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

FEB 05 2019

Mr. Michael Shelton
Chemical Process Manager
Seyer Industries, Inc.
P.O. Box 100
Saint Peters, MO 63376

RE: New Source Review Permit - Project Number: 2018-10-042

Dear Mr. Shelton:

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

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

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

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

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:csj

Enclosures

c: St. Louis Regional Office
PAMS File: 2018-10-042

Permit Number: 022019-001

MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

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

Permit Number: 022019-001

Project Number: 2018-10-042
Installation Number: 183-0196

Parent Company: Seyer Industries, Inc.

Parent Company Address: P.O. Box 100, Saint Peters, MO 63376

Installation Name: Seyer Industries, Inc.

Installation Address: 100 Algana Court, Saint Peters, MO 63376

Location Information: St. Charles County, UTM: 708.068 Northing, 4,297.420 Easting

Application for Authority to Construct was made for:
The construction of an anodizing kettle. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required.*

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

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

Director or Designee
Department of Natural Resources

FEB 05 2019

Effective Date

STANDARD CONDITIONS:

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

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

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

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

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

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

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

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

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

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

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

Seyer Industries, Inc.
St. Charles County, UTM: 708.068 Northing, 4,297.420 Easting

1. Superseding Condition
   A. The conditions of this permit supersede all special conditions found in the previously issued construction permit 022002-004B issued by the Air Pollution Control Program.

2. VOC Emission Limitations
   A. Seyer Industries, Inc. shall emit less than 25.0 tons of VOCs in any consecutive 12-month period from the entire installation (see table 1).

Table 1. Emission Units

Emission Unit	Description
EP-01	Sand Blasting Booth
EP-02	Spray Paint Booth
EP-03	Natural Gas Combustion
EP03a	Natural Gas Combustion for anodizing kettle (2.9 MMBtu/hr boiler)

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

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

3. Capture Device – Tank Hoods

A. Seyer Industries, Inc. shall capture emissions from the emission units in Table 2 using respective hoods.

Table 2: Tank Hoods

Packed Bed Scrubber ID	Emission Unit and Description
1	L1 Tank 1 alkaline clean
	L1 Tank 3 alkaline etch
	L1 Tank 5 deoxidizer
	L1 Tank 7 aluminum etch
	L1 Tank 9 deoxidizer
	L1 Tank 11 titanium etch
	L1 Tank 13 passivation
	L2 Tank 18 anodize tank
	L2 Tank 20 anodize
	L2 Tank 24 passivation #2
	L2 Tank 26 conversion coating
	L2 Tank 28 dichromate seal
	L2 Tank 30 seal
	OL Tank 1 Anodize Strip Tank
	OL Tank 2 Anodize Strip Tank

B. The hoods shall be designed in accordance with the latest version of *Industrial Ventilation, A Manual of Recommended Practice* from the American Conference of Governmental Industrial Hygienists. A comparison of the design to the *Manual* recommendations shall be kept on site. The comparison shall include:

1) Cross-sectional area of the hood inlet
2) Distance from the hood inlet to the emission source
3) Minimum recommended volumetric flowrate
4) Minimum recommended hood face velocity
5) Design volumetric flowrate
6) Design hood face velocity

C. Seyer Industries, Inc. shall maintain an operating and maintenance log for the capture devices, which shall include the following:

1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions;
2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.; and
3) A record of regular inspection schedule, the date and results of all inspections, including any actions or maintenance activities that result from the inspection.

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

4. Control Device Requirement – Packed Bed Scrubber

A. Seyer Industries, Inc. shall control emissions from the emission units in Table 2 using a packed bed scrubber.

B. The scrubber and any related instrumentation or equipment shall be operated and maintained in accordance with the manufacturer's specifications and also applicable requirements in 40 CFR 63 Subpart 6W. 40 CFR 63 contains requirements in addition to this special condition. The manufacturer's specifications shall be kept on site.

C. The scrubber shall be equipped with a gauge or meter that indicates air pressure drop across the control device. The scrubber shall be equipped with a gauge or meter that indicates water flowrate. These gauges and meters shall be located in such a way they may be easily observed by Department of Natural Resources' personnel.

D. Seyer Industries, Inc. shall monitor and record the operating air pressure drop and water flowrate across the scrubber at least once every 24 hours. The operating air pressure drop and water flowrates shall be maintained within the design conditions specified by the manufacturer's performance warranty.

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

E. Seyer Industries, Inc. shall maintain an operating and maintenance log for the scrubber, which shall include the following:
   1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions;
   2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.; and
   3) A record of regular inspection schedule, the date and results of all inspections, including any actions or maintenance activities that result from the inspection.

5. Operational Requirement – Closed Containers
Seyer Industries, Inc. shall keep the plating chemicals, coatings, solvents, cleaners, and strippers in closed, vapor tight containers whenever the materials are not in use. Seyer Industries, Inc. shall provide and maintain suitable, easily read, permanent markings on all containers.

6. Record Keeping and Reporting Requirements
   A. Seyer Industries, Inc. shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include SDS for all materials used.

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

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW
Project Number: 2018-10-042
Installation ID Number: 183-0196
Permit Number: 022019-001

Installation Address:
Seyer Industries, Inc.
100 Algana Court
Saint Peters, MO 63376

Parent Company:
Seyer Industries, Inc.
P.O. Box 100
Saint Peters, MO 63376

St. Charles County, UTM: 708.068 Northing, 4,297.420 Easting

REVIEW SUMMARY

- Seyer Industries, Inc. has applied for authority to construct an anodizing kettle.
- The application was deemed complete on November 19, 2018.
- HAP emissions are expected from the proposed equipment. HAPs of concern from this process are hexavalent chromium, hydrogen fluoride, and HAPs from the combustion of natural gas.
- 40 CFR 63 Subpart 6W, *National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations*, applies to the tanks (L1 Tank 5 and 9, L2 Tank 24, 26, and 28 and OL Tank 1 and 2) containing chromium. No emission standard applies, however there are management practices, notifications, recordkeeping, reporting and other compliance requirements. See the MACT for all applicable requirements.
- 10 CSR 10-6.260 applies due to sulfuric acid mist emissions. Compliance is assumed by a wide margin via low sulfuric acid mist generation potential and high scrubber air flowrates.
- A packed-bed scrubber is being used to control the PM, PM_{10}, $PM_{2.5}$, and particulate HAP emissions from the equipment in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are conditioned below de minimis levels.
- This installation is located in St. Charles County, a nonattainment area for the 8-hour ozone standard and an attainment/unclassifiable area for all other criteria pollutants.

- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.

- Ambient air quality modeling was not performed since potential emissions of the application are below the de minimis levels and the SMALs.

- Emissions testing is not required for the equipment as a part of this permit. Testing may be required as part of other state, federal or applicable rules.

- No Operating Permit is required for this installation.

- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Seyer Industries, Inc. is an existing installation in St. Peters, Missouri that specializes in the job shop fabrication of mechanical and electro-mechanical support equipment for fixed wing and rotary military aircraft.

Steel is the main raw material that is used at the installation but some parts are made out of either aluminum or stainless steel. The typical scenario for production is to saw or shear the raw material(s), machine the pieces to size and/or shape, weld the parts (if necessary) and then sandblast the parts followed by painting. Those parts made out of aluminum or stainless steel generally do not require sandblasting. In addition, some other manufactured parts are made of alloy steel which are only cleaned and plated by metal processing vendors.

Permit 022002-004B established a less than 25.0 tpy VOC limitation for the installation at the request of Seyer Industries, Inc. so that Missouri 10 CSR 10-5.295 *Control of Emissions From Aerospace Manufacture and Rework Facilities* would no longer apply to this installation. This permit reinstates that limit to include new equipment. The installation is considered a de minimis source of air emissions for construction permit purposes. In addition, the potential emissions of all air pollutants for the new installation are estimated to be below de minimis levels, so no operating permit application is required for the installation.

The following New Source Review permits have been issued to Seyer Industries, Inc. from the Air Pollution Control Program.

Table 3: Permit History

Permit Number	Description
022002-004	Aircraft equipment
022002-004A	Evaluate VOC limit
022002-004B	25 tpy VOC installation wide limit

PROJECT DESCRIPTION

Seyer Industries, Inc. is adding a dual lane automated multi-application anodizing kettle process system (EP-04). The system consists of a series of soap, rinse, etch, anodize, and seal tanks. The tanks with emissions are described in Table 2. There are 13 tanks that are only used as rinse tanks with water that are not included in Table 2. Included with the new system is a 2.9 MMBtu/hr natural gas fired boiler and a 40,000 cfm packed bed scrubber.

Seyer Industries, Inc. has requested confidentiality as allowed per 10 CSR 10-6.210 with regards to process flow diagram, process rates, sulfuric acid concentration in the anodizing tanks, the current density of the anodizing process and safety data sheets (SDS) due to the proprietary nature of the information. This information can only be obtained with written permission from Seyer Industries, Inc. This permit is a public version and there is no confidential version of the permit. The confidential project number is 2018-11-006.

EMISSIONS/CONTROLS EVALUATION

The emission factors used in this analysis for the combustion of natural gas (EP-03a) were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Chapter 1.4, *Natural Gas Combustion* (7/1998).

Emissions from the tanks in the process system consist of PM/PM_{10}/$PM_{2.5}$, hexavalent chromium, hydrogen fluoride, and sulfuric acid mist. All PM emissions are considered to be $PM_{2.5}$. The emissions are captured by hoods and controlled by a packed bed scrubber. The capture efficiency was obtained from an October 2007 Texas Commission on Environmental Quality document *Chromium Plating & Anodizing Operations Using Chromic Acid* and the EPA document *MFFRST: Part 2 Updates to Source Emission Characterization* . These document recommend a 98-99% capture efficiency. A 98% capture efficiency was used for the calculations in this project. The packed bed scrubber was assigned a control efficiency of 99.5% per AP-42 Table 12.20-2. Hexavalent chromium and hydrogen fluoride emissions were calculated using Table 2.4 in the EPA document *MFFRST: Part 2 Updates to Source Emission Characterization.* PM/PM_{10}/$PM_{2.5}$ from the tanks were calculated using a combination of AP-42 Chapter 12.20 and a spreadsheet developed by the Minnesota Pollution Control Agency for "Electroplating Potential to Emit Calculations".

Emissions from the sulfuric acid anodizing were calculated using a method described in a paper presented at the 2000 AESF/SPA Conference for Environmental Excellence, *Characterizing Site Specific Source Emissions for EPA's Risk Assessment Tool for the Metal Finishing Industry* by S. Schwartz and M. Lorber. This paper used a formula to estimate sulfuric acid emissions based on a ratio of the hexavalent chromium emissions. The facility will not use electrolytic chromium anodizing processes.

Table 4 (below) represents the potential emissions of the installation because Seyer Industries, Inc. is taking a voluntary installation-wide limit on VOC emissions. All PM emissions are considered to be $PM_{2.5}$. Existing actual emissions were taken from the 2017 EIQ when available. Existing potential emissions were taken from permit 022002-004 except for VOC emissions which were taken from 022002-004B.

Table 4: Emissions Summary (tpy)

Pollutant	Regulatory *De Minimis* Levels	Existing Potential Emissions	Existing Actual Emissions (2017 EIQ)	Potential Emissions of the Project	New Installation Conditioned Potential
PM	25.0	N/D	N/D	0.1012	N/A
PM_{10}	15.0	1.25	0.10	0.1012	N/A
$PM_{2.5}$	10.0	N/D	0.01	0.1012	N/A
SOx	40.0	N/A	N/D	0.0075	N/A
NOx	40.0	N/A	N/D	1.2453	N/A
VOC	40.0	<25.0	1.54	0.0685	<25.0
CO	100.0	N/A	N/D	1.0460	N/A
Sulfuric Acid Mist	7.0	N/A	N/D	0.0319	N/A
Combined HAPs	25.0	6.06	0.01	0.0393	N/A
Hexavalent Chromium	0.002[1]	0.04	N/D	0.0013	N/A
Hydrogen Fluoride	0.1[1]	N/A	N/D	0.0068	N/A
Fluorides	3.0[1]	N/A	N/D	0.0078	N/A

N/A = Not Applicable; N/D = Not Determined
[1]SMAL

PERMIT RULE APPLICABILITY

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

APPLICABLE REQUIREMENTS

Seyer Industries, Inc. shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

GENERAL REQUIREMENTS

- *Start-Up, Shutdown, and Malfunction Conditions,* 10 CSR 10-6.050

- *Submission of Emission Data, Emission Fees and Process Information,* 10 CSR 10-6.110
    - Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.

- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170

- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220

- *Restriction of Emission of Odors*, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400

- 40 CFR 63 Subpart WWWWWW, *National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations*, applies because of the non-electrolytic metal coating processes, such as chromate conversion coating and sodium dichromate sealing. No emission standard applies, however there are management practices, notifications, recordkeeping, reporting and other compliance requirements. See the MACT for all applicable requirements.

- 10 CSR 10-6.260 applies due to sulfuric acid mist emissions. Compliance is assumed by a wide margin via low sulfuric acid mist generation potential and high scrubber air flowrates. 10 CSR 10-6.261 does not apply as the tanks are not SO_2 sources.

STAFF RECOMMENDATION

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

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated October 18, 2018, received October 24, 2018, designating Seyer Industries, Inc. as the owner and operator of the installation.

Attachment A - VOC Compliance Worksheet

Seyer Industries, Inc.
St. Charles County, UTM: 708.068 Northing, 4,297.420 Easting
Project Number: 2018-10-042
Installation ID Number: 183-0196
Permit Number: 022019-001

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

Column 1 Material Used (name, type)	Column 2 (a) Amount of material used (include units)	Column 3 Density of material used[1] (lbs/gal)	Column 4 VOC content[2] (%)	Column 5 VOC emissions (tons)
Natural Gas		N/A	0.0054[3]	
Startup Shutdown and Malfunction (SSM) emissions[4]				
(b) Total VOC emissions calculated for this month (tons):				
(c) 12-month rolling total VOC emissions total from previous month's worksheet (tons):				
(d) Monthly VOC emissions total from previous year's worksheet (tons):				
(e) Current 12 month rolling total of VOC emissions (tons): [(b)+(c)-(d)]				

*The instruction for properly tracking emissions using this tracking sheet may be found on the following page.

Instructions:
(a) Choose appropriate VOC calculation method for units reported:
1. If usage is in tons:[Column 2] x [Column 4] = [Column 5]
2. If usage is in pounds:[Column 2] x [Column 4] x [0.0005] = [Column 5]
3. If usage is in gallons:[Column 2] x [Column 3] x [Column 4] x [0.0005] = [Column 5]

(b) Summation of Column 5.
(c) 12-month rolling VOC emissions total from previous month's worksheet (tons).
(d) Monthly VOC emissions total from previous year's worksheet (tons).
(e) Calculate the new 12 month rolling VOC emissions total.
[1]Obtained from SDS for material, if specific gravity is provided: density = 8.33 x specific gravity
[2]Obtained from SDS for material, if a range of values is indicated on the SDS, use the highest value in the range to demonstrate compliance.
[3]VOC emission factor (lb/MMBtu), to calculate VOC: use instruction (a)2. method
[4]As reported to the Air Pollution Control Program's Compliance/Enforcement Section according to the provisions of 10 CSR 10-6.050.
A total of less than 25.0 tons per year indicates compliance.

APPENDIX A

Abbreviations and Acronyms

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

Installation: Seyer Industries Inc
ID: 183-0196
Description: Anodizing kettle

Scrubber-Tank Configuration

scrubber	tank
1	L1 Tank 1 alkaline clean
	L1 Tank 2 rinse
	L1 Tank 3 alkaline etch
	L1 Tank 4 rinse
	L1 Tank 5 deoxidizer
	L1 Tank 6 rinse
	L1 Tank 7 aluminum etch
	L1 Tank 8 rinse
	L1 Tank 9 deoxidizer
	L1 Tank 10 rinse
	L1 Tank 11 titanium etch
	L1 Tank 12 rinse
	L1 Tank 13 passivation
	L1 Tank 14 rinse
	L2 Tank 17 rinse
	L2 Tank 18 anodize tank
	L2 Tank 19 rinse
	L2 Tank 20 anodize
	L2 Tank 21 rinse
	L2 Tank 24 passivation #2
	L2 Tank 25 rinse
	L2 Tank 26 conversion coating
	L2 Tank 27 rinse
	L2 Tank 28 dichromate seal
	L2 Tank 29 rinse
	L2 Tank 30 seal
	OL Tank 1 Anodize Strip Tank
	OL Tank 2 Anodize Strip Tank

all scrubbers are packed-bed per draft application

2 lane automated anodize kettle
L1 = lane 1
L2 = lane 2

2 manual anodize strip tanks
OL = off lane

Pollutant	Regulatory *De Minimis* Levels (tpy)	Insignificant Level (lbs/hr)	PTE lbs/hr	PTE tons/yr
PM	25.0	N/A	0.0231	0.1012
PM10	15.0	1	0.0231	0.1012
PM2.5	10.0	N/A	0.0231	0.1012
SOx	40.0	2.75	0.0017	0.0075
NOx	40.0	2.75	0.284314	1.2453
VOC	40.0	2.75	0.0156	0.0685
CO	100.0	6.88	0.2388	1.0460
Sulfuric Acid Mist	7.0	N/A	0.0055	0.0319
Combined HAPs	25.0	N/A	0.0036	0.0393
Cr 6	0.002	N/A	0.00029	0.0013
Hydrogen Fluoride	0.1	N/A	0.00156	0.0068
Fluorides	3.0	N/A	0.00177	0.0078

etch

Emission Unit	Emission Point	Description
L1 Tank 3		alkaline etch (Oakrite 160)
L1 Tank 7		aluminum etch (Nitric acid and Ammonium Bifluoride)

Pollutant	Uncontrolled PTE (tpy)	Control Device	Capture Efficiency	Control Efficiency	Uncaptured PTE (tpy)	Stack PTE (tpy)	PTE (tpy)
PM	0.0434		98%	99.5%	0.000868	0.0002127	0.001081
PM10	0.0434		98%	99.5%	0.000868	0.0002127	0.001081
PM2.5	0.0434		98%	99.5%	0.000868	0.0002127	0.001081
		1					

2	number of tanks

PM PTE from Minnesota Pollution Control Agency, https://www.pca.state.mn.us/sites/default/files/sbeg-explate.xls
assumed PM PTE was for 1 tank, so multiplied by 2 to get 0.0434 tpy uncontrolled
98% capture efficiency assumed October 2007 Texas Commission on Environmental Quality document Chromium Plating & Anodizing Operations Using Chromic Acid
packed bed scrubber gets 99.5% control, per AP-42 Table 12.20-2. (2.0-0.0096)/2 is 99.5%, which is the lowest control efficiency compared to all scrubber and mesh pad mist eliminator configurations.

Deoxidize

Emission Unit	Emission Point	Description
L1 Tank 5		deoxidize (Deoxidizer 6-16 and nitric Acid)
L1 Tank 9		deoxidize (Turco Smut-Go NC-B)

Pollutant	Uncontrolled PTE (tpy)	Control Device	Capture Efficiency	Control Efficiency	Uncaptured PTE (tpy)	Stack PTE (tpy)	PTE (tpy)	Compliance Tracking Emission Factor (lb/tank/day)
PM	0.0434		98%	99.5%	0.000868	0.0002127	0.001081	
PM10	0.0434		98%	99.5%	0.000868	0.0002127	0.001081	
PM2.5	0.0434		98%	99.5%	0.000868	0.0002127	0.001081	
hydrogen fluoride HAP	0.274		98%	99.5%	0.0055	0.0013406	0.006812	
HAP Cr 6	0.022	1	98%	99.5%	0.0004	0.0001063	0.000540	0.0015

PM PTE from Minnesota Pollution Control Agency, https://www.pca.state.mn.us/sites/default/files/sbeg-explate.xls
assumed PM PTE was for 1 tank, so multiplied by 2 to get 0.0434 tpy uncontrolled
Contains nitric acid, sulfuric acid, and fluorides

2	number of tanks

hydrogen fluoride assumed equal to nitric acid emissions from EPA MFFRST Excel, Table 2.4. 3.4E+05 mg/day/tank.
98% capture efficiency assumed October 2007 Texas Commission on Environmental Quality document Chromium Plating & Anodizing Operations Using Chromic Acid
packed bed scrubber gets 99.5% control, per AP-42 Table 12.20-2. (2.0-0.0096)/2 is 99.5%, which is the lowest control efficiency compared to all scrubber and mesh pad mist eliminator configurations.
HAP Cr6 is in L1 Tank 5. Assumed Cr6 equal to PM emissions.

Cleaner

Emission Unit	Emission Point	Description
L1 Tank 1		alkaline cleaner (Turco 4215)

1

Pollutant	Uncontrolled PTE (tpy)	Control Device	Capture Efficiency	Control Efficiency	Uncaptured PTE (tpy)	Stack PTE (tpy)	PTE (tpy)
PM	0.017		98%	99.5%	0.00035	8.477E-05	0.000431
PM10	0.017		98%	99.5%	0.00035	8.477E-05	0.000431
PM2.5	0.017		98%	99.5%	0.00035	8.477E-05	0.000431
		1	98%	99.5%	0.0000	0	0.000000

Turco 4215 contains borax. No PM emisison factor available. Used sodium hydroxide emission factor and assumed it was PM.
sodium hydroxide PM PTE from EPA MFFRST Excel, table 2.4. 4.3E+04 mg/day/tank.
HAP such as diethnolamine could be present in solution?

1	number of tanks

98% capture efficiency assumed October 2007 Texas Commission on Environmental Quality document Chromium Plating & Anodizing Operations Using Chromic Acid

Titanium Etch

Emission Unit	Emission Point	Description
L1 Tank 11		titanium etch (Nitric Acid and Ammonium Bifluoride)

Pollutant	Uncontrolled PTE (tpy)	Control Device	Capture Efficiency	Control Efficiency	Uncaptured PTE (tpy)	Stack PTE (tpy)	PTE (tpy)
PM	0.0217		98%	99.5%	0.000434	0.0001063	0.000540
PM10	0.0217		98%	99.5%	0.000434	0.0001063	0.000540
PM2.5	0.0217		98%	99.5%	0.000434	0.0001063	0.000540
titanium fluoride	0.03775	1	98%	99.5%	0.000755	0.000185	0.000940

PM PTE from Minnesota Pollution Control Agency, https://www.pca.state.mn.us/sites/default/files/sbeg-explate.xls Used aluminim etching
assumed PM PTE was for 1 tank

1	number of titanium pickle tanks

"Process Chemistry and Acid Management for Titanium Pickling Processes" Schneiker and Forsberg. 2014.
http://titanium.beta.ols.scholarlab.com/customer/titanium/resources/tieurope2014/SchneikerThorstenFabricationTIEU2014.pdf
Titanium etching is usually done with a mix of nitric and hydrofluoric acid. Makes titanium fluoride, which is NSR regulated as "Fluorides" de minimis level 3 tpy.
assumed titanium fluoride is 50% of the PM emissions
98% capture efficiency assumed October 2007 Texas Commission on Environmental Quality document Chromium Plating & Anodizing Operations Using Chromic Acid
packed bed scrubber gets 99.5% control, per AP-42 Table 12.20-2. (2.0-0.0096)/2 is 99.5%, which is the lowest control efficiency compared to all scrubber and mesh pad mist eliminator configurations.

Sulfuric acid anodize

Emission Unit	Emission Point	Description	CCa (oz/gal)	CDa (amp/in2)	CEa	RCa (sulfuric acid relative concentration)	AA (ft2)	Available Emissions (lb/hr)	Control Device	Capture Efficiency	Control Efficiency	Uncaptured PTE (lb/hr)	Stack PTE (lb/hr)	Sulfuric acid mist PTE (tpy)
L2 Tank 18		Boric and Sullfuric Acid	[redacted]	0.5	95%	0.1158	[redacted]	0.003641	1	0%	0.995000	3.64E-03	0.00E+00	0.0159
L2 Tank 20		Sulfuric Acid		0.5	95%	0.1158		0.003641	1	0%	0.995000	3.64E-03	0.00E+00	0.0159

75% capture efficiency assumed worst case

packed bed scrubber gets 99.5% control, per AP-42 Table 12.20-2. (2.0-0.0096)/2 is 99.5%, which is the lowest control efficiency compared to all scrubber and mesh pad mist eliminator configurations. This is chrome. Applicant requested no control efficiency be applied to SAM

$$EMa = \frac{(CCa * CDa) \ / CEa}{(CCcr * CDcr) \ / CEcr} * ERcr * Aa$$

CCa = [redacted] sulfuric acid concentration in the anodizing tank (oz/gal)
CDa = 0.5 current density of the anodizing process (amp/sq. ft.)
CEa = 95% cathode efficiency of anodizing process, assumed at 95%
CCcr = 9.985 chromic acid conc. obtained from mid range in AP-42 background document Table 2-5 page 2-17. Results in higher PTE compared to using the 100 gram/liter (13.3 oz/gal) value in Table 1 from the document below.
CDcr = 3 current density of chromic acid anodizing process. 3 amp/sq. in. per Table 1 in document below. Also the average in AP-42 background document Table 2-5.
CEcr = 95% cathode efficiency of chromic acid anodizing process. 95% per Table 1.
ERcr = 0.000285714 uncontrolled AP-42 emission factor for chromic acid anodizing process (lb/hr-sq. ft.), Table 12.20-2.

Calculation method reference:
"Characterizing Site-Specific Source Emissions for EPA's Risk Assessment Tool for the Metal Finishing Industry" Schwartz and Lorber, 1999.

Chromic Seal

Emission Unit	Emission Point	Description
L2 Tank 28		dichromate seal
L2 Tank 30		dilute seal

Pollutant	Uncontrolled PTE (tpy)	Control Device	Capture Efficiency	Control Efficiency	Uncaptured PTE (tpy)	Stack PTE (tpy)	PTE (tpy)		Compliance Tracking Emission Factor (lb/tank/day)
PM	0.024		98%	99.5%	0.00047	0.0001159	0.000589		
PM10	0.024		98%	99.5%	0.00047	0.0001159	0.000589		
PM2.5	0.024		98%	99.5%	0.00047	0.0001159	0.000589		
HAP Cr 6	0.011	1	98%	99.5%	0.00023	5.52E-05	0.000281	SMAL 0.002 t	0.0008

Cr6 from EPA MFFRST Excel, Table 2.4, anodizing sealer. 1.4E+04 mg/day/tank. Uncontrolled.
PM PTE from AP-42 Table 12.20-2
PM calculated using the ratio of PM : Cr 6 from chromic acid anodizing, multiplied by the seal Cr 6 emissions

2 number of tanks

Passivation

Emission Unit	Emission Point	Description
L1 Tank 13		Passivation No Chromium (Nitric Acid)
L2 Tank 24		Passivation #2 Contains Chromium (Nitric Acid and Sodium Dic

Pollutant	Uncontrolled PTE (tpy)	Control Device	Capture Efficiency	Control Efficiency	Uncaptured PTE (tpy)	Stack PTE (tpy)	PTE (tpy)		Compliance Tracking Emission Factor (lb/tank/day)
PM	0.077		98%	99.5%	0.00155	0.0003786	0.001924		
PM10	0.077		98%	99.5%	0.00155	0.0003786	0.001924		
PM2.5	0.077		98%	99.5%	0.00155	0.0003786	0.001924		
HAP Cr 6	0.001	1	98%	99.5%	0.00002	4.14E-06	0.000021	SMAL 0.002 t	0.0001

Cr6 from EPA MFFRST Excel, Table 2.4, passivation. 2.1E+03 mg/day/tank. Uncontrolled.
L2 Tank 24 PM PTE from AP-42 Table 12.20-2
L2 Tank 24 PM calculated using the ratio of PM : Cr 6 from chromic acid anodizing, multiplied by the seal Cr 6 emissions

1 number of tanks with chromium

L1 Tank 13 PM PTE from Minnesota Pollution Control Agency, https://www.pca.state.mn.us/sites/default/files/sbeg-explate.xls

Chromate Conversion Bath

Emission Unit	Emission Point	Description
L2 Tank 26		Conversion Coating (Alodine 1200s)

Pollutant	Uncontrolled PTE (tpy)	Control Device	Capture Efficiency	Control Efficiency	Uncaptured PTE (tpy)	Stack PTE (tpy)	PTE (tpy)		Compliance Tracking Emission Factor (lb/tank/day)
PM	0.026		98%	99.5%	0.00052	0.0001283	0.000652		
PM10	0.026		98%	99.5%	0.00052	0.0001283	0.000652		
PM2.5	0.026		98%	99.5%	0.00052	0.0001283	0.000652		
HAP Cr 6	0.012	1	98%	99.5%	0.00025	6.112E-05	0.000311	SMAL 0.002 t	0.0017

Cr6 from EPA MFFRST Excel, Table 2.4, chromate conversion bath. 3.1E+04 mg/day/tank. Uncontrolled.
PM PTE from AP-42 Table 12.20-2
PM calculated using the ratio of PM : Cr 6 from chromic acid anodizing, multiplied by the seal Cr 6 emissions

1 number of tanks with chromium

Anodize Strip Manual Operation

Emission Unit	Emission Point	Description
OL Tank 1		Chromic Acid Anodize Strip
OL Tank 2		Chromic Acid Anodize Strip

Pollutant	Uncontrolled PTE (tpy)	Control Device	Capture Efficiency	Control Efficiency	Uncaptured PTE (tpy)	Stack PTE (tpy)	PTE (tpy)		Compliance Tracking Emission Factor (lb/tank/day)
PM	0.009		98%	99.5%	0.00019	4.646E-05	0.000236		
PM10	0.009		98%	99.5%	0.00019	4.646E-05	0.000236		
PM2.5	0.009		98%	99.5%	0.00019	4.646E-05	0.000236		
HAP Cr 6	0.005	1	98%	99.5%	0.00009	2.212E-05	0.000112	SMAL 0.02 tp	0.0003

Cr6 from AP-42 12.20 equation 4
PM PTE from AP-42 Table 12.20-2
PM calculated using the ratio of PM : Cr 6 from chromic acid anodizing, multiplied by the seal Cr 6 emissions

2 number of tanks with chromium

where:

E_1 = emission factor, grains/bubble,
R_b = average bubble radius, in.;
σ = surface tension of bath, pounds force per foot (lb_f/ft),
c_s = speed of sound, ft/sec;
ρ_l = density of liquid, lb/ft^3;
ρ_g = density of gas (air), lb/ft^3; and
g = acceleration due to gravity, ft/sec^2.

Substituting typical values for constants c_s (1,140 ft/sec), g (32.2 ft/sec^2), and assuming values for ρ_l of 62.4 lb/ft^3 and for ρ_g of 0.0763 lb/ft^3, Equation 3 can be reduced to the following equation.

$$E_2 = \frac{1.9\ \sigma}{R_b}\left[\frac{(1 - 2a + 9a^2)^{0.5} + (a - 1)}{(1 + 3a) - (1 - 2a + 9a^2)^{0.5}}\right]^{0.5} \quad (4)$$

where:

$$a = \frac{0.072\ R_b^2}{\sigma}$$

E_2 = emission factor in grains/ft^3 of aeration air; and
the other variables are as defined previously.

Average Bubble Radius (Rb) in*	0.05	E2 numberator	0.0058352
surface tension (sigma) lbf/ft*	0.0047965	E2 denominator	0.1442743
factor "a"	0.0375274		
Factor "E2" gains per ft^3 aeration air	0.0366556		
aeration cfm per sq ft of tank surface*	10		
sq ft of tank surface	[redacted]		
aeration cfm			
lb/hr	0.0377029		
lbs/yr assuming 8760 hours per year	330.27731		
Number of tanks	2		
lbs of soluction per tank	165.13866		
Chromic acid concentration	[redacted]		
HAP Cr 6 lbs/yr	9.0297817		

*Used assumptions from EPA MFFRST Excel, Table 2.4 for average bubble radius, surface tension, and aeration cfm

Emission Unit	Description	Installation's Designation	MHDR (MMBtu/hr input)	Combined MHDR (MMBtu/hr input)	MHDR (MMcf/hr)	Pollutant	CAS	HAP?	Emission Factor (lb / mmcf)	Emission Factor Source (SCC)	Available Pollutant (lb/hr)	Control Device	PTE (lb/hr)	PTE (tpy)
	Natural Gas Combustion		2.9	2.90	0.003	PM filterable			1.9	1-02-006-02 industrial boiler, natural gas, 10-100MMBtu and 1-02-006-03 < 10MMBtu	0.0054	none	0.0054	0.02
						PM10			7.6		0.0216	none	0.0216	0.09
						PM2.5			7.6		0.0216	none	0.0216	0.09
						SOx			0.6		0.0017	none	0.0017	0.01
						NOx			100		0.2843	none	0.2843	1.25
						VOC			5.5		0.0156	none	0.0156	0.07
						CO			84		0.2388	none	0.2388	1.05
						Combined HAPs			1.888		0.0054	none	0.0054	0.02
						POM aggregate group			6.98E-04		1.99E-06	none	1.99E-06	8.69E-06
					pom	2-Methylnaphthalene	91-57-6	y	2.40E-05		6.824E-08	none	6.82E-08	2.99E-07
					pom	3-Methylchloranthrene	56-49-5	y	1.80E-06		5.118E-09	none	5.12E-09	2.24E-08
					pom	7,12-Dimethylbenzanthracene	57-97-6	y	1.60E-05		4.549E-08	none	4.55E-08	1.99E-07
					pom	Acenaphthene	83-32-9	y	1.80E-06		5.118E-09	none	5.12E-09	2.24E-08
					pom	Acenaphthylene	203-96-8	y	1.80E-06		5.118E-09	none	5.12E-09	2.24E-08
					pom	Anthracene	120-12-7	y	2.40E-06		6.824E-09	none	6.82E-09	2.99E-08
					pom	Benzanthracene	56-55-3	y	1.80E-06		5.118E-09	none	5.12E-09	2.24E-08
						Benzene	71-43-2	y	2.10E-03		5.971E-06	none	5.97E-06	2.62E-05
					pom	Benzo(a)pyrene	50-32-8	y	1.20E-06		3.412E-09	none	3.41E-09	1.49E-08
					pom	Benzo(b)fluoranthene	205-99-2	y	1.80E-06		5.118E-09	none	5.12E-09	2.24E-08
					pom	Benzo(g,h,i)perylene	191-24-2	y	1.20E-06		3.412E-09	none	3.41E-09	1.49E-08
					pom	Benzo(k)fluoranthene	205-82-3	y	1.80E-06		5.118E-09	none	5.12E-09	2.24E-08
						Butane	106-97-8		2.10E+00		5.971E-03	none	5.97E-03	2.62E-02
					pom	Chrysene	218-01-9	y	1.80E-06		5.118E-09	none	5.12E-09	2.24E-08
					pom	Dibenzo(a,h)anthracene	53-70-3	y	1.20E-06		3.412E-09	none	3.41E-09	1.49E-08
						Dichlorobenzene	25321-22-6	y	1.20E-03		3.412E-06	none	3.41E-06	1.49E-05
						Ethane	74-84-0		3.10E+00		8.814E-03	none	8.81E-03	3.86E-02
					pom	Fluoranthene	206-44-0	y	3.00E-06		8.529E-09	none	8.53E-09	3.74E-08
					pom	Fluorene	86-73-7	y	2.80E-06		7.961E-09	none	7.96E-09	3.49E-08
						Formaldehyde	50-00-0	y	7.50E-02		2.132E-04	none	2.13E-04	9.34E-04
						Hexane	110-54-3	y	1.80E+00		5.118E-03	none	0.0051	0.02
					pom	Indeno(1,2,3-cd)pyrene	193-39-5	y	1.80E-06		5.118E-09	none	5.12E-09	2.24E-08
					pom	Naphthalene	91-20-3	y	6.10E-04		1.734E-06	none	1.73E-06	7.60E-06
						Pentane	109-66-0		2.60E+00		7.392E-03	none	7.39E-03	3.24E-02
					pom	Phenanathrene	85-01-8	y	1.70E-05		4.833E-08	none	4.83E-08	2.12E-07
						Propane	74-98-6		1.60E+00		4.549E-03	none	4.55E-03	1.99E-02
					pom	Pyrene	129-00-0	y	5.00E-06		1.422E-08	none	1.42E-08	6.23E-08
						Toluene	108-88-3	y	3.40E-03		9.667E-06	none	9.67E-06	4.23E-05
						Arsenic	7440-38-2	y	2.00E-04		5.686E-07	none	5.69E-07	2.49E-06
						Barium	7440-39-3		4.40E-03		1.251E-05	none	1.25E-05	5.48E-05
						Beryllium	7440-41-7	y	1.20E-05		3.412E-08	none	3.41E-08	1.49E-07
						Cadmium	7440-43-9	y	1.10E-03		3.127E-06	none	3.13E-06	1.37E-05
						Chromium	7440-47-3	y	1.40E-03		3.980E-06	none	3.98E-06	1.74E-05
						Cobalt	7440-48-4	y	8.40E-05		2.388E-07	none	2.39E-07	1.05E-06
						Copper	7440-50-8		8.50E-04		2.417E-06	none	2.42E-06	1.06E-05
						Manganese	7439-96-5	y	3.80E-04		1.080E-06	none	1.08E-06	4.73E-06
						Mercury	7439-97-6	y	2.60E-04		7.392E-07	none	7.39E-07	3.24E-06
						Molybdenum	7439-98-7		1.10E-03		3.127E-06	none	3.13E-06	1.37E-05
						Nickel	7440-02-0	y	2.10E-03		5.971E-06	none	5.97E-06	2.62E-05
						Selenium	7782-49-2	y	2.40E-05		6.824E-08	none	6.82E-08	2.99E-07
						Vanadium	7440-62-2		2.30E-03		6.539E-06	none	6.54E-06	2.86E-05
						Zinc	7440-66-6		2.90E-02		8.245E-05	none	8.25E-05	3.61E-04
						CO2			120,000		341.1765	none	341.176	1,494.35
						Methane			2.3		0.0065	none	0.0065	0.03
						N2O			2.2		0.0063	none	0.0063	0.03
						GHG (mass)								1,494.409
						GHG (CO2e)								1,503.23

Natural Gas HHV (Btu/cf)
1,020

100yr GWP 40 CFR 98 Table A-1, Jan 1 2014

CO2	1
CH4	25
N2O	298

Natural gas HHV of 1,020 Btu/cf cited from AP-42 Section 1.4, July 1998.
Dichlorobenzene group CAS 25321-22-6 conservatively assumed as 100% 1,4-dichlorobenzene CAS 106-46-7.
HAPs updated per "Air Pollution Control Program Table of Hazardous Air Pollutants, Screening Model Action Levels, and Risk Assessment Levels" Revision 10, 5/3/2012