

Hamilton Works

Toxic Substance Reduction Plan Summary

Name of Substance	CAS # of Substance
VOC (Volatile Organic Compounds)	NA – 16
Hexane (All isomers excluding hexane)	NA - 32
Acetone	67-64-1
Asbestos (friable form only)	1332-21-4
Arsenic (and its compounds)	7440-38-2
Dioxins & Furans	NA - DF
Tetrachlorodibenzo- <i>p</i> -dioxin	1746-01-6
Pentachlorodibenzo- <i>p</i> -dioxin	40321-76-4
Hexachlorodibenzo- <i>p</i> -dioxin	39227-28-6
Hexachlorodibenzo- <i>p</i> -dioxin	19408-74-3
Hexachlorodibenzo- <i>p</i> -dioxin	57653-85-7
Heptachlorodibenzo- <i>p</i> -dioxin	35822-46-9
Octachlorodibenzo- <i>p</i> -dioxin	3268-87-9
Tetrachlorodibenzofuran	51207-31-9
Pentachlorodibenzofuran	57117-31-4
Pentachlorodibenzofuran	57117-41-6
Hexachlorodibenzofuran	70648-26-9
Hexachlorodibenzofuran	72918-21-9
Hexachlorodibenzofuran	57117-44-9
Hexachlorodibenzofuran	60851-34-5
Heptachlorodibenzofuran	67562-39-4
Heptachlorodibenzofuran	55673-89-7
Octachlorodibenzofuran	39001-02-0
Hexachlorobenzene	118-74-1

Issued June 1, 2015

BASIC FACILITY INFORMATION

Facility Identification and Site Address		
Company Name	U. S. Steel Canada Inc.	
Facility Name	Hamilton Works	
Facility Address	Physical Address: 386 Wilcox Street, Hamilton, Ontario L8N 3T1	Mailing Address: (Same as physical address)
Facility Latitude	43.264380	
Facility Longitude	-79.827229	
Number of Employees	1105	
NPRI ID	2984	
MOE ID Number (O. Reg 127/01)	5097	

Canadian Parent Company (PC) Information	
Legal Name	U.S. STEEL CANADA INC. ACIER U.S. CANADA INC.
Business Address	386 Wilcox Street, Hamilton, Ontario L8L 8K5
Mailing Address	386 Wilcox Street, P.O. Box 2030, Hamilton, Ontario L8N 3T1
Percent Ownership for each PC	100 per cent
CRA Business Number	105011837

Primary North American Industrial Classification System Code (NAICS)	
2 Digit NAICS Code	33 - Manufacturing
4 Digit NAICS Code	3311 - Iron & Steel Mills & Ferro-Alloy Manufacturing
6 Digit NAICS Code	331110 - Iron & Steel Mills & Ferro-Alloy Manufacturing

Spatial Coordinates (NAD83)	Map Datum	Zone	Accuracy Estimate	UTM Easting	UTM Northing
Southwest corner of property	NAD83	17	100	594756	4791659.00
Physical location of main entrance	NAD83	17	100	595333	4791386.00

Company Contact Information	
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Company Contact Information	
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BASIC FACILITY INFORMATION (cont.)

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NOTE:

This Plan Summary accurately reflects the plan of each toxic substance listed on page 1.

Name & CAS # of Substance	VOC (Volatile Organic Compounds)	NA – 16
	Hexane (All isomers excluding hexane)	NA - 32

STATEMENT OF INTENT

U. S. Steel Canada – Hamilton Works is committed to reducing or, where possible, eliminating the creation of VOCs and Hexane isomers providing that circumstances permit it, while complying with all Federal and Provincial Regulations.

REDUCTION OBJECTIVES

Our objective is to reduce the creation of VOCs and Hexane isomers to the extent that circumstances permit. We continue to implement best operating and maintenance practices to reduce the releases of VOCs and Hexane isomers.

DESCRIPTION WHY SUBSTANCE IS CREATED OR USED

VOCs and Hexane isomers are incidentally generated from the cokemaking process. These are emitted as fugitives from the coke ovens and, at the same time, contained in raw coke oven gas (COG) that is sent to the By-Products Plant for the recovery of tar, light oil and anhydrous ammonia. Clean COG is supplied back to the coke ovens as fuel which still contains VOCs and Hexane isomers that get destroyed during combustion in the underfiring system with some minor amounts released to the coke oven stack. VOCs and Hexane isomers that are contained in COG are also carried over but destroyed during usage at the Central Boiler Station (CBS). VOCs and Hexane isomers are also incidentally generated during combustion of natural gas used in the boilers, galvanizing furnaces and other heating systems that use the fuel. A minor amount of VOCs and Hexane isomers is also generated during extraction of oil fumes from the cold reduction mills.

There are no options identified for implementation to reduce the creation of VOCs and Hexane isomers as explained under each category.

Category	Options To Be Considered for Implementation	Potential Implementation Steps and Time Line
Materials or Feedstock Substitution	There is no option to reduce the creation of VOCs and Hexane isomers in the cokemaking process. The use of coal, COG, natural gas and rolling oil are vital to the core businesses of the company.	
Product Design or Reformulation	No option can be identified since the formulation of in-process and finished products as well as the by-products are inherent to the existing company processes, operation and equipment.	

Equipment or Process Modification	There is no further option for VOCs and Hexane isomers reduction under this category since equipment modification projects and process changes optimizing the use of coal, COG, natural gas and rolling oil and avoiding wastage have long been implemented. System and practices are already in place so that any spill are being recovered and reused/recycled.
Spill and Leak Prevention	There is no option to reduce the creation of VOCs and Hexane isomers. The use of coal, COG, natural gas and rolling oil are vital to the core businesses of the company.
On-Site Reuse or Recycling	There is no further option for VOCs and Hexane isomers reduction under this category since equipment modification projects and process changes optimizing the use of coal, COG, natural gas and rolling oil and avoiding wastage have long been implemented. System and practices are already in place so that any spill are being recovered and reused/recycled.
Improved Inventory Management or Purchasing Techniques	There is no option to reduce the creation of VOCs and Hexane isomers. The use of coal, COG, natural gas and rolling oil are vital to the core businesses of the company. Coal inventory is managed to minimize quantities, however, excess inventory must be built for the winter months when shipping is not possible. Selection of coal supplier is also limited to sister companies and industrial partners.
Training or Improved Operating Practices	There is no further option for VOCs and Hexane isomers reduction under this category since equipment modification projects and process changes optimizing the use of coal, COG, natural gas and rolling oil and avoiding wastage have long been implemented. System and practices are already in place so that any spill are being recovered and reused/recycled.

Name & CAS # of Substance	Acetone	67-64-1
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STATEMENT OF INTENT

U. S. Steel Canada – Hamilton Works is committed to reducing or, where possible, eliminating the creation of Dioxins & Furans providing that circumstances permit it, while complying with all Federal and Provincial Regulations.

REDUCTION OBJECTIVES

Our objective is to reduce the creation of Acetone to the extent that circumstances permit. We continue to implement best operating and maintenance practices to reduce the releases of Acetone.

DESCRIPTION WHY SUBSTANCE IS CREATED OR USED

Acetone is incidentally generated during the cokemaking process and contained in raw coke oven gas (COG) in small concentration. COG is sent to the By-Products Plant for the recovery of tar, light oil and anhydrous ammonia. Clean COG is supplied back to the coke ovens as fuel which still contains Acetone that get destroyed during combustion in the underfiring system. Acetone contained in COG is also carried over but destroyed during usage at the Central Boiler Station (CBS).

The NAICS code for the iron and steel sector is 331110. This code is not listed in Ontario Regulation 127/01, therefore, Hamilton Works does not meet the reporting criteria for Reg. 127/01. The requirement for a toxic substance reduction plan under O. Reg 455 is, therefore, not necessary.

Category	Options To Be Considered for Implementation	Potential Implementation Steps and Time Line
Materials or Feedstock Substitution	There is no option to reduce the creation of Acetone in the cokemaking process. The use of coal and COG are vital to the core businesses of the company.	
Product Design or Reformulation	No option can be identified since the formulation of in-process and finished products as well as the by-products are inherent to the existing cokemaking processes, operation and equipment.	
Equipment or Process Modification	There is no further option for Acetone reduction under this category since equipment modification projects and process changes optimizing the use of coal and COG and avoiding wastage have long been implemented. System and practices are already in place so that any spill are being recovered and reused/recycled.	

Spill and Leak Prevention	There is no option to reduce the creation of Acetone in the cokemaking process. The use of coal and COG are vital to the core businesses of the company.
On-Site Reuse or Recycling	There is no further option for Acetone reduction under this category since equipment modification projects and process changes optimizing the use of coal and COG and avoiding wastage have long been implemented. System and practices are already in place so that any spill are being recovered and reused/recycled.
Improved Inventory Management or Purchasing Techniques	There is no further option for Acetone reduction under this category since equipment modification projects and process changes optimizing the use of coal and COG and avoiding wastage have long been implemented. System and practices are already in place so that any spill are being recovered and reused/recycled.
Training or Improved Operating Practices	There is no further option for Acetone reduction under this category since equipment modification projects and process changes optimizing the use of coal and COG and avoiding wastage have long been implemented. System and practices are already in place so that any spill are being recovered and reused/recycled.

Name & CAS # of Substance	Asbestos (friable form only)	1332-21-4
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STATEMENT OF INTENT

U. S. Steel Canada – Hamilton Works is committed to reducing or, where possible, eliminating the use of Asbestos providing that circumstances permit it, while complying with all Federal and Provincial Regulations.

REDUCTION OBJECTIVES

Our objective is to reduce the use of Asbestos to the extent that circumstances permit. We continue to implement best operating and maintenance practices to reduce the releases of Asbestos.

DESCRIPTION WHY SUBSTANCE IS CREATED OR USED

Asbestos is incidentally present in the insulating material used in the old heating structures of the plant. As obsolete components are torn down, some asbestos have to be disposed properly. There is no option to reduce the disposal of Asbestos once these are collected.

Category	Options To Be Considered for Implementation	Potential Implementation Steps and Time Line
Materials or Feedstock Substitution	There is no applicable reduction option under this category.	
Product Design or Reformulation	There is no applicable reduction option under this category.	
Equipment or Process Modification	There is no applicable reduction option under this category.	
Spill and Leak Prevention	There is no applicable reduction option under this category.	
On-Site Reuse or Recycling	There is no applicable reduction option under this category.	
Improved Inventory Management or Purchasing Techniques	There is no applicable reduction option under this category.	
Training or Improved Operating Practices	There is no applicable reduction option under this category.	

Name & CAS # of Substance	Arsenic (and its compounds)	7440-38-2
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STATEMENT OF INTENT

U. S. Steel Canada – Hamilton Works is committed to reducing or, where possible, eliminating the use of Arsenic providing that circumstances permit it, while complying with all Federal and Provincial Regulations.

REDUCTION OBJECTIVES

Our objective is to reduce the use of Arsenic to the extent that circumstances permit. We continue to implement best operating and maintenance practices to reduce the releases of Arsenic, if any.

DESCRIPTION WHY SUBSTANCE IS CREATED OR USED

Arsenic are incidentally introduced into the cokemaking process and products as impurities in coal. These are incidentally present in scrap used in steelmaking and the steel products that are processed in the cold rolling mills. The by-products of Hamilton Works’ steelmaking and ironmaking processes such as BOF oxides, slag fines, BF filter cake, etc. also incidentally contain these elements. Large quantities of these legacy piles are stored onsite but are gradually shipped out to recyclers. The oily wastewater from the cold rolling mills is processed in the oil recovery plant. The oil remnants, therefore, contain traces of Arsenic.

Category	Options To Be Considered for Implementation	Potential Implementation Steps and Time Line
Materials or Feedstock Substitution	No option is available under this category due to the following reasons: <ul style="list-style-type: none"> • Arsenic is an incidental impurity and naturally occurring in coal. Coal is vital to the cokemaking process and the company’s choice of supply source is limited to whatever chemical composition is available in the market. • Arsenic already exists as incidental components in steelmaking and ironmaking by-products. To reduce the quantity of legacy piles, more shipment and transfer of quantities for recycling will occur in the future. 	
Product Design or Reformulation	No option can be identified since the formulation of in-process and finished products as well as the by-products are inherent to the existing cokemaking, cold rolling and galvanizing processes, operation and equipment.	
Equipment or Process Modification	No option can be identified for the use of Arsenic in operations since the existing process and equipment have already been proven as adequate for cokemaking, cold rolling and galvanizing.	
Spill and Leak Prevention	There is no further option for Arsenic reduction under this category for cokemaking, cold rolling and galvanizing processes since equipment modification projects and process changes optimizing the use of feed material	

	and avoiding scrap or waste have long been implemented. System and practices are already in place so that steel scrap or any spill of coal are being recovered and reused/recycled.
On-Site Reuse or Recycling	There is no further option for Arsenic reduction under this category for cokemaking, cold rolling and galvanizing processes since equipment modification projects and process changes optimizing the use of feed material and avoiding scrap or waste have long been implemented. System and practices are already in place so that steel scrap or any spill of coal are being recovered and reused/recycled.
Improved Inventory Management or Purchasing Techniques	No option is available under this category due to the following reasons: <ul style="list-style-type: none"> • Arsenic is an incidental impurity and naturally occurring in coal. Coal is vital to the cokemaking process and the company's choice of supply source is limited to whatever chemical composition is available in the market. • Arsenic already exists as incidental components in steelmaking and ironmaking by-products. To reduce the quantity of legacy piles, more shipment and transfer of quantities for recycling will occur in the future.
Training or Improved Operating Practices	There is no further option for Arsenic reduction under this category for cokemaking, cold rolling and galvanizing processes since equipment modification projects and process changes optimizing the use of feed material and avoiding scrap or waste have long been implemented. System and practices are already in place so that steel scrap or any spill of coal are being recovered and reused/recycled.

Name & CAS # of Substance	CAS No.
Dioxins & Furans	NA - DF
Tetrachlorodibenzo- <i>p</i> -dioxin	1746-01-6
Pentachlorodibenzo- <i>p</i> -dioxin	40321-76-4
Hexachlorodibenzo- <i>p</i> -dioxin	39227-28-6
Hexachlorodibenzo- <i>p</i> -dioxin	19408-74-3
Hexachlorodibenzo- <i>p</i> -dioxin	57653-85-7
Heptachlorodibenzo- <i>p</i> -dioxin	35822-46-9
Octachlorodibenzo- <i>p</i> -dioxin	3268-87-9
Tetrachlorodibenzofuran	51207-31-9
Pentachlorodibenzofuran	57117-31-4
Pentachlorodibenzofuran	57117-41-6
Hexachlorodibenzofuran	70648-26-9
Hexachlorodibenzofuran	72918-21-9
Hexachlorodibenzofuran	57117-44-9
Hexachlorodibenzofuran	60851-34-5
Heptachlorodibenzofuran	67562-39-4
Heptachlorodibenzofuran	55673-89-7
Octachlorodibenzofuran	39001-02-0
Hexachlorobenzene	118-74-1

STATEMENT OF INTENT

U. S. Steel Canada – Hamilton Works is committed to reducing or, where possible, eliminating the use of Dioxins & Furans providing that circumstances permit it, while complying with all Federal and Provincial Regulations.

REDUCTION OBJECTIVES

Our objective is to reduce the use of Dioxins & Furans to the extent that circumstances permit. We continue to implement best operating and maintenance practices to reduce the releases of Dioxins & Furans.

DESCRIPTION WHY SUBSTANCE IS CREATED OR USED

Dioxins & Furans are incidentally present in East Side Lagoon sludge. This sludge is part of the feedstock to the Sinter Plant. Upon closure of the Sinter Plant in 2008, large amount of this sludge has been left and stored on site. Subsequent efforts to find on-site recycling alternatives for the East Side Lagoon sludge did not produce positive results. Off site shipment of these legacy piles, either for

disposal or sale to recyclers, did not occur until 2013 and 2014. There was no option to reduce the transfer and disposal of Dioxins & Furans as off site transfer becomes inevitable.

Category	Options To Be Considered for Implementation	Potential Implementation Steps and Time Line
Materials or Feedstock Substitution	There is no applicable reduction option under this category.	
Product Design or Reformulation	There is no applicable reduction option under this category.	
Equipment or Process Modification	There is no applicable reduction option under this category.	
Spill and Leak Prevention	There is no applicable reduction option under this category.	
On-Site Reuse or Recycling	There is no applicable reduction option under this category.	
Improved Inventory Management or Purchasing Techniques	There is no applicable reduction option under this category.	
Training or Improved Operating Practices	There is no applicable reduction option under this category.	

CERTIFICATION BY HIGHEST RANKING EMPLOYEE

As of June 1, 2015, I certify that I have read the toxic substance reduction plans for all substances listed in the front page of this Summary and am familiar with their contents, and to my knowledge that plans are factually accurate and, with the exception of the regulatory deadline, comply with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under this Act.

The December 31st deadline has not been met because of the following reasons:

- It was presumed that a Reduction Plan for the VOCs as a group is not necessary because separate certified Reduction Plans had already been submitted for speciated VOCs such as Benzene, Toluene, Xylene, Ethylene, Methanol, n-Hexane and Styrene.
- The requirement for a toxic substance reduction plan for Acetone under O. Reg 455/09 is, not required. The NAICS code for the iron and steel sector is 331110. This code is not listed in Ontario Regulation 127/01, therefore, Hamilton Works does not meet the reporting criteria for Reg. 127/01 and the toxic substance reduction planning under the Reg. 455/09.
- After the closure of the Hamilton Works' Sinter Plant in 2008, succeeding efforts to find on-site recycling alternatives for the East Side Lagoon sludge did not produce positive results. Off site shipment of these legacy piles, either for disposal or sale to recyclers, did not occur until 2013 and 2014. There was no option to reduce the amount of Dioxins & Furans as off site transfer became inevitable. This scenario was not considered a significant process change that is why it did not trigger the development and preparation of toxic substance reduction plan for the Dioxins & Furans that was supposed to be due on December 31, 2014.



Andrew Sebastyan – Manager, Environmental Affairs
U. S. Steel Canada Inc. Hamilton Works

CERTIFICATION BY LICENSED PLANNER

As of June 1, 2015, I, Emelita Simbahon, certify that I am familiar with the processes at U. S. Steel Canada – Hamilton Works that use or create toxic substances listed in the front page of this Summary, that I agree with the estimates referred to in subparagraphs 7 iii, iv, and v of subsection 4 (1) of the Toxics Reduction Act, 2009 that are set out in the plans and that, with the exception of the regulatory deadline, the plans comply with that Act and Ontario Regulation 455/09 (General) made under this Act.



Emelita Simbahon [Planner License #TSRP0066]
Environmental Engineer / Toxic Substance Reduction Planner & Certifier
U. S. Steel Canada – Hamilton Works