FINAL

2024 Annual Environmental Reporting

Koch-Glitsch Canada LP
18 Dallas Street, Uxbridge, Ontario
L9P 1C6

Prepared for:

Koch-Glitsch Canada LP
18 Dallas Street
Uxbridge, Ontario L9P 1C6

April 25, 2025

Pinchin File: 351635.001

Issued to:	**Koch-Glitsch Canada LP**
Issued on:	**April 25, 2025**
Pinchin File:	**351635.001**
Issuing Office:	**Mississauga, ON**
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TABLE OF CONTENTS

APPENDICES

1.0 EXECUTIVE SUMMARY

Pinchin Ltd. (Pinchin) evaluated the 2024 National Pollutant Release Inventory (NPRI), Ontario Greenhouse Gas Emissions Reporting Program (O.Reg.390/18 GHG), and Federal Greenhouse Gas Emissions Reporting Program (Federal GHG) reporting requirements for the Koch-Glitsch Canada LP facility located at 18 Dallas Street, Uxbridge, Ontario.

The facility designs and fabricates column trays and internals for the chemical and petrochemical industries. Processes include metal shearing, plasma cutting, stamping, welding, pipe cutting, grinding and assembly.

The following is a summary of the assessment for this facility for each applicable annual environmental reporting program.

1.1 NPRI

The facility is required to report the following substances:

Substance	CAS #	Reportable 2024?	Reportable 2023?
Chromium (and its compounds)	NA - 04	Yes	Yes
Nickel (and its compounds)	NA - 11	No	Yes
Particulate Matter <=2.5 micrometers	NA - M10	Yes	Yes
Particulate Matter <=10 micrometers	NA - M09	Yes	Yes

1.2 Provincial (O.Reg.390/18) and Federal GHG

A preliminary screening-level assessment was completed to determine if the facility is required to report to the provincial (O.Reg. 390/18) or federal Greenhouse Gas (GHG) regulations.

The facility is not required to report any GHG substances.

The results presented in this report in relation to the GHG emissions are screening-level only, and do not follow the quantification methods required for reporting to these or any other GHG regulations. Additionally, some sources that are normally included in a GHG assessment, such as on-site transportation, have not been included in this screening-level assessment as they are exempt from NPRI reporting, and therefore the results presented may under-estimate the total GHG emissions. As such, these values should not be used as part of any official reporting requirements. Furthermore, if the values are above the reporting threshold (or close to the threshold), a proper assessment using the regulated quantification methods should be completed.

1.3 Environment and Climate Change Canada (ECCC) s.71 CMP

Reporting to the Notice with respect to certain substances under the Chemicals Management Plan (s.71 CMP) is not required for 2024 reporting year but will return for the 2025 operating year.

1.4 ECCC s.71 CMP - Per- and Polyfluoroalkyl Substances (PFAS)

On July 27, 2024, the Notice with respect to per- and polyfluoroalkyl substances (PFAS) under the Chemicals Management Plan – 2023 (the Notice) was published in the Canada Gazette, Part I, pursuant to paragraph 71(1)(b) of the Canadian Environmental Protection Act, 1999 (the Act).

If you meet the reporting requirements, then you must respond to the notice with a section 71 submission using Environment Canada's ERF excel spreadsheet and submitting through ECCC's Single Window Information Manager (SWIM) reporting system.

Based on the results of the preliminary screening level assessment of 312 substances, the facility is not required to report any substances and are not required to respond to the notice. However, if the facility has any information that the government may find useful, such as if the facility had activity with a reportable substance during a different year, or if the facility had activity with a reportable substance but do not meet the reporting thresholds, the information may be still of interest to the Government, and the facility is encouraged to provide a Declaration of Stakeholder Interest (SHI).

1.5 Federal Plastics Registry (FPR)

The Federal Plastics Registry (FPR) was published as a notice in the Gazette on April 20, 2024. The intention of the program is to track and monitor the lifecycle of plastics in the Canadian economy, to reduce plastic waste and support Canada's zero plastic waste agenda. This is a mandatory reporting program that uses a phased approach, including more categories over the next three phases. The phase 1 deadline for reporting is September 29, 2025.

A preliminary screening of the facility was completed and determined that the facility will not be required to report to the FPR for phase 1. FPR reporting is to be completed through an online portal that is to be made available by Environment Canada ahead of the September 29, 2025 deadline.

A detailed comparison of the 2024 and 2023 reportable substances is given in Appendix I.

Summaries for the 2024 operating year are listed in Appendices II to IV. Data and calculations are given in Appendices V to VI.

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Template: Master Report 2022 AER, ERC, January 27, 2023

APPENDIX I

Comparison of 2024 and 2023 Reportable Substances

(1 Page)

Comparison of 2024 and 2023 Reportable Substances

Substance: Chromium (and its compounds)
CAS #: NA - 04

	2024	2023	Units	Change	Rationale for Change Greater than +/- 10%
NPRI					
Annual Release (Air)	0.0664	0.0684	tonnes	-2.9%	
Annual Release (Land)	0.0000	0.0000	tonnes	-	
Annual Release (Water)	0.0000	0.0000	tonnes	-	
Annual Recycling (Off-Site)	3.4281	4.0701	tonnes	-15.8%	Overall decrease in recycling of materials containing chromium (coils, metals & welding consumables)
Annual Disposal (On-Site)	0.0000	0.0000	tonnes	-	
Annual Disposal (Off-Site)	0.0000	0.0000	tonnes	-	

Substance: Nickel (and its compounds)
CAS #: NA - 11

	2024	2023	Units	Change	Rationale for Change Greater than +/- 10%
NPRI					
Annual Release (Air)	---	0.1056	tonnes	-	Decrease in materials containing nickel
Annual Release (Land)	---	0.0000	tonnes	-	-
Annual Release (Water)	---	0.0000	tonnes	-	-
Annual Recycling (Off-Site)	---	2.2438	tonnes	-	Decrease in materials containing nickel
Annual Disposal (On-Site)	---	0.0000	tonnes	-	
Annual Disposal (Off-Site)	---	0.0000	tonnes	-	

Substance: Particulate Matter <=2.5 micrometers
CAS #: NA - M10

	2024	2023	Units	Change	Rationale for Change Greater than +/- 10%
NPRI					
Annual Release (Air)	0.9388	0.9169	tonnes	2.4%	

Substance: Particulate Matter <=10 micrometers
CAS #: NA - M09

	2024	2023	Units	Change	Rationale for Change Greater than +/- 10%
NPRI					
Annual Release (Air)	0.9388	0.9169	tonnes	2.4%	

APPENDIX II

NPRI Reporting Requirements

(7 Pages)

NPRI

The NPRI is a federal initiative directed by Environment Canada under the Canadian Environmental Protection Act, 1999 (CEPA) that is triggered when specific facility and processing criteria are met. When the reporting criteria for this initiative are met, environmental reporting for solid, liquid, and air discharges is required.

The five groups of chemicals/substances that need to be considered under this initiative are:

- Part 1A substances include 181 substances with MPO thresholds of 10 tonnes.
- Part 1B substances include 23 substances with MPO thresholds of 1,000 kg or less.
- Part 2 substances are Polycyclic Aromatic Hydrocarbons (PAHs).
- Part 3 substances are Dioxins, Furans, and Hexachlorobenzene (HCB).
- Part 4 substances are Criteria Air Contaminants (CACs) where reporting is triggered when emissions of these compounds are in excess of specific limits.
- Part 5 substances are 62 Volatile Organic Compounds (VOCs) that are triggered when an individual VOC air emission exceeds 1 tonne.

In accordance with NPRI, Pinchin Ltd. has evaluated the reporting obligations for Koch-Glitsch Canada LP and concludes the following:

- Koch-Glitsch Canada LP is required to report Parts 1A and 4 substances.

The following tables summarize the data that was assessed for NPRI.

Environment Canada NPRI - PART 1A Substances
Total Facility Emissions - Substances with NPRI Graded MPO Thresholds

Substance	CAS #	MPO Threshold (tonnes/yr)	Annual MPO* (tonnes/yr)	Reportable? (Yes/No)	Annual Release (Air) (tonnes/yr)	Estimation Method	Annual Recycling (Off Site) (tonnes/yr)	Estimation Method
Aluminum (fume or dust)	7429-90-5	10	0.1567	No	---	---	---	---
Aluminum oxide (fibrous form)	1344-28-1	10	0.0001	No	---	---	---	---
Benzene	71-43-2	10	0.0000 **	No	---	---	---	---
Chromium (and its compounds)	NA - 04	10	14.7358	Yes	0.0664	E	3.4281	C
Copper (and its compounds)	NA - 06	10	0.3295	No	---	---	---	---
Formaldehyde	50-00-0	10	0.0002	No	---	---	---	---
Manganese (and its compounds)	NA - 09	10	0.9019	No	---	---	---	---
Naphthalene	91-20-3	10	0.0000 **	No	---	---	---	---
n-Hexane	110-54-3	10	0.0050	No	---	---	---	---
Nickel (and its compounds)	NA - 11	10	6.8080	No	---	---	---	---
Toluene	108-88-3	10	0.0000 **	No	---	---	---	---
Vanadium (except when in an alloy) and its compounds	NA - 40	10	0.0000 **	No	---	---	---	---
Zinc (and its compounds)	NA - 14	10	0.0001	No	---	---	---	---

NA - Not Applicable   C - Mass Balance   E - Published Emission Factors

*Includes emissions of by-products.
**MPO value less than 0.0000 tonnes/yr.

Environment Canada NPRI - PART 1B Substances
Total Facility Emissions - Substances with NPRI Graded MPO Thresholds

Substance	CAS #	MPO Threshold (kg/yr)	Annual MPO* (kg/yr)	Reportable? (Yes/No)
Arsenic (and its compounds)	NA - 02	50	0.0006	No
Cadmium (and its compounds)	NA - 03	5	0.0031	No
Cobalt (and its compounds)	NA - 05	50	14.8439	No
Hexavalent chromium	NA - 19	50	3.6336	No
Lead (and its compounds) except tetraethyl lead	NA - 08	50	0.0014	No
Mercury (and its compounds)	NA - 10	5	0.0007	No
Selenium (and its compounds)	NA - 12	100	0.0001	No

NA - Not Applicable   C - Mass Balance   E - Published Emission Factors

*Includes emissions of by-products.

Environment Canada NPRI - PART 2 Substances
Total Facility Emissions - Polycyclic Aromatic Hydrocarbons

Substance	CAS #	Release Threshold (kg/yr)	Annual Release Rate (Air) (kg/yr)	Estimation Method	Reportable? (Yes/No)
Total PAHs Annual Release Rate <50 kg/yr; therefore, not reportable					

NA - Not Applicable

E - Published Emission Factors

* Annual Release Rate less than 0.0000 kg/yr.

NOTE: The Polycyclic Aromatic Hydrocarbons (PAHs) listed in the above table for this facility are from natural gas combustion only; as such, they are considered insignificant. Additionally, the aggregate annual emission of all Part 2 substances incidentally manufactured at this facility is below the 50 kg reporting threshold.

Environment Canada NPRI - PART 3 Substances
Total Facility Emissions - Dioxins/Furans and Hexachlorobenzene

Substance	CAS #	Annual Emission Rate (g TEQ/yr)	Estimation Method
No Reportable Part 3 Substances (i.e. company not engaged in identified activities)*			

*identified activities - as listed in "Guide for Reporting to the National Pollutant Release Inventory"

Environment Canada NPRI - PART 4 Substances
Total Facility Emissions - Criteria Air Contaminants

Substance	CAS #	Release Threshold (tonne/yr)	Annual Emission Rate (tonne/yr)	Estimation Method	Reportable? (Yes/No)
Carbon Monoxide	630-08-0	20	0.2336	E	No
Oxides of Nitrogen	11104-93-1	20	0.2780	E	No
Sulphur Dioxide	7446-09-5	20	0.0017	E	No
Particulate Matter <=2.5 micrometers	NA - M10	0.3	0.9388	E, O	Yes
Particulate Matter <=10 micrometers	NA - M09	0.5	0.9388	E, O	Yes
Total Particulate Matter	NA - M08	20	0.9388	E, O	No
Volatile Organic Compounds (Total)	NA - M16	10	0.1586	C, E	No

NA - Not Applicable

C - Mass Balance

E - Published Emission Factors

O - Engineering Estimate

Environment Canada NPRI - PART 5 Substances (VOCs)
Total Facility Emissions - Speciated Volatile Organic Compounds

Substance	CAS #	Release Threshold (tonne/yr)	Annual Emission Rate (tonne/yr)	Estimation Method	Reportable? (Yes/No)
Benzene	71-43-2	1	0.0000*	E	No
Formaldehyde	50-00-0	1	0.0002	E	No
n-Hexane	110-54-3	1	0.0050	E	No
Propane	74-98-6	1	0.0044	E	No
Toluene	108-88-3	1	0.0000*	E	No
Butane (all isomers)	NA - 24	1	0.0058	E	No
Pentane (all isomers)	NA - 35	1	0.0072	E	No
Other glycol ethers and acetates (and their isomers)	NA - 45	1	0.0165	E	No
Mineral spirits	64475-85-0	1	0.1261	E	No

NA - Not Applicable
E - Published Emission Factors
*Emission Rate less than 0.0000 tonnes/yr.

APPENDIX III

O.Reg. 390/18 GHG Reporting Requirements

(1 Page)

O.Reg.390/18 GHG Reporting

In July 2019, the MECP enacted O.Reg 390/18,Greenhouse Gas Emissions: Quantification, Reporting and Verification., made under the Environmental Protection Act (1990). Under this regulation, facilties emitting 10,000 tonnes of CO2E are required to report GHG emissions. Facilities that are registered or required to register under O.Reg.241/19 (Greehouse Gas Emissions Performance Standards Regulation) must have the emissions verified by a 3rd party. The regulated gases include the six (6) Kyoto gases (Carbon Dioxide, Methane, Nitrous Oxide, Sulphur Hexafluoride, Hydrofluorocarbons, and Perfluorocarbons), as well as Nitrogen Trifluoride.

NOTE 1: On-site mobile fuel combustion and emergency generators under 10MW in nameplate capacity are not to be included in emissions calculations under this Regulation, and thus these sources were omitted from the analysis.

NOTE 2: The MECP's "Guideline for Quantification, Reporting and Verification of Greenhouse Gas Emissions", February 2020, lists the methods to be used to calculate the applicable emissions. However, the US EPA AP-42 emission factors for natural gas combustion (Chapter 1.4) list emission factors which result in more conservative results than the MECP emission factors. As such, the US EPA AP-42 emission factors were used in the assessment.

NOTE 3: For General Stationary Combustion only Carbon Dioxide, Methane, and Nitrous Oxide emissions are required to be assessed.

Pinchin Ltd. has provided a preliminary screening level assessment of Ontario GHG emissions for this program. Pinchin Ltd. has evaluated the reporting obligations for Koch-Glitsch Canada LP and concludes:

- Koch-Glitsch Canada LP is not required to report Ontario GHG emissions to the MECP.

The table below summarizes the data that was assessed for the Ontario GHG reporting program.

O.Reg.390/18 - TABLE 1
Total Facility Emissions by Source

Substance	CAS #	Release Threshold CO_2e (tonnes/yr)	General Stationary Combustion Emissions (kg/yr)	100 Yr GWP (kg/yr)	Estimation Method	Annual Emission CO_2e (tonnes/yr)	Reportable? (Yes/No)
Carbon Dioxide	124-38-9	NA	3.34E+05	1	E	333.65	NA
Methane	74-82-8	NA	6.39E+00	28	E	0.1791	NA
Nitrous Oxide	10024-97-2	NA	6.12E+00	265	E	1.6210	NA
Total	**NA**	**10,000**	**NA**	**NA**	**NA**	**335.45**	**No**

NA - Not Applicable

E - Published Emission Factors

APPENDIX IV

Federal GHG Reporting Requirements

(1 Page)

Federal GHG Reporting

In March 2004, the Government of Canada announced the introduction of mandatory reporting of greenhouse gas (Federal GHG) emissions. Statistics Canada jointly collects the information under the authority of the Statistics Act, Revised Statues of Canada 1985, c.S-19, as well as under the authority of the CEPA and the Climate Change Emissions Management Act (Alberta). Completion of this report is a legal requirement under these Acts. Beginning with the 2017 reporting year, the reporting threshold for facility emissions is set at 10 kilotonnes of Carbon Dioxide equivalent annually.

Pinchin Ltd. provides all NPRI clients with a screening level assessment of Federal GHG emissions for this program. As per the Technical Guidance on Reporting GHG Emissions (November 2016), only direct emissions are evaluated for this Government of Canada program (i.e., indirect emissions from electricity generation are not evaluated and therefore this assessment should not be considered a completed GHG inventory in accordance with ISO 14064 or the World Resource Institute's GHG Protocol). Pinchin Ltd. has evaluated the reporting obligations for Koch-Glitsch Canada LP and concludes:
- Koch-Glitsch Canada LP is not required to report Federal GHG emissions to the Government of Canada.

The table below summarizes the data that was assessed for the Federal GHG reporting program.

Greenhouse Gas Reporting Program - Environment Canada and Statistics Canada
Total Facility Emissions

Substance	CAS #	Release Threshold CO_2e (tonnes/yr)	Emission Rate (kg/yr)	100 Yr GWP (kg/yr)	Estimation Method	Annual Emission CO_2e (tonnes/yr)	Reportable? (Yes/No)
Carbon Dioxide	124-38-9	NA	3.34E+05	1	E	333.65	NA
Methane	74-82-8	NA	6.39E+00	28	E	0.1791	NA
Nitrous Oxide	10024-97-2	NA	6.12E+00	265	E	1.6210	NA
Total	**NA**	**10,000**	**NA**	**NA**	**NA**	**335.45**	**No**

NA - Not Applicable
E - Published Emission Factors

APPENDIX V

Information Provided by Koch-Glitsch Canada LP

(11 Pages)

2024 Facility Information

Facility Identification and Site Address		
Company Name	Koch-Glitsch Canada LP	
Company Address	18 Dallas Street Uxbridge, Ontario L9P 1C6, Canada	*Street address* *City, Province* *Postal Code, Country*
Facility Name	Koch-Glitsch Canada LP - Uxbridge	
Facility Address	18 Dallas Street Uxbridge, Ontario L9P 1C6, Canada	*Street address* *City, Province* *Postal Code, Country*
Geographical Address (Main Entrance)		
Latitude	44.114213°	
Longtitude	-79.123668°	
UTM Zone	17	
UTM Easting	650145	
UTM Northing	4886270	
Company Contact Information		
Facility Technical Contact *(A person familiar with details of the NPRI report. This person will receive all mailings, info., inquiries from Env. Canada. This person will be named as public contact if a facility contact is not listed above.)*	Smitha Ramakrishna EHS Specialist 289-212-2456 416-662-2413 smitha.ramakrishna@kes.global	*Name* *Title* *Phone # (including extension)* *Fax* *E-Mail*
Facility Technical Contact Address *(If the mailing address is different from the Facility Address)*	18 Dallas Street Uxbridge, Ontario L9P 1C6, Canada	*Street address* *City, Province* *Postal Code, Country*
Certifying Official / Highest Ranking Official *(Must have delegated powers to accept legal responsibility for the info provided and **must be employed at the facility**.* *The person who will sign acknowledges that they:* *- reviewed the NPRI / TRA* *- exercised due diligence to ensure info is true* *- the reported values are accurate, based on reasonable estimates.*	Michael McGuire President 289-212-2470 michael.mcguire@kes.global	*Name* *Title* *Phone # (including extension)* *Fax* *E-Mail*
Certifying Official / Highest Ranking Official Address	18 Dallas Street Uxbridge, Ontario L9P 1C6, Canada	*Street address* *City, Province* *Postal Code, Country*
Company Coordinator	Smitha Ramakrishna EHS Specialist 289-212-2456 416-662-2413 smitha.ramakrishna@kes.global	*Name* *Title* *Phone # (including extension)* *Fax* *E-Mail*
Company Coordinator Address	18 Dallas Street Uxbridge, Ontario L9P 1C6, Canada	*Street address* *City, Province* *Postal Code, Country*
Facility Public Contact	Paul Brown Mgr. Government & Public Affairs 613-548-5320 Paul.Brown@kochps.com	*Name* *Title* *Phone # (including extension)* *Fax* *E-Mail*
Facility Public Contact Address	455 Front Street Kingston, ON K7L 4Z6	*Street address* *City, Province* *Postal Code, Country*

2024 Facility Information

Employees and Activities

Number of Full-Time Employees or equivalent *(For the reporting year. Include students, part-time, contract, sales and support staff for the facility)*	149	
Parent Company (PC) Name and Address	not applicable	*Name Street address City, Province Postal Code, Country*
Percent Ownership for each PC *(Give breakdown if not 100% ownership)*		
Business Number for PC		

Production Information

Days of operation		*Sunday*
	X	*Monday*
	X	*Tuesday*
	X	*Wednesday*
	X	*Thursday*
	X	*Friday*
	X	*Saturday*
Hours of operation		*24 h/day*
		16 h/day
		8 h/day
	X	*Other*
Please breakdown production as a percentage per month.	9%	*January*
	9%	*February*
	8%	*March*
	9%	*April*
	9%	*May*
	7%	*June*
	8%	*July*
	8%	*August*
	9%	*September*
	9%	*October*
	8%	*November*
	7%	*December*
Total *(must be equal to 100%)*	100%	

Provide start time	7:00 AM	
If other, provide average daily hours	~17 HOURS PER DAY	
Were there any periods, one week or longer when operations at the facility were shut down?	NO	*Yes or No If yes, provide date and time shut-down started and date and time shut down ended.*
Reason for shutdown	N/A	

General Information

Business Number *(9 digit number - can be found on company tax forms)*	81120 0021	
6 Digit NAICS Code *(North American Industrial Classification System (NAICS) codes are self-delcared. If you do not know yours, please click on the link below)* http://www.statcan.gc.ca/pub/12-501-x/12-501-x2012001-eng.pdf	332313	
NPRI I.D.	7071	*If known*
Current Environmental Permits NOTE: KGCLP has a new "Amended Environmental Compliance Approval" Number: 8108-AEUPR4, issued Oct 31, 2016.	ON0195400	*Ontario Hazardous Waste Generation Number*
	8108-AEUPR4 (AIR) 4208-5M3NMV (SEWAGE)	*Environmental Compliance Approvals (formerly "CofA"),*
		Environmental Activity and Sector Registry

2024 Facility Information

Pollution Prevention Activities (Mandatory for all facilities who have reported to NPRI)

Did the facility prepare or implement any pollution prevention plans?	No	*Yes or No*
If yes,		*Were any pollution prevention plans required by notice under CEPA, 1999?*
		Were any pollution prevention plans prepared or implemented for another government agency or under another Act of Parliament?
		Were any pollution prevention plans prepared or implemented on a voluntary basis?
Comments (Pollution Prev.) *(Optional)*		*Water/energy conservation? Environmental initiatives and results obtained.*

Offsite Disposal and Transfer Information

Disposal Company	Miller Waste Systems Inc.	*Name*
	1220 SQUIRES BEACH ROAD	*Street address*
	PICKERING, ON L1W 3Z5	*City, Province*
	(905) 426-4222	*Postal Code, Country*
Recycling Company	Combined Metal Industries Inc. (CMI)	*Name*
	8470 Keele Street	*Street address*
	Concord, ON	*City, Province*
	L4K 2S1, Canada	*Postal Code, Country*

Additional Information

1)	***Total amount of natural gas consumed (m^3)***	173,575	
2)	***Total amount of diesel fuel consumed (L)***	n/a	*Exclude fuel used for vehicles (eg. forklifts)*
3)	***Total amount of propane fuel consumed (kg)***	n/a	*Exclude fuel used for vehicles (eg. forklifts)*
4)	***Total amount of gasoline fuel consumed (kg)***	n/a	*Exclude fuel used for vehicles (eg. forklifts)*
5)	Do you have a wastewater treatment process for process or non-process water in-house? ***If No, then skip to question 6)***	NO	
	-Amount of water processed (gallons)	n/a	
	-Is filter cake generated from this process? ***If No, then skip to question 6)***	n/a	
	-Has the filter cake been analyzed (i.e. hazardous or non-hazardous)? ***If Yes, please provide the laboratory analysis***	n/a	
	-How much filter cake was disposed of in the previous year?	n/a	
6)	Are there any unpaved roads on the site? ***If No, then ignore the following questions***	YES	
	-Total number of vehicles on site which used unpaved sections	10	
	-Percent of vehicles using unpaved sections which are cars	10	
	-Percent of vehicles using unpaved sections which are trucks	90	
	-Average distance travelled by one (1) car on unpaved section per day (m)	300	(one way)
	-Average distance travelled by one (1) truck on unpaved section per day (m)	300	(one way)
	What methods of dust mitigation are used by the facility?	Proposal only - watering, application	(ex. frequent watering, chemical dust suppressant, etc.)
	If dust suppressant is used, what is the application rate?	n/a	L/m^2

2024 Process Questions

DUST COLLECTORS							
Asset #	Unit ID		No. of Units	Airflow Rate	Unit	2024 Operating Schedule	
						hours / week	weeks / year
130	Torit 54	TOOL ROOM	1	284	cfm	5	52
132	Torit 64	TOOL ROOM	1	500	cfm	5	52
459	MICRO AIR	GRID LINE	1	3000	cfm	40	52
459A	LEV-CO	GRID LINE	1	2065	cfm	40	52
534	TORIT	LASER/PLASMA	1	7315	cfm	40	52
536	Miller Filtair MWX-D Fume Extractor	WELDING	1	875	cfm	40	52
537	Miller Filtair MWX-D Fume Extractor	WELDING	1	875	cfm	40	52
538	Miller Filtair MWX-D Fume Extractor	WELDING	1	875	cfm	40	52
539	Miller Filtair MWX-D Fume Extractor	WELDING	1	875	cfm	40	52
540	Miller Filtair MWX-D Fume Extractor	WELDING	1	875	cfm	40	52
541	Miller Filtair MWX-D Fume Extractor	WELDING	1	875	cfm	40	52
542	Miller Filtair MWX-D Fume Extractor	WELDING	1	875	cfm	40	52
543	Miller Filtair MWX-D Fume Extractor	WELDING	1	875	cfm	40	52
559	ProStar (Praxair)	WELDING	1	700	cfm	40	52
607A	King 5 HP Dust Collection	Shipping (Crate Fabr.)	1	3510	cfm	15	52

PLASMA CUTTING

Type of Cutting	Dry	
2024 Operating time:	506.94	hr/yr
Material thickness:	Stainless steel, 8mm	approx.
Number of plasma cutters:	1	
Dust collector efficiency %:	99.5%	
Uptime %:	30.0%	***Percentage of time cutting takes place***

LASER CUTTING

Type of Cutting	Dry	
2024 Operating time:	2872.66	hr/yr
Material thickness:	Stainless steel, 8mm	approx.
Number of plasma cutters:	1	
Dust collector efficiency %:	99.5%	
Uptime %:	10.0%	***Percentage of time cutting takes place***

2024 Metal Processing

Material Name	Approx. % of Metal Processed through Plasma Cutting and/or TIG Welding
COILS (SHEET, PLATE, COIL)	
Carbon Steels (All Grades)	5
Duplex 2205	5
Aust Steel SS 321	5
Stainless Steel 304L	10
Aust Steel SS347	5
Stainless Steel 316L	10
Stainless Steel 317L	5
Stainless Steel 410	10
Titanium Gr. 2	0
Alloy 400 (Monel)	10
Alloy C276 (Hastalloy)	10
Incoloy 825	5
Alloy C22	0
ZIRCONIUM Z702	0
Inconel 625	10
Titanium Gr. 7	0
NI200	0
AL6XN (COL, PLT, SHT)	10
A387 (PLT)	0
IN600 (PLT)	0
HASTELLOY® C-2000®	0
AL6XN (301)	
Alloy A-20 (Carpenter) (840)	
SA-387 Gr 11 (840)	
NEW METALS 2024	
AL6XN (P, T, F)	**10**
Alloy C22 (P, T,F)	**10**

2024 Usages/Purchases/Recycled

Material	Used / Purchased	Processed Materials	Units	Recycled	Processed Materials	Units
COILS (SHEET, PLATE, COIL)						
Carbon Steels (All Grades)**	344,417	17,221	lbs	134,840	6,742	lbs
Duplex 2205*	529	0	lbs	0		lbs
Aust Steel SS 321**	495	25	lbs	0		
Stainless Steel 304L**	234,736	23,474	lbs	82,860	8,286	lbs
Aust Steel SS347	195	10	lbs	0		-
Stainless Steel 316L**	556,567	55,657	lbs	122,972	11,310	lbs
Stainless Steel 317L**	97,207	4,860	lbs	19,800	494	
Stainless Steel 410**	1,058,029	105,803	lbs	320,700	32,070	lbs
Titanium Gr. 2*	70		lbs	0		lbs
Alloy 400 (Monel)**	22,406	2,241	lbs	0		lbs
Alloy C276 (Hastalloy)**	21,011	2,101	lbs	0		lbs
Incoloy 825**	166	8	lbs	0		-
Alloy C22*	1,565	0	lbs	0		lbs
Inconel 625**	328	33	lbs	0	0	lbs
Titanium Gr. 7*	20	0	lbs	0	0	lbs
AL6XN**	1,706	171	lbs	0	0	lbs
Alloy A-20 (Carpenter) (840)	68	0	lbs	0		lbs
WELDING						
Stainless Steel 308L	231	231	lbs			
309L	657	657	lbs			
Stainless Steel 316L	304	304	lbs			
Stainless Steel 317L	99	99	lbs			
MIG-ER70S3	759	759	lbs			
.062X36 (622) TIG ROD	264	264	lbs			
ELECTR NI 2.5MM 625KS 3.7KG	159	159	lbs			
WIRE M& R NICRM04 276 035 33# SSP	80	80	lbs			
TUNGSTEN E3 BLEND 3/32 X7"	27	27	lbs			

2024 Usages/Purchases/Recycled

Material	Used / Purchased	Processed Materials	Units	Recycled	Processed Materials	Units
CHEMICALS						
Aqua Blast II	10	10	gal/year			
BIO REM 2000	1		L/Week			
Glass Beads***	1	1	bags/year			
Lamina Ball Lube	1	1	gallon/6 months			
Jokisch W2-OP Cutting and Grinding Fluid	5	5	L/6 months			
Houghto-Draw	45	45	gal/year			
K3000 Oil	45	45	gal/6 months			
Magslip-2730-C (was Magnu-Draw 30)	45	45	gal/year			
Mineral Spirits	45	45	gal/year			
Kool All	5	5	gal/year			
METALS (PIPE, TUBE, FITTINGS)						
Carbon Steels (All Grades)	17,316	17,316	lbs			
Duplex 2205	404	404	lbs			
SS 321	216	216	lbs			
SS 304L	5,943	5,943	lbs			
SS 316L	13,410	13,410	lbs			
Alloy C276	42	42	lbs			
ALLOY 400	102	102	lbs			
AL6XN	46	46	lbs			
Alloy C22	96	96	lbs			

* Exempt from reporting (retains article status; may only undergo shearing and/or MIG welding).
** Portion of material exempt from reporting (portion of material retains article status since it does not go through processes that would cause it to lose article status).
*** Exempt from reporting (no releases).

2024 Composition Summary

Material	Specific Gravity	Purchased/ Used (kg/yr)	Recycled (kg/yr)	Substance	CAS #	Average Wt. %	MPO* (kg/yr)
COILS (SHEET, PLATE, COIL)							
Carbon Steels (All Grades)**		7,811	3,058	Aluminum	7429-90-5	1%	7.81E+01
				Chromium	7440-47-3	2.5%	1.95E+02
				Copper	7440-50-8	0%	-
				Iron	7439-89-6	93%	7.26E+03
				Manganese	7439-96-5	1.5%	1.17E+02
				Molybdenum	7439-98-7	1.5%	1.17E+02
				Nickel	7440-02-0	2.5%	1.95E+02
				Silicon	7440-21-3	1%	7.81E+01
Aust Steel SS 321**		11.23		Carbon	7440-44-0	0.01%	-
				Chromium	7440-47-3	18%	2.02E+00
				Iron	7439-89-6	65%	7.30E+00
				Manganese	7439-96-5	2%	2.25E-01
				Molybdenum	7439-98-7	0.36%	-
				Nickel	7440-02-0	10.5%	1.18E+00
				Phosphorous	7723-14-0	0.045%	-
				Silicon	7440-21-3	0.51%	-
				Sulfur	7704-34-9	0.0002%	-
				Titanium	7440-32-6	0.7%	-
Stainless Steel 304L**		10,647	3,758	Carbon	7440-44-0	0.015%	-
				Chromium	7440-47-3	19%	2.02E+03
				Iron	7439-89-6	70%	7.45E+03
				Manganese	7439-96-5	1%	1.06E+02
				Nickel	7440-02-0	10%	1.06E+03
				Phosphorous	7723-14-0	0.023%	-
				Silicon	7440-21-3	0.5%	-
				Sulfur	7704-34-9	0.015%	-
Aust Steel SS347		4.42	0	Carbon	7440-44-0	0.015%	-
				Chromium	7440-47-3	19%	8.40E-01
				Iron	7439-89-6	70%	3.10E+00
				Manganese	7439-96-5	1%	4.42E-02
				Nickel	7440-02-0	10%	4.42E-01
				Phosphorous	7723-14-0	0.023%	-
				Silicon	7440-21-3	0.5%	-
				Sulfur	7704-34-9	0.015%	-
Stainless Steel 316L**		25,245	5,130	Carbon	7440-44-0	0.0075%	-
				Chromium	7440-47-3	16.5%	4.17E+03
				Iron	7439-89-6	65%	1.64E+04
				Manganese	7439-96-5	1.3%	3.26E+02
				Molybdenum	7439-98-7	2.1%	5.23E+02
				Nickel	7440-02-0	10%	2.53E+03
				Phosphorous	7723-14-0	0.03%	-
				Silicon	7440-21-3	0.48%	-
				Sulfur	7704-34-9	0.001%	-
Stainless Steel 317L**		2,205	224	Carbon	7440-44-0	0.015%	-
				Chromium	7440-47-3	19%	4.19E+02
				Iron	7439-89-6	61%	1.34E+03
				Manganese	7439-96-5	2%	4.41E+01
				Molybdenum	7439-98-7	3.5%	7.72E+01
				Nickel	7440-02-0	13%	2.87E+02
				Phosphorous	7723-14-0	0.045%	-
				Silicon	7440-21-3	1%	2.20E+01
				Sulfur	7704-34-9	0.03%	-
Stainless Steel 410**		47,991	14,547	Carbon	7440-44-0	0.017%	-
				Aluminum	7429-90-5	0.018%	-
				Chromium	7440-47-3	12.02%	5.77E+03
				Iron	7439-89-6	87%	4.18E+04
				Manganese	7439-96-5	0.29%	-
				Nickel	7440-02-0	0.13%	-
				Nitrogen	7727-37-9	0.009%	-
				Phosphorous	7723-14-0	0.02%	-
				Silicon	7440-21-3	0.43%	-
				Sulfur	7704-34-9	0.002%	-
Alloy 400 (Monel)**		1,016	0	Aluminum	7429-90-5	0.5%	-
				Carbon	7440-44-0	0.2%	-
				Copper	7440-50-8	31%	3.15E+02
				Iron	7439-89-6	2.5%	2.54E+01
				Manganese	7439-96-5	2%	2.03E+01
				Nickel	7440-02-0	66.5%	6.76E+02
				Phosphorous	7723-14-0	0.02%	-
				Silicon	7440-21-3	0.5%	-
				Sulfur	7704-34-9	0.015%	-
				Tin	7440-31-5	0.006%	-
				Lead	7439-92-1	0.006%	-
				Zinc	7440-66-6	0.02%	-
Alloy C276 (Hastalloy)**		953	0	Carbon	7440-44-0	0.004%	-
				Chromium	7440-47-3	15.9%	1.52E+02
				Cobalt	7440-48-4	1.3%	1.24E+01
				Iron	7439-89-6	6.2%	5.91E+01
				Manganese	7439-96-5	0.4%	-
				Molybdenum	7439-98-7	15.7%	1.50E+02
				Nickel	7440-02-0	56.9%	5.42E+02
				Phosphorous	7723-14-0	0.01%	-
				Silicon	7440-21-3	0.03%	-
				Sulfur	7704-34-9	0%	-
				Tungsten	7440-33-7	0%	-
				Vanadium	7440-62-2	0.02%	-

2024 Composition Summary

Material	Specific Gravity	Purchased/ Used (kg/yr)	Recycled (kg/yr)	Substance	CAS #	Average Wt. %	MPO* (kg/yr)
Incoloy 825**		4	0	Aluminum	7429-90-5	0.095%	-
				Carbon	7440-44-0	0.009%	-
				Chromium	7440-47-3	22.4%	8.43E-01
				Cobalt	7440-48-4	0.17%	6.40E-03
				Copper	7440-50-8	1.98%	7.45E-02
				Iron	7439-89-6	31.47%	1.18E+00
				Manganese	7439-96-5	0.44%	-
				Molybdenum	7439-98-7	3.26%	1.23E-01
				Nickel	7440-02-0	38.84%	1.46E+00
				Phosphorous	7723-14-0	0.018%	-
				Silicon	7440-21-3	0.3%	-
				Sulfur	7704-34-9	0.001%	-
WELDING CONSUMABLES							
Stainless Steel 308L		105		Carbon	7440-44-0	0.03%	-
				Chromium	7440-47-3	23.4%	2.45E+01
				Iron	7439-89-6	61.2%	6.41E+01
				Manganese	7439-96-5	1.8%	1.89E+00
				Nickel	7440-02-0	13%	1.36E+01
				Silicon	7440-21-3	0.6%	-
309L		298		Carbon	7440-44-0	0.03%	-
				Chromium	7440-47-3	19%	5.66E+01
				Iron	7439-89-6	69%	2.06E+02
				Manganese	7439-96-5	1.8%	5.36E+00
				Nickel	7440-02-0	9.7%	2.89E+01
				Silicon	7440-21-3	0.45%	-
Stainless Steel 316L		138		Carbon	7440-44-0	0.02%	-
				Chromium	7440-47-3	17%	2.34E+01
				Iron	7439-89-6	65%	8.96E+01
				Manganese	7439-96-5	2%	2.76E+00
				Molybdenum	7439-98-7	2.5%	3.45E+00
				Nickel	7440-02-0	12%	1.65E+01
				Phosphorous	7723-14-0	0.05%	-
				Silicon	7440-21-3	1%	1.38E+00
				Sulfur	7704-34-9	0.03%	-
Stainless Steel 317L		45		Carbon	7440-44-0	0.03%	-
				Chromium	7440-47-3	19%	8.53E+00
				Iron	7439-89-6	61%	2.74E+01
				Manganese	7439-96-5	2%	8.98E-01
				Molybdenum	7439-98-7	3.5%	1.57E+00
				Nickel	7440-02-0	13%	5.84E+00
				Phosphorous	7723-14-0	0.05%	-
				Silicon	7440-21-3	1%	4.49E-01
				Sulfur	7704-34-9	0.03%	-
TUNGSTEN E3 BLEND 3/32 X7"		12		Mixture	-	100.00%	-
TIG ROD MS 70S2 1/16X36 10#		12		Iron	7439-89-6	75.00%	9.19E+00
				Manganese	7439-96-5	3.00%	3.67E-01
				Silicon	7440-21-3	0.55%	-
				Titanium	7440-32-6	0.55%	-
MIG-ER70S3		344		Carbon	7440-44-0	0.09%	-
				Manganese	7439-96-5	1.15%	3.96E+00
				Silicon	7440-21-3	0.6%	-
				Phosphorous	7723-14-0	0.01%	-
				Sulfur	7704-34-9	0.01%	-
				Copper	7440-50-8	0.15%	-
				Molybdenum	7439-98-7	0.08%	-
				Nickel	7440-02-0	0.08%	-
				Titanium + Zirconium	NA-01	0.008%	-
				Aluminum	7429-90-5	0.01%	-
				Iron	7439-89-6	97.82%	3.37E+02
HOBART 7018		0.00		Calcium Carbonate	1317-65-3	1%	0.00E+00
				Cellulose	9004-34-6	2.5%	0.00E+00
				Fluorospar	7789-75-5	6.5%	0.00E+00
				Iron	7439-89-6	70%	0.00E+00
				Magnesium Carbonate	546-93-0	2.5%	0.00E+00
				Manganese	7439-96-5	3%	0.00E+00
				Potassium Oxide	12136-45-7	1%	0.00E+00
				Silica	14808-60-7	4%	0.00E+00
				Silicon	7440-21-3	1%	0.00E+00
				Sodium Oxide	1313-59-3	1%	0.00E+00
				Strontium Carbonate	1633-05-2	1%	0.00E+00
				Titanium Dioxide	13463-67-7	5%	0.00E+00
70181*****		0	0	Aluminum oxide	1344-28-1	100%	0.00E+00
				Calcium Carbonate	1317-65-3	1%	0.00E+00
				Cellulose	9004-34-6	2.5%	0.00E+00
				Chromium	7440-47-3	0%	-
				Fluorospar	7789-75-5	6.5%	0.00E+00
				Iron	7439-89-6	70%	0.00E+00
				Magnesium Carbonate	546-93-0	2.5%	0.00E+00
				Manganese	7439-96-5	3%	0.00E+00
				Mica	12001-26-2	100%	0.00E+00
				Molybdenum	7439-98-7	100%	0.00E+00
				Nickel	7440-02-0	0%	-
				Potassium Oxide	12136-45-7	1%	0.00E+00
				Silica	14808-60-7	4%	0.00E+00
				Silicon	7440-21-3	1%	0.00E+00
				Sodium Oxide	1313-59-3	1%	0.00E+00
				Strontium Carbonate	1633-05-2	1%	0.00E+00
				Titanium Dioxide	13463-67-7	5%	0.00E+00

2024 Composition Summary

Material	Specific Gravity	Purchased/ Used (kg/yr)	Recycled (kg/yr)	Substance	CAS #	Average Wt. %	MPO* (kg/yr)
WeldRod ER2594 - Lincoln ER2594		0.00		Iron	7439-89-6	75%	0.00E+00
				Chromium	7440-47-3	35%	0.00E+00
				Nickel	7440-02-0	7.5%	0.00E+00
				Molybdenum	7439-98-7	3%	0.00E+00
				Manganese	7439-96-5	3%	0.00E+00
				Silicon	7440-21-3	0.55%	-
				Tungsten	7440-33-7	0.55%	-
				Copper	7440-50-8	0.55%	-
				Cobalt	7440-48-4	0.55%	0.00E+00
Lincoln Electric 7018		0.00		Iron	7439-89-6	75.0%	0.00E+00
				Limestone	1317-65-3	7.5%	0.00E+00
				Calcium fluoride	7789-75-5	7.5%	0.00E+00
				Manganese	7439-96-5	3.0%	0.00E+00
				Zircon	14940-68-2	3.0%	0.00E+00
				Titanium dioxide	13463-67-7	3.0%	0.00E+00
				Sodium silicate	1344-09-8	3.0%	0.00E+00
				Potassium silicate	1312-76-1	3.0%	0.00E+00
				Quartz	14808-60-7	0.6%	-
				Silicon	7440-21-3	0.6%	-
				Hydroxyethyl cellulose	9004-62-0	0.6%	-
				Carboxymethyl cellulose, sodium salt	9004-32-4	0.6%	-
				Silicon dioxide	7631-86-9	0.6%	-
				Lithium silicate	10102-24-6	0.6%	-
				Aluminum oxide	1344-28-1	0.6%	-
CHEMICALS							
BFX All-Purpose Cleaner	1.020	532.21		C10-C16 Ethoyxlated Alcohols	68002-97-1	7.5%	3.99E+01
				(2-Methoxyethylethoxy) Propanol	34590-94-8	3%	1.60E+01
				Sodium Citrate	68-04-2	3%	1.60E+01
Lamina Ball Lube	1.000	7.57		No Hazardous Ingredients	NA	0%	-
Trim E206	0.974	0.00		Petroleum Oil	8002-05-9	45%	0.00E+00
				Triethanolamine	102-71-6	5.5%	0.00E+00
Jokisch W2-OP Cutting and Grinding Fluid	1.050	11		Amide, Tallo-fett, N,N-Bis(hydroxyethyl)	68155-20-4	7.5%	7.88E-01
CommDraw 2904 Drawing Compound Concentrate	1.000	0		Triethanolamine	102-71-6	17.5%	0.00E+00
K3000 Oil	2.100	341		No Hazardous Ingredients	NA	0%	-
Magnacool 70	1.000	0.00		Hydrotreated heavy naphthenic	64742-52-5	20%	0.00E+00
Magslip-2730-C (was Magnu-Draw 30)	1.000	170		Not WHMIS Controlled	NA	0%	-
Mineral Spirits	0.740	126		Mineral Spirits	64475-85-0	100%	1.26E+02
Aqua Blast II	1.009	38		Tetrapotassium Pyrophosphate	7320-34-5	15%	5.73E+00
BIO REM 2000	1.079	56		Aqua	7732-18-5	40%	2.25E+01
				microbes atcc6633	FOTH-1127313	20%	1.13E+01
				enzymes	9014-08-8	15%	8.44E+00
				polyproylenc glycol	25322-69-4	15%	8.44E+00
				monoammonium phosphate	7722-76-1	10%	5.63E+00
Houghto-Draw	0.985	172		mineral oil	-		
				rosin oil	8002-16-2	10%	
				sulfonic acids,petroleum, sodium salts	68608-26-4	10%	
				mineral oil	-	10%	
				mineral oil	-	10%	
				alcohols,c6-10, ethoxylated propoxylated	68987-81-5	3%	
Kool All	1.009	19		Hydrotreated naphthenic petrolem	64742-52-5	20%	3.82E+00
				Diethylene glycol monobutyl ether	112-34-5	3%	5.73E-01
				hexahydro-1,3,5-tris (2-hydroxyethyl)-s-triazine	4719-04-4	3%	5.73E-01
				Triethanolamine	102-71-6	3%	5.73E-01
				Monoethanolamine	141-43-5	1%	1.91E-01
Versadet (Oakite)	1.000	1.89		No Hazardous Ingredients	NA	0%	-
METALS (PIPE, TUBE, FITTINGS)							
Carbon Steels (All Grades)		7,854		Aluminum	7429-90-5	1%	7.85E+01
				Chromium	7440-47-3	2.5%	1.96E+02
				Copper	7440-50-8	0.16%	-
				Iron	7439-89-6	93%	7.30E+03
				Manganese	7439-96-5	1.5%	1.18E+02
				Molybdenum	7439-98-7	1.25%	9.82E+01
				Nickel	7440-02-0	2.5%	1.96E+02
				Silicon	7440-21-3	1%	7.85E+01
Duplex 2205		183	0	Carbon	7440-44-0	0.015%	-
				Chromium	7440-47-3	22%	4.03E+01
				Iron	7439-89-6	67.82%	1.24E+02
				Manganese	7439-96-5	1%	1.83E+00
				Molybdenum	7439-98-7	3%	5.49E+00
				Nickel	7440-02-0	5.5%	1.01E+01
				Nitrogen	7727-37-9	0.14%	-
				Phosphorous	7723-14-0	0.015%	-
				Silicon	7440-21-3	0.5%	-
				Sulfur	7704-34-9	0.01%	-
SS 321		98	0	Carbon	7440-44-0	0.01%	-
				Chromium	7440-47-3	18%	1.76E+01
				Iron	7439-89-6	65%	6.36E+01
				Manganese	7439-96-5	2%	1.96E+00
				Molybdenum	7439-98-7	0.36%	-
				Nickel	7440-02-0	10.5%	1.03E+01
				Phosphorous	7723-14-0	0.045%	-
				Silicon	7440-21-3	0.51%	-
				Sulfur	7704-34-9	0%	-
				Titanium	7440-32-6	0.7%	-
SS 304L		2,696		Carbon	7440-44-0	0.04%	-
				Chromium	7440-47-3	19%	5.12E+02
				Iron	7439-89-6	70.173%	1.89E+03
				Manganese	7439-96-5	1%	2.70E+01
				Nickel	7440-02-0	9.25%	2.49E+02
				Phosphorous	7723-14-0	0.023%	-
				Silicon	7440-21-3	0.5%	-
				Sulfur	7704-34-9	0.015%	-

2024 Composition Summary

Material	Specific Gravity	Purchased/ Used (kg/yr)	Recycled (kg/yr)	Substance	CAS #	Average Wt. %	MPO* (kg/yr)
SS 316L		6,082		Carbon	7440-44-0	0.015%	-
				Chromium	7440-47-3	17%	1.03E+03
				Iron	7439-89-6	65%	3.95E+03
				Manganese	7439-96-5	2%	1.22E+02
				Molybdenum	7439-98-7	2.5%	1.52E+02
				Nickel	7440-02-0	12%	7.30E+02
				Phosphorous	7723-14-0	0.045%	-
				Silicon	7440-21-3	1%	6.08E+01
				Sulfur	7704-34-9	0.03%	-
SS317L		0		Carbon	7440-44-0	0.03%	-
				Chromium	7440-47-3	19%	0.00E+00
				Iron	7439-89-6	61%	0.00E+00
				Manganese	7439-96-5	2%	0.00E+00
				Molybdenum	7439-98-7	3.5%	0.00E+00
				Nickel	7440-02-0	13%	0.00E+00
				Phosphorous	7723-14-0	0.045%	-
				Silicon	7440-21-3	1%	0.00E+00
				Sulfur	7704-34-9	0.03%	-
Alloy C276		19		Carbon	7440-44-0	0.004%	-
				Chromium	7440-47-3	15.9%	3.04E+00
				Cobalt	7440-48-4	1.3%	2.49E-01
				Iron	7439-89-6	6.2%	1.19E+00
				Manganese	7439-96-5	0.4%	-
				Molybdenum	7439-98-7	15.7%	3.01E+00
				Nickel	7440-02-0	56.9%	1.09E+01
				Phosphorous	7723-14-0	0.01%	-
				Silicon	7440-21-3	0.03%	-
				Sulfur	7704-34-9	0%	-
				Tungsten	7440-33-7	0%	-
				Vanadium	7440-62-2	0.02%	-
AL6XN		21		Iron	7439-89-6	65.00%	
				Nickel	7440-02-0	18.50%	
				Chromium	7440-47-3	15.50%	
				Cobalt	7440-48-4	10.00%	
				Copper	7440-50-8	5.00%	
				Manganese	7439-96-5	16.00%	
				Molybdenum	7439-98-7	5.00%	
				Silicon	7440-21-3	1.00%	
				Tungsten	7440-33-7	3.00%	
Alloy C22		44		Nickel	7440-02-0	56.00%	
				Chromium	7440-47-3	22.00%	
				Molybdenum	7439-98-7	13.00%	
				Iron	7439-89-6	3.00%	
				Cobalt	7440-48-4	2.50%	
				Tungsten	7440-33-7	3.00%	
				Manganese	7439-96-5	0.50%	
				Silicon	7440-21-3	0.08%	
				Vanadium	7440-62-2	0.35%	
				Copper	7440-50-8	0.50%	
ALLOY 400		46		Carbon	7440-44-0	0.11%	-
				Copper	7440-50-8	31%	1.43E+01
				Iron	7439-89-6	1.74%	8.05E-01
				Manganese	7439-96-5	1.09%	5.04E-01
				Nickel	7440-02-0	64.74%	3.00E+01
				Silicon	7440-21-3	0.17%	-
				Sulfur	7704-34-9	0.005%	-
Inconel 625**		0		Aluminum	7429-90-5	0.22%	-
				Carbon	7440-44-0	0.04%	-
				Chromium	7440-47-3	21.7%	0.00E+00
				Cobalt	7440-48-4	3.45%	0.00E+00
				Manganese	7439-96-5	0.19%	-
				Molybdenum	7439-98-7	8.22%	0.00E+00
				Phosphorous	7723-14-0	0.01%	-
				Silicon	7440-21-3	0.23%	-
				Sulfur	7704-34-9	0%	-
				Tantalum-Niobium	NA-02	0.01%	-
				Nickel	7440-02-0	66%	0.00E+00
				Titanium	7440-32-6	0.17%	-
Incoloy 825**		0		Aluminum	7429-90-5	0.095%	-
				Carbon	7440-44-0	0.009%	-
				Chromium	7440-47-3	22.4%	0.00E+00
				Cobalt	7440-48-4	0.17%	-
				Copper	7440-50-8	1.98%	0.00E+00
				Iron	7439-89-6	31.47%	0.00E+00
				Manganese	7439-96-5	0.44%	-
				Molybdenum	7439-98-7	3.26%	0.00E+00
				Nickel	7440-02-0	38.84%	0.00E+00
				Phosphorous	7723-14-0	0.02%	-
				Silicon	7440-21-3	0.3%	-
				Sulfur	7704-34-9	0.001%	-

* MPO calculated for substances equal to or greater than concentration thresholds.

** "Purchased/Used" and "Recycled" values for these materials represent the portion that loses article status and not the full amount listed in the "2024 Usages/Purchases/Recycled" table in Appendix VIII.

APPENDIX VI

Calculation Datasheets and Summary Tables

(14 Pages)

Natural Gas Emissions

Consumption : 173,575 m^3
6,129,801 ft^3

Substance	CAS #	Emission Factor ($lb/1000000\ ft^3$)	Emission Rate (kg/yr)	VOC?
Sulphur Dioxide	7446-09-5	0.6	1.67E+00	
Nitrogen Oxides	11104-93-1	100	2.78E+02	
Carbon Monoxide	630-08-0	84	2.34E+02	
Nitrous Oxide	10024-97-2	2.2	6.12E+00	
Total Particulate Matter	NA - M08	-	5.28E+00	
Particulate Matter <=10 micrometers	NA - M09	-	5.28E+00	
Particulate Matter <=2.5 micrometers	NA - M10	1.9	5.28E+00	
Carbon Dioxide	124-38-9	120,000	3.34E+05	
TOC	NA	11	3.06E+01	
Lead	7439-92-1	0.0005	1.39E-03	
Methane	74-82-8	2.3	6.39E+00	
VOC	NA - M16	5.5	1.53E+01	Y
Speciated Organic Compounds				
2-Methylnaphthalene	91-57-6	0.000024	6.67E-05	Y
3-Methylchloranthrene	56-49-5	< 0.0000018	5.00E-06	Y
7,12-Dimethylbenz(a)anthracene	57-97-6	< 0.000016	4.45E-05	Y
Acenaphthene	83-32-9	< 0.0000018	5.00E-06	Y
Acenaphthylene	208-96-8	< 0.0000018	5.00E-06	Y
Anthracene	120-12-7	< 0.0000024	6.67E-06	Y
Benz(a)anthracene	56-55-3	< 0.0000018	5.00E-06	Y
Benzene	71-43-2	0.0021	5.84E-03	Y
Benzo(a)pyrene	50-32-8	< 0.0000012	3.34E-06	Y
Benzo(b)fluoranthene	205-99-2	< 0.0000018	5.00E-06	Y
Benzo(g,h,I)perylene	191-24-2	< 0.0000012	3.34E-06	Y
Benzo(k)fluoranthene	207-08-9	< 0.0000018	5.00E-06	Y
Butane	106-97-8	2.1	5.84E+00	Y
Benzo(a)phenanthrene	218-01-9	< 0.0000018	5.00E-06	Y
Dibenzo(a,h)anthracene	53-70-3	< 0.0000012	3.34E-06	Y
Dichlorobenzene	25321-22-6	0.0012	3.34E-03	
Ethane	74-84-0	3.1	8.62E+00	
Fluoranthene	206-44-0	0.000003	8.34E-06	Y
Fluorene	86-73-7	0.0000028	7.79E-06	Y
Formaldehyde	50-00-0	0.075	2.09E-01	Y
Hexane	110-54-3	1.8	5.00E+00	Y
Indeno(1,2,3-cd)pyrene	193-39-5	< 0.0000018	5.00E-06	Y
Naphthalene	91-20-3	0.00061	1.70E-03	Y
Pentane	109-66-0	2.6	7.23E+00	Y
Phenanthrene	85-01-8	0.000017	4.73E-05	Y
Propane	74-98-6	1.6	4.45E+00	Y
Pyrene	129-00-0	0.00005	1.39E-04	Y
Toluene	108-88-3	0.0034	9.45E-03	Y

Natural Gas Emissions

Substance	CAS #	Emission Factor (lb/1000000 ft^3)	Emission Rate (kg/yr)	VOC?
Metals				
Arsenic	7440-38-2	0.0002	5.56E-04	
Barium	7440-39-3	0.0044	1.22E-02	
Beryllium	7440-41-7	< 0.000012	3.34E-05	
Cadmium	7440-43-9	0.0011	3.06E-03	
Chromium	7440-47-3	0.0014	3.89E-03	
Cobalt	7440-48-4	0.000084	2.34E-04	
Copper	7440-50-8	0.00085	2.36E-03	
Manganese	7439-96-5	0.00038	1.06E-03	
Mercury	7439-97-6	0.00026	7.23E-04	
Molybdenum	7439-98-7	0.0011	3.06E-03	
Nickel	7440-02-0	0.0021	5.84E-03	
Selenium	7782-49-2	0.000024	6.67E-05	
Vanadium	7440-62-2	0.0023	6.39E-03	
Zinc	7440-66-6	0.029	8.06E-02	

Sample Calculation

NOx Emission Rate = Consumption x Emission Factor
= 6,129,801 ft^3/yr X 100 lb/10^6 ft^3 X 0.4536 kg/lb
= 278 kg/yr

Reference

Emission Factors from USEPA AP-42, "Compilation of Air Pollution Emission Factors", Section 1.4, 1998
For Boilers < 100MMBtu/hour

Plasma Cutting Emissions

Process Operating Conditions

Operating times:	507	hr/yr
Material thickness:	Stainless Steel, 8 mm	
Type of cutting:	Dry	
PM emission factor:	35	g/min
Number of tables:	1	
Dust collector efficiency:	99.5%	

Emission Estimation Methodology

-Emissions for Particulate Matter (PM) were based on the emission factors for dry cutting developed by the Swedish Institute of Production Engineering Research.

-Emissions of the individual metal contaminants were estimated by pro-rating the particulate matter emission rate against the individual percent compositions.

-It is assumed that 100% of the Iron emissions will be converted to Iron Oxide. Iron Oxide has therefore been assumed to be equal to the Iron emission rate.

-It is assumed that 100% of the Aluminum emissions will be converted to Aluminum Oxide. Aluminum Oxide has therefore been assumed to be equal to the Aluminum emission rate.

-Hexavalent chromium emissions were based on "Welding Operations" provided by the County of San Diego. A 10% conversion factor of chromium to hexavalent chromium was used based on the total fumes from welding and the average chromium weight percent in the metal.

Substance	CAS #	Avg. Wt. Percent	Emission Rate (kg/yr)
Particulate Matter	NA - M10	100%	5.32E+00
Aluminum	7429-90-5	0.37%	1.95E-02
Iron	7439-89-6	50.1%	2.67E+00
Lead	7439-92-1	0.0060%	3.19E-04
Manganese	7439-96-5	1.2%	6.26E-02
Molybdenum	7439-98-7	5.1%	2.74E-01
Nickel	7440-02-0	25.7%	1.37E+00
Silicon	7440-21-3	0.54%	2.87E-02
Tin	7440-31-5	0.0060%	3.19E-04
Titanium	7440-32-6	0.44%	2.32E-02
Carbon	7440-44-0	0.031%	1.65E-03
Chromium	7440-47-3	17.0%	9.05E-01
Hexavalent Chromium	18540-29-9	-	9.05E-02
Cobalt	7440-48-4	1.6%	8.73E-02
Copper	7440-50-8	8.4%	4.49E-01
Vanadium	7440-62-2	0.020%	1.06E-03
Zinc	7440-66-6	0.020%	1.06E-03
Sulfur	7704-34-9	0.0100%	5.30E-04
Phosphorous	7723-14-0	0.026%	1.37E-03
Nitrogen	7727-37-9	0.088%	4.66E-03
Hafnium	7440-58-6	0.80%	4.26E-02
Hydrogen	1333-74-0	0.0040%	2.13E-04
Zirconium	7440-67-7	99.2%	5.28E+00

Plasma Cutting Emissions

Sample Calculations

PM Emission Rate = Emission Factor x Number of Tables x Operating Hours x Percent Emitted
= 35 g/min x 1 table x (100 % - 99.5 %) x 60 min/h x 507 hr/yr ÷ 1,000 g/kg
= 5.3 kg/yr

Aluminum Emission Rate = PM Emission Rate x Avg. Wt. Percent
= 5.3 kg/yr x 0.37%
= 0.020 kg/yr

Hexavalent Chromium Emission Rate = Chromium Emission Rate x Conversion Factor
= 0.9 kg/yr x 10%
= 0.090 kg/yr

Process Emissions Summary

Substance	CAS #	Average Emission Rate (kg/yr)	Emission Estimation Technique
Hydrogen	1333-74-0	2.13E-04	E
Hexavalent Chromium	18540-29-9	9.05E-02	O
Aluminum Oxide	1344-28-1	1.95E-02	O
Iron Oxide	7439-89-7	2.67E+00	O
Lead	7439-92-1	3.19E-04	E
Manganese	7439-96-5	6.26E-02	E
Molybdenum	7439-98-7	2.74E-01	E
Nickel	7440-02-0	1.37E+00	E
Silicon	7440-21-3	2.87E-02	E
Tin	7440-31-5	3.19E-04	E
Titanium	7440-32-6	2.32E-02	E
Carbon	7440-44-0	1.65E-03	E
Chromium	7440-47-3	9.05E-01	E
Cobalt	7440-48-4	8.73E-02	E
Copper	7440-50-8	4.49E-01	E
Hafnium	7440-58-6	4.26E-02	E
Vanadium	7440-62-2	1.06E-03	E
Zinc	7440-66-6	1.06E-03	E
Zirconium	7440-67-7	5.28E+00	E
Sulfur	7704-34-9	5.30E-04	E
Phosphorous	7723-14-0	1.37E-03	E
Nitrogen	7727-37-9	4.66E-03	E
Particulate Matter	NA - M10	5.32E+00	E

E - Published Emission Factors

References

1) Process Operating Conditions and MSDS compositions provided by Koch-Glitsch Canada LP. Via e-mail, April 15, 2025. And from Pinchin file 91185.

2) US EPA AP-42 Related Emission Factor Documents. Metallurgical Industry, Chapter 12. <http://www.epa.gov/ttnchie1/efdocs/welding.pdf>.

3) County of San Diego Emission Factors for Welding (http://www.sdapcd.org/toxics/emissions/welding/welding.html).

Laser Cutting Emissions

Process Operating Conditions

Actual operating times:	2873	hr/yr
Material thickness:	Stainless Steel, 8 mm	
Type of cutting:	Dry	
Maximum PM emission factor:	35	g/min
Number of laser cutters:	1	
Dust collector efficiency:	99.5%	

Emission Estimation Methodology

-A search for emission factors from laser cutting of metal did not turn up any values. As such, an emission factor developed by the Swedish Institute of Production Engineering Research and posted on the US EPA's AP-42 website was used to determine particulate matter emission rates from the laser cutter.

-The laser cutting uses a dry process; therefore, the maximum dry emission factors were used in the calculations for a conservative estimate.

-Emissions of the individual metal contaminants were estimated by pro-rating the particulate matter emission rate against the individual percent compositions.

-It is assumed that 100% of the Iron emissions will be converted to Iron Oxide. Iron Oxide has therefore been assumed to be equal to the Iron emission rate.
-It is assumed that 100% of the Aluminum emissions will be converted to Aluminum Oxide. Aluminum Oxide has therefore been assumed to be equal to the Aluminum emission rate.

-Hexavalent chromium emissions were based on "Welding Operations" provided by the County of San Diego. A 10% conversion factor of chromium to hexavalent chromium was used based on the total fumes from welding and the average chromium weight percent in the metal.

Contaminant	CAS #	Max. Wt. Percent	Maximum Emission Rate (g/s)
Particulate Matter	n/a	100%	3.02E+01
Aluminum	7429-90-5	0.37%	1.11E-01
Iron	7439-89-6	50.1%	1.51E+01
Lead	7439-92-1	0.0060%	1.81E-03
Manganese	7439-96-5	1.2%	3.55E-01
Molybdenum	7439-98-7	5.1%	1.55E+00
Nickel	7440-02-0	25.7%	7.76E+00
Silicon	7440-21-3	0.54%	1.63E-01
Tin	7440-31-5	0.0060%	1.81E-03
Titanium	7440-32-6	0.44%	1.31E-01
Carbon	7440-44-0	0.031%	9.36E-03
Chromium	7440-47-3	17.0%	5.13E+00
Hexavalent Chromium	18540-29-9	-	5.13E-01
Cobalt	7440-48-4	1.6%	4.95E-01
Copper	7440-50-8	8.4%	2.54E+00
Vanadium	7440-62-2	0.020%	6.03E-03
Zinc	7440-66-6	0.020%	6.03E-03
Sulfur	7704-34-9	0.0100%	3.00E-03
Phosphorous	7723-14-0	0.026%	7.76E-03
Nitrogen	7727-37-9	0.088%	2.64E-02
Hafnium	7440-58-6	0.80%	2.41E-01
Hydrogen	1333-74-0	0.0040%	1.21E-03
Zirconium	7440-67-7	99.2%	2.99E+01

Laser Cutting Emissions

Sample Calculations

PM Emission Rate = Emission Factor x Number of Tables x Operating Hours x Dust Collector Efficiency
= 35 g/min x 1 table x (100 % - 99.5 %) x 60 min/h x 2873 hr/yr ÷ 1,000 g/kg
= 30.2 kg/yr

Aluminum Emission Rate = PM Emission Rate x Avg. Wt. Percent
= 30.2 kg/yr x 0.37%
= 0.111 kg/yr

Hexavalent Chromium Emission Rate = Chromium Emission Rate x Conversion Factor
= 5.13 kg/yr x 10%
= 0.513 kg/yr

Process Emissions Summary

Substance	CAS #	Average Emission Rate (kg/yr)	Emission Estimation Technique
Hydrogen	1333-74-0	1.21E-03	E
Hexavalent Chromium	18540-29-9	5.13E-01	O
Aluminum Oxide	1344-28-1	1.11E-01	O
Iron Oxide	7439-89-7	1.51E+01	O
Lead	7439-92-1	1.81E-03	E
Manganese	7439-96-5	3.55E-01	E
Molybdenum	7439-98-7	1.55E+00	E
Nickel	7440-02-0	7.76E+00	E
Silicon	7440-21-3	1.63E-01	E
Tin	7440-31-5	1.81E-03	E
Titanium	7440-32-6	1.31E-01	E
Carbon	7440-44-0	9.36E-03	E
Chromium	7440-47-3	5.13E+00	E
Cobalt	7440-48-4	4.95E-01	E
Copper	7440-50-8	2.54E+00	E
Hafnium	7440-58-6	2.41E-01	E
Vanadium	7440-62-2	6.03E-03	E
Zinc	7440-66-6	6.03E-03	E
Zirconium	7440-67-7	2.99E+01	E
Sulfur	7704-34-9	3.00E-03	E
Phosphorous	7723-14-0	7.76E-03	E
Nitrogen	7727-37-9	2.64E-02	E
Particulate Matter	NA - M10	3.02E+01	E

E - Published Emission Factors

References

1) Process Operating Conditions and MSDS compositions provided by Koch-Glitsch Canada LP. Via e-mail, April 15, 2025, And from Pinchin file 91185.
2) US EPA AP-42 Related Emission Factor Documents. Metallurgical Industry, Chapter 12. <http://www.epa.gov/ttnchie1/efdocs/welding.pdf>.
3) Comparative performance rates of various non-traditional machining methods from Indian Institute of Technology Bombay presentation:
<http://www.me.iitb.ac.in/~ramesh/courses/ME338/non_trad.pdf>.
4) County of San Diego Emission Factors for Welding (http://www.sdapcd.org/toxics/emissions/welding/welding.html).

Dust Collector MIG Welding Emissions

Process Description: Dust Collectors for MIG Welding

Process Operating Conditions

Unit ID	No. of Units	Airflow Rate	Unit	Emission Factor (mg/m^3)	Operating Schedule		PM Emission Rate (kg/yr)
					hours/week	weeks/year	
Miller Filtair MWX-D Fume Extractor	1	875	cfm	20	40	52	6.18E+01
Miller Filtair MWX-D Fume Extractor	1	875	cfm	10	40	52	3.09E+01
Miller Filtair MWX-D Fume Extractor	1	875	cfm	10	40	52	3.09E+01
Miller Filtair MWX-D Fume Extractor	1	875	cfm	10	40	52	3.09E+01
Miller Filtair MWX-D Fume Extractor	1	875	cfm	10	40	52	3.09E+01
Miller Filtair MWX-D Fume Extractor	1	875	cfm	10	40	52	3.09E+01
Miller Filtair MWX-D Fume Extractor	1	875	cfm	10	40	52	3.09E+01
Miller Filtair MWX-D Fume Extractor	1	875	cfm	10	40	52	3.09E+01
ProStar (Praxair)	1	700	cfm	10	40	52	2.47E+01

Emission Estimation Methodology

-An emission factor of ~20 mg/m^3 (Table C-2 of “Procedure for Preparing an Emission Summary and Dispersion Modelling Report”, published by the MOE in March 2009) was used to estimate particulate emissions for the largest dust collector. The use of 10 mg/m^3 was used to estimate particulate emissions for the remaining dust collectors (methodology as validated by the MOE and presented in the ESDM guideline). Individual metal fumes were estimated using the average composition from the welding electrodes at the facility and the particulate emissions.

-It is assumed that 100% of the Iron emissions will be converted to Iron Oxide. Iron Oxide has therefore been assumed to be equal to the Iron emission rate.

-It is assumed that 100% of the Aluminum emissions will be converted to Aluminum Oxide. Aluminum Oxide has therefore been assumed to be equal to the Aluminum emission rate.

-Hexavalent chromium emissions were based on "Welding Operations" provided by the County of San Diego. A 5% conversion factor of chromium to hexavalent chromium was used based on the total fumes from welding and the average chromium weight percent in the metal.

Substance	CAS #	Avg. Composition (%)	Emission Rate (kg/yr)
Particulate Matter	NA - M10	100%	3.03E+02
Lithium silicate	10102-24-6	0.6%	1.67E+00
Potassium Oxide	12136-45-7	1.0%	3.03E+00
Potassium silicate	1312-76-1	3.0%	9.09E+00
Sodium Oxide	1313-59-3	1.0%	3.03E+00
Calcium Carbonate	1317-65-3	3.2%	9.60E+00
Sodium silicate	1344-09-8	3.0%	9.09E+00
Silica	14808-60-7	2.9%	8.64E+00
Zircon	14940-68-2	3.0%	9.09E+00
Strontium Carbonate	1633-05-2	1.0%	3.03E+00
Magnesium Carbonate	546-93-0	2.5%	7.58E+00
Magnesium	7439-95-4	2.8%	8.41E+00
Aluminum	7429-90-5	18.8%	5.70E+01
Iron	7439-89-6	45.2%	1.37E+02
Manganese	7439-96-5	1.9%	5.72E+00
Molybdenum	7439-98-7	17.4%	5.29E+01
Nickel	7440-02-0	30.7%	9.31E+01
Niobium	7440-03-1	1.8%	5.38E+00
Silicon	7440-21-3	0.8%	2.38E+00
Tantalum	7440-25-7	0.6%	1.67E+00
Titanium	7440-32-6	1.2%	3.65E+00
Tungsten	7440-33-7	21.5%	6.51E+01
Carbon	7440-44-0	0.1%	1.55E-01
Cobalt	7440-48-4	0.9%	2.58E+00
Chromium	7440-47-3	19.8%	6.01E+01
Hexavalent Chromium	18540-29-9	-	3.01E+00
Copper	7440-50-8	5.7%	1.73E+01
Vanadium	7440-62-2	0.2%	5.61E-01
Zinc	7440-66-6	0.1%	3.03E-01
Silicon dioxide	7631-86-9	0.6%	1.67E+00
Sulfur	7704-34-9	0.0%	5.83E-02
Phosphorous	7723-14-0	0.0%	7.20E-02
Fluorospar	7789-75-5	5.9%	1.78E+01
Carboxymethyl cellulose, sodium salt	9004-32-4	0.6%	1.67E+00
Cellulose	9004-34-6	2.5%	7.58E+00
Hydroxyethyl cellulose	9004-62-0	0.6%	1.67E+00
Titanium + Zirconium	NA-01	0.0%	2.27E-02

Sample Calculation

Particulate Matter from one Miller Filtair MWX-D Fume Extractor = Emission Factor x Flow Rate
= 10 mg/m^3 x 875 cfm x 0.0283 m^3/ft^3 x 60 m/h x 40 h/week x 52 wks/yr ÷ 1,000,000 mg/kg
= 30.9 kg/yr

Chromium = Total Particulate Matter Emission Rate x Average Composition
= 30.9 kg/yr x 19.8%
= 60.1 kg/yr

Hexavalent Chromium Emission Rate = Chromium Emission Rate x Conversion Factor
= 60.1 kg/yr x 5%
= 3.01 kg/yr

Process Emissions Summary

Substance	CAS #	Emission Rate (kg/yr)	Emission Estimation Technique
Particulate Matter	NA - M10	3.03E+02	O
Lithium silicate	10102-24-6	1.67E+00	O
Potassium Oxide	12136-45-7	3.03E+00	O
Potassium silicate	1312-76-1	9.09E+00	O
Sodium Oxide	1313-59-3	3.03E+00	O
Calcium Carbonate	1317-65-3	9.60E+00	O
Sodium silicate	1344-09-8	9.09E+00	O
Silica	14808-60-7	8.64E+00	O
Zircon	14940-68-2	9.09E+00	O
Strontium Carbonate	1633-05-2	3.03E+00	O
Hexavalent Chromium	18540-29-9	3.01E+00	O
Magnesium Carbonate	546-93-0	7.58E+00	O
Manganese	7439-96-5	5.72E+00	O
Magnesium	7439-95-4	8.41E+00	O
Molybdenum	7439-98-7	5.29E+01	O
Nickel	7440-02-0	9.31E+01	O
Niobium	7440-03-1	5.38E+00	O
Silicon	7440-21-3	2.38E+00	O
Tantalum	7440-25-7	1.67E+00	O
Titanium	7440-32-6	3.65E+00	O
Tungsten	7440-33-7	6.51E+01	O
Carbon	7440-44-0	1.55E-01	O
Chromium	7440-47-3	6.01E+01	O
Cobalt	7440-48-4	2.58E+00	O
Copper	7440-50-8	1.73E+01	O
Vanadium	7440-62-2	5.61E-01	O
Silicon dioxide	7631-86-9	1.67E+00	O
Sulfur	7704-34-9	5.83E-02	O
Phosphorous	7723-14-0	7.20E-02	O
Fluorospar	7789-75-5	1.78E+01	O
Zinc	7440-66-6	3.03E-01	O
Carboxymethyl cellulose, sodium salt	9004-32-4	1.67E+00	O
Cellulose	9004-34-6	7.58E+00	O
Hydroxyethyl cellulose	9004-62-0	1.67E+00	O
Titanium + Zirconium	NA-01	2.27E-02	O

O - Engineering Estimate

References

1) Dust collector parameters provided by Koch-Glitsch Canada LP. Via e-mail, April 15, 2025. And from Pinchin file 97001.
2) MSDSs provided by Koch-Glitsch Canada LP. Via e-mail, December 5, 2023. And from Pinchin file 91185.
3) Particulate matter emission factor obtained from MOE's "Procedure for Preparing an ESDM Report", Table C-2, March 2009.
4) MOE Related Emissions Methodology. Reg. 419 Practitioners' Group Meeting Presentation. October, 2007.
5) County of San Diego Emission Factors for Welding (http://www.sdapcd.org/toxics/emissions/welding/welding.html).

Dust Collector TIG Welding Emissions

Process Description: Dust Collectors for TIG Welding

Process Operating Conditions

Unit ID	No. of Units	Airflow Rate	Unit	Emission Factor (mg/m³)	Operating Schedule		PM Emission Rate (kg/yr)
					hours/week	weeks/year	
Miller Filtair MWX-D Fume Extractor	1	875	cfm	20	1	50	1.49E+00
Miller Filtair MWX-D Fume Extractor	1	875	cfm	10	1	50	7.43E-01
Miller Filtair MWX-D Fume Extractor	1	875	cfm	10	1	50	7.43E-01
Miller Filtair MWX-D Fume Extractor	1	875	cfm	10	1	50	7.43E-01
Miller Filtair MWX-D Fume Extractor	1	875	cfm	10	1	50	7.43E-01
Miller Filtair MWX-D Fume Extractor	1	875	cfm	10	1	50	7.43E-01
Miller Filtair MWX-D Fume Extractor	1	875	cfm	10	1	50	7.43E-01
Miller Filtair MWX-D Fume Extractor	1	875	cfm	10	1	50	7.43E-01
ProStar (Praxair)	1	700	cfm	10	1	50	5.95E-01

Emission Estimation Methodology

-An emission factor of ~20 mg/m³ (Table C-2 of "Procedure for Preparing an Emission Summary and Dispersion Modelling Report", published by the MECP in March 2009) was used to estimate particulate emissions for the largest dust collector. The use of 10 mg/m³ was used to estimate particulate emissions for the remaining dust collectors (methodology as validated by the MECP and presented in the ESDM guideline). Individual metal fumes were estimated using the average composition from the welding electrodes at the facility and the particulate emissions.

NOTE: Any one of the above fume extractors can be used for TIG welding. TIG welding was only conducted for a total of 50 hours. As such, the fume extractor with the 20 mg/m³ emission factor was assumed to be operating for 50 hours while TIG welding was performed.
-It is assumed that 100% of the Iron emissions will be converted to Iron Oxide. Iron Oxide has therefore been assumed to be equal to the Iron emission rate.
-It is assumed that 100% of the Aluminum emissions will be converted to Aluminum Oxide. Aluminum Oxide has therefore been assumed to be equal to the Aluminum emission rate.

-Hexavalent chromium emissions were based on "Welding Operations" provided by the County of San Diego. A 10% conversion factor of chromium to hexavalent chromium was used based on the total fumes from welding and the average chromium weight percent in the metal.

Substance	CAS #	Avg. Composition (%)	Emission Rate (kg/yr)
Particulate Matter	NA - M10	100%	1.49E+00
Hydrogen	1333-74-0	0.00%	5.95E-05
Aluminum	7429-90-5	0.37%	5.51E-03
Iron	7439-89-6	47.40%	7.05E-01
Lead	7439-92-1	0.01%	8.92E-05
Manganese	7439-96-5	1.16%	1.73E-02
Molybdenum	7439-98-7	5.70%	8.47E-02
Nickel	7440-02-0	25.73%	3.82E-01
Niobium	7440-03-1	0.001%	1.49E-05
Silicon	7440-21-3	0.52%	7.68E-03
Tantalum	7440-25-7	1.00%	1.49E-02
Tin	7440-31-5	0.01%	8.92E-05
Titanium	7440-32-6	0.25%	3.73E-03
Carbon	7440-44-0	0.07%	1.06E-03
Chromium	7440-47-3	15.47%	2.30E-01
Cobalt	7440-48-4	0.71%	1.06E-02
Copper	7440-50-8	5.65%	8.40E-02
Hafnium	7440-58-6	0.80%	1.19E-02
Vanadium	7440-62-2	0.01%	2.08E-04
Zinc	7440-66-6	0.02%	2.97E-04
Zirconium	7440-67-7	99.20%	1.47E+00
Sulfur	7704-34-9	0.01%	1.68E-04
Phosphorous	7723-14-0	0.025%	3.67E-04
Nitrogen	7727-37-9	0.088%	1.30E-03
Hexavalent Chromium	18540-29-9	-	2.30E-02

Sample Calculation

Miller Filtair MWX-D Fume Extractor PM Emission Rate = Emission Factor x Flow Rate
= 20 mg/m^3 x 875 cfm x 0.0283 m^3/ft^3 x 60 m/h x 1 h/week x 50 wks/yr ÷ 1,000,000 mg/kg
= 1.49 kg/yr

Chromium Emission Rate = Total Particulate Matter Emission Rate x Average Composition
= 1.49 kg/yr x 15.5%
= 0.230 kg/yr

Hexavalent Chromium Emission Rate = Chromium Emission Rate x Conversion Factor
= 0.230 kg/yr x 10%
= 0.0230 kg/yr

Process Emissions Summary

Substance	CAS #	Emission Rate (kg/yr)	Emission Estimation Technique
Particulate Matter	NA - M10	1.49E+00	O
Hexavalent Chromium	18540-29-9	2.30E-02	O
Aluminum Oxide	1344-28-1	5.51E-03	O
Iron Oxide	7439-89-7	7.05E-01	O
Lead	7439-92-1	8.92E-05	O
Manganese	7439-96-5	1.73E-02	O
Molybdenum	7439-98-7	8.47E-02	O
Nickel	7440-02-0	3.82E-01	O
Niobium	7440-03-1	1.49E-05	O
Silicon	7440-21-3	7.68E-03	O
Tantalum	7440-25-7	1.49E-02	O
Tin	7440-31-5	8.92E-05	O
Titanium	7440-32-6	3.73E-03	O
Carbon	7440-44-0	1.06E-03	O
Chromium	7440-47-3	2.30E-01	O
Cobalt	7440-48-4	1.06E-02	O
Copper	7440-50-8	8.40E-02	O
Hafnium	7440-58-6	1.19E-02	O
Vanadium	7440-62-2	2.08E-04	O
Zinc	7440-66-6	2.97E-04	O
Zirconium	7440-67-7	1.47E+00	O
Sulfur	7704-34-9	1.68E-04	O
Phosphorous	7723-14-0	3.67E-04	O
Nitrogen	7727-37-9	1.30E-03	O
Hydrogen	1333-74-0	5.95E-05	O

O - Engineering Estimate

References

1) Dust collector parameters provided by Koch-Glitsch Canada LP. Via e-mail, April 15, 2025.
2) MSDSs provided by Koch-Glitsch Canada LP. From Pinchin file 91185.
3) Particulate matter emission factor obtained from MOE's "Procedure for Preparing an ESDM Report", Table C-2, March 2009.
4) MOE Related Emissions Methodology. Reg. 419 Practitioners' Group Meeting Presentation. October, 2007.
5) TIG welding operating hours from Koch-Glitsch Canada LP. Via e-mail, May 5, 2016
6) County of San Diego Emission Factors for Welding (http://www.sdapcd.org/toxics/emissions/welding/welding.html).

Dust Collector Emissions

Process Description: Dust Collector for Shipping Crate Fabrication, Tool Room and Grid Line

Process Operating Conditions

Unit ID	No. of Units	Airflow Rate	Unit	Emission Factor	Operating Schedule		PM Emission Rate
				(mg/m^3)	hours/week	weeks/year	(kg/yr)
King 5 HP Dust Collection	1	3510	cfm	10	15	52	4.65E+01
Torit 54	1	284	cfm	10	5	52	1.25E+00
Torit 64	1	500	cfm	10	5	52	2.21E+00
LEV-CO	1	2065	cfm	10	40	52	7.30E+01
TORIT	1	7315	cfm	10	40	52	2.59E+02
MICRO AIR	1	3000	cfm	20	40	52	2.12E+02

Emission Estimation Methodology

-An emission factor of ~20 mg/m^3 (Table C-2 of “Procedure for Preparing an Emission Summary and Dispersion Modelling Report”, published by the MECP in May 2019) was used to estimate particulate emissions for the largest dust collector. The use of 10 mg/m^3 was used to estimate particulate emissions for the remaining dust collectors (methodology as validated by the MECP and presented in the ESDM guideline).

Substance	CAS #	Avg. Composition (%)	Emission Rate (kg/yr)
Particulate Matter	NA - M08	100%	5.93E+02

Sample Calculation

King 5 HP Dust Collection Particulate Matter Emission Rate = Emission Factor x Total Flow Rate

= 10 mg/m^3 x 3510 cfm x 0.0283 m^3/ft^3 x 60 m/h x 15 h/week x 52 wks/yr ÷ 1,000,000 mg/kg

= 46.5 kg/yr

Process Emissions Summary

Substance	CAS #	Emission Rate (kg/yr)	Emission Estimation Technique
Particulate Matter	NA - M08	5.93E+02	O

O - Engineering Estimate

References

1) Dust collector parameters provided by Koch-Glitsch Canada LP. Via e-mail, April 15, 2025.
2) Particulate matter emission factor obtained from MECP's "Procedure for Preparing an ESDM Report", Table C-2, May 2019.
3) MOE Related Emissions Methodology. Reg. 419 Practitioners’ Group Meeting Presentation. October, 2007.

Road Dust Emissions

Total Particulate Matter, PM10, and PM2.5 releases from road dust caused by vehicular traffic on unpaved roads within facility boundaries are required to be included in release calculations, when travel on these roads is ≥ 10 000 vehicle kilometres travelled per year. [(1)]

Total Number of Vehicles on site:	10	
Distance Travelled per Vehicle (Daily Average km):	0.3	km/vehicle (one-way)
Number of Operating Days:	365	days

Determining total Vehicle Kilometres Travelled (*VKT*):

VKT (km) = Number of Vehicles per Day x Length of Unpaved Road x Number of Operating Days per Year x 2 (round trip)
= 12 vehicles/day x 0.3 km/vehicle x 365 days/yr x 2
= 2,190 VKT

The total VKT for the facility is less than the 10,000 VKT threshold; therefore, the facility is not required to report Total Particulate Matter, PM10, and PM2.5 emissions of dust from unpaved roads.

References

1) Guide to Reporting to the NPRI, 2013. Table 19.
2) Number of Vehicles and Road Length provided by Koch-Glitsch Canada LP via email, April 15, 2025.

2024 Facility Wide NPRI / GHG Substance Summary Table

Substance	CAS #	MPO (kg/yr)	Use (kg/yr)	Annual Release (Air) (kg/yr)	Annual Recycling (Off Site) (kg/yr)	Created (kg/yr)	Reporting Section
Nitrous Oxide	10024-97-2	6.12E+00	-	6.12E+00	0.00E+00	6.12E+00	GHG
Lithium silicate	10102-24-6	0.00E+00	-	1.67E+00	0.00E+00	0.00E+00	-
Triethanolamine	102-71-6	5.73E-01	5.73E-01	5.73E-01	0.00E+00	0.00E+00	-
Butane	106-97-8	5.84E+00	-	5.84E+00	0.00E+00	5.84E+00	5
Toluene	108-88-3	9.45E-03	-	9.45E-03	0.00E+00	9.45E-03	1A, 5
Pentane	109-66-0	7.23E+00	-	7.23E+00	0.00E+00	7.23E+00	5
Hexane	110-54-3	5.00E+00	-	5.00E+00	0.00E+00	5.00E+00	1A, 5
Diethylene glycol monobutyl ether	112-34-5	5.73E-01	5.73E-01	5.73E-01	0.00E+00	0.00E+00	5
Nitrogen Oxides	11104-93-1	2.78E+02	-	2.78E+02	0.00E+00	2.78E+02	4
Mica	12001-26-2	0.00E+00	-	0.00E+00	0.00E+00	0.00E+00	-
Anthracene	120-12-7	6.67E-06	-	6.67E-06	0.00E+00	6.67E-06	2
Potassium Oxide	12136-45-7	0.00E+00	-	3.03E+00	0.00E+00	0.00E+00	-
Carbon Dioxide	124-38-9	3.34E+05	-	3.34E+05	0.00E+00	3.34E+05	GHG
Pyrene	129-00-0	1.39E-04	-	1.39E-04	0.00E+00	1.39E-04	2
Baryum monoxide	1304-28-5	0.00E+00	-	0.00E+00	0.00E+00	0.00E+00	-
Calcium oxide	1305-78-8	0.00E+00	-	0.00E+00	0.00E+00	0.00E+00	-
Potassium silicate	1312-76-1	0.00E+00	-	9.09E+00	0.00E+00	0.00E+00	-
Sodium Oxide	1313-59-3	0.00E+00	-	3.03E+00	0.00E+00	0.00E+00	-
Calcium Carbonate	1317-65-3	0.00E+00	-	9.60E+00	0.00E+00	0.00E+00	-
Hydrogen	1333-74-0	0.00E+00	-	1.48E-03	0.00E+00	0.00E+00	-
Carbon black	1333-86-4	0.00E+00	-	0.00E+00	0.00E+00	0.00E+00	-
Sodium silicate	1344-09-8	0.00E+00	-	9.09E+00	0.00E+00	0.00E+00	-
Aluminum Oxide	1344-28-1	1.36E-01	-	1.36E-01	0.00E+00	1.36E-01	1A
Titanium Dioxide	13463-67-7	0.00E+00	-	0.00E+00	0.00E+00	0.00E+00	-
Monoethanolamine	141-43-5	1.91E-01	1.91E-01	1.91E-01	0.00E+00	0.00E+00	-
Silica	14808-60-7	0.00E+00	-	8.64E+00	0.00E+00	0.00E+00	-
Zircon	14940-68-2	0.00E+00	-	9.09E+00	0.00E+00	0.00E+00	-
Strontium Carbonate	1633-05-2	0.00E+00	-	3.03E+00	0.00E+00	0.00E+00	-
Benzo(g,h,I)perylene	191-24-2	3.34E-06	-	3.34E-06	0.00E+00	3.34E-06	2
Indeno(1,2,3-cd)pyrene	193-39-5	5.00E-06	-	5.00E-06	0.00E+00	5.00E-06	2
Benzo(b)fluoranthene	205-99-2	5.00E-06	-	5.00E-06	0.00E+00	5.00E-06	2
Fluoranthene	206-44-0	8.34E-06	-	8.34E-06	0.00E+00	8.34E-06	2
Benzo(k)fluoranthene	207-08-9	5.00E-06	-	5.00E-06	0.00E+00	5.00E-06	2
Acenaphthylene	208-96-8	5.00E-06	-	5.00E-06	0.00E+00	5.00E-06	2
Benzo(a)phenanthrene	218-01-9	5.00E-06	-	5.00E-06	0.00E+00	5.00E-06	2
Dichlorobenzene	25321-22-6	3.34E-03	-	3.34E-03	0.00E+00	3.34E-03	-
(2-Methoxyethylethoxy) Propanol	34590-94-8	1.60E+01	1.60E+01	1.60E+01	0.00E+00	0.00E+00	5
hexahydro-1,3,5-tris (2-hydroxyethyl)-s-triazin	4719-04-4	5.73E-01	5.73E-01	0.00E+00	0.00E+00	0.00E+00	-
Formaldehyde	50-00-0	2.09E-01	-	2.09E-01	0.00E+00	2.09E-01	1A, 5
Benzo(a)pyrene	50-32-8	3.34E-06	-	3.34E-06	0.00E+00	3.34E-06	2
Dibenzo(a,h)anthracene	53-70-3	3.34E-06	-	3.34E-06	0.00E+00	3.34E-06	2
Magnesium Carbonate	546-93-0	0.00E+00	-	7.58E+00	0.00E+00	0.00E+00	-
3-Methylchloranthrene	56-49-5	5.00E-06	-	5.00E-06	0.00E+00	5.00E-06	2
Benz(a)anthracene	56-55-3	5.00E-06	-	5.00E-06	0.00E+00	5.00E-06	2
7,12-Dimethylbenz(a)anthracene	57-97-6	4.45E-05	-	4.45E-05	0.00E+00	4.45E-05	2
Carbon Monoxide	630-08-0	2.34E+02	-	2.34E+02	0.00E+00	2.34E+02	4
Mineral Spirits	64475-85-0	1.26E+02	1.26E+02	1.26E+02	0.00E+00	0.00E+00	5
Hydrotreated heavy naphthenic	64742-52-5	3.82E+00	3.82E+00	0.00E+00	0.00E+00	0.00E+00	-
C10-C16 Ethoyxlated Alcohols	68002-97-1	3.99E+01	3.99E+01	0.00E+00	0.00E+00	0.00E+00	-
Sodium Citrate	68-04-2	1.60E+01	1.60E+01	0.00E+00	0.00E+00	0.00E+00	-
Amide, Tallo-fett, N,N-Bis(hydroxyethyl)	68155-20-4	7.88E-01	7.88E-01	0.00E+00	0.00E+00	0.00E+00	-
Benzene	71-43-2	5.84E-03	-	5.84E-03	0.00E+00	5.84E-03	1A, 5
Aluminum	7429-90-5	1.57E+02	1.71E+02	0.00E+00	3.32E+01	0.00E+00	1A
Iron Oxide	7439-89-7	1.85E+01	-	1.85E+01	0.00E+00	1.85E+01	-
Iron	7439-89-6	8.84E+04	8.84E+04	0.00E+00	2.16E+04	0.00E+00	-
Lead	7439-92-1	1.39E-03	6.10E-02	3.61E-03	0.00E+00	1.39E-03	1B
Manganese	7439-96-5	9.02E+02	1.05E+03	6.15E+00	1.96E+02	1.06E-03	1A
Mercury	7439-97-6	7.23E-04	-	7.23E-04	0.00E+00	7.23E-04	1B
Molybdenum	7439-98-7	1.19E+03	1.20E+03	5.48E+01	1.60E+02	3.06E-03	-
Nickel	7440-02-0	6.81E+03	6.90E+03	1.03E+02	1.01E+03	5.84E-03	1A
Niobium	7440-03-1	3.59E+00	3.59E+00	5.38E+00	0.00E+00	0.00E+00	-
Silicon	7440-21-3	2.42E+02	6.48E+02	2.58E+00	1.39E+02	0.00E+00	-
Tantalum	7440-25-7	0.00E+00	6.59E-01	1.68E+00	0.00E+00	0.00E+00	-
Tin	7440-31-5	0.00E+00	6.10E-02	2.22E-03	0.00E+00	0.00E+00	-
Titanium	7440-32-6	3.17E+01	3.32E+01	3.81E+00	0.00E+00	0.00E+00	-
Tungsten	7440-33-7	5.07E+00	7.01E+00	6.51E+01	0.00E+00	0.00E+00	-
Arsenic	7440-38-2	5.56E-04	-	5.56E-04	0.00E+00	5.56E-04	1B

2024 Facility Wide NPRI / GHG Substance Summary Table

Substance	CAS #	MPO (kg/yr)	Use (kg/yr)	Annual Release (Air) (kg/yr)	Annual Recycling (Off Site) (kg/yr)	Created (kg/yr)	Reporting Section
Barium	7440-39-3	1.22E-02	-	1.22E-02	0.00E+00	1.22E-02	-
Beryllium	7440-41-7	3.34E-05	-	3.34E-05	0.00E+00	3.34E-05	-
Cadmium	7440-43-9	3.06E-03	-	3.06E-03	0.00E+00	3.06E-03	1B
Carbon	7440-44-0	0.00E+00	1.66E+01	1.67E-01	3.46E+00	0.00E+00	-
Chromium	7440-47-3	1.47E+04	1.47E+04	6.64E+01	3.43E+03	3.89E-03	1A
Hexavalent Chromium	18540-29-9	3.63E+00	-	3.63E+00	0.00E+00	3.63E+00	1B
Cobalt	7440-48-4	1.48E+01	1.80E+01	3.17E+00	0.00E+00	2.34E-04	1B
Copper	7440-50-8	3.29E+02	3.45E+02	2.04E+01	0.00E+00	2.36E-03	1A
Hafnium	7440-58-6	0.00E+00	-	2.96E-01	0.00E+00	0.00E+00	-
Vanadium	7440-62-2	6.39E-03	4.99E-01	5.74E-01	0.00E+00	6.39E-03	1A
Zinc	7440-66-6	8.06E-02	2.03E-01	3.91E-01	0.00E+00	8.06E-02	1A
Zirconium	7440-67-7	0.00E+00	-	3.67E+01	0.00E+00	0.00E+00	-
Sulphur Dioxide	7446-09-5	1.67E+00	-	1.67E+00	0.00E+00	1.67E+00	4
Methane	74-82-8	6.39E+00	-	6.39E+00	0.00E+00	6.39E+00	GHG
Ethane	74-84-0	8.62E+00	-	8.62E+00	0.00E+00	8.62E+00	-
Propane	74-98-6	4.45E+00	-	4.45E+00	0.00E+00	4.45E+00	5
Silicon dioxide	7631-86-9	0.00E+00	-	1.67E+00	0.00E+00	0.00E+00	-
Sulfur	7704-34-9	0.00E+00	6.20E+00	6.20E-02	1.03E+00	0.00E+00	-
Phosphorous	7723-14-0	0.00E+00	2.45E+01	8.15E-02	5.39E+00	0.00E+00	-
Nitrogen	7727-37-9	0.00E+00	4.53E+00	3.24E-02	1.24E+00	0.00E+00	-
Selenium	7782-49-2	6.67E-05	-	6.67E-05	0.00E+00	6.67E-05	1B
Fluorospar	7789-75-5	0.00E+00	-	1.78E+01	0.00E+00	0.00E+00	1A
Petroleum Oil	8002-05-9	0.00E+00	-	0.00E+00	0.00E+00	0.00E+00	-
Acenaphthene	83-32-9	5.00E-06	-	5.00E-06	0.00E+00	5.00E-06	2
Phenanthrene	85-01-8	4.73E-05	-	4.73E-05	0.00E+00	4.73E-05	2
Fluorene	86-73-7	7.79E-06	-	7.79E-06	0.00E+00	7.79E-06	2
Carboxymethyl cellulose, sodium salt	9004-32-4	0.00E+00	-	1.67E+00	0.00E+00	0.00E+00	-
Cellulose	9004-34-6	0.00E+00	-	7.58E+00	0.00E+00	0.00E+00	-
Hydroxyethyl cellulose	9004-62-0	0.00E+00	-	1.67E+00	0.00E+00	0.00E+00	-
Naphthalene	91-20-3	1.70E-03	-	1.70E-03	0.00E+00	1.70E-03	1A
2-Methylnaphthalene	91-57-6	6.67E-05	-	6.67E-05	0.00E+00	6.67E-05	-
Tetrapotassium Pyrophosphate	7320-34-5	5.73E+00	5.73E+00	0.00E+00	0.00E+00	0.00E+00	-
Aqua	7732-18-5	2.25E+01	2.25E+01	0.00E+00	0.00E+00	0.00E+00	-
microbes atcc6633	FOTH-1127313	1.13E+01	1.13E+01	0.00E+00	0.00E+00	0.00E+00	-
enzymes	9014-08-8	8.44E+00	8.44E+00	0.00E+00	0.00E+00	0.00E+00	-
polyproylenc glycol	25322-69-4	8.44E+00	8.44E+00	0.00E+00	0.00E+00	0.00E+00	-
monoammonium phosphate	7722-76-1	5.63E+00	5.63E+00	0.00E+00	0.00E+00	0.00E+00	-
mineral oil	-	0.00E+00	4.66E+01	0.00E+00	0.00E+00	0.00E+00	-
rosin oil	8002-16-2	0.00E+00	1.72E+01	0.00E+00	0.00E+00	0.00E+00	-
sulfonic acids,petroleum, sodium salts	68608-26-4	0.00E+00	1.72E+01	0.00E+00	0.00E+00	0.00E+00	-
alcohols,c6-10, ethoxylated propoxylated	68987-81-5	0.00E+00	5.16E+00	0.00E+00	0.00E+00	0.00E+00	-
TOC	NA	3.06E+01	-	3.06E+01	0.00E+00	3.06E+01	-
Titanium + Zirconium	NA-01	0.00E+00	2.58E-02	2.27E-02	0.00E+00	0.00E+00	-
Tantalum-Niobium	NA-02	0.00E+00	1.49E-03	0.00E+00	0.00E+00	0.00E+00	-
Total Particulate Matter	NA - M08	-	-	9.39E+02	0.00E+00	9.39E+02	4
Particulate Matter <=10 micrometers	NA - M09	-	-	9.39E+02	0.00E+00	9.39E+02	4
Particulate Matter <=2.5 micrometers	NA - M10	-	-	9.39E+02	0.00E+00	9.39E+02	4
VOC	NA - M16	-	-	1.59E+02	0.00E+00	1.53E+01	4

NOTE 1: VOCs are assumed to be 100% emitted to atmosphere, unless otherwise indicated

NOTE 2: MPOs for reportable substances contained in a compound (eg. Zinc in "Zinc Oxide") were calculated based on the individual contaminant molecular weight and the compound molecular weight.