed to ensure they substantively mimic the issued permit. The official version of any permit issued final by Ohio EPA is kept in the Agency's Legal section. The Legal section may be contacted at (614) 644-3037.

In addition to the terms and conditions, hyperlinks have been inserted into the document so you may more readily access the section of the document you wish to review.

Finally, the term language under "Part II" and before "A. Applicable Emissions Limitations..." has been added to aid in document conversion, and was not part of the original issued permit.

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Facility ID: 0204020428 Emissions Unit ID: P002 Issuance type: Final State Permit To Operate

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Part II - Special Terms and Conditions

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (a) None.
2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (a) None.

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Furnace #314 - 7 mmBtu/hr natural gas-fired aluminum reverberatory melting furnace with a maximum melting capacity of 3,000 lbs/hr.	OAC rule 3745-31-05(A)(3)	Particulate emissions (PE) shall not exceed 1.65 pounds per hour and 7.2 tons per year. Particulate emissions with a diameter less than 10 microns (PM10) shall not exceed 1.57 pounds per hour and 6.9 tons per year. The total emissions of PM10 from emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined, shall not exceed 9.9 tons per year. Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average. Nitrogen oxides (NOx) emissions shall not exceed 1.05 pounds per hour and 4.6 tons per year. Carbon monoxide (CO) emissions shall not exceed 0.56 pound per hour and 2.5 tons per year.
	OAC rule 3745-17-07(A)	See sections B.1 and B.2 below. The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-17-11	The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

2. Additional Terms and Conditions

- (a) None

B. Operational Restrictions

1. The following materials are approved for charging in the furnaces: clean, pure aluminum ingots; de-gating material; and rejected molded parts. The de-gating materials consist of excess aluminum which is removed from the exterior of the molds and used for remelt. Scrap material (other than from the original aluminum ingots) and dross are not permitted to be charged in the furnaces.
 2. The permittee shall employ only natural gas as fuel for this emissions unit.
 3. No demagging or degassing operations shall be performed inside the furnace chambers. Degassing operations may be performed outside of the furnaces and inside of a degassing chamber using argon and/or nitrogen gases.
 4. The total maximum annual production limit for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined, shall not exceed 38,000,000 pounds per year.
- C. Monitoring and/or Record Keeping Requirements**
1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
 2. The permittee shall collect and record the following information for each day for this emissions unit:
 - a. the amount of melted aluminum produced from this emissions unit; and
 - b. the total number of hours the emissions unit was in operation.
 3. The permittee shall collect and record each month the total production, in pounds, for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined.
- D. Reporting Requirements**
1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
 2. The permittee shall submit quarterly deviation (excursion) reports that include the following information:
 - a. an identification of each day during which materials, other than clean, pure aluminum ingots, de-gating materials, and/or rejected molded parts, as described in section B.1, were charged in the furnaces;
 - b. an identification of each day during which demagging or degassing operations were performed inside the furnace chambers;
 - c. any exceedances of the total maximum annual production limitation for emissions units P002, P005, P006 and P007, combined, as well as the corrective actions that were taken to achieve compliance;
 - d. an identification of each day during which the average hourly PE from this emissions unit exceeded 1.65 pounds per hour, and the actual average hourly PE for each such day;
 - e. an identification of each day during which the average hourly PM10 emissions from this emissions unit exceeded 1.57 pounds per hour, and the actual average hourly PM10 emissions for each such day;
 - f. an identification of each day during which the average hourly NOx from this emissions unit exceeded 1.05 pounds per hour, and the actual average hourly NOx for each such day; and
 - g. an identification of each day during which the average hourly CO from this emissions unit exceeded 0.56 pound per hour, and the actual average hourly CO for each such day.

The deviation reports shall be submitted in accordance with the reporting requirements of the General Terms and Conditions of this permit.
 3. The permittee shall submit annual reports that identify the total annual production, in pounds, for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined, for the previous year.
- These reports shall be submitted by January 31 of each year.
- E. Testing Requirements**
1. Compliance with the emissions limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:
Emission Limitations:

PE shall not exceed 1.65 pounds per hour.
PM10 shall not exceed 1.57 pounds per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rate for particulate emissions, the following equations shall be used:

$$E1 \text{ (lb/hr)} = (EF) \times (\text{Max_AL})$$

$$E2 \text{ (lb/hr)} = (EF) \times (\text{Max_AL}) \times (0.95)$$
 where:

 E1 = particulate emission rate, in pounds per hour.
 E2 = particulate emission rate of PM10, in pounds per hour.

 EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal. Pounds of PM10

= (0.95) x (pounds of PE).

Max_AL = maximum amount of aluminum charged, in tons per hour.

If required, emission tests shall be performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5.

Emission Limitations:

PE shall not exceed 7.2 tons per year.
PM10 shall not exceed 6.9 tons per year.

Applicable Compliance Method:

To determine the annual emission rate for particulate emissions, the following equations shall be used:

$$E1 \text{ (tpy)} = [(EF) \times (\text{Max_AL})] / 2000$$

$$E2 \text{ (tpy)} = [(EF) \times (\text{Max_AL}) \times (0.95)] / 2000$$

where:

E1 = particulate emission rate, in tons per year.
E2 = particulate emission rate of PM10, in tons per year.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal. Pounds of PM10 = (0.95) x (pounds of PE).

Max_AL = annual amount of aluminum charged, in tons per year.
Emission Limitations:

NOx emissions shall not exceed 1.05 pounds per hour.
CO emissions shall not exceed 0.56 pound per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rates, the following equation shall be used:

$$E \text{ (lb/hr)} = EF \times \text{Max_Cap}$$

where:

E = emission rate, in pounds per hour.

EF = emission factor, in pounds of air contaminant per million Btu (lb/MMBtu):

$$EF = 0.150 \text{ NOx lb/MMBtu}$$

$$EF = 0.080 \text{ CO lb/MMBtu}$$

Max_Cap = Maximum rated capacity of the furnace, in million Btu per hour

The emission factor for NOx is taken from the STAPPA & ALAPCO Handbook, Table 11-1 for aluminum-melting reverberatory furnace combustion products. For CO, the emission factor is taken from the AP-42, Table 1.4-1, Natural Gas Combustion, 7/98, where the EF = 0.080 is obtained by converting lb/MMCF to lb/MMBtu by dividing the AP-42 emission factor of 84 lb CO/MMCF by 1050 MMBtu/ MMCF.

Emission Limitations:

NOx emissions shall not exceed 4.6 tons per year.
CO emissions shall not exceed 2.5 tons per year.

Applicable Compliance Method:

To determine the annual emission rates, the following equation shall be used:

$$E \text{ (tpy)} = (E_{\text{Hr}}) \times (\text{Hr}_{\text{Op}}) / 2000$$

where:

E = emission rate, in tons per year.

E_Hr = hourly emission rate, in pounds per hour, as calculated in section E.1.c.

Hr_Op = hours of operation on an annual basis, hours per year.

Emission Limitation:

Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-17-03(B)(1) using the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

Emission Limitation:

The total emissions of PM10 from emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined, shall not exceed 9.9 tons per year.

Applicable Compliance Method:

Compliance shall be determined by summing the annual PM10 emissions determined in section E.1.b (E2 calculation) for emissions units P002, P005, P006 and P007.

F. Miscellaneous Requirements

- 1. None

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Facility ID: 0204020428 Emissions Unit ID: P004 Issuance type: Final State Permit To Operate

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Part II - Special Terms and Conditions

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

- 1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

- (a) None.

- 2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

- (a) None.

A. Applicable Emissions Limitations and/or Control Requirements

- 1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Furnace #300 - 6 mmBtu/hr natural gas-fired aluminum reverberatory melting furnace with a maximum melting capacity of 2,400 lbs/hr.	OAC rule 3745-31-05(A)(3) (PTI 02-11757)	Particulate emissions (PE) shall not exceed 1.32 pounds per hour and 1.65 tons per year. Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average. Nitrogen oxides (NOx) emissions shall not exceed 0.90 pound per hour and 3.94 tons per year.
	OAC rule 3745-17-07(A)	See section B.1 below. The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-17-11	The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

2. Additional Terms and Conditions

- (a) None

B. Operational Restrictions

- 1. The following materials are approved for charging in the furnaces: clean, pure aluminum ingots; de-gating material; and rejected molded parts. The de-gating materials consist of excess aluminum which is removed from the exterior of the molds and used for remelt. Scrap material (other than from the original aluminum ingots) and dross are not permitted to be charged in the furnaces.
- 2. The permittee shall employ only natural gas as fuel for this emissions unit.
- 3. No demagging or degassing operations shall be performed inside the furnace chambers. Degassing operations may be performed outside of the furnaces and inside of a degassing chamber using argon and/or nitrogen gases.

C. Monitoring and/or Record Keeping Requirements

- 1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- 2. The permittee shall collect and record the following information for each day for this emissions unit:
 - a. the amount of melted aluminum produced from this emissions unit; and
 - b. the total number of hours the emissions unit was in operation.

D. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit quarterly deviation (excursion) reports that include the following information:
 - a. an identification of each day during which materials, other than clean, pure aluminum ingots, de-gating materials, and/or rejected molded parts, as described in section B.1, were charged in the furnaces;
 - b. an identification of each day during which demagging or degassing operations were performed inside the furnace chambers;
 - c. an identification of each day during which the average hourly PE from this emissions unit exceeded 1.32 pounds per hour, and the actual average hourly PE for each such day; and
 - d. an identification of each day during which the average hourly NOx from this emissions unit exceeded 0.90 pound per hour, and the actual average hourly NOx for each such day.

The deviation reports shall be submitted in accordance with the reporting requirements of the General Terms and Conditions of this permit.

E. Testing Requirements

1. Compliance with the emission limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:

Emission Limitation:

PE shall not exceed 1.32 pounds per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rate for particulate emissions, the following equation shall be used:

$$E1 \text{ (lb/hr)} = (EF) \times (\text{Max_AL})$$

where:

E1 = particulate emission rate, in pounds per hour.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal.

Max_AL = maximum amount of aluminum charged, in tons per hour.

If required, emission tests shall be performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5.

Emission Limitation:

PE shall not exceed 1.65 tons per year.

Applicable Compliance Method:

To determine the annual emission rate for particulate emissions, the following equation shall be used:

$$E1 \text{ (tpy)} = [(EF) \times (\text{Max_AL})] / 2000$$

where:

E1 = particulate emission rate, in tons per year.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal.

Max_AL = annual amount of aluminum charged, in tons per year.

Emission Limitation:

NOx emissions shall not exceed 0.90 pound per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rates, the following equation shall be used:

$$E \text{ (lb/hr)} = EF \times \text{Max_Cap}$$

where:

E = emission rate, in pounds per hour.

EF = emission factor, in pounds of air contaminant per million Btu (lb/MMBtu):

$$EF = 0.150 \text{ NOx lb/MMBtu}$$

Max_Cap = Maximum rated capacity of the furnace, in million Btu per hour

The emission factor for NOx is taken from the STAPPA & ALAPCO Handbook, Table 11-1 for aluminum-melting reverberatory furnace combustion products.

Emission Limitation:

NOx emissions shall not exceed 3.94 tons per year.

Applicable Compliance Method:

To determine the annual emission rates, the following equation shall be used:

$$E \text{ (tpy)} = (E_Hr) \times (Hr_Op) / 2000$$

where:

E = emission rate, in tons per year.

E_Hr = hourly emission rate, in pounds per hour, as calculated in section E.1.c.

Hr_Op = hours of operation on a annual basis, hours per year.

Emission Limitation:

Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-17-03(B)(1) using the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

F. Miscellaneous Requirements

1. None

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Facility ID: 0204020428 Emissions Unit ID: P005 Issuance type: Final State Permit To Operate

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Part II - Special Terms and Conditions

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (a) None.
2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (a) None.

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Furnace #500 - 10.5 mmBtu/hr natural gas-fired aluminum reverberatory melting furnace with a maximum melting capacity of 3,500 lbs/hr.	OAC rule 3745-31-05(A)(3) (PTI 02-19895)	Particulate emissions (PE) shall not exceed 1.93 pounds per hour and 8.4 tons per year. Particulate emissions with a diameter less than 10 microns (PM10) shall not exceed 1.83 pounds per hour and 8.0 tons per year. The total emissions of PM10 from emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined, shall not exceed 9.9 tons per year. Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average. Nitrogen oxides (NOx) emissions shall not exceed 1.58 pounds per hour and 6.9 tons per year. Carbon monoxide (CO) emissions shall not exceed 0.84 pound per hour and 3.7 tons per year.

OAC rule 3745-17-07(A)

See sections B.1 and B.2 below.

The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

OAC rule 3745-17-11

The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

2. **Additional Terms and Conditions**

(a) None

B. **Operational Restrictions**

1. The following materials are approved for charging in the furnaces: clean, pure aluminum ingots; de-gating material; and rejected molded parts. The de-gating materials consist of excess aluminum which is removed from the exterior of the molds and used for remelt. Scrap material (other than from the original aluminum ingots) and dross are not permitted to be charged in the furnaces.
2. The permittee shall employ only natural gas as fuel for this emissions unit.
3. No demagging or degassing operations shall be performed inside the furnace chambers. Degassing operations may be performed outside of the furnaces and inside of a degassing chamber using argon and/or nitrogen gases.
4. The total maximum annual production limit for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined, shall not exceed 38,000,000 pounds per year.

C. **Monitoring and/or Record Keeping Requirements**

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall collect and record the following information for each day for this emissions unit:
 - a. the amount of melted aluminum produced from this emissions unit; and
 - b. the total number of hours the emissions unit was in operation.
3. The permittee shall collect and record each month the total production, in pounds, for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined.

D. **Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit quarterly deviation (excursion) reports that include the following information:
 - a. an identification of each day during which materials, other than clean, pure aluminum ingots, de-gating materials, and/or rejected molded parts, as described in section B.1, were charged in the furnaces;
 - b. an identification of each day during which demagging or degassing operations were performed inside the furnace chambers;
 - c. any exceedances of the total maximum annual production limitation for emissions units P002, P005, P006 and P007, combined, as well as the corrective actions that were taken to achieve compliance;
 - d. an identification of each day during which the average hourly PE from this emissions unit exceeded 1.93 pounds per hour, and the actual average hourly PE for each such day;
 - e. an identification of each day during which the average hourly PM10 emissions from this emissions unit exceeded 1.83 pounds per hour, and the actual average hourly PM10 emissions for each such day;
 - f. an identification of each day during which the average hourly NOx from this emissions unit exceeded 1.58 pounds per hour, and the actual average hourly NOx for each such day; and
 - g. an identification of each day during which the average hourly CO from this emissions unit exceeded 0.84 pound per hour, and the actual average hourly CO for each such day.

The deviation reports shall be submitted in accordance with the reporting requirements of the General Terms and Conditions of this permit.
3. The permittee shall submit annual reports that identify the total annual production, in pounds, for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined, for the previous year.

These reports shall be submitted by January 31 of each year.

E. **Testing Requirements**

1. Compliance with the emissions limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:
Emission Limitations:

PE shall not exceed 1.93 pounds per hour.
PM10 shall not exceed 1.83 pounds per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rate for particulate emissions, the following equations shall be used:

$$E1 \text{ (lb/hr)} = (EF) \times (\text{Max_AL})$$

$$E2 \text{ (lb/hr)} = (EF) \times (\text{Max_AL}) \times (0.95)$$

where:

E1 = particulate emission rate, in pounds per hour.
E2 = particulate emission rate of PM10, in pounds per hour.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal. Pounds of PM10 = (0.95) x (pounds of PE).

Max_AL = maximum amount of aluminum charged, in tons per hour.

If required, emission tests shall be performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5.

Emission Limitations:

PE shall not exceed 8.4 tons per year.
PM10 shall not exceed 8.0 tons per year.

Applicable Compliance Method:

To determine the annual emission rate for particulate emissions, the following equations shall be used:

$$E1 \text{ (tpy)} = [(EF) \times (\text{Max_AL})] / 2000$$

$$E2 \text{ (tpy)} = [(EF) \times (\text{Max_AL}) \times (0.95)] / 2000$$

where:

E1 = particulate emission rate, in tons per year.
E2 = particulate emission rate of PM10, in tons per year.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal. Pounds of PM10 = (0.95) x (pounds of PE).

Max_AL = annual amount of aluminum charged, in tons per year.

Emission Limitations:

NOx emissions shall not exceed 1.58 pounds per hour.
CO emissions shall not exceed 0.84 pound per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rates, the following equation shall be used:

$$E \text{ (lb/hr)} = EF \times \text{Max_Cap}$$

where:

E = emission rate, in pounds per hour.

EF = emission factor, in pounds of air contaminant per million Btu (lb/MMBtu):

$$EF = 0.150 \text{ NOx lb/MMBtu}$$

$$EF = 0.080 \text{ CO lb/MMBtu}$$

Max_Cap = Maximum rated capacity of the furnace, in million Btu per hour

The emission factor for NOx is taken from the STAPPA & ALAPCO Handbook, Table 11-1 for aluminum-melting reverberatory furnace combustion products. For CO, the emission factor is taken from the AP-42, Table 1.4-1, Natural Gas Combustion, 7/98, where the EF = 0.080 is obtained by converting lb/MMCF to lb/MMBtu by dividing the AP-42 emission factor of 84 lb CO/MMCF by 1050 MMBtu/ MMCF.

Emission Limitations:

NOx emissions shall not exceed 6.9 tons per year.
CO emissions shall not exceed 3.7 tons per year.

Applicable Compliance Method:

To determine the annual emission rates, the following equation shall be used:

$$E \text{ (tpy)} = (E_Hr) \times (\text{Hr_Op}) / 2000$$

where:

E = emission rate, in tons per year.

E_Hr = hourly emission rate, in pounds per hour, as calculated in section E.1.c.

Hr_Op = hours of operation on an annual basis, hours per year.

Emission Limitation:

Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-17-03(B)(1) using the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

Emission Limitation:

The total emissions of PM10 from emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined, shall not exceed 9.9 tons per year.

Applicable Compliance Method:

Compliance shall be determined by summing the annual PM10 emissions determined in section E.1.b (E2 calculation) for emissions units P002, P005, P006 and P007.

F. **Miscellaneous Requirements**

1. None

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Facility ID: 0204020428 Emissions Unit ID: P006 Issuance type: Final State Permit To Operate

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Part II - Special Terms and Conditions

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (a) None.
2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (a) None.

A. **Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Furnace #501 - 6 mmBtu/hr natural gas-fired aluminum reverberatory melting furnace with (PTI 02-19895) a maximum melting capacity of 2,500 lbs/hr.	OAC rule 3745-31-05(A)(3)	Particulate emissions (PE) shall not exceed 1.38 pounds per hour and 6.0 tons per year.
		Particulate emissions with a diameter less than 10 microns (PM10) shall not exceed 1.31 pounds per hour and 5.7 tons per year.
		The total emissions of PM10 from emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined, shall not exceed 9.9 tons per year.
		Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average.
		Nitrogen oxides (NOx) emissions shall not exceed 0.90 pound per hour and 3.9 tons per year.
		Carbon monoxide (CO) emissions shall not exceed 0.48 pound per hour and 2.1 tons per year.
		See sections B.1 and B.2 below.
	OAC rule 3745-17-07(A)	The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-17-11	The emission limitation required by this applicable rule is less stringent than the emission limitation

established pursuant to OAC rule 3745-31-05(A)(3).

2. **Additional Terms and Conditions**

- (a) None

B. **Operational Restrictions**

1. The following materials are approved for charging in the furnaces: clean, pure aluminum ingots; de-gating material; and rejected molded parts. The de-gating materials consist of excess aluminum which is removed from the exterior of the molds and used for remelt. Scrap material (other than from the original aluminum ingots) and dross are not permitted to be charged in the furnaces.
2. The permittee shall employ only natural gas as fuel for this emissions unit.
3. No demagging or degassing operations shall be performed inside the furnace chambers. Degassing operations may be performed outside of the furnaces and inside of a degassing chamber using argon and/or nitrogen gases.
4. The total maximum annual production limit for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined, shall not exceed 38,000,000 pounds per year.

C. **Monitoring and/or Record Keeping Requirements**

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall collect and record the following information for each day for this emissions unit:
 - a. the amount of melted aluminum produced from this emissions unit; and
 - b. the total number of hours the emissions unit was in operation.
3. The permittee shall collect and record each month the total production, in pounds, for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined.

D. **Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit quarterly deviation (excursion) reports that include the following information:
 - a. an identification of each day during which materials, other than clean, pure aluminum ingots, de-gating materials, and/or rejected molded parts, as described in section B.1, were charged in the furnaces;
 - b. an identification of each day during which demagging or degassing operations were performed inside the furnace chambers;
 - c. any exceedances of the total maximum annual production limitation for emissions units P002, P005, P006 and P007, combined, as well as the corrective actions that were taken to achieve compliance;
 - d. an identification of each day during which the average hourly PE from this emissions unit exceeded 1.38 pounds per hour, and the actual average hourly PE for each such day;
 - e. an identification of each day during which the average hourly PM10 emissions from this emissions unit exceeded 1.31 pounds per hour, and the actual average hourly PM10 emissions for each such day;
 - f. an identification of each day during which the average hourly NOx from this emissions unit exceeded 0.90 pound per hour, and the actual average hourly NOx for each such day; and
 - g. an identification of each day during which the average hourly CO from this emissions unit exceeded 0.48 pound per hour, and the actual average hourly CO for each such day.

The deviation reports shall be submitted in accordance with the reporting requirements of the General Terms and Conditions of this permit.

3. The permittee shall submit annual reports that identify the total annual production, in pounds, for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined, for the previous year.

These reports shall be submitted by January 31 of each year.

E. **Testing Requirements**

1. Compliance with the emission limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:
Emission Limitations:

PE shall not exceed 1.38 pounds per hour.
PM10 shall not exceed 1.31 pounds per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rate for particulate emissions, the following equations shall be used:

$$E1 \text{ (lb/hr)} = (EF) \times (\text{Max_AL})$$

$$E2 \text{ (lb/hr)} = (EF) \times (\text{Max_AL}) \times (0.95)$$

where:

E1 = particulate emission rate, in pounds per hour.

E2 = particulate emission rate of PM10, in pounds per hour.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal. Pounds of PM10 = (0.95) x (pounds of PE).

Max_AL = maximum amount of aluminum charged, in tons per hour.

If required, emission tests shall be performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5.

Emission Limitations:

PE shall not exceed 6.0 tons per year.

PM10 shall not exceed 5.7 tons per year.

Applicable Compliance Method:

To determine the annual emission rate for particulate emissions, the following equations shall be used:

$$E1 \text{ (tpy)} = [(EF) \times (\text{Max_AL})] / 2000$$

$$E2 \text{ (tpy)} = [(EF) \times (\text{Max_AL}) \times (0.95)] / 2000$$

where:

E1 = particulate emission rate, in tons per year.

E2 = particulate emission rate of PM10, in tons per year.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal. Pounds of PM10 = (0.95) x (pounds of PE).

Max_AL = annual amount of aluminum charged, in tons per year.

Emission Limitations:

NOx emissions shall not exceed 0.90 pound per hour.

CO emissions shall not exceed 0.48 pound per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rates, the following equation shall be used:

$$E \text{ (lb/hr)} = EF \times \text{Max_Cap}$$

where:

E = emission rate, in pounds per hour.

EF = emission factor, in pounds of air contaminant per million Btu (lb/MMBtu):

$$EF = 0.150 \text{ NOx lb/MMBtu}$$

$$EF = 0.080 \text{ CO lb/MMBtu}$$

Max_Cap = Maximum rated capacity of the furnace, in million Btu per hour

The emission factor for NOx is taken from the STAPPA & ALAPCO Handbook, Table 11-1 for aluminum-melting reverberatory furnace combustion products. For CO, the emission factor is taken from the AP-42, Table 1.4-1, Natural Gas Combustion, 7/98, where the EF = 0.080 is obtained by converting lb/MMCF to lb/MMBtu by dividing the AP-42 emission factor of 84 lb CO/MMCF by 1050 MMBtu/ MMCF.

Emission Limitations:

NOx emissions shall not exceed 3.9 tons per year.

CO emissions shall not exceed 2.1 tons per year.

Applicable Compliance Method:

To determine the annual emission rates, the following equation shall be used:

$$E \text{ (tpy)} = (E_Hr) \times (\text{Hr_Op}) / 2000$$

where:

E = emission rate, in tons per year.

E_Hr = hourly emission rate, in pounds per hour, as calculated in section E.1.c.

Hr_Op = hours of operation on an annual basis, hours per year.

Emission Limitation:

Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-

17-03(B)(1) using the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.
Emission Limitation:

The total emissions of PM10 from emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined, shall not exceed 9.9 tons per year.

Applicable Compliance Method:

Compliance shall be determined by summing the annual PM10 emissions determined in section E.1.b (E2 calculation) for emissions units P002, P005, P006 and P007.

F. Miscellaneous Requirements

- 1. None

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Facility ID: 0204020428 Emissions Unit ID: P007 Issuance type: Final State Permit To Operate

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Part II - Special Terms and Conditions

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

- 1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (a) None.
- 2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (a) None.

A. Applicable Emissions Limitations and/or Control Requirements

- 1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Furnace #507 - 5.8 mmBtu/hr natural gas-fired aluminum reverberatory melting furnace with a maximum melting capacity of 4,500 lbs/hr.	OAC rule 3745-31-05(A)(3) (PTI 02-19895)	Particulate emissions (PE) shall not exceed 2.48 pounds per hour and 10.4 tons per year. Particulate emissions with a diameter less than 10 microns (PM10) shall not exceed 2.35 pounds per hour and 9.9 tons per year. The total emissions of PM10 from emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined, shall not exceed 9.9 tons per year. Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average. Nitrogen oxides (NOx) emissions shall not exceed 0.87 pound per hour and 3.8 tons per year. Carbon monoxide (CO) emissions shall not exceed 0.46 pound per hour and 2.0 tons per year.
	OAC rule 3745-17-07(A)	See sections B.1 and B.2 below. The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-17-11	The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

- 2. **Additional Terms and Conditions**
 - (a) None

B. Operational Restrictions

- 1. The following materials are approved for charging in the furnaces: clean, pure aluminum ingots; de-gating

material; and rejected molded parts. The de-gating materials consist of excess aluminum which is removed from the exterior of the molds and used for remelt. Scrap material (other than from the original aluminum ingots) and dross are not permitted to be charged in the furnaces.

2. The permittee shall employ only natural gas as fuel for this emissions unit.
3. No demagging or degassing operations shall be performed inside the furnace chambers. Degassing operations may be performed outside of the furnaces and inside of a degassing chamber using argon and/or nitrogen gases.
4. The total maximum annual production limit for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined, shall not exceed 38,000,000 pounds per year.

C. Monitoring and/or Record Keeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall collect and record the following information for each day for this emissions unit:
 - a. the amount of melted aluminum produced from this emissions unit; and
 - b. the total number of hours the emissions unit was in operation.
3. The permittee shall collect and record each month the total production, in pounds, for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined.

D. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit quarterly deviation (excursion) reports that include the following information:
 - a. an identification of each day during which materials, other than clean, pure aluminum ingots, de-gating materials, and/or rejected molded parts, as described in section B.1, were charged in the furnaces;
 - b. an identification of each day during which demagging or degassing operations were performed inside the furnace chambers;
 - c. any exceedances of the total maximum annual production limitation for emissions units P002, P005, P006 and P007, combined, as well as the corrective actions that were taken to achieve compliance;
 - d. an identification of each day during which the average hourly PE from this emissions unit exceeded 2.48 pounds per hour, and the actual average hourly PE for each such day;
 - e. an identification of each day during which the average hourly PM10 emissions from this emissions unit exceeded 2.35 pounds per hour, and the actual average hourly PM10 emissions for each such day;
 - f. an identification of each day during which the average hourly NOx from this emissions unit exceeded 0.87 pound per hour, and the actual average hourly NOx for each such day; and
 - g. an identification of each day during which the average hourly CO from this emissions unit exceeded 0.46 pound per hour, and the actual average hourly CO for each such day.

The deviation reports shall be submitted in accordance with the reporting requirements of the General Terms and Conditions of this permit.
3. The permittee shall submit annual reports that identify the total annual production, in pounds, for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined, for the previous year.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Compliance with the emission limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:
Emission Limitations:

PE shall not exceed 2.48 pounds per hour.
PM10 shall not exceed 2.35 pounds per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rate for particulate emissions, the following equations shall be used:

$$E1 \text{ (lb/hr)} = (EF) \times (\text{Max_AL})$$

$$E2 \text{ (lb/hr)} = (EF) \times (\text{Max_AL}) \times (0.95)$$

where:

E1 = particulate emission rate, in pounds per hour.
E2 = particulate emission rate of PM10, in pounds per hour.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal. Pounds of PM10 = (0.95) x (pounds of PE).

Max_AL = maximum amount of aluminum charged, in tons per hour.

If required, emission tests shall be performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5.

Emission Limitations:

PE shall not exceed 10.4 tons per year.
PM10 shall not exceed 9.9 tons per year.

Applicable Compliance Method:

To determine the annual emission rate for particulate emissions, the following equations shall be used:

$$E1 \text{ (tpy)} = [(EF) \times (\text{Max_AL})] / 2000$$

$$E2 \text{ (tpy)} = [(EF) \times (\text{Max_AL}) \times (0.95)] / 2000$$

where:

E1 = particulate emission rate, in tons per year.
E2 = particulate emission rate of PM10, in tons per year.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal. Pounds of PM10 = (0.95) x (pounds of PE).

Max_AL = annual amount of aluminum charged, in tons per year.
Emission Limitations:

NOx emissions shall not exceed 0.87 pound per hour.
CO emissions shall not exceed 0.46 pound per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rates, the following equation shall be used:

$$E \text{ (lb/hr)} = EF \times \text{Max_Cap}$$

where:

E = emission rate, in pounds per hour.

EF = emission factor, in pounds of air contaminant per million Btu (lb/MMBtu):

$$EF = 0.150 \text{ NOx lb/MMBtu}$$

$$EF = 0.080 \text{ CO lb/MMBtu}$$

Max_Cap = Maximum rated capacity of the furnace, in million Btu per hour

The emission factor for NOx is taken from the STAPPA & ALAPCO Handbook, Table 11-1 for aluminum-melting reverberatory furnace combustion products. For CO, the emission factor is taken from the AP-42, Table 1.4-1, Natural Gas Combustion, 7/98, where the EF = 0.080 is obtained by converting lb/MMCF to lb/MMBtu by dividing the AP-42 emission factor of 84 lb CO/MMCF by 1050 MMBtu/MMCF.

Emission Limitations:

NOx emissions shall not exceed 3.8 tons per year.
CO emissions shall not exceed 2.0 tons per year.

Applicable Compliance Method:

To determine the annual emission rates, the following equation shall be used:

$$E \text{ (tpy)} = (E_Hr) \times (\text{Hr_Op}) / 2000$$

where:

E = emission rate, in tons per year.

E_Hr = hourly emission rate, in pounds per hour, as calculated in section E.1.c.

Hr_Op = hours of operation on an annual basis, hours per year.

Emission Limitation:

Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-17-03(B)(1) using the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

Emission Limitation:

The total emissions of PM10 from emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501) and P007 (Furnace #507), combined, shall not exceed 9.9 tons per year.

Applicable Compliance Method:

Compliance shall be determined by summing the annual PM10 emissions determined in section E.1.b (E2 calculation) for emissions units P002, P005, P006 and P007.

F. Miscellaneous Requirements

- 1. None

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Facility ID: 0204020428 Emissions Unit ID: P009 Issuance type: Final State Permit To Operate

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Part II - Special Terms and Conditions

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

- 1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (a) None.
- 2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (a) None.

A. Applicable Emissions Limitations and/or Control Requirements

- 1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Furnace #1200 - 12.8 mmBtu/hr natural gas-fired aluminum reverberatory melting furnace with a maximum melting capacity of 3,300 lbs/hr.	OAC rule 3745-31-05(A)(3) (PTI 02-17485)	Particulate emissions (PE) shall not exceed 1.8 pounds per hour and 7.9 tons per year. Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average. Nitrogen oxides (NOx) emissions shall not exceed 1.9 pounds per hour and 8.4 tons per year.
	OAC rule 3745-17-07(A)	See section B.1 below. The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-17-11	The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

- 2. **Additional Terms and Conditions**
 - (a) None

B. Operational Restrictions

- 1. The following materials are approved for charging in the furnaces: clean, pure aluminum ingots; de-gating material; and rejected molded parts. The de-gating materials consist of excess aluminum which is removed from the exterior of the molds and used for remelt. Scrap material (other than from the original aluminum ingots) and dross are not permitted to be charged in the furnaces.
- 2. The permittee shall employ only natural gas as fuel for this emissions unit.
- 3. No demagging or degassing operations shall be performed inside the furnace chambers. Degassing operations may be performed outside of the furnaces and inside of a degassing chamber using argon and/or nitrogen gases.

C. Monitoring and/or Record Keeping Requirements

- 1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- 2. The permittee shall collect and record the following information for each day for this emissions unit:
 - a. the amount of melted aluminum produced from this emissions unit; and
 - b. the total number of hours the emissions unit was in operation.

D. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit quarterly deviation (excursion) reports that include the following information:
 - a. an identification of each day during which materials, other than clean, pure aluminum ingots, de-gating materials, and/or rejected molded parts, as described in section B.1, were charged in the furnaces;
 - b. an identification of each day during which demagging or degassing operations were performed inside the furnace chambers;
 - c. an identification of each day during which the average hourly PE from this emissions unit exceeded 1.8 pounds per hour, and the actual average hourly PE for each such day; and
 - d. an identification of each day during which the average hourly NOx from this emissions unit exceeded 1.9 pounds per hour, and the actual average hourly NOx for each such day.

The deviation reports shall be submitted in accordance with the reporting requirements of the General Terms and Conditions of this permit.

E. Testing Requirements

1. Compliance with the emission limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:
Emission Limitation:

PE shall not exceed 1.8 pounds per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rate for particulate emissions, the following equation shall be used:

$$E1 \text{ (lb/hr)} = (EF) \times (\text{Max_AL})$$

where:

E1 = particulate emission rate, in pounds per hour.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal.

Max_AL = maximum amount of aluminum charged, in tons per hour.

If required, emission tests shall be performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5.

Emission Limitation:

PE shall not exceed 7.9 tons per year.

Applicable Compliance Method:

To determine the annual emission rate for particulate emissions, the following equation shall be used:

$$E1 \text{ (tpy)} = [(EF) \times (\text{Max_AL})] / 2000$$

where:

E1 = particulate emission rate, in tons per year.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal.

Max_AL = annual amount of aluminum charged, in tons per year.

Emission Limitation:

NOx emissions shall not exceed 1.9 pounds per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rates, the following equation shall be used:

$$E \text{ (lb/hr)} = EF \times \text{Max_Cap}$$

where:

E = emission rate, in pounds per hour.

EF = emission factor, in pounds of air contaminant per million Btu (lb/MMBtu):

$$EF = 0.150 \text{ NOx lb/MMBtu}$$

Max_Cap = Maximum rated capacity of the furnace, in million Btu per hour

The emission factor for NOx is taken from the STAPPA & ALAPCO Handbook, Table 11-1 for aluminum-melting reverberatory furnace combustion products.

Emission Limitation:

NOx emissions shall not exceed 8.4 tons per year.

Applicable Compliance Method:

To determine the annual emission rates, the following equation shall be used:

$$E \text{ (tpy)} = (E_Hr) \times (Hr_Op) / 2000$$

where:

E = emission rate, in tons per year.

E_Hr = hourly emission rate, in pounds per hour, as calculated in section E.1.c.

Hr_Op = hours of operation on a annual basis, hours per year.

Emission Limitation:

Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-17-03(B)(1) using the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

F. Miscellaneous Requirements

- 1. None

THIS IS NOT AN OFFICIAL VERSION OF THE PERMIT. SEE PAGE 1 FOR ADDITIONAL INFORMATION

Facility ID: 0204020428 Emissions Unit ID: P010 Issuance type: Final State Permit To Operate

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Part II - Special Terms and Conditions

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

- 1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (a) None.
- 2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (a) None.

A. Applicable Emissions Limitations and/or Control Requirements

- 1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Furnace #301 - 20 mmBtu/hr natural gas-fired aluminum reverberatory melting furnace with a maximum melting capacity of 6,000 lbs/hr.	OAC rule 3745-31-05(A)(3) (PTI 02-17812)	Particulate emissions (PE) shall not exceed 3.3 pounds per hour and 14.45 tons per year. Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average. Nitrogen oxides (NOx) emissions shall not exceed 3.0 pounds per hour and 13.1 tons per year.
	OAC rule 3745-17-07(A)	See section B.1 below. The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-17-11	The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

- 2. **Additional Terms and Conditions**
 - (a) None

B. Operational Restrictions

1. The following materials are approved for charging in the furnaces: clean, pure aluminum ingots; de-gating material; and rejected molded parts. The de-gating materials consist of excess aluminum which is removed from the exterior of the molds and used for remelt. Scrap material (other than from the original aluminum ingots) and dross are not permitted to be charged in the furnaces.
 2. The permittee shall employ only natural gas as fuel for this emissions unit.
 3. No demagging or degassing operations shall be performed inside the furnace chambers. Degassing operations may be performed outside of the furnaces and inside of a degassing chamber using argon and/or nitrogen gases.
- C. Monitoring and/or Record Keeping Requirements**
1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
 2. The permittee shall collect and record the following information for each day for this emissions unit:
 - a. the amount of melted aluminum produced from this emissions unit; and
 - b. the total number of hours the emissions unit was in operation.
- D. Reporting Requirements**
1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
 2. The permittee shall submit quarterly deviation (excursion) reports that include the following information:
 - a. an identification of each day during which materials, other than clean, pure aluminum ingots, de-gating materials, and/or rejected molded parts, as described in section B.1, were charged in the furnaces;
 - b. an identification of each day during which demagging or degassing operations were performed inside the furnace chambers;
 - c. an identification of each day during which the average hourly PE from this emissions unit exceeded 3.3 pounds per hour, and the actual average hourly PE for each such day; and
 - d. an identification of each day during which the average hourly NOx from this emissions unit exceeded 3.0 pounds per hour, and the actual average hourly NOx for each such day.

The deviation reports shall be submitted in accordance with the reporting requirements of the General Terms and Conditions of this permit.
- E. Testing Requirements**
1. Compliance with the emission limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:
Emission Limitation:

PE shall not exceed 3.3 pounds per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rate for particulate emissions, the following equation shall be used:

$$E1 \text{ (lb/hr)} = (EF) \times (\text{Max_AL})$$

where:

E1 = particulate emission rate, in pounds per hour.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal.

Max_AL = maximum amount of aluminum charged, in tons per hour.

If required, emission tests shall be performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5.
Emission Limitation:

PE shall not exceed 14.45 tons per year.

Applicable Compliance Method:

To determine the annual emission rate for particulate emissions, the following equation shall be used:

$$E1 \text{ (tpy)} = [(EF) \times (\text{Max_AL})] / 2000$$

where:

E1 = particulate emission rate, in tons per year.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal.

Max_AL = annual amount of aluminum charged, in tons per year.
Emission Limitation:

NOx emissions shall not exceed 3.0 pounds per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rates, the following equation shall be used:

$$E \text{ (lb/hr)} = EF \times \text{Max_Cap}$$

where:

E = emission rate, in pounds per hour.

EF = emission factor, in pounds of air contaminant per million Btu (lb/MMBtu):

$$EF = 0.150 \text{ NOx lb/MMBtu}$$

Max_Cap = Maximum rated capacity of the furnace, in million Btu per hour

The emission factor for NOx is taken from the STAPPA & ALAPCO Handbook, Table 11-1 for aluminum-melting reverberatory furnace combustion products.

Emission Limitation:

NOx emissions shall not exceed 13.1 tons per year.

Applicable Compliance Method:

To determine the annual emission rates, the following equation shall be used:

$$E \text{ (tpy)} = (E_Hr) \times (Hr_Op) / 2000$$

where:

E = emission rate, in tons per year.

E_Hr = hourly emission rate, in pounds per hour, as calculated in section E.1.c.

Hr_Op = hours of operation on a annual basis, hours per year.

Emission Limitation:

Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-17-03(B)(1) using the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

F. Miscellaneous Requirements

1. None

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Facility ID: 0204020428 Emissions Unit ID: P011 Issuance type: Final State Permit To Operate

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Part II - Special Terms and Conditions

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (a) None.
2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (a) None.

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Furnace #305 - 3 mmBtu/hr natural gas-fired	OAC rule 3745-31-05(A)(3)	Particulate emissions (PE) shall not exceed 0.44

aluminum reverberatory melting furnace with (PTI 02-18535)
a maximum melting capacity of 800 lbs/hr.

pounds per hour and 1.9 tons per year.

Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average.

Nitrogen oxides (NOx) emissions shall not exceed 0.45 pound per hour and 2.0 tons per year.

See section B.1 below.

OAC rule 3745-17-07(A)

The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

OAC rule 3745-17-11

The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

2. Additional Terms and Conditions

(a) None

B. Operational Restrictions

1. The following materials are approved for charging in the furnaces: clean, pure aluminum ingots; de-gating material; and rejected molded parts. The de-gating materials consist of excess aluminum which is removed from the exterior of the molds and used for remelt. Scrap material (other than from the original aluminum ingots) and dross are not permitted to be charged in the furnaces.
2. The permittee shall employ only natural gas as fuel for this emissions unit.
3. No demagging or degassing operations shall be performed inside the furnace chambers. Degassing operations may be performed outside of the furnaces and inside of a degassing chamber using argon and/or nitrogen gases.

C. Monitoring and/or Record Keeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall collect and record the following information for each day for this emissions unit:
 - a. the amount of melted aluminum produced from this emissions unit; and
 - b. the total number of hours the emissions unit was in operation.

D. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit quarterly deviation (excursion) reports that include the following information:
 - a. an identification of each day during which materials, other than clean, pure aluminum ingots, de-gating materials, and/or rejected molded parts, as described in section B.1, were charged in the furnaces;
 - b. an identification of each day during which demagging or degassing operations were performed inside the furnace chambers;
 - c. an identification of each day during which the average hourly PE from this emissions unit exceeded 0.44 pound per hour, and the actual average hourly PE for each such day; and
 - d. an identification of each day during which the average hourly NOx from this emissions unit exceeded 0.45 pound per hour, and the actual average hourly NOx for each such day.

The deviation reports shall be submitted in accordance with the reporting requirements of the General Terms and Conditions of this permit.

E. Testing Requirements

1. Compliance with the emission limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:
Emission Limitation:

PE shall not exceed 0.44 pound per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rate for particulate emissions, the following equation shall be used:

$$E1 \text{ (lb/hr)} = (EF) \times (\text{Max_AL})$$

where:

E1 = particulate emission rate, in pounds per hour.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal.

Max_AL = maximum amount of aluminum charged, in tons per hour.

If required, emission tests shall be performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5.

Emission Limitation:

PE shall not exceed 1.9 tons per year.

Applicable Compliance Method:

To determine the annual emission rate for particulate emissions, the following equation shall be used:

$$E1 \text{ (tpy)} = [(EF) \times (\text{Max_AL})] / 2000$$

where:

E1 = particulate emission rate, in tons per year.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal.

Max_AL = annual amount of aluminum charged, in tons per year.

Emission Limitation:

NOx emissions shall not exceed 0.45 pound per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rates, the following equation shall be used:

$$E \text{ (lb/hr)} = EF \times \text{Max_Cap}$$

where:

E = emission rate, in pounds per hour.

EF = emission factor, in pounds of air contaminant per million Btu (lb/MMBtu):

$$EF = 0.150 \text{ NOx lb/MMBtu}$$

Max_Cap = Maximum rated capacity of the furnace, in million Btu per hour

The emission factor for NOx is taken from the STAPPA & ALAPCO Handbook, Table 11-1 for aluminum-melting reverberatory furnace combustion products.

Emission Limitation:

NOx emissions shall not exceed 2.0 tons per year.

Applicable Compliance Method:

To determine the annual emission rates, the following equation shall be used:

$$E \text{ (tpy)} = (E_Hr) \times (\text{Hr_Op}) / 2000$$

where:

E = emission rate, in tons per year.

E_Hr = hourly emission rate, in pounds per hour, as calculated in section E.1.c.

Hr_Op = hours of operation on a annual basis, hours per year.

Emission Limitation:

Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-17-03(B)(1) using the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

F. Miscellaneous Requirements

1. None

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Facility ID: 0204020428 Emissions Unit ID: P013 Issuance type: Final State Permit To Operate

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Part II - Special Terms and Conditions

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with

ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (a) None.
2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (a) None.

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Furnace #5106 - 3 mmBtu/hr natural gas-fired aluminum reverberatory melting furnace with a maximum melting capacity of 800 lbs/hr.	OAC rule 3745-31-05(A)(3) (PTI 02-18535)	Particulate emissions (PE) shall not exceed 0.44 pound per hour and 1.9 tons per year. Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average. Nitrogen oxides (NOx) emissions shall not exceed 0.45 pound per hour and 2.0 tons per year.
	OAC rule 3745-17-07(A)	See section B.1 below. The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-17-11	The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

2. Additional Terms and Conditions

- (a) None

B. Operational Restrictions

1. The following materials are approved for charging in the furnaces: clean, pure aluminum ingots; de-gating material; and rejected molded parts. The de-gating materials consist of excess aluminum which is removed from the exterior of the molds and used for remelt. Scrap material (other than from the original aluminum ingots) and dross are not permitted to be charged in the furnaces.
2. The permittee shall employ only natural gas as fuel for this emissions unit.
3. No demagging or degassing operations shall be performed inside the furnace chambers. Degassing operations may be performed outside of the furnaces and inside of a degassing chamber using argon and/or nitrogen gases.

C. Monitoring and/or Record Keeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall collect and record the following information for each day for this emissions unit:
 - a. the amount of melted aluminum produced from this emissions unit; and
 - b. the total number of hours the emissions unit was in operation.

D. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit quarterly deviation (excursion) reports that include the following information:
 - a. an identification of each day during which materials, other than clean, pure aluminum ingots, de-gating materials, and/or rejected molded parts, as described in section B.1, were charged in the furnaces;
 - b. an identification of each day during which demagging or degassing operations were performed inside the furnace chambers;
 - c. an identification of each day during which the average hourly PE from this emissions unit exceeded 0.44 pound per hour, and the actual average hourly PE for each such day; and
 - d. an identification of each day during which the average hourly NOx from this emissions unit exceeded 0.45 pound per hour, and the actual average hourly NOx for each such day.

The deviation reports shall be submitted in accordance with the reporting requirements of the General Terms

and Conditions of this permit.

E. Testing Requirements

1. Compliance with the emission limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:
Emission Limitation:

PE shall not exceed 0.44 pound per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rate for particulate emissions, the following equation shall be used:

$$E1 \text{ (lb/hr)} = (EF) \times (\text{Max_AL})$$

where:

E1 = particulate emission rate, in pounds per hour.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal.

Max_AL = maximum amount of aluminum charged, in tons per hour.

If required, emission tests shall be performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5.

Emission Limitation:

PE shall not exceed 1.9 tons per year.

Applicable Compliance Method:

To determine the annual emission rate for particulate emissions, the following equation shall be used:

$$E1 \text{ (tpy)} = [(EF) \times (\text{Max_AL})] / 2000$$

where:

E1 = particulate emission rate, in tons per year.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal.

Max_AL = annual amount of aluminum charged, in tons per year.

Emission Limitation:

NOx emissions shall not exceed 0.45 pound per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rates, the following equation shall be used:

$$E \text{ (lb/hr)} = EF \times \text{Max_Cap}$$

where:

E = emission rate, in pounds per hour.

EF = emission factor, in pounds of air contaminant per million Btu (lb/MMBtu):

$$EF = 0.150 \text{ NOx lb/MMBtu}$$

Max_Cap = Maximum rated capacity of the furnace, in million Btu per hour

The emission factor for NOx is taken from the STAPPA & ALAPCO Handbook, Table 11-1 for aluminum-melting reverberatory furnace combustion products.

Emission Limitation:

NOx emissions shall not exceed 2.0 tons per year.

Applicable Compliance Method:

To determine the annual emission rates, the following equation shall be used:

$$E \text{ (tpy)} = (E_Hr) \times (\text{Hr_Op}) / 2000$$

where:

E = emission rate, in tons per year.

E_Hr = hourly emission rate, in pounds per hour, as calculated in section E.1.c.

Hr_Op = hours of operation on an annual basis, hours per year.

Emission Limitation:

Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-17-03(B)(1) using the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

F. Miscellaneous Requirements

- 1. None

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Facility ID: 0204020428 Emissions Unit ID: P014 Issuance type: Final State Permit To Operate

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Part II - Special Terms and Conditions

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

- 1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (a) None.
- 2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (a) None.

A. Applicable Emissions Limitations and/or Control Requirements

- 1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Furnace #5107 - 3 mmBtu/hr natural gas-fired aluminum reverberatory melting furnace with a maximum melting capacity of 800 lbs/hr.	OAC rule 3745-31-05(A)(3) (PTI 02-18535)	Particulate emissions (PE) shall not exceed 0.44 pound per hour and 1.9 tons per year.
		Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average.
		Nitrogen oxides (NOx) emissions shall not exceed 0.45 pound per hour and 2.0 tons per year.
	OAC rule 3745-17-07(A)	See section B.1 below. The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-17-11	The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

- 2. **Additional Terms and Conditions**
 - (a) None

B. Operational Restrictions

- 1. The following materials are approved for charging in the furnaces: clean, pure aluminum ingots; de-gating material; and rejected molded parts. The de-gating materials consist of excess aluminum which is removed from the exterior of the molds and used for remelt. Scrap material (other than from the original aluminum ingots) and dross are not permitted to be charged in the furnaces.
- 2. The permittee shall employ only natural gas as fuel for this emissions unit.
- 3. No demagging or degassing operations shall be performed inside the furnace chambers. Degassing operations may be performed outside of the furnaces and inside of a degassing chamber using argon and/or nitrogen gases.

C. Monitoring and/or Record Keeping Requirements

- 1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- 2. The permittee shall collect and record the following information for each day for this emissions unit:
 - a. the amount of melted aluminum produced from this emissions unit; and

b. the total number of hours the emissions unit was in operation.

D. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit quarterly deviation (excursion) reports that include the following information:
 - a. an identification of each day during which materials, other than clean, pure aluminum ingots, de-gating materials, and/or rejected molded parts, as described in section B.1, were charged in the furnaces;
 - b. an identification of each day during which demagging or degassing operations were performed inside the furnace chambers;
 - c. an identification of each day during which the average hourly PE from this emissions unit exceeded 0.44 pound per hour, and the actual average hourly PE for each such day; and
 - d. an identification of each day during which the average hourly NOx from this emissions unit exceeded 0.45 pound per hour, and the actual average hourly NOx for each such day.

The deviation reports shall be submitted in accordance with the reporting requirements of the General Terms and Conditions of this permit.

E. Testing Requirements

1. Compliance with the emission limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:
Emission Limitation:

PE shall not exceed 0.44 pound per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rate for particulate emissions, the following equation shall be used:

$$E1 \text{ (lb/hr)} = (EF) \times (\text{Max_AL})$$

where:

E1 = particulate emission rate, in pounds per hour.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal.

Max_AL = maximum amount of aluminum charged, in tons per hour.

If required, emission tests shall be performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5.

Emission Limitation:

PE shall not exceed 1.9 tons per year.

Applicable Compliance Method:

To determine the annual emission rate for particulate emissions, the following equation shall be used:

$$E1 \text{ (tpy)} = [(EF) \times (\text{Max_AL})] / 2000$$

where:

E1 = particulate emission rate, in tons per year.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. This emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal.

Max_AL = annual amount of aluminum charged, in tons per year.

Emission Limitation:

NOx emissions shall not exceed 0.45 pound per hour.

Applicable Compliance Method:

To determine the worst case hourly emission rates, the following equation shall be used:

$$E \text{ (lb/hr)} = EF \times \text{Max_Cap}$$

where:

E = emission rate, in pounds per hour.

EF = emission factor, in pounds of air contaminant per million Btu (lb/MMBtu):

EF = 0.150 NOx lb/MMBtu

Max_Cap = Maximum rated capacity of the furnace, in million Btu per hour

The emission factor for NOx is taken from the STAPPA & ALAPCO Handbook, Table 11-1 for aluminum-melting reverberatory furnace combustion products.

Emission Limitation:

NOx emissions shall not exceed 2.0 tons per year.

Applicable Compliance Method:

To determine the annual emission rates, the following equation shall be used:

$$E \text{ (tpy)} = (E_Hr) \times (Hr_Op) / 2000$$

where:

E = emission rate, in tons per year.

E_Hr = hourly emission rate, in pounds per hour, as calculated in section E.1.c.

Hr_Op = hours of operation on a annual basis, hours per year.

Emission Limitation:

Visible particulate emissions shall not exceed 5% opacity, as a 6-minute average.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-17-03(B)(1) using the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

F. **Miscellaneous Requirements**

1. None