Toxic Substance Reduction Plan Summary

Jason Sabourin

Masterloy Products Company

5663 Doncaster Rd., Ottawa, ON, K1G 3N4

613-822-1010

613-822-0249

11/12/2013

Table of Contents

1.0 Statement of Intent and Objective of the Plan

As required by the Toxics Reduction Act (TRA) and Ontario Regulation (O. Reg.) 455/09 this plan must include a statement of intent and outline of the objectives of this plan.

1.1 Statement of Intent

Molybdenum trioxide is currently used by Masterloy Products Company in two processes. Currently, Masterloy Products does not intend to reduce the use of this toxic substance as it is essential in the production of ferromolybdenum (a non-toxic substance) which is one of the main products produced at this facility.

During production at the facility, the majority of the molybdenum trioxide is destroyed and converted into non-toxic substances.

While Masterloy does not intend to reduce use of the toxic substance, Masterloy has always made all possible efforts to minimize the creation, emission and disposal of this substance and can commit to the continuation of that minimization.

1.2 Objective

Masterloy Products Company takes pride in producing high quality products while be environmentally responsible. Masterloy will strive to ensure that the toxic substance used in production is destroyed and converted into non-toxic substances as much as is economically and technically possible. Additionally, Masterloy will also endeavor to remain compliant with provincial environmental regulations.

1.3 Target

As targets are not required by the act or regulations, and Masterloy cannot commit to reduction in use without curbing their production, Masterloy does not believe it is able to set any numerical targets pertaining to the plan objective at this time.

2.0 Description of the Toxic Substances Found at Masterloy

There are two Phase I and one Phase II toxic substances that require the development of a toxic substance reduction plan based on criteria set out in the TRA and O. Reg. 455/09.

This plan will contain plans for Phase II toxic substances. The toxic substance reduction plan for Phase I toxic substances found at Masterloy Products Company can be found in the Toxic Reduction Plan Reference No.: 2361-001.

Molybdenum Trioxide

- Used in two different processes at the facility
- Has unique quantifications

The molybdenum trioxide is present at this facility because it operates as a converter of this material. Masterloy receives and/or purchases molybdenum trioxide from its clients and uses it to create ferromolybdenum alloy for use in steel production. Since molybdenum is a non-toxic substance, the facility is providing the service of destroying the toxic molybdenum trioxide.

3.0 General Information

As required by the Act and Regulations, facility information is summarized in the following sections

3.1 Facility Information

The facility address is 5663 Doncaster Road, Ottawa, Ontario, K1G 3N4; other required facility information is summarized in Table 1.

Table 1: Facility Information

Facility Name	*Masterloy Products Company*
NPRI Identification Number	*0000004593*
O. Reg. 127/01 Identification Number	
Two (2) Digit NAICS Code	*33*
Four (4) Digit NAICS Code	*3311*
Six (6) Digit NAICS Code	*331100*
Number of Full Time Employees	*16*
UTM Spatial Coordinates (NAD83) Easting	*455936.85*
UTM Spatial Coordinates (NAD83) Northing	*5016346.84*
UTM Spatial Coordinates (NAD83) Zone	*18T*

3.2 Owner/Operator of the Facility

The owner and operator of the facility is Masterloy Products Company, 5663 Doncaster Road, Ottawa, Ontario, K1G 3N4. The contact information is summarized in Table 2

Table 2: Owner/Operator Information

Legal Name	*Masterloy Products Company*
Phone Number	*613-822-1010*
Fax Number	*613-822-0249*
Email	*sales@masterloy.com*

3.3 Toxic Substances for which this Facility Must Prepare a Plan

Substance 1 (covered in a separate plan):	Vanadium Pentoxide
CAS Number:	1314-62-1
Substance 2 (covered in a separate plan):	Aluminum (Fume or Dust)
CAS Number:	7429-90-5
Substance 3 (Covered in this plan):	Molybdenum Trioxide
CAS Number:	86089-09-0

3.4 Facility Contacts

The facility contacts are summarized in Table 5.

Table 3: Facility Contacts

Position	Public Contact
Name	*Patrick Vachon*
Position	*Plant Manager*
Phone Number	*613-822-1010 ext.223*
Fax Number	*613-822-0249*
Email	*patrick.vachon@masterloy.com*

4.0 Facility Process Information

Masterloy Products Company is a manufacturer of specialty iron alloys, specifically ferrovanadium and ferromolybdenum. Finished goods are shipped nationally and internationally, in a variety of packages ranging from 4.54 kg bags to 1818 kg supersacks, to customers such as steel plants, mini-mills and foundries.

Masterloy is located in Ottawa, Ontario in a southern part of the city previously known as the Gloucester South Industrial Park (Gloucester being a former suburb of Ottawa, prior to amalgamation with the City of Ottawa). Similar to their industrial neighbors, made up of cabinet-makers, aggregate businesses and contractors, they subscribe to the goal of a cleaner and safer environment. Though a residential area is not currently in close proximity to their site, Masterloy strives for responsible environmental stewardship to protect the health and safety of employees, the public and the environment. Masterloy is committed to the responsibility to manage the impact of their business through government programs, such as the Toxic Reduction Act (Ontario Legislative Assembly, 2009). This toxic substance reduction plan has been prepared to meet the regulatory obligations specified in section 10 of the Ontario Toxics Reduction Act (Ontario Legislative Assembly, 2009), and has been prepared in accordance with O. Reg. 455/09 (Ontario Legislative Assembly, 2009) as amended from time to time. This Toxic Substance Reduction Plan summaries the relevant reporting requirements and will be updated as required.

Masterloy is a manufacturing facility that purchases raw materials (such as metal oxides, aluminum, ferrosilicon, lime, scrap steel, sodium chlorate, millscale and aluminum powder). These raw materials are mixed together in exact proportions and ignited (or fired) in a refractory vessel. Using a metallo-thermic process, aluminum and/or ferrosilicon is used as a fuel to reduce the metal oxides into a ferroalloy. Masterloy currently manufactures two ferroalloy products: ferrovanadium and ferromolybdenum. Two of the metals oxides that Masterloy purchase as a raw material to use in the manufacturing process are vanadium pentoxide and molybdenum trioxide. Molybdenum trioxide is a Phase II toxic substance and therefore Masterloy is obligated to report Toxic Substance accounting and a Toxic Substance Reduction Plan for this substance.

5.0 Molybdenum Trioxide Plan

Note that for the purposes of NPRI reporting, molybdenum is only to be considered in the case of Molybdenum Trioxide. Since this Facility converts molybdenum trioxide into Ferromolybdenum alloy, this conversion will be represented as the destruction of a toxic substance and molybdenum in the alloy will not be considered a toxic substance, and will not be quantified any further, as per Environment Canada guidance.

5.1 Identification and Analysis of Toxic Substance Reduction Options

5.1.1 Material or Feedstock Substitution

There are no material or feedstock substitutions available to Masterloy Products that would result in a reduction of said toxic substance. Due to the fact that Masterloy is a converter of Molybdenum Trioxide to Ferromolybdenum, any possible substitution would not yield in a reduction of toxic substance. Regardless of the form the molybdenum oxide is in, it would require the same overall amount of toxic compound to successfully accomplish the reduction into ferromolybdenum, at the same specifications.

Furthermore, considering Masterloy Products is not in control of the MoO_3 as it is supplied and shipped by the customer, any material or feedstock substitutions would place Masterloy in the position to make demands on their customers. These demands would in turn increase the costs on the customer's end, which would most likely result in an unacceptable loss of business.

5.1.2 Product Reformulation

There was no product reformulation options identified that could reduce the amount of toxic substances found on site. Since the exothermic reaction required to convert the toxic substance into a non-toxic substance, requires a stable and readily reactive compound, any other form of molybdenum compounds would not yield the same outcome and would be reflected in the final specifications of the product.

Furthermore, the product is formulated on a daily basis in order to meet the varying requirements placed on Masterloy from its customers in order to meet specifications. These specifications are not controlled by Masterloy Products.

5.1.3 Equipment or Process Modification

As an exothermic chemical reaction that requires a very specific set of ingredients and mixed a certain way in order to obtain the required concentrations of Ferromolybdenum, there are not too many options available. All potential air emissions are already being controlled with the up to date technologies, including bag houses for most material handling as well as a venture scrubber for the emissions released during firing.

5.1.4 Spill or Leak Prevention

All molybdenum trioxide used is in powder form. Operators are already aware and trained to minimize any potential spills due to its value. Furthermore, any spills which do occur are swept up and reintroduced to the container. Based on the procedures and training already in place, no additional preventive actions could be identified that would reduce the use and/or emissions of the MoO_3.

5.1.5 Onsite Reuse or Recycling

Since all materials present at Masterloy have value, every effort is made to recycle any by-products or materials. This can be achieved through the use of re-burn which ensures all materials of unknown purity are recycled into the final products.

Any material that cannot be recycled such as the Ferromolybdenum slag (a by-product) is stored onsite and sold to an end user.

5.1.6 Improved Inventory or Purchasing

As previously stated, molybdenum trioxide is not purchased, but instead shipped and converted on a contract basis. Due to this arrangement, Masterloy is generally not paying or in control of the shipping method or arrival date. However, the molybdenum trioxide, as a metal oxide, has a long shelf life. Because of this none is wasted while awaiting conversion. Since shipping is beyond Masterloy's control and no loss of material could be reduced, no reduction options were identified.

5.1.7 Improved Operator Practice

Masterloy's current operating practices have been developed to comply with industry standards, including the ISO 9001 standard for quality management. As such records are kept on all raw materials, products and processes, as well as quality assurance testing of raw materials, and the product at various stages of production. All this ensures that operators know and abide by quality assurance methods that include the handling, usage and execution of products and processes. Therefore, given the nature of the training already provided to staff, and the physical nature of the materials being used, no reduction options could be identified.

6.0 Statement of Plan Summary

This summary accurately reflects the current plan dated November 29, 2012 and was prepared in conjunction with that plan.

7.0 Planner Who Provided Recommendations for Improvement

Table 4: Licensed Plan Reviewer

Position	Plan Reviewer
Name	Trevor Copeland
License Number	TSRP0203
Position	Licensed Toxic Substance Reduction Planner
Company	Cambium Inc.
Address	PO Box 325, 52 Hunter Street East, Peterborough, ON, K9H 1G5
Phone Number	705-742-7900 ext. 225
Fax Number	705-742-7907
Email	Trevor.copeland@cambium-env.com

8.0 Plan Certification

8.1.1 Highest Ranking Employee of Masterloy

As of the date listed below, I, Rui Rodrigues, certify that I have read the toxic substance reduction plans dated November 29, 2013 for the toxic substances 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 the Act.

[Molybdenum Trioxide]

Masterloy Products Company

Rui Rodrigues
President
(Highest Ranking Employee)

NOV 29, 2013.
Date

8.1.2 Licensed Toxic Substance Reduction Planner

As of the date listed below, I, Trevor Copeland, certify that I am familiar with the processes at Masterloy Products Company that use or create the toxic substances 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 the Act

[Molybdenum Trioxide]

Cambium Incorporated

Trevor Copeland, TSRP0203
Environmental Specialist

Nov 29 2013
Date

References

Ontario Legislative Assembly, (2009), Ontario Regulation 455/09

Ontario Legislative Assembly, (2009), Toxics Reduction Act