



Louisville Metro Air Pollution Control District  
 701 West Ormsby Avenue, Suite 303  
 Louisville, Kentucky 40203-3137



12 February 2019

**Title V Statement of Basis**

<b>Source:</b> Eckart America Corporation	<b>Owner:</b> Eckart America Corporation
4101 Camp Ground Road	4101 Camp Ground Road
Louisville, KY 40211	Louisville, KY 40211

<b>Application Documents:</b> See Table 8	<b>Administratively Complete:</b> 28 Sept. 2005
<b>Draft Permit:</b> 6/5/2014; 12/27/2018	<b>Proposed Permit:</b> 6/5/2014; 12/27/2018
<b>Permitting Engineer:</b> Yiqiu Lin	<b>Permit Number:</b> 143-97-TV (R6)
<b>Plant ID:</b> 187	<b>SIC:</b> 3399 <b>NAICS:</b> 331314

**Introduction:**

This permit will be issued pursuant to: (1) Regulation 2.16, (2) Title 40 of the Code of Federal Regulations Part 70, and (3) Title V of the Clean Air Act Amendments of 1990. Its purpose is to identify and consolidate existing District and Federal air requirements and to provide methods of determining continued compliance with these requirements.

This permit action incorporates administrative revisions according to construction applications submitted on January 18, May 11, July 2, September 27, and October 18, 2018.

Jefferson County is classified as an attainment area for lead (Pb), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), particulate matter less than 10 microns (PM<sub>10</sub>), and particulate matter less than 2.5 microns (PM<sub>2.5</sub>). Jefferson County is classified as a nonattainment area for ozone (O<sub>3</sub>). This facility is located in the portion of Jefferson County that is an attainment area for sulfur dioxide (SO<sub>2</sub>).

**Permit Application Type:**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Initial issuance | <input checked="" type="checkbox"/> Permit Revision | <input type="checkbox"/> Permit renewal |
|   | <input checked="" type="checkbox"/> Administrative  |   |
|   | <input type="checkbox"/> Minor                      |   |
|   | <input type="checkbox"/> Significant                |   |

**Compliance Summary:**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Compliance certification signed | <input type="checkbox"/> Compliance schedule included                 |
| <input type="checkbox"/> Source is out of compliance                | <input checked="" type="checkbox"/> Source is operating in compliance |

**I. Source Information**

- 1. Product/Process Description:** The source produces aluminum powder and paste.
- 2. Site Determination:** There are no other facilities that are contiguous or adjacent and under common control.
- 3. Emission Unit Summary:**

Unit	Name
U-1	Boiler Room
U-2	Hot Air Furnace
U-3	Hot Air Direct Convey and Air Slide System
U-4	Hot Air Bin Fill
U-6	Classifiers
U-7	Blending/Repack (Insignificant Activity emission unit)
U-8	Rescreens (Insignificant Activity emission unit)
U-13	Paste (Insignificant Activity emission unit)
U-14	Aluminum Paste Dryers
U-15	Mixers (Insignificant Activity emission unit)
U-16	AST Farm (Insignificant Activity emission unit)
U-17	Stills
U-18	Parts Washers (Insignificant Activity emission unit)
U-22	New Paste (Insignificant Activity emission unit)
U-23	Solvent Exchangers (Insignificant Activity emission unit)
U-24	Mills 13/14 (Insignificant Activity emission unit)
U-25	Zinc Mill (Insignificant Activity emission unit)
U-27	Solvent Wash (Insignificant Activity emission unit)
U-28	Cooling Tower
IA-Misc.	Miscellaneous Insignificant Activities

**4. Permit Revisions:**

Revision No.	Permit No.	Issue Date	Public Notice Date	Change Type	Change Scope	Description
Initial	143-97-TV	1/29/2001	8/28/2001	Initial	Entire Permit	Initial Issuance
R1	143-97-TV	7/25/2014	6/5/2014	Renewal	Entire Permit	Permit Renewal; Incorporate: STAR TAC requirements; Incorporate Construction Permits (See table below) Removed equipment taken out of service
R2	143-97-TV	2/05/2015	N/A	Admin. Revision	Entire Permit	Incorporate insignificant activity feeder station and R&D paint

Revision No.	Permit No.	Issue Date	Public Notice Date	Change Type	Change Scope	Description
						booths. (See Notes for details)
<p>Notes:</p> <ol style="list-style-type: none"> <li>Cover page: update administrative information for the permit.</li> <li>Page 6: update table of Title V Permit Revisions/Changes.</li> <li>Page 96: add emission point "E-273" for feeder station to the table of U-22 Equipment.</li> <li>Page 68, 69, 70, 73, 74, 77, 78, 87, 88, 89, 98, 99, 100, 105, 106, 111, 112, 113, 123, and 124: add "E-273" and "Paint Lab" to the list of equipment that subject to 5 tons per 12 months BACT avoidance limit per Regulation 7.25.</li> <li>Page 98, 99, and 100: add "E-273" to the list of U-22 equipment that subject to lb/hr PM standard and opacity standard per Regulation 7.08.</li> <li>Page 70, 74, 78, 89, 101, 106, 113, and 124: change the comment "...the potential VOC emissions are <u>less than 2 tons per year</u>..." to "...less than 5 tons per year..."</li> <li>Page 127: update Insignificant Activities list to include three (3) new R&amp;D paint booths.</li> <li>Page 146: add emission factor for E-273 to "Table 14 U-22: New Paste Process".</li> <li>Page 150: add emission point E-273 to Table 1 of Appendix B.</li> </ol>						
R3	143-97-TV	3/2/2015	N/A	Admin. Revision	Unit 2 pages 32 and 34	Incorporate established pressure drop range for Unit 2 control devices. Change made on page 32 and 34.
R4	143-97-TV	5/9/2016	N/A	Admin. Revision	Entire Permit	Incorporate insignificant activity R&D Indirect heat exchangers, and Stills 5 & 6 decanter. (See Notes for details)
<p>Notes:</p> <ol style="list-style-type: none"> <li>Cover page: update administrative information for the permit.</li> <li>Page 6 and 7: update table of Title V Permit Revisions/Changes.</li> <li>Pages 91 and 92: removed emission points E-96, E-97, E-98, and E-99 from the table of U-17 Equipment, added E-274.</li> <li>Page 72, 73, 74, 78, 79, 80, 83, 84, 85, 93, 94, 95, 96, 106, 107, 108, 109, 113, 114, 115, 119, 120, 121, 122, 131, 132, and 133: add E-274, E-275 and E-276 to the list of equipment that subject to 5 tons per 12 months BACT avoidance limit per Regulation 7.25.</li> <li>Page 93, 94, and 96: removed conditions pertaining to E-96, E-97, E-98, and E-99 from permit standards, monitoring and record keeping, reporting, and comments.</li> <li>Page 136: update Insignificant Activities list to include two (2) new R&amp;D paint booth indirect heat exchangers.</li> <li>Page 154, 163, 166, and 169: removed emission points E-96, E-97, E-98, and E-99 from VOC emissions limit tables.</li> <li>Page 150 and 156 added new equipment to Emission Factor Tables of Appendix A.</li> <li>Page 160 added new equipment to 7.25 VOC BACT Avoidance Emission Limit table.</li> <li>Page 171 added Appendix G, "Determination of Benchmark Ambient Concentration (BAC)".</li> </ol>						
R5	143-97-TV	08/25/2017	N/A	Admin. Revision	Emission Units U4, U13, U24 and Insignificant Activities List	Incorporation of Construction Permit C-0187-1003-17-TV (see notes for details)

Revision No.	Permit No.	Issue Date	Public Notice Date	Change Type	Change Scope	Description
						Notes: 1. Cover Page; Applications 2. Page 6 and 7: Update table of Title V Permit Revision/Changes 3. Page 7 and 8: Update Construction Permit History since Last TV Permit Renewal Table 4. Page 25: Update Control Device Performance Indicator Table 5. Page 47 to 54: Update to Emission Unit U-4: Replace Large Powder Storage Tank 2 (E-12) with new Large Powder Storage Tank 2 (E-12a) and Remove Bin Fill 1 System (E-11 and E-13) 6. Page 73 to 78: Update to Emission Unit U-13, Replace Screens 29 & 30 (E-66a and b) with two new screens (E-66a1 and E-66b1) and remove Screen 31 (E-66c) 7. Page 119: Added R&D Solvent Exchanger (Insignificant Activity) 8. Page 138: Added R&D Solvent Exchange to Insignificant Activity List 9. Throughout Permit: Update Regulation 7.25 "Bucket" Equipment List in Standards, Monitoring & Record Keeping, and Reporting 10. Appendix A through G: Emission Points E11 and E13 removed; Emission Points E12a, E66a, E66b, and E277 added where appropriate
R6	143-97-TV	2/12/2019	12/27/2018	Admin. Revision	U13, U14, U15, U17, U22, U23, U24, U25, U27, IA list	Incorporation of newly installed IA equipment and newly identified existing IA equipment. removal of obsolete equipment from permit. (see notes for details)
						1. U13: E-61a (press tank), E-61b (press tank), E-62a (tank), E-64a (course screen pot), E-64b (fines screen pot), E-65a (course screen pot), E-65b (fines screen pot), E-71 (filter press), and E-231E (tank) are removed. E-116o and E-116p (screens) are moved from U-22 to U-13. No physical change in location or capacity for E-116o and E-116p. E-284 and E-285 (overflow hoppers) are added into U-13. 2. U14: E-84 (vacuum dryer 3) is removed from U-14. 3. U15: E-129a through E-137a (mixer drum loadings) are added into U-15. 4. U17: E-170 (tank), E-238 (still 5 OWS), and E-243 (still 6 OWS) are removed. Name changed for E-233 and E-234 from "Still Settling Tank" to "Still OWS". E-100a (tank drum loading) is added into U-17. 5. U22: E-279 and E-280 (slurry tanks) are added into U-22; E-116o and E-116p (screens) are moved from U-22 to U-13. E-286, E-287 and E-288 (filter cake press carts) are added into U-22. E-116a, E-116b and E-116c (screens) are replaced with similar screens and renamed as E-116a1, E-116b1 and E-116c1. 6. U23: E-125a, E-126a, E127a, and E-185a (drum loadings) are added into U-23. 7. U24: E-272 is renamed from "R&D Mixer" to "Mill 13/14 Mixer"; E-277 is changed to Pilot LAB; E-278 is removed from U-24 and only be listed in IA list since they are independent of Mills13/14 process. E-289 (filter cake press carts) are added into U-24. 8. U25: E-281 (slurry tank) is added into U-25. E-200a (mixer drum loading) is added into U-25. 9. U27: E-226 (filter press 22) is removed from U-27; E-274 (Still 5&6 decanter) is moved from U-17 to U-27. E-283 (filter cake press cart) is added into U-27. 10. Insignificant Activities: Added pilot lab, QA/QC lab, and re-grouped R&D labs; 11. Updated information in Appendix A through E for new and removed equipment. 12. Added monitoring, record keeping, and reporting requirements for Regulation 7.25 BACT limit compliance. 13. Deleted unit IA-EG for emergency generator. 14. Added unit IA-Misc. for QA/QC Lab (E-278), and R&D Labs (E-282).

**5. Fugitive Sources:** Fugitive emissions of dust from any part of the plant are subject to Regulation 1.14, *Control of Fugitive Particulate Emissions*.

**6. Plant-wide Emission Summary:**

Pollutant	District Calculated Actual Emissions 2017 Data (tpy)	Major Source Status (based on PTE)
CO	3.31	No
NO <sub>x</sub>	3.94	No
SO <sub>2</sub>	0.02	No
PM/PM <sub>10</sub>	22.88	Yes
VOC	19.42	Yes
Total HAPs	5.19	No
GHG	11,948	No

\*Note: The GHG are potential to emit (PTE) emissions not actual emissions.

**7. Applicable Requirements:**

PSD       40 CFR 60       40 CFR 63       SIP  
 NSR       40 CFR 61       District-Origin       Other

**8. MACT Requirements:**

40 CFR 63, Subpart ZZZZ      National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

**9. Referenced non-MACT Federal Regulations in Permit:**

40 CFR Part 64      Compliance Assurance Monitoring for Major Stationary Sources

**II. Regulatory Analysis**

- 1. Acid Rain Requirements:** The source is not subject to the Acid Rain Program.
- 2. Stratospheric Ozone Protection Requirements:** Title VI of the CAAA regulates ozone depleting substances and requires a phase-out of their use. This rule applies to any facility that manufactures, sells, distributes, or otherwise uses any of the listed chemicals. This source does not manufacture, sell, or distribute any of the listed chemicals. The source's use of listed chemicals is that in fire extinguishers, chillers, air conditioners and other HVAC equipment.
- 3. Prevention of Accidental Releases 112(r):** The source does not manufacture, process, use, store, or otherwise handle one or more of the regulated substances listed in 40 CFR Part 68, Subpart F, and District Regulation 5.15, *Chemical Accident Prevention Provisions*, in a quantity in excess of the corresponding specified threshold amount. If the source becomes subject to 40 CFR 68 and Regulation 5.15, the source shall comply with the Risk Management Program and Regulation 5.15 and submit a Risk Management Plan to:
 

RMP Reporting Center  
 P.O. Box 3346  
 Merrifield, VA 22116-3346
- 4. 40 CFR Part 64 Applicability Determination:** The source is major for PM and a control device is needed to achieve compliance with District Regulation 7.08 for Emission Points E-3, E-8, E-13, and E-15. In accordance with 40 CFR 64, Compliance Assurance

Monitoring for Major Stationary Sources, the source was required to propose a CAM plan for PM, based on current process and control device requirements and practices. The CAM plan was received by the District on January 15, 2013.

## 5. Basis of Regulation Applicability

### a. Plant-wide

Eckart is a major source for PM/PM<sub>10</sub> and VOC. Regulation 2.16-*Title V Operating Permits* establishes requirements for major sources.

Regulations 5.00, 5.01, 5.20, 5.21, 5.22 and 5.23 (STAR Program) establishes requirements for environmental acceptability of toxic air contaminants (TACs) and the requirement to comply with all applicable emission standards.

Eckart America Corporation submitted their STAR Environmental Acceptability Determination to the District on **March 31, 2009, July 27, 2012, February 6, 2014, and May 16, 2014**. Per the most recent EA demonstration, the AERMOD 8-hour MAC for aluminum was 55.04022  $\mu\text{g}/\text{m}^3$ . Using APCD's equation 4 (Regulation 5.21, section 2.2), the resulting HQ is 1.10. The MAC is located on industrial property. The industrial HQ is below the EA<sub>nc</sub> of 3.0. An AERMOD run was also completed with just the non-industrial receptor points. The residential 8-hour MAC for aluminum was 37.00945  $\mu\text{g}/\text{m}^3$ . The residential HQ is 0.74, which is below the EA<sub>nc</sub> of 1.0. Eckart is in compliance with the STAR EAGs.

The TAC emissions from an insignificant activity (as defined in Regulation 2.16) are considered to be "de minimis emissions" by the District. (Regulation 5.21, section 2.3)

The TAC emissions from the combustion of natural gas are considered to be "de minimis emissions" by the District. This includes all of the emissions from a process or process equipment for which the only emissions are the products of combustion of natural gas, such as from a natural gas-fired boiler or turbine, but does not include the other emissions from a process or process equipment that are not the products of the combustion of natural gas. (Regulation 5.21, section 2.7)

Regulation 2.16, sections 4.1.9.1 and 4.1.9.2 requires sufficient monitoring and record keeping to assure ongoing compliance with the terms and conditions of the permit. The owner or operator shall maintain all the required records for a minimum of 5 years and make the records readily available to the District upon request.

Regulation 2.16, section 4.3.5, requires stationary sources for which a Title V is issued shall submit an annual compliance certification by April 15. In addition, as required by Regulation 2.16, section 4.1.9.3, the source shall submit compliance reports at least every six months to show compliance with the permit. Compliance reports and compliance certifications shall be signed by a responsible official and shall include a certification statement per Regulation 2.16, section 3.5.11.

Regulation 2.16, section 4.3.1 establishes testing requirements to assure compliance with the terms and conditions of the permit. Thus, an EPA Reference Method performance test shall be performed every 10 years to determine the emission rate and control efficiency.

b. **Applicable Regulations:**

<b>Regulation</b>	<b>Title</b>	<b>Type</b>
1.05	Compliance with Emission Standards and Maintenance Requirements	SIP
2.01	General Application	SIP
2.02	Air Pollution Regulation Requirements and Exemptions	SIP
2.03	Authorization to Construct or Operate; Demolition/Renovation Notices and Permit Requirements	SIP
2.04	Construction or Modification of Major Sources In or Impacting Upon Non-Attainment Areas (Emission Offset Requirements)	SIP
2.05	Prevention of Significant Deterioration of Air Quality	SIP
2.07	Public Notification for Title V, PSD, and Offset Permits; SIP Revisions; and Use of Emission Reduction Credits	SIP
2.08	Emissions Fees, Permit Fees, Permit Renewal Procedures, and Additional Program Fees	Local
2.09	Causes for Permit Modification, Revocation, or Suspension	SIP
2.10	Stack Height Considerations	SIP
2.11	Air Quality Model Usage	SIP
2.16	Title V Operating Permits	SIP
4.01	General Provisions for Emergency Episodes	SIP
4.02	Episode Criteria	SIP
4.03	General Abatement Requirements	SIP
4.07	Episode Reporting Requirements	SIP
5.00	Standards for Toxic Air Contaminants and Hazardous Air Pollutants	Local
5.01	General Provisions	SIP
5.14	Hazardous Air Pollutants and Source Categories	Local
5.15	Chemical Accident Prevention Provisions	Local
5.20	Methodology for Determining Benchmark Ambient Concentration of a Toxic Air Contaminant	Local
5.21	Environmental Acceptability for Toxic Air Contaminants	Local
5.22	Procedures for Determining the Maximum Ambient Concentration of a Toxic Air Contaminant	Local
5.23	Categories of Toxic Air Contaminants	Local
6.01	General Provisions (for <i>Existing Affected Facilities</i> )	SIP
6.02	Emission Monitoring for Existing Sources	SIP
6.09	Standards of Performance for Existing Process Operations	SIP
6.13	Standard of Performance for Existing Storage Vessels for Volatile Organic Compounds	SIP
6.18	Standards of Performance for Solvent Metal Cleaning Equipment	SIP
6.24	Standard of Performance for Existing Sources Using Organic Materials	SIP
7.01	General Provisions (for <i>New Affected Facilities</i> )	SIP
7.06	Standards of Performance for New Indirect Heat Exchangers	SIP
7.08	Standards of Performance for New Process Operations	SIP
7.12	Standard of Performance for New Storage Vessels for Volatile Organic Compounds	SIP
7.25	Standard of Performance for New Sources Using Volatile Organic Compounds	SIP

c. **Basis for Applicability**

<b>Regulation</b>	<b>Basis for Applicability</b>
1.05	Establishes daily record keeping requirements for sources emitting 100 tons per year or more of VOC and all Control Technique Guidance (CTG) sources to demonstrate compliance with applicable portions of Regulation 6 and 7.
2.03	Establishes requirements for Permits to Construct and Operate
2.05	Establishes requirements for the prevention of deterioration of air quality in regions of the country that currently meet the NAAQS.
2.16	Title V source
5.00	Establishes definitions of terms used in the Strategic Toxic Air Reduction Program.
5.01	Establishes general provisions for process equipment from which a toxic air contaminant is or may be emitted.
5.20	Establishes the methodology for determining the benchmark ambient concentration of a toxic air contaminant.
5.21	Establishes the criteria for determining the environmental acceptability of emissions of toxic air contaminants.
5.22	Establishes the procedures for determining the maximum ambient concentration of a toxic air contaminant.
5.23	Establishes categories of toxic air contaminants.
6.09	Applies to each process operation that is not otherwise regulated by any other portion of Regulation 6 and was in existence or had a construction permit issued by the District by September 1, 1976.
6.18	Applies to cold cleaners.
6.24	Establishes VOC standards for affected facilities constructed before June 13, 1979.
7.06	Applies to each indirect heat exchanger having input capacity of more than one million BTU per hour commenced after September 1, 1976.
7.08	Equipment installed after September 1, 1976 and subject to the PM emission standard.
7.12	Storage tanks with a capacity greater than 250 gallons constructed after April 19, 1972
7.25	Establishes VOC standards for affected facility constructed after June 13, 1979 for VOC.
40 CFR 64	Applies to each pollutant specific emission unit that is subject to an emission limitation or standard; uses a control device to achieve compliance; and has pre-control emissions that exceed or are equivalent to the major source threshold. CAM applies because the Atomization Furnace, Buhler A Conveyor Pod, and Tote/Drum Fill Stations are subject to emission limitations, use control devices to achieve compliance and have pre-control emissions that exceed the major source threshold.

d. **Emission Unit U-1 Boiler Room**

i. **Equipment**

<b>Emission Point</b>	<b>Description</b>	<b>Applicable Regulations</b>
E-1	Boiler #5, natural gas fired only	STAR, 7.06



E-2	Boiler #4, natural gas fired only	
E-138	Space Heater	STAR

ii. **Standards/Operating Limits**

1) **PM**

In accordance with Regulation 7.06, section 4.1.4, PM emissions are limited to 0.342 pounds per million BTU actual total heat input for Emission Points E-1 and E-2.

$$E = 1.919 \times (25.066)^{-0.535} = 0.342 \text{ lb/mmBTU}$$

2) **Opacity**

The boilers are subject to the opacity standards in accordance with Regulation 7.06, section 4.2.

3) **SO<sub>2</sub>**

In accordance with Regulation 7.06, section 5.1.1, SO<sub>2</sub> emissions are limited to 1.0 pounds per million BTU actual total heat input for Emission Point Points E-1 and E-2 because the total heat input capacity is less than 145 million BTU per hour.

4) **TAC**

Per Regulations 5.00 and 5.21, TAC emissions must not exceed environmentally acceptable levels.

iii. **Monitoring, Record Keeping and Reporting**

**SO<sub>2</sub>/PM/Opacity**

(a) A one-time PM and SO<sub>2</sub> compliance demonstration has been performed for the boilers, using AP-42 emission factors and combusting natural gas, and the emission standards cannot be exceeded. Therefore, there are no monitoring, record keeping, and reporting requirements for these boilers with respect to PM and SO<sub>2</sub> emission limits.

(b) The District has determined that using a natural gas fired boiler will inherently meet the 20% opacity standard. Therefore, the company is not required to perform periodic monitoring to demonstrate compliance with the opacity standard.

e. **Emission Unit U-2 Hot Air Furnace**

i. **Equipment**

Emission Point	Description	Applicable Regulations
E-3	Atomization Furnace	STAR, 6.28, 40 CFR 64
E-4	M-7 Screen Room	STAR, 7.08
E-6	M-8 Screen Room	
E-5a	Multicyclone Drum Loading	
E-7a	Multicyclone Drum Loading	
E-139	Compressed Air Preheater	STAR
E-140	Johnson Gas Appliance Nozzle Heater	

Emission Point	Description	Applicable Regulations
E-266	Space Heater	

ii. **Standards/Operating Limits**

1) **Opacity**

- (a) Regulation 6.28, section 3.1 establishes an opacity standard.
- (b) Regulation 7.08, section 3.1.1 establishes opacity standards.

2) **PM**

- (a) Regulation 6.28, section 3.2 establishes a PM standard.
- (b) In accordance with Regulation 7.08, Table 1, PM standard for Emission Points E-4 E-6, E-5a and E-7a is:  
 $E = 3.59 \times (0.75)^{0.62} = 3.00 \text{ lb/hr}$   
 (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

3) **TAC**

Per Regulations 5.00 and 5.21, TAC emissions must not exceed environmentally acceptable levels.

f. **Emission Unit U-3 Hot Air Direct Convey and Air Slide System**

i. **Equipment**

Emission Point	Description	Applicable Regulations
E-8a	Buhler A Storage Tank	2.05, STAR, 7.08, 40 CFR 64
E-8b	Buhler A Weigh Tank	STAR, 7.08
E-8c	Buhler A Conveyor Pod	
E-9	Rail Car Loading	2.05, STAR, 7.08, 40 CFR 64
E-229	Docking/Transfer Station	STAR, 7.08
E-141	Air Slide Conveyor Pod	STAR, 6.09

ii. **Standards/Operating Limits**

1) **Opacity**

Regulation 6.09, section 3.1 and Regulation 7.08, section 3.1.1 establishes opacity standards.

2) **PM**

- (a) In accordance with Regulation 6.09, Table 1, PM standard for Emission Point E-141 is:  
 $E = 4.10 \times (1.35)^{0.67} = 5.01 \text{ lb/hr}$   
 (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)
- (b) In accordance with Regulation 7.08, Table 1, PM standard for Emission Point E-229 is:

$$E = 3.59 \times (1.75)^{0.62} = 8.05 \text{ lb/hr}$$

(The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

- (c) In accordance with Regulation 7.08, Table 1, PM standard for Emission Point E-9 is:  
 $E = 3.59 \times (1.5)^{0.62} = 4.62 \text{ lb/hr}$ ,
- (d) In accordance with Regulation 7.08, Table 1, PM standard for Emission Point E-229 is:  
 $E = 3.59 \times (1.35)^{0.62} = 4.32 \text{ lb/hr}$   
 (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)
- (e) Per construction permit 84-09-C, PM standard for Emission Point E-8a is 4.62 lb/hr.
- (f) In order to avoid PSD/Nonattainment NSR the permit contains a PM emission limit of <25 tons per 12 consecutive month period for emission points E-8a and E-9 combined in accordance with Regulation 2.05.

3) **TAC**

Per Regulations 5.00 and 5.21, TAC emissions must not exceed environmentally acceptable levels.

g. **Emission Unit U-4 Hot Air Bin Fill**

i. **Equipment**

Emission Point	Description	Applicable Regulations
E-11	Large Powder Storage Tank 1	2.05, STAR, 7.08
E-12	Large Powder Storage Tank 2	
E-13	Tote/Drum Fill Station #1	
E-15	Tote/Drum Fill Station #2	

ii. **Standards/Operating Limits**

1) **Opacity**

Regulation 7.08, section 3.1.1 establishes an opacity standard.

2) **PM**

- (a) In accordance with Regulation 7.08, Table 1, PM standard for Emission Points E-13 and E-15 is:  
 $E = 3.59 \times (1.5)^{0.62} = 4.62 \text{ lb/hr}$
- (b) Per construction permit 84-09-C, PM standard for Emission Point E-11 and E-12 are 2.58 lb/hr each.
- (c) In order to avoid PSD/Nonattainment NSR the permit contains a PM emission limit of <25 tons per 12 consecutive month period for emission points E-11, E-12, E-13 and E-15 combined in accordance with Regulation 2.05.

3) **TAC**

Per Regulations 5.00 and 5.21, TAC emissions must not exceed environmentally acceptable levels.

**h. Emission Unit U-6 Classifiers**

**i. Equipment**

Emission Point	Description	Applicable Regulations
E-25	15,000 lb Tank	2.05, STAR, 7.08
E-26a	Classifier 1 Weigh Tank	
E-26b	Fines Bin	
E-26c	Buhler C Conveyor Pod	
E-26d	Drum Loading	
E-128	30,000 lb Tank	
E-128b1	Buhler B Conveyor Pod	
E-128b2	Classifier 2 Weigh Tank	

**ii. Standards/Operating Limits**

**1) Opacity**

Regulation 7.08, section 3.1.1 establishes an opacity standard.

**2) PM**

(a) Per construction permit 84-09-C, PM standard for Emission Point E-25 is 4.12 lb/hr.

(b) In accordance with Regulation 7.08, Table 1, PM standard for Emission Points E-26a, E-26b, E-26c, and E-26d is:  
 $E = 3.59 \times (1.25)^{0.62} = 4.12 \text{ lb/hr}$   
 (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

(c) In accordance with Regulation 7.08, Table 1, PM standard for Emission Points E-128, E-128a, and E-128b is:  
 $E = 3.59 \times (1.75)^{0.62} = 5.08 \text{ lb/hr}$   
 (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions for Emission Points E-128a, and E-128b cannot exceed the PM emission standard.)

(d) In order to avoid PSD/Nonattainment NSR the permit contains a PM emission limit of <25 tons per 12 consecutive month period for emission points E-25, E-26a, E-26b, E-26c, and E-26d combined in accordance with Regulation 2.05.

(e) In order to avoid PSD/Nonattainment NSR the permit contains a PM emission limit of <25 tons per 12 consecutive month period for emission points E-128, E-128b1, and E-128b2 combined in accordance with Regulation 2.05.

**3) TAC**

Per Regulations 5.00 and 5.21, TAC emissions must not exceed environmentally acceptable levels.

i. **Emission Unit U-7 Blending/Repack**

i. **Equipment**

Emission Point	Description	Applicable Regulations
E-27	Gemco Tumble Blender	STAR, 7.08
E-143	Double Drum Tumbler	
E-147	Drum Dumper	
E-148	Riddler Screen	
E-230	Screw Conveyor	
E-145	Hopper	
E-146	Bucket Fill	

ii. **Standards/Operating Limits**

1) **Opacity**

Regulation 7.08, section 3.1.1 establishes an opacity standard.

2) **PM**

(a) In accordance with Regulation 7.08, Table 1, PM standard for Emission Point E-27 is:

$$E = 3.59 \times (0.75)^{0.62} = 3.00 \text{ lb/hr}$$

(The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

(b) In accordance with Regulation 7.08, Table 1, PM standard for Emission Points E-143, E-147, E-148, E-230, E-145, and E-146 is 2.34 lb/hr for process throughput of 1,000 lb/hr or less. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

j. **Emission Unit U-8 Rescreens**

i. **Equipment**

Emission Point	Description	Applicable Regulations
E-150	Flake 100 Drum/Tote Unloading	STAR, 7.08
E-152	Flake 100 Staging Vessel	
E-154	Flake 100 Rescreener	
E-156	Flake 100 Drum Loading)	
E-158	Powder 200 Drum/Tote Unloading	
E-160	Powder 200 Staging Vessel	
E-162	Powder 200 Rescreener	
E-164	Powder 200 Drum Loading	

ii. **Standards/Operating Limits**

1) **Opacity**

Regulation 7.08, section 3.1.1 establishes an opacity standard.

2) **PM**

In accordance with Regulation 7.08, Table 1, PM standard for Emission Points E-150, E-152, E-154, E-156, E-158, E-160, E-

162, and E-164 is 2.34 lb/hr for process throughput of 1,000 lb/hr or less. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

k. **Emission Unit U-13 Aluminum Paste Process**

i. **Equipment**

Emission Point	Description	Applicable Regulations
E-56	Ball Mill 5	STAR, 6.09, 6.24
E-57	Ball Mill 6	STAR, 6.24, 7.08
E-66a1	Screen 29	STAR, 7.25
E-66b1	Screen 30	
E-284	Overflow Hopper for Ball Mill 5	STAR, 7.25
E-285	Overflow Hopper for Ball Mill 6	STAR, 7.25
E-116o	Vibratory Screen 15	2.05, STAR 7.25 (BACT)
E-116p	Vibratory Screen 16	

ii. **Standards/Operating Limits**

1) **VOC**

- (a) Regulation 6.24 limits the pound per hour and pound per day emissions of Class II and Class III solvents for Emission Points E-56 and E-57, , unless the emissions are reduced by at least 85%. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential VOC emissions cannot exceed the emission standards from Regulation 6.24 for Class II and Class III solvents. Therefore, there are no monitoring, recordkeeping, or reporting requirements for these emission points.)
- (b) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 3.29 tons per 12 consecutive month period for Emission Point E-71. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential VOC emissions cannot exceed the emission standards from Regulation 7.25. Therefore, there are no monitoring, recordkeeping, or reporting requirements for these emission points.)
- (c) Per Regulation 2.05 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 40 tons per 12 consecutive month period for Emission Points E-116o, E-116p, (U-13); E-129 and E-129a, E-130 and E-130a, E-131 and E-131a, E-132 and E-132a, E-134 and E-134a, E-136 and E-136a, E-137 and E-137a (U-15); E-111, E-112, E-113, E-114, E-115, E-116 a1-c1, E-116 d-n, and E-116 q-x, E-117 a-dd, E-118 a-j, E-178, E-119 a-g, E-120 a & b, E-121 a-c, E-270, E-179 a-h, E-180, E-181, E-286, E-287, and E-288 (U-22); E-123, E-125 and E-125a, E-126 and E-126a, and E-127 and E-127a, E-252, E-253 (U-23). (The potential uncontrolled VOC

emissions are over 25 tons for these mission points. This emission limit ensures PSD avoidance.)

- (d) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 40 tons per 12 consecutive month period for Emission Points E-116o, E-116p, (U-13); E-129 and E-129a, E-130 and E-130a, E-131 and E-131a, E-132 and E-132a, E-134 and E-134a, E-136 and E-136a, E-137 and E-137a (U-15); E-111, E-112, E-113, E-114, E-115, E-116 a1-c1, E-116 d-n, and E-116 q-x, E-117 a-dd, E-118 a-j, E-178, E-119 a-g, E-120 a & b, E-121 a-c, E-270, E-179 a-h, E-180, E-181, E-286, E-287, and E-288 (U-22); E-123, E-125 and E-125a, E-126 and E-126a, and E-127 and E-127a, E-252, E-253 (U-23). (The potential uncontrolled VOC emissions are over 25 tons for these mission points.)
- (e) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Screens (U-13: E-66a1 and E-66b1); Overflow Hoppers (U-13: E-284 and E-285); Dryer 2/3 Holding Tank (U-14: E-232); Mixer 7 (U-15: E-135 and E-135a); Sludge Accumulator Tank (U-17: E-100 and E-100a); Feeder Station (U-22: E-273); Slurry Tanks (U-22: E-279 and E-280); Condensate Tanks (U-23: E-254, E-255); Mill 13/14 Mixer (U-24: E-272); Pilot Lab (U-24: E-277); Slurry Tank (U-25: E-281); Filtrate Tanks (U-27: E-227, E-228); Stills Decanter (U27: E-274); R&D Solvent Exchange (IA: E-277); Paint Lab (IA: E-278); R&D Ball Mill (IA: E-282), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)

2) **PM**

- (a) In accordance with Regulation 6.09, Table 1, PM standard for Emission Point E-56 is 2.58 lb/hr for process throughput of 1,000 lb/hr or less. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)
- (b) In accordance with Regulation 7.08, Table 1, PM standard for Emission Point E-57 is 2.34 lb/hr for process throughput of 1,000 lb/hr or less. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

3) **Opacity**

Regulation 6.09, section 3.1 and Regulation 7.08, section 3.1.1 establishes opacity standards.

l. **Emission Unit U-14 Aluminum Paste Dryers**

i. **Equipment**

Emission Point	Description	Applicable Regulations
E-82	Vacuum Dryer #2, equipped with process condenser	STAR, 6.24
E-232	Dryer 2/3 Holding Tank	STAR, 7.25

ii. **Standards/Operating Limits**

1) **VOC**

- (a) Regulation 6.24 limits the pound per hour and pound per day emissions of Class II and Class III solvents for Emission Points E-82 and E-84, unless the emissions are reduced by at least 85%. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential VOC emissions cannot exceed the lb/hr emission standards from Regulation 6.24 for Class II solvents; and the lb/hr and lb.day for Class III solvents. Therefore, there are no monitoring, recordkeeping, or reporting requirements for these emission standards. But, the lb/day for Class II solvents can exceed when the process condensers are not operating as designed, therefore, the permit contains requirements for the time period when the process condensers are not operating as designed.)
- (b) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Screen (U-13: E-66a1 and E-66b1); Overflow Hoppers (U-13: E-284 and E-285); Dryer 2/3 Holding Tank (U-14: E-232); Mixer 7 (U-15: E-135 and E-135a); Sludge Accumulator Tank (U-17: E-100 and E-100a); Feeder Station (U-22: E-273); Slurry Tanks (U-22: E-279 and E-280); Condensate Tanks (U-23: E-254, E-255); Mill 13/14 Mixer (U-24: E-272); Pilot Lab (U-24: E-277); Slurry Tank (U-25: E-281); Filtrate Tanks (U-27: E-227, E-228); Stills Decanter (U-27: E-274); QA/QC Lab (IA: E-278); R&D Labs (IA: E-282), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)

m. **Emission Unit U-15 Mixers**

i. **Equipment**

Emission Point	Description	Applicable Regulations
E-129, 129a	Mixer 1 and Drum Loading	2.05, STAR, 7.25 (BACT)



E-130, 130a	Mixer 2 and Drum Loading	
E-131, 131a	Mixer 3 and Drum Loading	
E-132, 132a	Mixer 4 and Drum Loading	
E-133, 133a	Mixer 5 and Drum Loading	STAR, 6.24
E-134, 134a	Mixer 6 and Drum Loading	2.05, STAR, 7.25 (BACT)
E-135, 135a	Mixer 7 and Drum Loading	STAR, 7.25
E-136, 136a	Mixer 8 and Drum Loading	2.05, STAR, 7.25 (BACT)
E-137, 137a	Mixer 9 and Drum Loading	

ii. **Standards/Operating Limits**

1) **VOC**

- (a) Regulation 6.24 limits the pound per hour and pound per day emissions of Class II and Class III solvents for Emission Points E133 and E133a, unless the emissions are reduced by at least 85%. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential VOC emissions cannot exceed the emission standards from Regulation 6.24 for Class II and Class III solvents. Therefore, there are no monitoring, recordkeeping, or reporting requirements for these emission points.)
- (b) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Screen (U-13: E-66a1 and E-66b1); Overflow Hoppers (U-13: E-284 and E-285); Dryer 2/3 Holding Tank (U-14: E-232); Mixer 7 (U-15: E-135 and E-135a); Sludge Accumulator Tank (U-17: E-100 and E-100a); Feeder Station (U-22: E-273); Slurry Tanks (U-22: E-279 and E-280); Condensate Tanks (U-23: E-254, E-255); Mill 13/14 Mixer (U-24: E-272); Pilot Lab (U-24: E-277); Slurry Tank (U-25: E-281); Filtrate Tanks (U-27: E-227, E-228); Stills Decanter (U27: E-274); QA/QC Lab (IA: E-278); R&D Labs (IA: E-282), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)
- (c) Per Regulation 2.05 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 40 tons per 12 consecutive month period for Emission Points E-116o, E-116p, (U-13); E-129 and E-129a, E-130 and E-130a, E-131 and E-131a, E-132 and E-132a, E-134 and E-134a, E-136 and E-136a, E-137 and E-137a (U-15); E-111, E-112, E-113, E-114, E-115, E-116 a1-c1, E-116 d-n, and E-116 q-x, E-117 a-dd, E-118 a-j, E-178, E-119 a-g, E-120 a & b, E-121 a-c, E-270, E-179 a-h, E-180, E-181, E-286, E-287, and E-288 (U-22); E-123, E-125 and E-125a, E-126 and E-126a, E-127 and E-127a, E-252, and E-253 (U-23). (The potential uncontrolled VOC

emissions are over 25 tons for these mission points. This emission limit ensures PSD avoidance.)

- (d) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 40 tons per 12 consecutive month period for Emission Points E-116o, E-116p, (U-13); E-129 and E-129a, E-130 and E-130a, E-131 and E-131a, E-132 and E-132a, E-134 and E-134a, E-136 and E-136a, E-137 and E-137a (U-15); E-111, E-112, E-113, E-114, E-115, E-116 a1-c1, E-116 d-n, and E-116 q-x, E-117 a-dd, E-118 a-j, E-178, E-119 a-g, E-120 a & b, E-121 a-c, E-270, E-179 a-h, E-180, E-181, E-286, E-287, and E-288 (U-22); E-123, E-125 and E-125a, E-126 and E-126a, E-127 and E-127a, E-252, and E-253 (U-23). (The potential uncontrolled VOC emissions are over 25 tons for these mission points.)

n. **Emission Unit U-16 AST (Aboveground Storage Tank) Farm**

i. **Equipment**

Emission Point	Description	Applicable Regulations
E-89	AST 1 – Mineral Spirits from oleic acid	STAR, 7.12
E-90	AST 2 – Mineral Spirits from stearic acid	
E-91	AST 3 – Non-Distillable Mineral Spirits	
E-92	AST 4 – Mineral Spirits	
E-107	AST 5 – High Flash Naphtha	
E-93	AST 6 – Mineral Spirits OR-6	
E-94	AST 7 – Mineral Spirits OR-6	
E-166	AST 8 – Distillable Mineral Spirits	
E-167	AST 9 – Distilled Mineral Spirits	
E-168	AST 10 – Virgin Mineral Spirits	
E-169	AST 11 – Used Mineral Spirits OR-6	
E-108	AST 12 – Diesel fuel	

ii. **Standards/Operating Limits**

1) **VOC**

- (a) Regulation 7.12, section 3.3 requires submerged fill if the materials have an as stored vapor pressure of 1.5 psia or greater.
- (b) Regulation 7.12 applies due to the size of the tanks, however, since the vapor pressure as stored is less than 1.5 psia there are no applicable emission or equipment standards.

o. **Emission Unit U-17 Stills**

i. **Equipment**

Emission Point	Description	Applicable Regulations
E-100, 100a	Sludge Accumulator Tank and Drum	STAR, 7.25

Emission Point	Description	Applicable Regulations
	Loading	
E-210	Still 5 w/Condenser and Vacuum Pump	STAR, 7.25 (BACT)
E-240	Still 6 w/Condenser & Vacuum Pump	
E-233	Still OWS (T-104)	
E-234	Still OWS (T-105)	
E-235	Still 5 Feed Tank	
E-236	Still 5 Cooling Tank	
E-237	Still 5 Condensate Tank	
E-239	Still 6 Feed Tank	
E-241	Still 6 Cooling Tank	
E-242	Still 6 Condensate Tank	

ii. **Standards/Operating Limits**

1) **VOC**

- (a) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, for Emission Points E-210, E-240, E-233, E-234, E-235, E-236, E-237, E-239, E-241, and E-242, the owner or operator shall limit the VOC emissions to less than 3.794 ton per 12 consecutive month period.
- (b) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Screen (U-13: E-66a1 and E-66b1); Overflow Hoppers (U-13: E-284 and E-285); Dryer 2/3 Holding Tank (U-14: E-232); Mixer 7 (U-15: E-135 and E-135a); Sludge Accumulator Tank (U-17: E-100 and E-100a); Feeder Station (U-22: E-273); Slurry Tanks (U-22: E-279 and E-280); Condensate Tanks (U-23: E-254, E-255); Mill 13/14 Mixer (U-24: E-272); Pilot Lab (U-24: E-277); Slurry Tank (U-25: E-281); Filtrate Tanks (U-27: E-227, E-228); Stills Decanter (U27: E-274); QA/QC Lab (IA: E-278); R&D Labs (IA: E-282), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)

p. **Emission Unit U-18 Parts Washers**

i. **Equipment**

Emission Point	Description	Applicable Regulations
E-172	Cold Cleaner (secondary reservoir)	STAR, 6.18
E-173	Cold Cleaner (secondary reservoir)	
E-245	Cold Cleaner #4	

ii. **Standards/Operating Limits**

1) **VOC**

Per Regulation 6.18, the owner or operator shall install, maintain, and operate the control equipment for Emission Points E-172, E-173, and E-245, shall observe specific operating requirements, and shall not operate a cold cleaner using a solvent with a vapor pressure that exceeds 1.0 mm Hg (0.019 psi) measured at 20°C (68°F).

q. **Emission Unit U-22 New Paste Process**

i. **Equipment**

Emission Point	Description	Applicable Regulations
E-62b	Tank RW1A (Slurry)	STAR, 6.24
E-67	Decanter 1 (Centrifuge)	
E-111	Ball Mill 7	2.05, STAR, 7.08 7.25 (BACT)
E-112	Ball Mill 8	
E-113	Ball Mill 9	
E-114	Ball Mill 10	
E-115	Ball Mill 11	
E-178	Ball Mill 12	
E-116a1 - E-116c1, E-116d - E-116n; E-116q - E-116x	22 Vibratory Screens (Screens 1 through 20, 23 through 26)	2.05, STAR, 7.25 (BACT)
E-117a through E-117dd	30 Slurry Tanks (U-22)	
E-118a through E-118j	10 Slurry Tanks (U-22)	
E-119a through E-119g	7 Filter Presses (1-6, 10)	
E-120a & E-120b	2 Filter Presses (7 & 8)	
E-121a, E-121b, E-121c	3 Filter Presses (12 – 14)	
E-179a through E-179h	8 Filtrate Tanks	
E-180	Decanter 2 (Centrifuge)	
E-181	Portable Rework Hopper	
E-270	Vapor Recovery Condensate Tank	
E-246	B06 Decanter Tank	STAR, 7.12
E-247	B07 Decanter Tank	
E-248	B08 Decanter Tank	
E-273	Feeder station	STAR, 7.08, 7.25
E-279	Slurry Tank	STAR, 7.25
E-280	Slurry Tank	
E-286	10 Filter Cake Press Carts	2.05, STAR 7.25 (BACT)
E-287	2 Filter Cake Press Carts	
E-288	2 Filter Cake Press Carts	

ii. **Standards/Operating Limits**

1) **VOC**

- (a) Regulation 6.24 limits the pound per hour and pound per day emissions of Class II and Class III solvents for Emission Points E-62b, and E-67, unless the emissions are reduced by at least 85%. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential VOC emissions cannot exceed the emission standards from Regulation 6.24 for Class II and Class III solvents for the emission points. Therefore, there are no monitoring, recordkeeping, or reporting requirements for these emission points)
- (b) Per Regulation 2.05 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 40 tons per 12 consecutive month period for Emission Points E-116o, E-116p, (U-13); E-129 and E-129a, E-130 and E-130a, E-131 and E-131a, E-132 and E-132a, E-134 and E-134a, E-136 and E-136a, E-137 and E-137a (U-15); E-111, E-112, E-113, E-114, E-115, E-116 a1-c1, E-116 d-n, and E-116 q-x, E-117 a-dd, E-118 a-j, E-178, E-119 a-g, E-120 a & b, E-121 a-c, E-270, E-179 a-h, E-180, E-181, E-286, E-287, and E-288 (U-22); E-123, E-125 and E-125a, E-126 and E-126a, E-127 and E-127a, E-252, and E-253 (U-23). (The potential uncontrolled VOC emissions are over 25 tons for these mission points. This emission limit ensures PSD avoidance.)
- (c) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 40 tons per 12 consecutive month period for Emission Points E-116o, E-116p, (U-13); E-129 and E-129a, E-130 and E-130a, E-131 and E-131a, E-132 and E-132a, E-134 and E-134a, E-136 and E-136a, E-137 and E-137a (U-15); E-111, E-112, E-113, E-114, E-115, E-116 a1-c1, E-116 d-n, and E-116 q-x, E-117 a-dd, E-118 a-j, E-178, E-119 a-g, E-120 a & b, E-121 a-c, E-270, E-179 a-h, E-180, E-181, E-286, E-287, and E-288 (U-22); E-123, E-125 and E-125a, E-126 and E-126a, E-127 and E-127a, E-252, and E-253 (U-23). (The potential uncontrolled VOC emissions are over 25 tons for these mission points.)
- (d) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Screen (U-13: E-66a1 and E-66b1); Overflow Hoppers (U-13: E-284 and E-285); Dryer 2/3 Holding Tank (U-14: E-232); Mixer 7 (U-15: E-135 and E-135a); Sludge Accumulator Tank (U-17: E-100 and E-100a); Feeder Station (U-22: E-273); Slurry Tanks (U-22: E-279 and E-280); Condensate Tanks (U-23: E-254, E-255); Mill 13/14 Mixer (U-24: E-272); Pilot Lab (U-24: E-277); Slurry Tank (U-25: E-281); Filtrate Tanks (U-27: E-227, E-228); Stills Decanter

(U27: E-274); QA/QC Lab (IA: E-278); R&D Labs (IA: E-282), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)

- (e) Regulation 7.12, section 3.3 requires submerged fill if the materials have an as stored vapor pressure of 1.5 psia or greater.
- (f) Regulation 7.12 applies due to the size of the tanks, however, since the vapor pressure as stored is less than 1.5 psia there are no applicable emission or equipment standards.

2) **PM**

In accordance with Regulation 7.08, Table 1, PM standard for Emission Points E-111, E-112, E-113, E-114, E-115, and E-178, is 2.34 lb/hr each for process throughput of 1,000 lb/hr or less. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

3) **Opacity**

Regulation 7.08, section 3.1.1 establishes opacity standards.

r. **Emission Unit U-23 Solvent Exchangers**

i. **Equipment**

Emission Point	Description	Applicable Regulations
E-123	Additive Tank #1	2.05, STAR, 7.25 (BACT)
E-125, 125a	Additive Tank# 2 (R01) and Drum Loading	
E-126, 126a	Additive Tank #3 (R02) and Drum Loading	
E-127, 127a	Vacuum Pump No. 1 and Drum Loading	
E-252	SE 1 Thermal Oil Tank	
E-253	SE 2 Thermal Oil Tank	
E-184	Additive Tank #4 (SE2)	STAR, 7.25 (BACT)
E-185, 185a	Vacuum Pump No. 2 and Drum Loading	
E-254	SE 1 Condensate Tank	STAR, 7.25
E-255	SE 2 Condensate Tank	

ii. **Standards/Operating Limits**

1) **VOC**

- (a) Per Regulation 2.05 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 40 tons per 12 consecutive month period for Emission Points E-116o, E-116p, (U-13); E-129 and E-129a, E-130 and

- E-130a, E-131 and E-131a, E-132 and E-132a, E-134 and E-134a, E-136 and E-136a, E-137 and E-137a (U-15); E-111, E-112, E-113, E-114, E-115, E-116 a1-c1, E-116 d-n, and E-116 q-x, E-117 a-dd, E-118 a-j, E-178, E-119 a-g, E-120 a & b, E-121 a-c, E-270, E-179 a-h, E-180, E-181, E-286, E-287, and E-288 (U-22); E-123, E-125 and E-125a, E-126 and E-126a, E-127 and E-127a, E-252, and E-253 (U-23). (The potential uncontrolled VOC emissions are over 25 tons for these mission points. This emission limit ensures PSD avoidance.)
- (b) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 40 tons per 12 consecutive month period for Emission Points E-116o, E-116p, (U-13); E-129 and E-129a, E-130 and E-130a, E-131 and E-131a, E-132 and E-132a, E-134 and E-134a, E-136 and E-136a, E-137 and E-137a (U-15); E-111, E-112, E-113, E-114, E-115, E-116 a1-c1, E-116 d-n, and E-116 q-x, E-117 a-dd, E-118 a-j, E-178, E-119 a-g, E-120 a & b, E-121 a-c, E-270, E-179 a-h, E-180, E-181, E-286, E-287, and E-288 (U-22); E-123, E-125 and E-125a, E-126 and E-126a, E-127 and E-127a, E-252, and E-253 (U-23). (The potential uncontrolled VOC emissions are over 25 tons for these mission points.)
- (c) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Screens (U-13: E-66a1 and E-66b1); Overflow Hoppers (U-13: E-284 and E-285); Dryer 2/3 Holding Tank (U-14: E-232); Mixer 7 (U-15: E-135 and E-135a); Sludge Accumulator Tank (U-17: E-100 and E-100a); Feeder Station (U-22: E-273); Slurry Tanks (U-22: E-279 and E-280); Condensate Tanks (U-23: E-254, E-255); Mill 13/14 Mixer (U-24: E-272); Pilot Lab (U-24: E-277); Slurry Tank (U-25: E-281); Filtrate Tanks (U-27: E-227, E-228); Stills Decanter (U-27: E-274); QA/QC Lab (IA: E-278); R&D Labs (IA: E-282), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)
- (d) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, for Emission Points E-184, E-185, and 185a combined, the owner or operator shall limit the VOC emissions to less than 7.01 ton per 12 consecutive month period.

s. **Emission Unit U-24 Mills 13/14**i. **Equipment**

Emission Point	Description	Applicable Regulations
E-186	Ball Mill 13	STAR, 7.08, 7.25 (BACT)
E-187	Ball Mill 14	
E-188a	Screen 21	STAR, 7.25 (BACT)
E-188b	Screen 22	
E-189a through E-189d	4 Slurry Tanks	
E-190	Mill 14 Recirculation Tank (T-57A)	
E-192	Filter Press 16	
E-193	Filter Press 15	
E-246	B06 Decanter Tank	STAR, 7.12
E-247	B07 Decanter Tank	
E-248	B08 Decanter Tank	
E-272	Mill 13/14 Mixer	STAR, 7.25
E-277	Pilot Lab, includes a mixer and tank (Insignificant Activity)	STAR, 7.25
E-289	2 Filter Cake Press Carts	STAR, 7.25 (BACT)

ii. **Standards/Operating Limits**1) **VOC**

- (a) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, for Emission Point E-186, the owner or operator shall limit the VOC emissions to less than 1 ton per 12 consecutive month period.
- (b) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, for Emission Point E-187, the owner or operator shall limit the VOC emissions to less than 1 ton per 12 consecutive month period.
- (c) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, for Emission Points E-188 a&b, E-189 a-d, E-190, E-192, E-193, E-289 (U-24); E-195 a&b, E-197 a&b, E-198, E-199, E-200 and E-200a, E-249, E-250, and E-251 (U-25), the owner or operator shall limit the VOC emissions to less than 1 ton per 12 consecutive month period.
- (d) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Screens (U-13: E-66a1 and E-66b1); Overflow Hoppers (U-13: E-284 and E-285); Dryer 2/3 Holding Tank (U-14: E-232); Mixer 7 (U-15: E-135 and E-135a); Sludge Accumulator Tank (U-17: E-100 and E-100a); Feeder Station (U-22: E-273); Slurry Tanks (U-22: E-279 and E-280); Condensate Tanks (U-23: E-254, E-255); Mill 13/14 Mixer (U-24: E-272); Pilot Lab (U-24: E-277); Slurry Tank (U-25: E-281); Filtrate Tanks (U-27: E-227, E-228); Stills Decanter (U27: E-274); QA/QC Lab (IA: E-278); R&D Labs (IA:



E-282), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)

- (e) Regulation 7.12, section 3.3 requires submerged fill if the materials have an as stored vapor pressure of 1.5 psia or greater.
- (f) Regulation 7.12 applies due to the size of the tanks, however, since the vapor pressure as stored is less than 1.5 psia there are no applicable emission or equipment standards.

2) **PM**

- (a) In accordance with Regulation 7.08, Table 1, PM standard for Emission Point E-186 is 2.34 lb/hr for process throughput of 1,000 lb/hr or less. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)
- (b) In accordance with Regulation 7.08, Table 1, PM standard for Emission Point E-187 is:  
 $E = 3.59 \times (0.65)^{0.62} = 2.75 \text{ lb/hr}$   
 (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

3) **Opacity**

Regulation 7.08, section 3.1.1 establishes opacity standards.

t. **Emission Unit U-25 Zinc Mill**

i. **Equipment**

Emission Point	Description	Applicable Regulations
E-196	T-64 (Zinc Mineral Spirits Supply Tank)	STAR, 7.12
E-194	Ball Mill 20	STAR, 7.08, 7.25 (BACT)
E-195a	Screen 27	STAR, 7.25 (BACT)
E-195b	Screen 28	
E-197a	T-67 (Zinc Mill Slurry Tank)	
E-197b	T-70 (Zinc Mill Press Tank)	
E-198	T-66 (Zinc Mill Coarse Slurry Tank)	
E-199	Filter Press 20	
E-200, 200a	Mixer 20 and Drum Loading	
E-251	T-69 (Filter Press Filtrate Tank)	
E-249	Zinc Mill Condensate Tank (T-65)	
E-250	T-68 (Filtrate Tank)	
E-281	Slurry Tank	STAR, 7.25

ii. **Standards/Operating Limits**

1) **VOC**

- (a) Regulation 7.12, section 3.3 requires submerged fill if the materials have an as stored vapor pressure of 1.5 psia or greater.
- (b) Regulation 7.12 applies due to the size of the tanks, however, since the vapor pressure as stored is less than 1.5 psia there are no applicable emission or equipment standards.
- (c) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, for Emission Point E-194, the owner or operator shall limit the VOC emissions to less than 1 ton per 12 consecutive month period.
- (d) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, for Emission Points E-188 a&b, E-189 a-d, E-190, E-192, E-193, E-289 (U-24); E-195 a&b, E-197 a&b, E-198, E-199, E-200 and E-200a, E-249, E-250, and E-251 (U-25), the owner or operator shall limit the VOC emissions to less than 1 ton per 12 consecutive month period.
- (e) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Emission Points Screens (U-13:E-66a1 and E-66b1); Dryer 2/3 Holding Tank (U-14: E-232); Mixer 7 (U-15: E-135 and E-135a); Sludge Accumulator Tank (U-17: E-100 and E-100a); Feeder Station (U-22: E-273); Slurry Tanks (U-22: E-279 and E-280); Condensate Tanks (U-23: E-254, E-255); Mill 13/14 Mixer (U-24: E-272); Pilot Lab (U-24: E-277); Slurry Tank (U-25: E-281); Filtrate Tanks (U-27: E-227, E-228); Stills Decanter (U-27: E-274), QA/QC Lab (IA: E-278); R&D Labs (IA: E-282), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)

2) **PM**

In accordance with Regulation 7.08, Table 1, PM standard for Emission Point E-194 is 3.59 lb/hr for process throughput of 2,000 lb/hr. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

3) **Opacity**

Regulation 7.08, section 3.1.1 establishes opacity standards.

u. **Emission Unit U-27 Solvent Wash**i. **Equipment**

Emission Point	Description	Applicable Regulations
E-223	B03 Tank (Non Distillable Wash)	STAR, 7.12
E-224	B04 Tank (Distillable Wash)	
E-225	Filter Press 21 (Non Distillable Wash)	STAR, 7.25 (BACT)
E-227	B05 Tank (Non Distillable Filtrate)	STAR, 7.25
E-228	B06 Tank (Distillable Filtrate)	
E-274	Stills 5 & 6 decanter 2016	STAR, 7.25 (BACT)
E-283	Filter Cake Press Carts	STAR, 7.25 (BACT)

ii. **Standards/Operating Limits**1) **VOC**

- (a) Regulation 7.12, section 3.3 requires submerged fill if the materials have an as stored vapor pressure of 1.5 psia or greater.
- (b) Regulation 7.12 applies due to the size of the tanks, however, since the vapor pressure as stored is less than 1.5 psia there are no applicable emission or equipment standards.
- (c) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, for Emission Points E-225 and E-283, the owner or operator shall limit the combined VOC emissions to less than 1 ton per 12 consecutive month period.
- (d) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Emission Points Screens (U-13:E-66a1 and E-66b1); Dryer 2/3 Holding Tank (U-14: E-232); Mixer 7 (U-15: E-135 and E-135a); Sludge Accumulator Tank (U-17: E-100 and E-100a); Feeder Station (U-22: E-273); Slurry Tanks (U-22: E-279 and E-280); Condensate Tanks (U-23: E-254, E-255); Mill 13/14 Mixer (U-24: E-272); Pilot Lab (U-24: E-277); Slurry Tank (U-25: E-281); Filtrate Tanks (U-27: E-227, E-228); Stills Decanter (U-27: E-274), QA/QC Lab (IA: E-278); R&D Labs (IA: E-282), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)

v. **Emission Unit U-28 Cooling Tower**i. **Equipment**

Emission Point	Description	Applicable Regulations
E-269	Cooling Tower	7.08

ii. **Standards/Operating Limits**

- 1) **Opacity**  
Regulation 7.08, section 3.1 establishes and opacity standard.
- 2) **PM**  
In accordance with Regulation 7.08, Table 1, PM standard Emission Point E-269 is:  

$$E = 3.59 \times (265.71)^{0.62} = 42.29 \text{ lb/hr}$$
 (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions for Emission Points E-269 cannot exceed the PM emission standard.)

### III. Other Requirements

1. **Temporary Sources:** The source did not request to operate any temporary facilities.
2. **Short Term Activities:** The source did not report any short term activities.
3. **Emissions Trading:** N/A
4. **Operational Flexibility:** The source did not request any operational flexibility for the emission points.
5. **Compliance History:**

Incident Date	Regulations Violated	Result
8/9/2006	2.03.5.2 Failure to Comply with District Permit	Board Order
3/8/2011	2.16.5.2 Failure to Comply with Title V Permit	Board Order
6/7/2011	2.03.5.2 Failure to Comply with District Permit	Board Order
6/7/2011	2.03.1.2 Operating Equipment without a District Permit	Board Order
6/7/2011	2.16.5.2 Failure to Comply with Title V Permit	Board Order
1/7/2015	2.16.5.2 Failure to Comply with Title V Permit	Agreement

#### 6. Calculation Methodology:

The emission calculations for the various pieces of equipment associated with this permit are derived from stack test results, AP-42 emission factors, EPA's Emission Inventory Improvement Program, EPA guidance documents, mass balances and engineering judgments. Other calculation methodologies may be used after receiving written approval from the District. See Appendix A for specific emission factors and Appendix B for control device efficiencies.

- a. **AP-42 Emission factors**
  - Combustion emissions (Chapter 1.4-1, 1.4-2, 1.4-3, & 1.4-4 (small boilers))
  - Solid material transfer emissions
    - Chapter 11.19; Crushed Stone Processing and Pulverized Mineral Processing
    - Chapter 11.24; Metallic Mineral Processing; Material Handling and Transfer - low moisture ore
  - Liquid loading emissions
    - Chapter 5.2; Transportation And Marketing Of Petroleum Liquids
  - Cooling Tower emissions
    - Chapter 13.4; Wet Cooling Towers

- Chapter 4.7; Waste Solvent Reclamation
- b. **TANKS 4.09D**  
Breathing and working losses for all storage and process tanks are estimated by using the computer software program to estimate volatile organic compound emissions.
- c. **EIIP Volume II, Chapter 8**  
Emission Inventory Improvement (EIIP) documents describe procedures and recommended approaches for estimating emissions. Chapter 8 is for "Paint, Ink, and Other Coating Manufacturing", but the techniques can be applied to other evaporation sources.
- Emission Model for Material Loading (Equation 8.4-1)
  - Emission Model for Surface Evaporation (Equation 8.4-22)
  - Emission Model for Sweep of Purge (Equation 8.4-32)
- d. **EPA's OAQPS Guideline Series**  
One in a series of reports which provide guidance on air pollution control techniques for limiting emissions of VOC from sources. In this case it was used to model emissions from the Stills (U-17).
- Control of Volatile Organic Emissions from Manufacture of Synthesized Pharmaceutical Products", Document EPA-450/2-78-029, Appendix B, Equation 15.
- e. **Stack testing**  
Eckart has stack tested numerous emission points to determine PM and VOC emission rates. When other equipment is of a similar type, the emission rate is prorated based upon the equipment capacities. Emissions are calculated by multiplying these rates by the hours of operation of the equipment, and accounting for any control device efficiency.
- f. **Engineering judgment**  
Emission factors for the Filling Stations in Unit U-4 are engineering estimates from the Reynolds Metal Company June 29, 1995 Bin Fill Construction Permit Application. Since 1995, this plant has been purchased and is operated by Eckart Americas Corporation.

#### 7. Insignificant Activities:

Equipment	Qty.	PTE (tpy)	Regulation Basis
Direct Heat Exchangers (U-1, U-2)	4	1.20 (NO <sub>x</sub> ) total	Regulation 1.02
Air Slide Conveyor Pod (U-3)	1	4.32 (PM)	Regulation 1.02
Docking/Transfer Station (U-3)	1	0.71 (PM)	Regulation 1.02
Pressurized VOC Storage Vessels	6	0	Regulation 1.02, Appendix A

Equipment	Qty.	PTE (tpy)	Regulation Basis
VOC Storage Vessels with Maximum Capacity of 250 Gallons or Less (U-14, U-17, U-22, U-23, U-25, U-28)	24	1.24 (VOC) total	Regulation 1.02, Appendix A
Above Ground Fuel Oil Storage Tanks (U-16)	1	0.09 (VOC)	Regulation 1.02, Appendix A
Cold solvent parts cleaners that are equipped with a secondary reservoir (U-18)	2	0.04 (VOC) total	Regulation 1.02, Appendix A
Blending & Repack (U-7)	6	0.1 (PM) each	Regulation 1.02
Miscellaneous Tanks (U-13, U-17, U-24, U-25)	8	0.25 (VOC) total	Regulation 1.02
Centrifuge & Rework Hopper (U-22)	2	0.85 (VOC) total	Regulation 1.02
Mill 13/14 Mixer (U-24)	1	0.21 (VOC)	Regulation 1.02
Indirect Heat Exchangers less than 10 MMBTu/hr (See Unit 1) (R&D 0.693 MM BTU and R&D 1.2 MM BTU)	2	0.81 (NOx) total combined	Regulation 1.02, Appendix A
Pilot Lab - includes a mixer and tank (U-24: E-277)	1	1.17 (VOC)	Regulation 1.02
QA/QC Lab - includes a paint booth and electric ovens (IA-Misc.: E-278)	1	1.24 (VOC)	Regulation 1.02, Appendix A
<del>R&amp;D Ball Mill (IA Misc., E-282)</del>	<del>1</del>	<del>0.012 (VOC)</del>	<del>Regulation 1.02</del>
R&D labs: (IA-Misc.: E-282)			
a. Technical Lab, Benchtop Development Work, includes paint mixing	1	0.26 (VOC)	Regulation 1.02, Appendix A
b. Second Floor Lab, includes two ball mills, solvent exchanger, oven, and aerosol painting	1	0.016 (VOC)	Regulation 1.02, Appendix A
c. Cosmetics Lab, Benchtop Development Work, includes mixing and solvent clean-up	1	0.033 (VOC)	Regulation 1.02, Appendix A
d. Plastic Injection Molding Lab - includes extrusion, injection molding and a roll mill	1	0.013 (VOC)	Regulation 1.02, Appendix A
e. Paint Lab - includes five paint booths and electric ovens	1	1.69 (VOC) total	Regulation 1.02, Appendix A

- 1) Insignificant Activities identified in District Regulation 1.02, Appendix A may be subject to size or production rate disclosure requirements.
- 2) Insignificant Activities identified in District Regulation 1.02, Appendix A shall comply with generally applicable requirements.

- 3) Activities identified in Regulation 1.02, Appendix A, may not require a permit and may be insignificant with regard to application disclosure requirements but may still have generally applicable requirements that continue to apply to the source and must be included in the permit.
- 4) Emissions from Insignificant Activities shall be reported in conjunction with the reporting of annual emissions of the facility as required by the District.
- 5) In lieu of recording annual throughputs and calculating actual annual emissions, the owner or operator may elect to report the pollutant Potential To Emit (PTE) quantity listed in the Insignificant Activities table, as the annual emission for each piece of equipment.
- 6) The Insignificant Activities Table is correct as of the date the permit was proposed for review by U.S. EPA, Region 4.
- 7) The owner or operator shall submit an updated list of Insignificant Activities whenever changes in equipment located at the facility occur that cause changes to the plant wide emissions.

**8. IA Emission Units with Applicable Regulations**

a. **Emission Unit IA-Misc**

i. **Equipment**

Emission Point	Description	Applicable Regulation
E-278	QA/QC Lab - includes a paint booth and electric ovens	
E-282	R&D Labs, includes: a. Technical Lab, Benchtop Development Work, includes paint mixing b. Second Floor Lab, includes two ball mills, solvent exchanger, oven, and aerosol painting c. Cosmetics Lab, Benchtop Development Work, includes mixing and solvent clean-up d. Plastic Injection Molding Lab - includes extrusion, injection molding and a roll mill e. Paint Lab - includes five paint booths and electric ovens	STAR 7.25

ii. **Standards/Operating Limits**

1) **VOC**

- (a) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Emission Points Screens (U-13:E-66a1 and E-66b1); Dryer 2/3 Holding Tank (U-14: E-232); Mixer 7 (U-15: E-135 and E-135a); Sludge Accumulator Tank (U-17: E-100 and E-100a); Feeder Station (U-22: E-273); Slurry Tanks (U-22: E-279 and E-280); Condensate Tanks (U-23: E-254, E-255); Mill 13/14 Mixer (U-24: E-272); Pilot Lab (U-24: E-277); Slurry Tank (U-25: E-281); Filtrate Tanks (U-27: E-227, E-228); Stills Decanter (U-27: E-274), QA/QC Lab (IA: E-278); R&D Labs (IA: E-282), the owner or

operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)

## 9. Appendix A – Emission Factors and Calculation Methodologies

Emissions are calculated by multiplying the throughput (ton, MMCF, etc.) or hours of operation of the equipment by the appropriate emission factor and by 1 minus any control device's efficiency.

**Table 1 Unit U-1: Boiler Room**

Equipment	Emission Point	Emission Factor Source
Boiler #5	E-1	AP-42 Chapter 1.4-1, 1.4-2, 1.4-3, & 1.4-4 (small boilers)
Boiler #4	E-2	
Space Heater	E-138	
Nozzle Heater	E-140	
Space Heater	E-266	
Make-up Air	E-275	
Humidifier	E-276	

**Table 2 Unit U-2: Hot Air Furnace**

Equipment	Emission Point	PM Emission Factor	Determination Method
Atomization Furnace	E-3(S-4)	82.84 lb/ton (uncontrolled) 10.77 lb/ton (multicyclone controlled)	April 2012 Stack Test on Control Points E-5 and E-7
	E-3(S-5)	84.84 lb/ton (uncontrolled) 9.60 lb/ton (multicyclone controlled)	
M-7 & M-8 Screen Rooms	E-4 & E-6	0.12 lb/ton (uncontrolled)	AP-42 Chapter 11.24; Metallic Mineral Processing; Material Handling and Transfer - low moisture ore
Multicyclone Drum Loading	E-5a & E-7a		

**Table 3 Unit U-3: Hot Air Direct Convey and Air Slide System**

Equipment	Emission Point	PM Emission Factor	Determination Method
Buhler A Storage Tank	E-8a	17.27 lb/ton (uncontrolled) 2.59 lb/ton (cyclone controlled) 0.042 lb/ton (cyclone & mesh filter)	April 2012 Stack Test on Emission Point E-8a
Buhler A Weigh Tank	E-8b	0.12 lb/ton (uncontrolled)	AP-42 Chapter 11.24; Metallic Mineral Processing;



Equipment	Emission Point	PM Emission Factor	Determination Method
Buhler A Conveyor Pod	E-8c	0.018 lb/ton (cyclone controlled) 0.0023 lb/ton (cyclone & mesh filter)	Material Handling and Transfer - low moisture ore
Rail Car Loading	E-9	15.54 lb/ton (uncontrolled) 2.33 lb/ton (cyclone controlled) 0.036 lb/ton (cyclone & mesh filter)	April 2012 Stack Test for E-8a and prorated
Air Slide Conveyor Pod	E-141	0.73 lb/ton (uncontrolled) 0.095 lb/ton (mesh filter controlled)	AP-42 Chapter 11.12; Concrete Batching; Pneumatic Cement Unloading to Elevated Bin
Docking/ Transfer Station	E-229	0.12 lb/ton (uncontrolled) 0.016 lb/ton (mesh filter controlled)	AP-42 Chapter 11.24; Metallic Mineral Processing; Material Handling and Transfer - low moisture ore

**Table 4 Unit U-4: Hot Air Bin Fill**

Equipment	Emission Point	PM Emission Factor	Determination Method
Storage Tanks	E-12a	5.72 lb/ton (uncontrolled) 0.86 lb/ton (cyclone controlled) 0.11 lb/ton (cyclone & mesh filter)	<b>October 2008</b> Stack Test for E-128 (U-6) and prorated based upon capacity
Filling Station	E-15	0.12 lb/ton (uncontrolled) 0.018 lb/ton (cyclone controlled) 0.0023 lb/ton (cyclone & mesh filter)	AP-42 Chapter 11.24; Metallic Mineral Processing; Material Handling and Transfer - low moisture ore

**Table 5 Unit U-6: Classifier**

Equipment	Emission Point	PM Emission Factor	Determination Method
15,000 lb Tank	E-25	4.77 lb/ton (uncontrolled) 0.71 lb/ton (cyclone controlled) 0.093 lb/ton (cyclone & mesh filter)	<b>October 2008</b> Stack Test for E-128 and prorated
Classifier 1 Weigh Tank	E-26a	0.12 lb/ton (uncontrolled)	AP-42 Chapter 11.24; Metallic Mineral Processing; Material Handling and Transfer - low moisture ore
Fines Bin	E-26b	0.12 lb/ton (uncontrolled) 0.018 lb/ton (cyclone controlled)	
Buhler C Conveyor Pod	E-26c		
Drum Loading	E-26d	0.0023 lb/ton (cyclone & mesh filter)	
Buhler B Conveyor Pod	E-128b1		

Equipment	Emission Point	PM Emission Factor	Determination Method
Classifier 2 Weigh Tank	E-128b2	0.12 lb/ton (uncontrolled)	
30,000 lb Tank	E-128	6.36 lb/ton (uncontrolled) 0.95 lb/ton (cyclone controlled) 0.124 lb/ton (cyclone & mesh filter)	<b>October 2008</b> Stack Test

**Table 6 Unit U-7: Blending/Repack**

Equipment	Emission Point	PM Emission Factor	Determination Method
Gemco Tumble Blender	E-27	0.12 lb/ton (fugitive)	AP-42 Chapter 11.24; Metallic Mineral Processing; Material Handling and Transfer - low moisture ore
Double/Single Drum Tumbler	E-143		
Drum Dumper	E-147		
Vibrating Screen	E-148		
Screw Conveyor	E-230		
Hopper	E-145		
Bucket Fill (Feed Screw)	E-146		

**Table 7 Unit U-8: Rescreen Operation**

Equipment	Emission Point	PM Emission Factor/Rate	Determination Method
Flake 100 Drum/Tote Unloading	E-150	0.21 lb/ton (uncontrolled) 0.0015 lb/ton (mesh filter controlled)	<b>August 2006</b> Stack Test of Flake 100 Staging Vessel (E-152)
Flake 100 Staging Vessel	E-152		
Flake 100 Rescreener	E-154		
Flake 100 Drum Loading	E-156		
Powder 200 Drum/Tote Unloading	E-158		
Powder 200 Staging Vessel	E-160		
Powder 200 Rescreener	E-162		
Powder 200 Drum Loading	E-164		

**Table 8 Unit U-13: Aluminum Paste Process**

Equipment	Emission Point	VOC Emission Factor/Rate	Determination Method
Ball Mill #5	E-56	0.79 lb/hr (uncontrolled)	<b>July 2013</b> Stack Test of Ball Mill #5 for both controlled and uncontrolled emission factors
Ball Mill #6	E-57	0.066 lb/hr (controlled)	
Screens 29, 30	E-66a1, b1	0.021 lb/hr each (fugitive)	EIP Volume II, Chapter 8, Methods for Estimating Air Emissions from Paint, Ink, and Other Coating Manufacturing Facilities (surface evaporation emission model)
Overflow Hoppers	E-284, E-285	0.027 lb/hr each (fugitive)	
2 Vibratory Screen	E-116o, E-116p	0.0016 lb/hr each (uncontrolled) 0.00013 lb/hr each (controlled)	

**Table 9 Unit U-14: Aluminum Paste Dryers**

Equipment	Emission Point	VOC Emission Factor	Determination Method
Vacuum Dryers #2	E-82	0.0 lb/hr	All VOC emissions are discharged out the vacuum pumps
Condenser/Vacuum Pump No. 2	E-83	2.2 lb/hr (if process condenser is not operating as designed) 0.12 lb/hr (if process condenser is operating as designed)	<b>August 2006</b> Stack Test of E-83 for emission factor if condenser is not operating as designed; <b>July 2013</b> Stack Test of E-83 for emission factor if condenser is operating as designed
Dryer 2/3 Holding Tank	E-232	0.00071 lb/hr	TANKS 4.0.9d

**Table 10 Unit U-15: Mixers**

Equipment	Emission Point	VOC Emission Factor	Determination Method
Mixer 1 through Mixer 9	E-129 through E-137	0.0015 lb/hr (uncontrolled) 0.00012 lb/hr (controlled)	<b>July 2013</b> Stack Test of Mixer 2 for both controlled and uncontrolled emission factors
Drum Loadings for Mixer 1 through Mixer 9	E-129a through E-137a	0.0015 lb/hr (uncontrolled)	<b>July 2013</b> Stack Test of Mixer 2 for both controlled and uncontrolled emission factors

**Table 11 Unit U-16: AST (Aboveground Storage Tank) Farm**

Equipment	Emission Point	VOC Emission Factor	Determination Method
AST 1 – 4; 6 – 11	E-89 - E-94, E-166 – E-169	0.021 lb/hr	TANKS 4.0.9d
AST 5	E-107	0.0033 lb/hr	

**Table 12 Unit U-17: Mineral Spirit Stills**

Equipment	Emission Point	VOC Emission Factor	Determination Method
Sludge Accumulator Tank Drum Unloading	E-100a	0.169 lb/hr (uncontrolled)	AP-42, 5.2, equation (1) for loading petroleum liquid.
Sludge Accumulator Tank	E-100	0.0056 lb/hr (uncontrolled) 0.00046 lb/hr (controlled)	TANKS 4.0.9d for uncontrolled emission factors; <b>July 2013</b> Stack Test for controlled emission factors
Still Settling Tanks (T-104 & T-105)	E-233 & E-234	0.012 lb/hr (uncontrolled) 0.00098 lb/hr (controlled)	
Feed Tanks (Still 5 & 6)	E-235 & E-239	0.0090 lb/hr (uncontrolled) 0.00075 lb/hr (controlled)	
Cooling & Condensate Tanks and OWSs (Still 5 & 6)	E-236, E-237; E-241, E-242	0.0082 lb/hr (uncontrolled) 0.00068 lb/hr (controlled)	
Vacuum Pumps (Still 5 & 6)	E-210 & E-240	0.62 lb/hr (uncontrolled) 0.051 lb/hr (controlled)	EPA Document EPA-450/2-78-029, "Control of Volatile Organic Emissions from Manufacture of Synthesized Pharmaceutical Products" for uncontrolled emission factors; <b>July 2013</b> Stack Test for controlled emission factors

**Table 13 Unit U-18: Parts Washers**

Equipment	Emission Point	VOC Emission Factor	Determination Method
Parts washers with secondary reservoir	E-172, E-173,	0.0042 lb/hr (fugitive)	EIIP Volume II, Chapter 8.4, Emission Model for Surface Evaporation, Equation 8.4-22

Parts washers without secondary reservoir	E-245	0.20 lb/hr (fugitive)
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**Table 14 Unit U-22: New Paste Process**

Equipment	Emission Point	VOC Emission Factor	Determination Method
Tank RW1A	E-62b	0.0059 lb/hr (uncontrolled) 0.00049 lb/hr (controlled)	TANKS 4.0.9d for uncontrolled emission factors; July 2013 Stack Test for controlled emission factors
Filtrate Tanks	E-179a-h	0.029 lb/hr each (uncontrolled) 0.0024 lb/hr each (controlled)	
Vapor Recovery Condensate Tank	E-270	0.00012 lb/hr (fugitive)	
Decanter Tanks; B06, B07, B08	E-246, E-247, E-248	0.00023 lb/hr (uncontrolled) 0.000019 lb/hr (controlled)	
Ball Mills 7 through 10	E-111, E-112, E-113, E-114	0.42 lb/hr (uncontrolled) 0.035 lb/hr (controlled)	<b>July 2013</b> Stack Test of Ball Mill 7 for both controlled and uncontrolled emission factors
Ball Mills 11, 12	E-115, E-178	0.74 lb/hr (uncontrolled) 0.061 lb/hr (controlled)	<b>July 2013</b> Stack Test of Ball Mill 12 for both controlled and uncontrolled emission factors
22 Vibratory Screen	E-116a – E-116x except E-116o and E-116p	0.0016 lb/hr each (uncontrolled) 0.00013 lb/hr each (controlled)	EIIP Volume II, Chapter 8.4, Emission Model for Surface Evaporation, Equation 8.4-22;
Portable Rework Hopper	E-181	0.19 lb/hr (fugitive)	July 2013 Stack Test for controlled emission factors
30 Slurry Tanks	E-117a – E-117dd	0.094 lb/hr each (uncontrolled) 0.0078 lb/hr each (controlled)	AP-42, Chapter 5.2 “Transportation And Marketing Of Petroleum Liquids” equation for loading and unloading of petroleum liquids; July 2013 Stack Test for controlled emission factors
10 Slurry Tanks	E-118a – E-118j		
Filter Presses 1-6 & 10	E-119a – E-119g	0.45 lb/hr each (uncontrolled) 0.037 lb/hr each (controlled) 0.034 lb/hr each (fugitive)	EIIP Volume II, Chapter 8 surface evaporation, gas sweep and material loading; July 2013 Stack Test for controlled emission factors
Filter Presses 7 & 8	E-120a, E-120b	0.21 lb/hr each (uncontrolled) 0.018 lb/hr each (controlled) 0.016 lb/hr each (fugitive)	

Equipment	Emission Point	VOC Emission Factor	Determination Method
Filter Presses 12 – 14	E-121a, E-121b, E-121c	0.59 lb/hr each (uncontrolled) 0.049 lb/hr each (controlled) 0.046 lb/hr each (fugitive)	
Decanter 1 (Centrifuge)	E-67	0.0046 lb/hr (fugitive)	EIIP Volume II, Chapter 8, Gas Sweep of Purge Emission Model
Decanter 2 (Centrifuge)	E-180	0.0050 lb/hr (fugitive)	
Feeder Station	E-273	0.19 lb/1000 gal (fugitive)	AP-42, Chapter 5.2
Slurry Tank	E-279	.0143 lb/hr (uncontrolled) 0.0012 lb/hr (controlled)	TANKS 4.0.9d
Slurry Tank	E-280	0.0143 lb/hr (uncontrolled) 0.0012 lb/hr (controlled)	TANKS 4.0.9d
Filter Cake Press Carts	E-286 – E-288	0.00296 lb/ft <sup>2</sup> /hr	EIIP Volume II, Chapter 8.4, Emission Model for Surface Evaporation

**Table 15 Unit U-23: Solvent Exchangers**

Equipment	Emission Point	VOC Emission Factor	Determination Method
Additive Tank 1	E-123	0.00037 lb/hr (uncontrolled) 0.000031 lb/hr (controlled)	TANKS 4.0.9d for uncontrolled emission factors; <b>July 2013</b> Stack Test of E-185 for controlled emission factors
Solvent Exchanger (SE) Condensate Tanks 1 & 2	E-254, E-255		
Additive Tank 2 (R01)	E-125	0.00071 lb/hr (uncontrolled) 0.000059 lb/hr (controlled)	<b>July 2013</b> Stack Test of E-185 for controlled and uncontrolled emission factors
Additive Tank 3 (R02)	E-126		
Solvent Exchanger Vacuum Pump 1	E-127	0.114 lb/hr (uncontrolled) 0.0095 lb/hr (controlled)	<b>July 2013</b> Stack Test of E-185 for controlled and uncontrolled emission factors
Solvent Exchanger Vacuum Pump 2	E-185		
Additive Tank 2, Tank 3 Drum Unloading	E-125a, E-126a	0.31 lb/hr each	AP-42, Chapter 5.2
Vacuum Pump 1 Drum Unloading	E-127a	0.41 lb/hr	AP-42, Chapter 5.2
Vacuum Pump 2 Drum Unloading	E-185a	0.72 lb/hr	AP-42, Chapter 5.2
Solvent Exchanger Thermal Oil Tanks 1 & 2	E-252, E-253	0.00029 lb/hr each (fugitive)	

Equipment	Emission Point	VOC Emission Factor	Determination Method
Additive Tank 4 (SE2)	E-184	0.00049 lb/hr (uncontrolled) 0.000041 lb/hr (controlled)	TANKS 4.0.9d for uncontrolled emission factors; <b>July 2013</b> Stack Test of E-185 for controlled emission factors

Table 16 Unit U-24: Mills 13/14

Equipment	Emission Point	VOC Emission Factor	Determination Method
Ball Mill 13	E-186	0.11 lb/hr (uncontrolled) 0.0092 lb/hr (controlled)	<b>July 2013</b> Stack Test of U-22 Ball Mill 7 (E-111) and prorated based upon capacity for both controlled and uncontrolled emission factors
Ball Mill 14	E-187	0.32 lb/hr (uncontrolled) 0.027 lb/hr (controlled)	
Vibratory Screens 21 & 22	E-188a & E-188b	0.0016 lb/hr each (uncontrolled) 0.000135 lb/hr (controlled)	EIIP Volume II, Chapter 8, Emission Model for Surface Evaporation, Equation 8.4-22 for uncontrolled emission factor; <b>July 2013</b> Stack Test for controlled emission factor
4 Slurry Tanks (T-54, T-55, T-56, T-57)	E-189a through E-189d	0.0018 lb/hr each (uncontrolled) 0.00015 lb/hr each (controlled)	TANKS 4.0.9d for uncontrolled emission factors; <b>July 2013</b> Stack Test for controlled emission factors
Mill 14 Recirculation Tank	E-190	0.0024 lb/hr (uncontrolled) 0.00020 lb/hr (controlled)	
Mill 16 Filter Press	E-192	0.23 lb/hr (uncontrolled) 0.019 lb/hr (controlled) 0.016 lb/hr (fugitive)	EIIP Volume II, Chapter 8 surface evaporation, gas sweep and material loading for uncontrolled emission factors; <b>July 2013</b> Stack Test for controlled emission factors
Mill 15 Filter Press	E-193	0.10 lb/hr (uncontrolled) 0.0083 lb/hr (controlled) 0.01 lb/hr (fugitive)	
Decanter Tanks; B06, B07, B08	E-246, E-247, E-248	0.00023 lb/hr (fugitive)	TANKS 4.0.9d
Mill 13/14 Mixer	E-272	0.048 lb/hr (fugitive)	EIIP Volume II, Chapter 8, Emission Model for Surface Evaporation, Equation 8.4-22

Equipment	Emission Point	VOC Emission Factor	Determination Method
Pilot lab	E-277	0.27 lb/hr (fugitive)	EIIP Volume II, Chapter 8, Emission Model for Surface Evaporation, Equation 8.4-22
Filter Cake Press Carts	E-289	0.00296 lb/ft <sup>2</sup> /hr (fugitive)	EIIP Volume II, Chapter 8, Emission Model for Surface Evaporation, Equation 8.4-22

Table 17 Unit U-25: Zinc Mills

Equipment	Emission Point	VOC Emission Factor	Determination Method
Ball Mill 20	E-194	0.55 lb/hr (uncontrolled) 0.045 lb/hr (controlled)	<b>July 2013</b> Stack Test of U-22 Ball Mill 12 (E-178) and prorated based upon capacity for both controlled and uncontrolled emission factors
2 Vibratory Screens	E-195a & E-195b	0.0016 lb/hr each (uncontrolled) 0.00013 lb/hr each (controlled)	EIIP Volume II, Chapter 8, Emission Model for Surface Evaporation, Equation 8.4-22 for uncontrolled emission factors; <b>July 2013</b> Stack for controlled emission factors
Mineral Spirits Supply Tank (T-64)	E-196	0.0030 lb/hr (uncontrolled) 0.00025 lb/hr (controlled)	TANKS 4.0.9d for uncontrolled emission factors; <b>July 2013</b> Stack Test for controlled emission factors
2 Slurry Tanks (T-67, T-70)	E-197a & E-197b	0.029 lb/hr each (uncontrolled) 0.0024 lb/hr each (controlled)	AP-42, Section 5.2 equation for loading and unloading of petroleum liquids for uncontrolled emission factors; <b>July 2013</b> Stack Test for controlled emission factors
1 Slurry Tank (T-66)	E-198		
Filter Press	E-199	0.42 lb/hr (uncontrolled) 0.035 lb/hr (controlled) 0.030 lb/hr (fugitive)	EIIP Volume II, Chapter 8 surface evaporation, gas sweep and material loading for uncontrolled emission factors; <b>July 2013</b> Stack Test for controlled emission factors
Mixer 20	E-200	0.0015 lb/hr (uncontrolled) 0.00012 lb/hr (controlled)	<b>July 2013</b> Stack Test of U-15 Mixer 2 (E-130) for both controlled and uncontrolled emission factors
Mixer 20 Drum Loading	E-200a	0.0015 lb/hr (uncontrolled)	
Filtrate Tank (T-69)	E-251	0.00089 lb/hr (uncontrolled) 0.000074 lb/hr (controlled)	TANKS 4.0.9d for uncontrolled emission factors; <b>July 2013</b>



Equipment	Emission Point	VOC Emission Factor	Determination Method
Zinc Mill Condensate Tank (T-65)	E-249	0.00010 lb/hr (uncontrolled) 0.0000083 lb/hr (controlled)	Stack Test controlled emission factors
Filtrate Tank (T-68)	E-250		
Slurry Tank	E-281	0.0143 lb/hr (uncontrolled) 0.0012 lb/hr (controlled)	TANKS 4.0.9d

**Table 18 Unit U-27: Solvent Wash**

Equipment	Emission Point	VOC Emission Factor	Determination Method
B03 Tank	E-223	0.00071 lb/hr (uncontrolled) 0.000059 lb/hr (controlled)	TANKS 4.0.9d for uncontrolled emission factors; <b>July 2013</b> Stack Test for controlled emission factor
B04 Tank	E-224		
Filter Press 1	E-225	0.44 lb/hr (uncontrolled) 0.037 lb/hr (controlled) 0.030 lb/hr (fugitive)	EIIP Volume II, Chapter 8 surface evaporation, gas sweep and material loading for uncontrolled factors; <b>July 2013</b> Stack Test for controlled emission factor
B05 Tank	E-227	0.00037 lb/hr (uncontrolled) 0.000031 lb/hr (controlled)	TANKS 4.0.9d for uncontrolled emission factors; <b>July 2013</b> Stack Test for controlled emission factor
B06 Tank	E-228		
Decanter (Still 5 & 6)	E-274	0.14 lb/hr (uncontrolled)	EIIP Volume II, Chapter 8, Methods for Estimating Air Emissions from Paint, Ink, and Other Coating Manufacturing Facilities (surface evaporation emission model)
Filter Cake Press Cart	E-283	0.00296 lb/ft <sup>2</sup> /hr	EIIP Volume II, Chapter 8.4, Emission Model for Surface Evaporation, Equation 8.4-22

**Table 19 Unit U-28: Cooling Tower**

Equipment	Emission Point	PM Emission Factor	Determination Method
Cooling Tower	E-269	0.019 lb/1,000 gal OR 1.21 lb/hr (fugitive)	AP-42, Chapter 13.4: Wet Cooling Towers

**Table 20 Unit IA-Misc.**

Equipment	Emission Point	VOC Emission Factor	Determination Method
QA/QC Lab - includes a paint booth and electric ovens	E-278	N/A	Mass balance
R&D Labs, includes: a. Technical Lab, Benchtop Development Work, includes paint mixing b. Second Floor Lab, includes two ball mills, solvent exchanger, oven, and aerosol painting c. Cosmetics Lab, Benchtop Development Work, includes mixing and solvent clean-up d. Plastic Injection Molding Lab - includes extrusion, injection molding and a roll mill e. Paint Lab - includes five paint booths and electric ovens	E-282	Technical lab, cosmetics development lab, paint lab: N/A  Second floor lab: Ball mill-0.0027 lb/hr  Solvent exchanger-0.00029 lb/hr  Aerosol painting – N/A  Plastic lab: 0.0958 lb PM/ton of plastic 0.0706 lb VOC/ton of plastic	Technical lab, cosmetics development lab, paint lab: mass balance method  Second floor lab: Ball mills–stack test on ball mill 7 (E-111) Solvent exchanger-stack test on solvent exchanger 2 (E-185) Aerosol painting-mass balance  Plastic lab: Michigan Department for Environmental Quality Emission Calculation Fact Sheet for Plastic Production and Products Manufacturing

**10. Appendix B – Process/Control Device Efficiencies and Determination Methods<sup>1,2</sup>**

## 1. Emission Points controlled by Cyclones

Unit ID	Emission Point ID	Emission Point Description	Control ID	Efficiency	Determination Method
U-2	E-3	Atomization Furnace	C-E-5	87%	Option 3
			C-E-7	89%	Option 3
U-3	E-9	Rail Car Loading	C-E-9	85%	Option 1
	E-8	Buhler A Conveyor Pod	C-E-8	85%	Option 1
	E-12a	Large Powder Storage Tank 2	C-E-12	85%	Option 1
	E-15	Tote/Drum Fill Station #2			
U-6	E-25	15,000 lb Powder Storage Tank	C-E-25	85%	Option 1
	E-26b, c, d	Two holding tanks, Drum Loading			
	E-128	30,000 lb Powder Storage Tank	C-E-128	85%	Option 1
	E-128b1	Buhler B Conveyor Pod			

## 2. Emission Points controlled by Metal Mesh Filters

Unit ID	Emission Point ID	Emission Point Description	Control ID	Efficiency	Determination Method
U-3	E-229	Docking/Transfer Station	C-F-005	87%	Option 3

Unit ID	Emission Point ID	Emission Point Description	Control ID	Efficiency	Determination Method
	E-141	Air Slide Conveyor Pod			
	E-9	Rail Car Loading	C-F-006	87%	Option 3
	E-8	Buhler A Conveyor Pod	C-F-007	87%	Option 3
U-4	E-12a	Large Powder Storage Tank 2	C-F-009	87%	Option 3
	E-15	Tote/Drum Fill Station #2			
U-6	E-25	15,000 lb Powder Storage Tank	C-F-010	87%	Option 3
	E-26b, c, d	Two holding tanks, Drum Loading			
	E-128	30,000 lb Powder Storage Tank	C-F-011	87%	Option 3
	E-128b1	Buhler B Conveyor Pod			
U-8	E-150	Flake 100 Drum/Tote Unloading	C-E-153	99.32%	Option 3
	E-152	Flake 100 Staging Vessel			
	E-154	Flake 100 Rescreener	C-E-155	99.32%	Option 3
	E-156	Flake 100 Drum Loading	C-E-157	99.32%	Option 3
	E-158	Powder 200 Drum/Tote Unloading	C-E-161	99.32%	Option 3
	E-160	Powder 200 Staging Vessel			
	E-162	Powder 200 Rescreener	C-E-163	99.32%	Option 3
	E-164	Powder 200 Drum Loading	C-E-165	99.32%	Option 3

## 3. Emission Points equipped with Process Condensers

Unit ID	Emission Point ID	Emission Point Description	Process Device ID	Efficiency	Determination Method
U-14	E-82	Vacuum Dryer #2	C-E-83	95%	Option 3

## 4. SVR System (Dual Stage Condenser with Liquid/Vapor Separator)

Control ID	Description	Performance Indicator	Operating Range	Efficiency	Determination Method
C-9	SVR System (Dual Stage Condenser with Liquid/Vapor Separator)	Temperature (Second Stage)	< 26 °F	91.7%	Option 3
		Temperature (Second Stage)	26 °F - 30 °F	89%	
		Temperature (Second Stage) <sup>1</sup>	> 35 °F	0%	

<sup>1</sup> For temperature greater than 35°F, the temperature is too high to achieve any control efficiency.

Control ID	Description	Performance Indicator	Operating Range	Efficiency	Determination Method
		Temperature (Only One Stage Operations)	30 °F - 35 °F	75%	

Note:

1. Options for control efficiency determination:
  - Option 1: Use District pre-approved control efficiency
  - Option 2: Submit a signature guarantee from the control device manufacture stating the control device efficiency
  - Option 3: Performed a stack test. See Plant-wide Specific Conditions **Error! Reference source not found.** for general testing requirements.
2. Until the District receives a signature guarantee from the control device manufacturer stating the control device efficiency is higher (Option 2), or an approved stack test (Option 3), the pre-approved efficiency (Option 1) will be used in all calculations to demonstrate compliance with applicable standards and calculations for emission inventory.
5. Emission Points controlled by the SVR System (Dual Stage Condenser with Liquid/Vapor Separator) [C-9]

Emission Unit	Emission Point ID	Emission Point Description	Unit Description
U-13	E-56	Ball Mill 5	Aluminum Paste Process
U-13	E-57	Ball Mill 6	
U-13	E-116o and E-116p	2 Screens	
U-15	E-129 and E-129a	Mixer 1	Mixers
U-15	E-130 and E-130a	Mixer 2	
U-15	E-131 and E-131a	Mixer 3	
U-15	E-132 and E-132a	Mixer 4	
U-15	E-133 and E-133a	Mixer 5	
U-15	E-134 and E-134a	Mixer 6	
U-15	E-135 and E-135a	Mixer 7	
U-15	E-136 and E-136a	Mixer 8	
U-15	E-137 and E-137a	Mixer 9	
U-17	E-100 and E-100a	Sludge Accumulator Tank	
U-17	E-233	T-104 Still Settling Tank	
U-17	E-234	T-105 Still Settling Tank	
U-17	E-235	Still 5 Feed Tank	
U-17	E-236	Still 5 Cooling Tank	
U-17	E-237	Still 5 Condensate Tank	
U-17	E-210	Still #5 w/Condenser and Vacuum Pump	
U-17	E-239	Still 6 Feed Tank	
U-17	E-241	Still 6 Cooling Tank	
U-17	E-242	Still 6 Condensate Tank	

<b>Emission Unit</b>	<b>Emission Point ID</b>	<b>Emission Point Description</b>	<b>Unit Description</b>
U-17	E-240	Still #6 w/Condenser and Vacuum Pump	
U-22	E-62b	Tank RW1A	
U-22	E-111	Ball Mill 7	New Paste
U-22	E-112	Ball Mill 8	
U-22	E-113	Ball Mill 9	
U-22	E-114	Ball Mill 10	
U-22	E-115	Ball Mill 11	
U-22	E-178	Ball Mill 12	
U-22	E-116 a1-c1 E-116 d-n E-116 q-x	22 Screens	
U-22	E-117a – E-117dd	30 2,200-gallon Tanks	
U-22	E-118a – E-118j	5 2,500-gallon tanks 5 2,200-gallon tanks	
U-22	E-119a – E-119g	7 Filter Presses	
U-22	E-120a, b	2 Filter Presses	
U-22	E-121a, b, c	3 Filter Presses	
U-22	E-179a – E-179h	8 Filtrate Tanks	
U-22	E-246	B06 Decanter Tank	
U-22	E-247	B07 Decanter Tank	
U-22	E-248	B08 Decanter Tank	
U-22	E-273	Feeder Station	
U-22	E-279	Slurry Tank	
U-22	E-280	Slurry Tank	
U-23	E-123	Additive Tank #1	Solvent Exchangers
U-23	E-125 and E-125a	Additive Tank #2	
U-23	E-126 and E-126a	Additive Tank #3	
U-23	E-127 and E-127a	Vacuum Pump No. 1	
U-23	E-254	SE 1 Condensate Tank	
U-23	E-184	Additive Tank #4	
U-23	E-185 and E-185a	Vacuum Pump No. 2	
U-23	E-255	SE 2 Condensate Tank	
U-24	E-186	Ball Mill 13	Mills 13/14
U-24	E-187	Ball Mill 14	
U-24	E-188a, b	2 Vibratory Screeners	
U-24	E-189a – E-189d	4 Slurry Tanks	
U-24	E-190	Mill 14 Recirculation Tank	
U-24	E-192	Filter Press 16	
U-24	E-193	Filter Press 15	
U-25	E-194	Ball Mill 20	Zinc Mill
U-25	E-195a, b	2 Vibratory Screeners	

<b>Emission Unit</b>	<b>Emission Point ID</b>	<b>Emission Point Description</b>	<b>Unit Description</b>
U-25	E-196	Tank T-64	
U-25	E-197a, b	Tanks T-67, T-70	
U-25	E-198	Tank T-66	
U-25	E-249	Zinc Mill Condensate Tank	
U-25	E-250	Filtrate Tank (T-68)	
U-25	E-251	T-69 Tank	
U-25	E-199	Filter Press 20	
U-25	E-200 and E-200a	Mixer 20	
U-25	E-281	Surry Tank	
U-27	E-223	B03 Tank	
U-27	E-224	B04 Tank	
U-27	E-225	Filter Press21	
U-27	E-227	B05 Tank	
U-27	E-228	B06 Tank	