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TF: 1.866.919.8899
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Regina, Saskatchewan
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WINNIPEG
300 - 1600 Ness Avenue,
Madison Square
Winnipeg, Manitoba
R3J 3W7
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TF: 1.866.919.4531
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Suite 307,
London, Ontario
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Unit 30,
Ottawa, Ontario
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F: 867.979.3302

TOXIC SUBSTANCE REDUCTION PLAN FOR PROPYLENE

Sivaco Ontario,
330 Thomas Street
Ingersoll Ontario N5C 3K5

December 16, 2013

Table of Contents

1 General Information

1.1 Basic Facility Information

Toxic Substance Information		
Name of Substance	Propylene	
Facility Identification and Site Address		
Company Name	SIVACO Ontario	
Facility Address	Physical Address: 330 Thomas Street, Ingersoll Ontario, N5C 3K5	Mailing Address: 330 Thomas Street, Ingersoll Ontario, N5C 3K5
Spatial Coordinates of Facility	17N 4763628 509188 *Expressed in Universal Transverse Mercator (UTM) within a North American Datum 83 (NAD83) datum.*	
Number of Employees	75 *Number of full time employee equivalents*	
NPRI ID	3328	
Parent Company Information *(if applicable)*		
Parent Company Name	SIVACO Wire Group 2004 L.P.	
Parent Company Address	Physical Address: 1040 Country Road 17 C/O IRM LOriginal Ontario K0B 1K0	Mailing Address (if different): 700 Ouelette C/O Infasco Marieville Quebec J3M 1P6
Business Number for Parent Company	141221879	
Facility Owner Information		
Owner of the Facility		
Address of Owner	Physical Address:	Mailing Address (if different):
Facility Operator Information		
Operator of the Facility	SIVACO Ontario	
Address of Operator	Physical Address: 330 Thomas Street, Ingersoll Ontario, N5C 3K5	Physical Address: 330 Thomas Street, Ingersoll Ontario, N5C 3K5
Primary North American Industrial Classification System Code (NAICS)		
2 Digit NAICS Code	33 - manufacturing	
4 Digit NAICS Code	3328 – metal coating, engraving, heat treating and allied services	

1.2 Contact Information

Company Contact Information		
Facility Public Contact	Name:	Lawerence Pye
	Email:	pye@sivaco.com
	Phone:	519-485-4150
	Fax:	519-485-3039
	Contact Address:	330 Thomas Street, Ingersoll Ontario, N5C 3K5
Person Coordinating Plan Development Contact	Name:	Norman Courage
	Email:	courage@sivaco.com
	Phone:	519-485-4150
	Fax:	519-485-3039
	Contact Address:	330 Thomas Street, Ingersoll Ontario, N5C 3K5
Highest Ranking Employee	Name:	Bill Stevens
	Email:	stevens@sivaco.com
	Phone:	519-485-4150
	Fax:	519-485-3039
	Contact Address:	330 Thomas Street, Ingersoll Ontario, N5C 3K5
Planner Contact Information		
Person Who Prepared the Plan **Person Responsible for Making Recommendations** **Person Responsible for Plan Certification**	Name:	Eric Shilts
	License Number	TSRP0083
	Email:	eric@concentriceng.com
	Phone:	519-452-7700
	Fax:	519-452-1712
	Contact Address:	Suite 307 700 Richmond Street London Ontario N6A 5C7

2 Statement of Intent

2.1 Statement of Intent to Reduce

Propylene is currently used by SIVACO Ontario. This facility does not create propylene and therefore this plan will not address reducing its creation.

SIVACO Ontario does not intend to reduce its use of propylene.

3 Objectives and Targets

Although SIVACO Ontario has no specific objectives with regard to propylene reduction at its facility, SIVACO Ontario will continue to monitor advancements in technology which may result in future reductions of propylene at the facility.

4 Facility Description

SIVACO Ontario (a HEICO Company) is an integral part of the SIVACO Wire Group. The facility in Ingersoll, Ontario treats a wide range of Hot Rolled Wire Rod (HRWR) for Cold Heading Quality and Industrial Quality products. The finished products are used in various commercial and industrial applications such as fasteners, automotive parts and construction materials.

Steel treatment at SIVACO Ontario may involve many steps. The particular treatments (and their order) by which HWRW is treated vary according to client requirements. The various methods of HWRW are listed below:

- Heat Treatment
- Pickling Treatment
- Zinc Phosphate Conversion Coating and Rinse Treatment
- Neutralizer Treatment
- Soap Treatment
- Polymer Treatment
- Borax Treatment
- Lime Treatment
- Sizing Treatment
- Bundling and Shipping

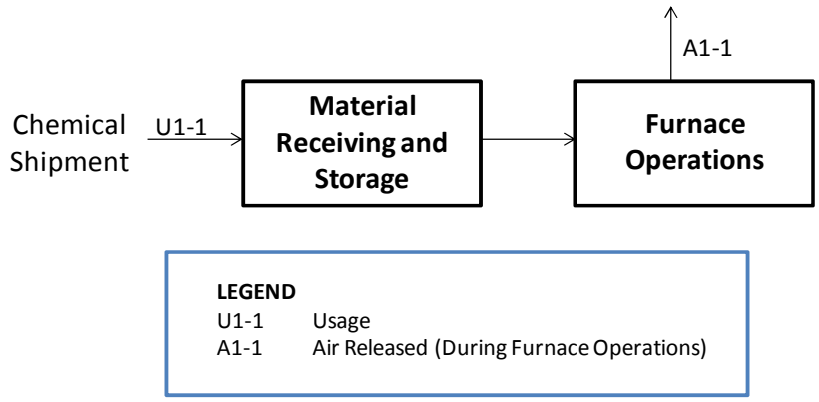
The SIVACO Ontario facility also relies on various other auxiliary operations which facilitate HWRW treatment (e.g. wastewater treatment, chemical receiving and storage etc).

5 Propylene Process Flow Diagrams and Quantifications

Propylene gases are commonly used as an oxygen scavenger during steel heating operations. Presence of propylene is limited to the Heat Treatment Furnace Operations Stage, which is comprised of only one process: the Furnace Operations Process.

5.1 Furnace Operations Process

Process Flow Diagram



Process Description

Propylene is received at the site via tanker truck. The propylene is offloaded in the chemical receiving area and transferred to a bulk storage tank. The propylene is stored here until its use is required in the Furnace Operations Process. On site inventory is monitored by the supplier via satellite controls.

Propylene is supplied to furnaces according to a phase logic control (PLC) flow controller, which is pre programmed to deliver propylene according to furnace requirements. Propylene acts as an oxygen scavenger during furnace operation and is discharged to the air via fugitive furnace operation emissions.

Toxic Substance Accounting Summary

A summary of toxic substance accounting for propylene is presented in the table, below. Accounting calculations have been completed for propylene and are presented in the Substance Accounting Calculations in Appendix A. The calculations include information on the quantification method and its rationale as well as the input/output balance for the Furnace Operation Process.

Code	Description	Quantity (tonnes)
Process Inputs		
U1-1	Usage	18.37
Process Outputs		
A1-1	Air Release (During Furnace Operation)	18.37

6 Direct and Indirect Costs

Direct Costs Associated with Phosphorus

Item	Amount (kg)	Total Cost ($)
Propylene Purchase (including shipping)	18,370	128,598.75

Indirect costs associated with propylene use at the facility were also considered and a total amount of $15,000 was assigned. This figure took into account an appropriate percentage of costs associated with personal protective equipment, administration, office overhead and training.

7 Identification of Toxics Reduction Options

Category #	Category	Description of Option (or rationale for why an option could not be identified)
1	Materials or Feedstock Substitution	Substitution of propylene with endothermic gas generation.
2	Product design or reformulation	No option identified. Product design is based on client specifications and therefore cannot be altered.
3	Equipment or process modifications	No option identified. Product design is based on client specifications and therefore cannot be altered.
4	Spill and leak prevention	No option identified. On site storage tanks are registered with the Technical Standards and Safety Authority (TSSA) and are inspected regularly. There were no reported leaks or spills in 2012 or previous years.
5	On-site reuse or recycling	No option identified. Gaseous propylene is released to the air via fugitive emissions during furnace operation. It is not possible to reuse or recycle the fugitive emissions at the site.
6	Improved inventory management or purchasing techniques	No option identified. Currently purchasing and inventory activities are completed by the supplier via satellite monitoring equipment. This results in optimal purchasing of propylene at the site.
7	Training or improved operating practices	No option identified. Propylene is administered to the furnaces via a PLC flow controller. This sophisticated controller is serviced and maintained on a regular basis to ensure optimal operation.

8 Estimates of Phosphorus Reduction, Technical Feasibility and Economic Feasibility

8.1 Materials Feedstock and Substitution

Option: Substitute propylene with endothermic gas generation as an oxygen scavenger in the Furnace Operations process.

8.1.1 Estimates of Reduction

Category		Baseline	Reduction	Reduced Total	% Reduction
Used (tonnes/year)		18.37	18.37	0	100
Created (tonnes/year)		NA	NA	NA	NA
Contained in Product (tonnes/year)		1.14	0	1.14	0
Onsite Releases (tonnes/year)	**Air**	18.37	18.37	0	100
	Water	NA	NA	NA	NA
	Land	NA	NA	NA	NA
Disposal (tonnes/year)	**Air**	NA	NA	NA	NA
	Water	NA	NA	NA	NA
	Land	NA	NA	NA	NA
Transfer Offsite for Recycling (tonnes/year)		NA	NA	NA	NA

8.1.2 Technical Feasibility

"Endothermic Gas" is a common atmosphere used in many heat-treatment furnaces for applications that require a strong oxygen reducing atmosphere (i.e. an oxygen scavenger). However, the option of substituting propylene with endothermic gas generation at SIVACO Ontario was deemed not technically feasible. The two main reasons by which this option was found to be not technically feasible are the mechanical design of the furnaces and the operating temperatures of the furnaces. The head metallurgist at SIVACO Ontario provided information on the mechanical and design operating limitations of the furnaces at SIVACO Ontario and it was found that this feedstock substitution would not achieve the desired effects.

8.1.3 Economic Feasibility

Economic feasibility of this option was not assessed due to the fact that it is not technically feasible.

9 List of Technically and Economically Feasible Options

No options were found to be technically and economically feasible.

10 Options to be Implemented

No options will be implemented, as none were found to be technically and economically feasible.

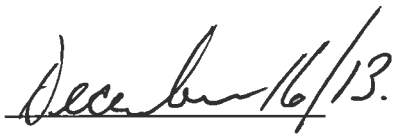
SIVACO Ontario will continue to monitor advancements in technology which may result in future reductions of propylene at the facility.

11 Certifications

11.1 Highest Ranking Employee

As of December 16, 2013, I, Bill Stevens, certify that I have read the toxic substance reduction plan for the toxic substance referred to below and am familiar with its contents, and to my knowledge the plan is factually accurate and complies with the *Toxics Reduction Act, 2009* and Ontario Regulation 455/09 (General) made under that Act.

Propylene



Highest Ranking Employee Date

11.2 Toxic Substance Reduction Planner

As of December 16, 2013, I, Eric Shilts certify that I am familiar with the processes at SIVACO Ontario that use or create the toxic substance referred to below, 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 plan dated November 29, 2013 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

Propylene

December 16, 2013

Toxic Substance Reduction Planner Date

APPENDIX A

Substance Accounting Calculations

TRA Substance Accounting Summary - Propylene

Stage: **Heat Treatment Furnace Operations**
Process: **1 - Furnace Operations**

Code	Description	Quantity (tonne)
U1-1	Usage - Process 1 (Raw Materials)	18.37
A1-1	Air Released - Process 1 (During Furnace Operations)	18.37

Note: There is no creation, destruction, disposal, offsite transfer or contained in product value for propylene at the Sivaco facility.

Quantity Entering the Process/ Usage + Creation = Air Release + Destruction + Disposal + Transfer + Contained in Product/Quantity Exiting the Process

Mass Balance - Stage 1

		Code	Quantity (tonne)
Process 1	Usage/Quantity Entering the Process	U1-1	18.37
	Creation	-	-
	Air Releases	A1-1	18.37
	Destruction	-	-
	Disposal	-	-
	Transfer	-	-
	Quantity Exiting the Process/Contained in Product	-	-
	Unaccounted Material (Difference between inputs and outputs)		0

Facility	Usage/Quantity Entering the Process	U1-1	18.37
	Creation	-	-
	Air Releases	A1-1	18.37
	Destruction	-	-
	Disposal	-	-
	Transfer	-	-
	Quantity Exiting the Process/Contained in Product	-	-
	Unaccounted Material (Difference between inputs and outputs)		0

Process Mass Balance Rationale

Process 1	Approximately equal. No rationale is required.

TRA Substance Accounting Summary - Propylene

Quantification Method and Best Available Method Rationale

Process: 1 - Furnace Operations

Quantity Codes	Quantification Method	Best Available Method Rationale
U1-1	Mass balance based on material quantity and composition from MSDS.	MSDS composition provided by manufacturer (above average data quality)
A1-1	Mass balance based on assumption that all propylene is released to air from furnaces after use.	Most accurate method available (average data quality)

APPENDIX B

Planner Recommendations

The main purposes of planner recommendations are to improve the potential for toxics reduction and improve the business rationale for implementing a plan. As per the Toxics Reduction Act and associated Regulation, there are several areas for which the planner must make recommendations (with accompanying rationale) or provide a reason why no recommendations are made. Recommendations are presented in the following subsections. It should be noted that it is up to the facility as to whether or not to implement the planner's recommendations.

1 Recommendation: General Information

There are no recommendations pertaining to general information contained in this plan.

1.1 Rationale

General information provided is complete.

2 Recommendation: Expertise Relied on to Prepare the Plan

There are no recommendations pertaining to expertise relied on to prepare this plan.

2.1 Rationale

Expertise was adequately considered during the preparation of this plan.

3 Recommendation: Statement of Intent and Objectives

There are no recommendations pertaining to the statement of intent or objectives contained in this plan.

3.1 Rationale

Both the statement of intent and objectives are present and reflect the intentions of SIVACO Ontario with respect to toxic substance reductions.

4 Recommendation: Identification and Description of Stages and Processes

4.1 Identification and Description of Stages and Processes

There are no recommendations pertaining to identification and description of stages and processes contained in this plan.

4.1.1 Rationale

The stage and process where propylene is present are clearly identified and described. The process description accurately provides information on the use and release of propylene at SIVACO Ontario.

4.2 Description of Why the Substance is Used and/or Created

There are no recommendations pertaining to the description (of why propylene is used) contained in this plan.

4.2.1 Rationale

The description (of why propylene is used) contained in this plan is clear and accurate.

4.3 Process flow diagrams

There are no recommendations pertaining to process flow diagrams contained in this plan.

4.3.1 Rationale

The process flow diagram contained in this plan accurately represents the use and release f propylene.

5 Recommendation: Data and Best Available Methods Used

There are no recommendations pertaining to the data and best available methods used for calculations contained in this plan.

5.1 Rationale

All quantities were calculated using the best available data and methods. The rationale for best available methods used is reasonable.

6 Recommendation: Quantifications

There are no recommendations pertaining to the quantifications (including input/output balance) contained in this plan.

6.1 Rationale

All quantities were calculated using the best available data and methods. The input/output balance was approximately equal.

7 Recommendation: Direct and Indirect Costs

It is recommended that a more detailed analysis of indirect costs be completed.

7.1 Rationale

Completing a more detailed analysis of indirect costs will better enable SIVACO Ontario to consider the financial benefits/implications of implementing plan options.

8 Recommendation: Identification and Description of Toxics Reduction Options in Seven Categories

There are no recommendations pertaining to identification and description of toxic substance reduction options in seven categories presented in this plan.

8.1 Rationale

The plan provides an option in each category or a reason why no option was identified, showing due consideration to each of the seven categories.

9 Recommendation: Estimates of Reduction

There are no recommendations pertaining to estimates of toxic substance reduction presented in this plan.

9.1 Rationale

The reduction estimates have been completed for each option and are reasonable for the option with which they are associated.

10 Recommendation: Determination of Technical Feasibility

There are no recommendations pertaining to estimates of toxic substance reduction presented in this plan.

10.1 Rationale

Technical feasibility assessments contained in this plan appear to be well thought out and explained clearly.

11 Recommendation: Economic Feasibility Analysis

There are no recommendations pertaining to economic feasibility analysis presented in this plan.

11.1 Rationale

Economic feasibility analysis was adequately completed in preparation of this plan.

12 Recommendation: List of Technically and Economically Feasible Options

There were no options identified which were technically and economically feasible. At present time, there are no other recommendations of additional options which are technically and economically feasible.

12.1 Rationale

No technically and economically feasible options identified by the plan are representative of the lack of available options to reduce toxic substances.

13 Recommendation: Options to be Implemented or Rationale for Why No Options will be Implemented

There are no recommendations pertaining to why no options will be implemented.