

John R. Kasich, Governor  
Mary Taylor, Lt. Governor  
Craig W. Butler, Director

4/7/2014

Certified Mail

Brian Lester  
GREGORY INDUSTRIES, INC.  
4100 13TH ST SW  
Canton, OH 44710

No	TOXIC REVIEW
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MODELING SUBMITTED
No	SYNTHETIC MINOR TO AVOID TITLE V
No	FEDERALLY ENFORCABLE PTIO (FEPTIO)
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL AND OPERATE

Facility ID: 1576051532  
Permit Number: P0101286  
Permit Type: Renewal  
County: Stark

Dear Permit Holder:

Enclosed please find a final Ohio Environmental Protection Agency (EPA) Air Pollution Permit-to-Install and Operate (PTIO) which will allow you to install, modify, and/or operate the described emissions unit(s) in the manner indicated in the permit. Because this permit contains conditions and restrictions, please read it very carefully. In this letter you will find the information on the following topics:

- **How to appeal this permit**
- **How to save money, reduce pollution and reduce energy consumption**
- **How to give us feedback on your permitting experience**
- **How to get an electronic copy of your permit**

**How to appeal this permit**

The issuance of this PTIO is a final action of the Director and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Ohio Treasurer Josh Mandel," which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission  
77 South High Street, 17th Floor  
Columbus, OH 43215

## **How to save money, reduce pollution and reduce energy consumption**

The Ohio EPA is encouraging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. Additionally, all or a portion of the capital expenditures related to installing air pollution control equipment under this permit may be eligible for financing and State tax exemptions through the Ohio Air Quality Development Authority (OAQDA) under Ohio Revised Code Section 3706. For more information, see the OAQDA website: [www.ohioairquality.org/clean\\_air](http://www.ohioairquality.org/clean_air)

## **How to give us feedback on your permitting experience**

Please complete a survey at [www.epa.ohio.gov/survey.aspx](http://www.epa.ohio.gov/survey.aspx) and give us feedback on your permitting experience. We value your opinion.

## **How to get an electronic copy of your permit**

This permit can be accessed electronically via the eBusiness Center: Air Services in Microsoft Word format or in Adobe PDF on the Division of Air Pollution Control (DAPC) Web page, [www.epa.ohio.gov/dapc](http://www.epa.ohio.gov/dapc) by clicking the "Search for Permits" link under the Permitting topic on the Programs tab.

If you have any questions, please contact Canton City Health Department at (330)489-3385 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,



Michael W. Ahern, Manager

Permit Issuance and Data Management Section, DAPC

Cc: Canton



**FINAL**

**Division of Air Pollution Control  
Permit-to-Install and Operate  
for  
GREGORY INDUSTRIES, INC.**

Facility ID:	1576051532
Permit Number:	P0101286
Permit Type:	Renewal
Issued:	4/7/2014
Effective:	4/7/2014
Expiration:	10/2/2022





**Division of Air Pollution Control**  
**Permit-to-Install and Operate**  
for  
GREGORY INDUSTRIES, INC.

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**Final Permit-to-Install and Operate**  
GREGORY INDUSTRIES, INC.  
**Permit Number:** P0101286  
**Facility ID:** 1576051532  
**Effective Date:** 4/7/2014

## Authorization

Facility ID: 1576051532  
Application Number(s): A0033070, A0050062, A0050064  
Permit Number: P0101286  
Permit Description: PTIO Renewal permit for Continuous Strip Zinc Galvanizing Process with packed tower wet scrubbers including administrative modifications to correct calculation errors made in establishing PE limitations in PTI 15-282.  
Permit Type: Renewal  
Permit Fee: \$0.00  
Issue Date: 4/7/2014  
Effective Date: 4/7/2014  
Expiration Date: 10/2/2022  
Permit Evaluation Report (PER) Annual Date: Jan 1 - Dec 31, Due Feb 15

This document constitutes issuance to:

GREGORY INDUSTRIES, INC.  
4100 13TH ST SW.  
Canton, OH 44710

of a Permit-to-Install and Operate for the emissions unit(s) identified on the following page.

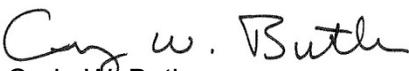
Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Canton City Health Department  
420 Market Avenue  
Canton, OH 44702-1544  
(330)489-3385

The above named entity is hereby granted this Permit-to-Install and Operate for the air contaminant source(s) (emissions unit(s)) listed in this section pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the described emissions unit(s) will operate in compliance with applicable State and federal laws and regulations.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

  
Craig W. Butler  
Director



**Final Permit-to-Install and Operate**  
GREGORY INDUSTRIES, INC.  
**Permit Number:** P0101286  
**Facility ID:** 1576051532  
**Effective Date:** 4/7/2014

## **Authorization (continued)**

Permit Number: P0101286

Permit Description: PTIO Renewal permit for Continuous Strip Zinc Galvanizing Process with packed tower wet scrubbers including administrative modifications to correct calculation errors made in establishing PE limitations in PTI 15-282.

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

<b>Emissions Unit ID:</b>	<b>P002</b>
Company Equipment ID:	Continuous Galvanizing
Superseded Permit Number:	15-282
General Permit Category and Type:	Not Applicable



**Final Permit-to-Install and Operate**  
GREGORY INDUSTRIES, INC.  
**Permit Number:** P0101286  
**Facility ID:** 1576051532  
**Effective Date:** 4/7/2014

## **A. Standard Terms and Conditions**



**1. What does this permit-to-install and operate ("PTIO") allow me to do?**

This permit allows you to install and operate the emissions unit(s) identified in this PTIO. You must install and operate the unit(s) in accordance with the application you submitted and all the terms and conditions contained in this PTIO, including emission limits and those terms that ensure compliance with the emission limits (for example, operating, recordkeeping and monitoring requirements).

**2. Who is responsible for complying with this permit?**

The person identified on the "Authorization" page, above, is responsible for complying with this permit until the permit is revoked, terminated, or transferred. "Person" means a person, firm, corporation, association, or partnership. The words "you," "your," or "permittee" refer to the "person" identified on the "Authorization" page above.

The permit applies only to the emissions unit(s) identified in the permit. If you install or modify any other equipment that requires an air permit, you must apply for an additional PTIO(s) for these sources.

**3. What records must I keep under this permit?**

You must keep all records required by this permit, including monitoring data, test results, strip-chart recordings, calibration data, maintenance records, and any other record required by this permit for five years from the date the record was created. You can keep these records electronically, provided they can be made available to Ohio EPA during an inspection at the facility. Failure to make requested records available to Ohio EPA upon request is a violation of this permit requirement.

**4. What are my permit fees and when do I pay them?**

There are two fees associated with permitted air contaminant sources in Ohio:

PTIO fee. This one-time fee is based on a fee schedule in accordance with Ohio Revised Code (ORC) section 3745.11, or based on a time and materials charge for permit application review and permit processing if required by the Director.

You will be sent an invoice for this fee after you receive this PTIO and payment is due within 30 days of the invoice date. You are required to pay the fee for this PTIO even if you do not install or modify your operations as authorized by this permit.

Annual emissions fee. Ohio EPA will assess a separate fee based on the total annual emissions from your facility. You self-report your emissions in accordance with Ohio Administrative Code (OAC) Chapter 3745-78. This fee assessed is based on a fee schedule in ORC section 3745.11 and funds Ohio EPA's permit compliance oversight activities. For facilities that are permitted as synthetic minor sources, the fee schedule is adjusted annually for inflation. Ohio EPA will notify you when it is time to report your emissions and to pay your annual emission fees.

**5. When does my PTIO expire, and when do I need to submit my renewal application?**

This permit expires on the date identified at the beginning of this permit document (see "Authorization" page above) and you must submit a renewal application to renew the permit. Ohio EPA will send a renewal notice to you approximately six months prior to the expiration date of this permit. However, it is



very important that you submit a complete renewal permit application (postmarked prior to expiration of this permit) even if you do not receive the renewal notice.

If a complete renewal application is submitted before the expiration date, Ohio EPA considers this a timely application for purposes of ORC section 119.06, and you are authorized to continue operating the emissions unit(s) covered by this permit beyond the expiration date of this permit until final action is taken by Ohio EPA on the renewal application.

**6. What happens to this permit if my project is delayed or I do not install or modify my source?**

This PTIO expires 18 months after the issue date identified on the "Authorization" page above unless otherwise specified if you have not (1) started constructing the new or modified emission sources identified in this permit, or (2) entered into a binding contract to undertake such construction. This deadline can be extended by up to 12 months, provided you apply to Ohio EPA for this extension within a reasonable time before the 18-month period has ended and you can show good cause for any such extension.

**7. What reports must I submit under this permit?**

An annual permit evaluation report (PER) is required in addition to any malfunction reporting required by OAC rule 3745-15-06 or other specific rule-based reporting requirement identified in this permit. Your PER due date is identified in the Authorization section of this permit.

**8. If I am required to obtain a Title V operating permit in the future, what happens to the operating provisions and PER obligations under this permit?**

If you are required to obtain a Title V permit under OAC Chapter 3745-77 in the future, the permit-to-operate portion of this permit will be superseded by the issued Title V permit. From the effective date of the Title V permit forward, this PTIO will effectively become a PTI (permit-to-install) in accordance with OAC rule 3745-31-02(B). The following terms and conditions of this permit will no longer be applicable after issuance of the Title V permit: Section B, Term 1.b) and Section C, for each emissions unit, Term a)(2).

The PER requirements in this permit remain effective until the date the Title V permit is issued and is effective, and cease to apply after the effective date of the Title V permit. The final PER obligation will cover operations up to the effective date of the Title V permit and must be submitted on or before the submission deadline identified in this permit on the last day prior to the effective date of the Title V permit.

**9. What are my obligations when I perform scheduled maintenance on air pollution control equipment?**

You must perform scheduled maintenance of air pollution control equipment in accordance with OAC rule 3745-15-06(A). If scheduled maintenance requires shutting down or bypassing any air pollution control equipment, you must also shut down the emissions unit(s) served by the air pollution control equipment during maintenance, unless the conditions of OAC rule 3745-15-06(A)(3) are met. Any emissions that exceed permitted amount(s) under this permit (unless specifically exempted by rule) must be reported as deviations in the annual permit evaluation report (PER), including nonexempt excess emissions that occur during approved scheduled maintenance.



**10. Do I have to report malfunctions of emissions units or air pollution control equipment? If so, how must I report?**

If you have a reportable malfunction of any emissions unit(s) or any associated air pollution control system, you must report this to the [DO/LAA] in accordance with OAC rule 3745-15-06(B). Malfunctions that must be reported are those that result in emissions that exceed permitted emission levels. It is your responsibility to evaluate control equipment breakdowns and operational upsets to determine if a reportable malfunction has occurred.

If you have a malfunction, but determine that it is not a reportable malfunction under OAC rule 3745-15-06(B), it is recommended that you maintain records associated with control equipment breakdown or process upsets. Although it is not a requirement of this permit, Ohio EPA recommends that you maintain records for non-reportable malfunctions.

**11. Can Ohio EPA or my local air agency inspect the facility where the emission unit(s) is/are located?**

Yes. Under Ohio law, the Director or his authorized representative may inspect the facility, conduct tests, examine records or reports to determine compliance with air pollution laws and regulations and the terms and conditions of this permit. You must provide, within a reasonable time, any information Ohio EPA requests either verbally or in writing.

**12. What happens if one or more emissions units operated under this permit is/are shut down permanently?**

Ohio EPA can terminate the permit terms associated with any permanently shut down emissions unit. "Shut down" means the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31.

You should notify Ohio EPA of any emissions unit that is permanently shut down by submitting a certification that identifies the date on which the emissions unit was permanently shut down. The certification must be submitted by an authorized official from the facility. You cannot continue to operate an emission unit once the certification has been submitted to Ohio EPA by the authorized official.

You must comply with all recordkeeping and reporting for any permanently shut down emissions unit in accordance with the provisions of the permit, regulations or laws that were enforceable during the period of operation, such as the requirement to submit a PER, air fee emission report, or malfunction report. You must also keep all records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, for at least five years from the date the record was generated.

Again, you cannot resume operation of any emissions unit certified by the authorized official as being permanently shut down without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.



**13. Can I transfer this permit to a new owner or operator?**

You can transfer this permit to a new owner or operator. If you transfer the permit, you must follow the procedures in OAC Chapter 3745-31, including notifying Ohio EPA or the local air agency of the change in ownership or operator. Any transferee of this permit must assume the responsibilities of the transferor permit holder.

**14. Does compliance with this permit constitute compliance with OAC rule 3745-15-07, "air pollution nuisance"?**

This permit and OAC rule 3745-15-07 prohibit operation of the air contaminant source(s) regulated under this permit in a manner that causes a nuisance. Ohio EPA can require additional controls or modification of the requirements of this permit through enforcement orders or judicial enforcement action if, upon investigation, Ohio EPA determines existing operations are causing a nuisance.

**15. What happens if a portion of this permit is determined to be invalid?**

If a portion of this permit is determined to be invalid, the remainder of the terms and conditions remain valid and enforceable. The exception is where the enforceability of terms and conditions are dependent on the term or condition that was declared invalid.



**Final Permit-to-Install and Operate**  
GREGORY INDUSTRIES, INC.  
**Permit Number:** P0101286  
**Facility ID:** 1576051532  
**Effective Date:** 4/7/2014

## **B. Facility-Wide Terms and Conditions**



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



**Final Permit-to-Install and Operate**  
GREGORY INDUSTRIES, INC.  
**Permit Number:** P0101286  
**Facility ID:** 1576051532  
**Effective Date:** 4/7/2014

## **C. Emissions Unit Terms and Conditions**



**1. P002, Continuous Strip Zinc Galvanizing Process**

**Operations, Property and/or Equipment Description:**

Continuous Strip Zinc Galvanizing Process, including pickling tanks, rinse tanks, molten zinc galvanizing kettle, plus other equipment for cooling and re-rolling the galvanized steel strip. HCl fumes (particulate emissions) from the pickling process are controlled by packed tower wet scrubbers.

a) 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. d)(3)

(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.

b) **Applicable Emissions Limitations and/or Control Requirements**

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A) [Best Available Technology (BAT)] Administrative modification to limitations established in PTI 15-282 to correct calculation errors.	Total particulate emissions (PE) shall not exceed 1.69 lb/hr and 7.40 tons per year. See b)(2)a. below.
b.	OAC rule 3745-17-11	The particulate emissions (PE) limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05. See f)(1)(b) below.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
c.	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from the stack(s) serving this emissions unit shall not exceed 20% opacity as a six-minute average, except as provided by rule.  The presence of water vapor in the scrubber plume does not constitute visible emissions.
d.	OAC rule 3745-17-07(B)(1)	Visible emissions of fugitive dust from this emissions unit from miscellaneous building openings shall not exceed 20% opacity as a three-minute average.
e.	ORC 3704.03(F)(4)(b) [Ohio Toxic Air Contaminant Statute]	Exempt. See d)(3) below
f.	OAC rule 3745-17-08(B) [RACM for fugitive dust in Appendix A areas]	See b)(2)c. below

(2) Additional Terms and Conditions

- a. Best Available Technology (BAT) requirements have been determined to include compliance with terms b)(2)b. and c)(1) of this permit. These requirements were originally established in PTI 15-282 and are incorporated here unaltered.
- b. The continuous galvanizing line shall be equipped with one or more packed tower wet scrubbers with a particulate matter design control efficiency of at least 90%. All HCl emissions from the pickling process shall be vented to the scrubber(s).
- c. This facility is located in an Appendix A Area, as defined in OAC rule 3745-17-08. Accordingly, the permittee shall take or install reasonably available control measures to minimize visible particulate emissions of fugitive dust created by the non-controlled processes in this emissions unit (e.g., the molten zinc kettle) from miscellaneous building openings into the ambient air. Such reasonably available control measures shall include, but not be limited to, the following:
  - i. Minimize the amount of time that windows and doors are open when the emissions unit is in operation. Reasonable consideration may be given to allow doors and windows to be open if required for worker comfort and safety during hot weather conditions.

[OAC 3745-17-08(B) and Ohio EPA DAPC Engineering Guide No. 75, Scenario No. 18, but only with respect to the non-controlled processes such as the molten zinc kettle]



c) Operational Restrictions

- (1) The permittee shall burn only natural gas as a fuel to provide heat to any of the processes in this emissions unit, excluding any electric-supplied heat sources.

d) Monitoring and/or Recordkeeping Requirements

- (1) For each day during which the permittee burns a fuel other than natural gas in this emissions unit, the permittee shall maintain a record of the type and quantity of fuel burned.
- (2) The permittee shall perform checks once per week, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack(s) serving this emissions unit, and for any visible emissions of fugitive dust from non-stack egress points, such as building windows, doors, vents, roof monitors, etc. serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
  - a. the location and color of the emissions;
  - b. whether the emissions are representative of normal operations;
  - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
  - d. the total duration of any visible emissions incident; and
  - e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

- (3) Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute," ORC 3704.03(F)(4)(b), was not necessary because the emissions unit's maximum annual emissions for each toxic air contaminant, as defined in OAC rule 3745-114-01, will be less than the Ohio Modeling Significant Emission Rate (SER) of 1.0 ton per year [Ohio EPA DAPC Engineering Guide #69, Table 3]. OAC Chapter 3745-31 requires a permittee to apply for and obtain a new or modified PTIO prior to making a "modification" as defined



by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials, that would cause the emissions of any toxic air contaminant to increase above 1.0 tons per year may require the permittee to apply for and obtain a new PTIO.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) by the due date identified in the Authorization section of this permit, either through the Ohio EPA's eBusiness Center: Air Services online web portal, or in hard copy form to the Canton City Health Department, Air Pollution Control Division via the U.S. postal service, by hand-delivery, or as a scanned e-mail attachment. Annual PER forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit. The permittee shall identify the following information in the annual permit evaluation report in accordance with monitoring requirement d)(1) for fuels other than natural gas, and monitoring requirement d)(2) for visible emissions:
  - a. all periods of time during which a fuel other than natural gas was burned in this emissions unit, plus the type and quantity of fuel burned;
  - b. all days during which any visible particulate emissions were observed from the stack(s) serving this emissions unit;
  - c. all days during which any visible emissions of fugitive dust were observed from non-stack egress points, such as building windows, doors, vents, roof monitors, etc. serving this emissions unit; and
  - d. any corrective actions taken to minimize or eliminate the visible particulate emissions from the stack(s) and/or visible emissions of fugitive dust.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emissions Limitations:

Total particulate emissions (PE) shall not exceed 1.69 lb/hr and 7.40 tons per year.

Applicable Compliance Method:

The above emissions limitations were established by adding together the uncontrolled potential-to-emit for PE from the molten zinc kettle, plus the after-controls potential-to-emit for PE from the pickling process.

During the development of this permit (P0101286), it was determined that the original potential-to-emit calculations made during the development of PTI 15-



282 in 1985 were erroneous. These erroneous calculations were used to establish emissions limitations in that permit. These errors have been corrected, and the resulting revisions to the emissions limitations are considered to be administrative modifications since the technology portion of the BAT requirements has not been altered.

Particulate emissions from the following operations were considered:

1. The molten zinc kettle
2. The pickling process

First, the maximum uncontrolled hourly emission rate for each of the operations listed above was calculated by applying the appropriate emission factors and other information as provided by the permittee in the permit application received 3/11/2013:

Molten zinc kettle:

1. The maximum amount of zinc used per year is 2865 tons, based on historical records from 2006 - 2012. From the annual usage rate, and assuming a continuous operation, the hourly rate was calculated as follows:

$$(2865 \text{ ton}_{\text{Zn}}/\text{yr}) \div (8760 \text{ hr}/\text{yr}) = 0.327 \text{ ton}_{\text{Zn}}/\text{hr}$$

2. The emissions factor for zinc galvanizing is 5.0 lb total PE per ton of zinc used (AP 42, Fifth Edition, Table 12.14-2, and also WebFIRE for SCC 3-04-008-05):

$$(5.0 \text{ lb}_{\text{PE-Zn}}/\text{ton}_{\text{Zn}}) \times (0.327 \text{ ton}_{\text{Zn}}/\text{hr}) = 1.635 \text{ lb}_{\text{PE-Zn}}/\text{hr}$$

Pickling process:

1. The emissions factor for particulate emissions of HCl, based on 100% HCl concentration, is 0.01 lb per square ft surface area per hour (ref. South Coast Air Quality Management District). There are three pickling tanks, each measuring 40 ft x 2.5 ft, so the calculation was as follows:

$$(3) \times (40 \text{ ft} \times 2.5 \text{ ft}) \times (0.01 \text{ lb PE}_{\text{HCL}}/\text{ft}^2\text{-hr}) = 3.0 \text{ lb}_{\text{PE-HCL}}/\text{hr}$$

2. A conservatively high estimate for the actual HCl concentration is 18% as an average of the three pickling tanks, so the emission rate in the preceding step was reduced by multiplying by 18%:

$$(3.0 \text{ lb}_{\text{PE-HCL}}/\text{hr}) \times (0.18) = 0.54 \text{ lb}_{\text{PE-HCL}}/\text{hr}$$

Next, 90% minimum allowable control efficiency (established as BAT in PTI 15-282) was applied to the HCl emissions from the pickling process:

$$(0.54 \text{ lb}_{\text{PE-HCL}}/\text{hr}) \times (1 - 0.90) = 0.054 \text{ lb}_{\text{PE-HCL}}/\text{hr}$$

Finally, the uncontrolled emission rate from the molten zinc kettle was added to the controlled emission rate from the pickling process:



$$1.635 \text{ lb}_{\text{PE-Zn}}/\text{hr} + 0.054 \text{ lb}_{\text{PE-HCl}}/\text{hr} = 1.689 \text{ lb}_{\text{PE}}/\text{hr} \approx 1.69 \text{ lb}_{\text{PE}}/\text{hr}$$

The annual emissions limitation was established by multiplying the maximum hourly emissions rate as calculated above by a maximum operating schedule of 8760 hr/yr, then dividing by 2000 lb/ton:

$$(1.69 \text{ lb}_{\text{PE}}/\text{hr}) \times (8760 \text{ hr/yr}) \div (2000 \text{ lb/ton}) = 7.40 \text{ ton}_{\text{PE}}/\text{yr}$$

b. **Emission Limitation – for informational purposes only:**

The following calculation demonstrates why an hourly mass emission limitation established pursuant to OAC rule 3745-17-11 would be less stringent than the hourly limitation established as BAT as described in f)(1)a. above.

For the purpose of this demonstration, only the galvanizing process itself and the accompanying process weight rate of zinc used will be considered. It will be demonstrated that the resulting lb/hr emission limitation will be less stringent (i.e., greater) than the lb/hr established as BAT in f)(1)a. above for the molten zinc kettle and the pickling processes combined. (This will also justify why it was not necessary to include the pickling process in the analysis performed for this demonstration.)

According to OAC rule 3745-17-11, the allowable hourly emissions rate for particulate emissions is to be selected as the more stringent of two results as determined by using Table I and Figure II, which are found in the appendix to the rule. Table I is based on the process weight rate (PWR), and Figure II is based on the uncontrolled hourly emissions rate (if known).

OAC rule 3745-17-11 also states, however, that Figure II does not apply to sources having an uncontrolled mass emission rate of less than ten pounds per hour. As described in f)(1)a. above, the uncontrolled potential to emit for particulate emissions from molten zinc kettle is 1.64 lb/hr, so Figure II does not apply.

Looking at Table I, then, and considering the PWR of 0.327 ton/hr for the molten zinc kettle, the applicable formula is as follows:

$$\text{For } 0.05 \text{ ton/hr} < (P) < 30 \text{ ton/hr: } E = 4.10(P)^{0.67}$$

where:

P = the PWR in ton/hr (in this case, the amount of zinc used); and

E = the allowable emission rate in lb/hr

Applying the formula:

$$E = 4.10(0.327)^{0.67} = 1.94 \text{ lb}_{\text{PE}}/\text{hr}$$



The hourly emission limitation established as BAT in f)(1)a. above for the molten zinc kettle and the pickling processes combined was 1.69 lb<sub>PE</sub>/hr, which is more stringent than the allowable amount of 1.94 lb<sub>PE</sub>/hr calculated from OAC rule 3745-17-11 based on the molten zinc kettle only.

c. Emission Limitation:

Visible particulate emissions from the stack(s) serving this emissions unit shall not exceed 20 percent opacity, as a six-minute average, except as provided by rule.

In the paragraph above, "except as provided by rule" means the following: Except as provided in OAC rule 3745-17-07(A)(3), visible particulate emissions from the stack(s) serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except:

- i. visible particulate emissions may exceed 20 percent opacity, as a six-minute average, for not more than six consecutive minutes in any 60 minutes; but
- ii. shall not exceed 60 percent opacity, as a six-minute average, at any time; and
- iii. the presence of uncombined water shall not be deemed a violation for failure of stack emissions meeting this requirement.

[OAC rule 3745-17-07(A)(1) and (2)]

Applicable Compliance Method:

If required, compliance with the stack visible particulate emissions limitation shall be determined through visible emissions observations performed in accordance U.S. EPA Method 9.

[Method 9 of 40 CFR Part 60, Appendix A]

d. Emission Limitation:

Visible emissions of fugitive dust from this emissions unit from miscellaneous building openings shall not exceed 20 percent opacity as a three-minute average.

Applicable Compliance Method:

If required, compliance with the limitation for visible emission limitation identified above shall be determined in accordance with U.S. EPA Method 9, with the following modifications as specified in OAC rule 3745-17-03(B)(3):

- i. the data reduction and average opacity calculation shall be based upon sets of twelve consecutive visible emissions observations recorded at 15-second intervals;



- ii. opacity observations shall be made from a position that provides the observer a clear view of the emissions unit and the fugitive dust, with the sun behind the observer;
- iii. where possible, visible opacity observations shall be conducted at a position of at least fifteen feet from the source of emissions, and the line of sight should be approximately perpendicular to the flow of fugitive dust and to the longer axis of the emissions; and
- iv. the visible opacity observations shall be made for the point of highest opacity within the fugitive dust emitted from the source.

[OAC rule 3745-17-03(B)(3) and Method 9 of 40 CFR Part 60, Appendix A]

e. Control Requirements:

The permittee shall take or install reasonably available control measures to minimize visible particulate emissions of fugitive dust from this emissions unit from miscellaneous building openings into the ambient air.

Applicable Compliance Method:

A control measure shall be considered adequate if it complies with the following:

- i. The visible particulate emission limitation(s) contained in rule 3745-17-07(B)(1). See b)(1)d. above and for compliance method, f)(1)d. above.
- ii. The requirements described in Additional Terms and Conditions b)(2)c. above.
- iii. The definition of reasonably available control measures in paragraph (B)(18) of OAC rule 3745-17-01.

[OAC rule 3745-17-08(C)]

g) Miscellaneous Requirements

- (1) None.