

JOHNSON MATTHEY LIMITED
PRECIOUS METALS DIVISION
130 GLIDDEN ROAD, BRAMPTON, ONTARIO L6W 3M8

TOXICS REDUCTION ACT
TOXIC SUBSTANCE REDUCTION PLAN SUMMARIES
2013

REPORT PREPARED BY:
O2E INC.

REPORT PREPARED FOR:
ANDY CALOVINI
JOHNSON MATTHEY LIMITED

DECEMBER 12, 2013

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CANADA

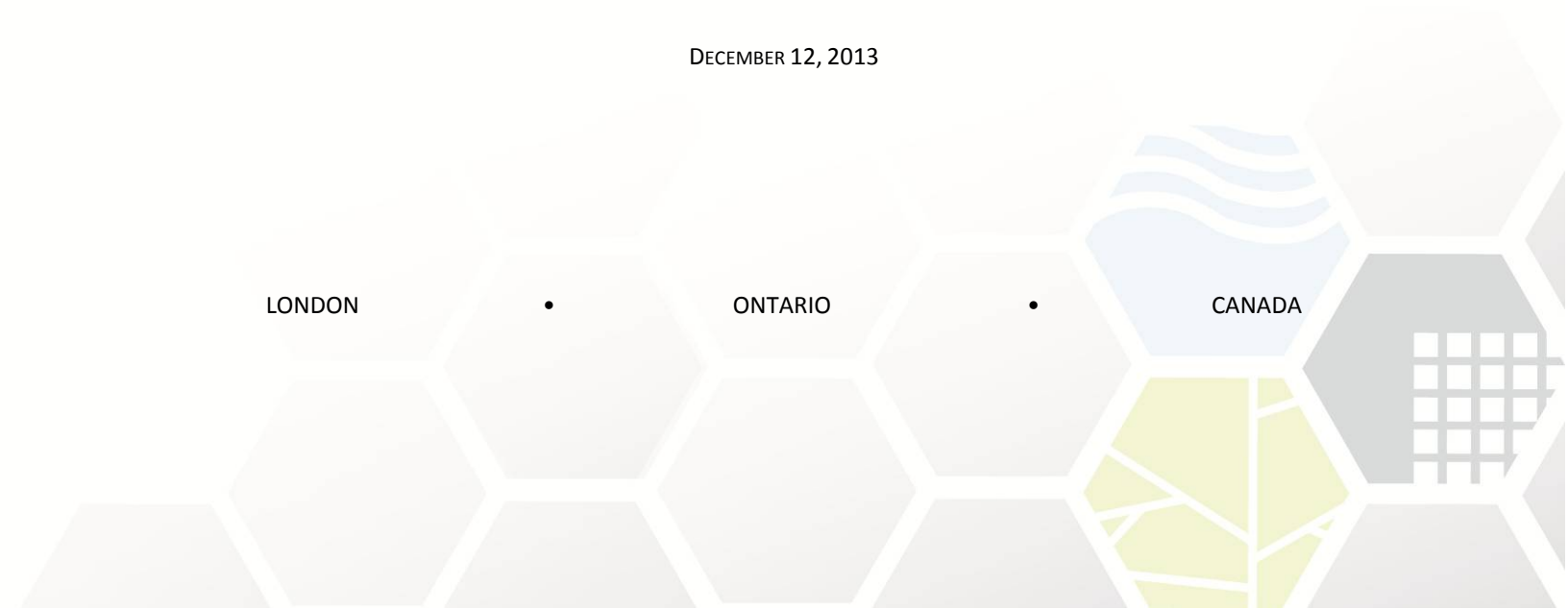


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1. PLAN SUMMARY – NITRATE IONS (IN A SOLUTION WITH pH >6.0)

Name and CASRN of Substance	Nitrate Ions	NA-17
Substances for which other plans have been prepared	Arsenic (and its compounds)	Not Applicable
	Cadmium (and its compounds)	Not Applicable
	Chlorine	7782-50-5
	Copper (and its compounds)	Not Applicable
	Hydrochloric Acid	7647-01-0
	Lead (and its compounds)	Not Applicable
	Nitric Acid	7697-37-2
	Selenium (and its compounds)	Not Applicable
	Silver (and its compounds)	Not Applicable
	Zinc (and its compounds)	Not Applicable

1.1 Basic Facility Information

Basic facility information has been included in Section 3 of this document.

1.2 Toxic Reduction Policy Statement of Intent

For Johnson Matthey, sustainability is about how they can best run their business in the long term. In the decades to come, they want to be a successful, prosperous business that offers their customers the products and technologies to reduce their sustainability footprint, while also reducing their own. They turn raw materials into products that are much more valuable. Resource efficiency is a win-win for their customers and themselves. They plan to grow their expertise in resource efficiency to develop better and more sustainable products for their customers and improve their competitiveness. Their aim is to show that they have used the fewest resources in the most efficient way to produce the best possible products. They want this to be recognised by their customers as a core part of their competitive advantage. By 2017, they want to do this with zero waste to landfill and using 50% fewer key resources.

Wherever feasible, Johnson Matthey will reduce the use and release of Nitrate Ion (in a solution with pH >6.0) in full compliance with all federal and provincial regulations. Toxic substance reduction will be an ongoing effort at Johnson Matthey, and we will continue to monitor technological advancements to ensure that options that are both technologically and financially viable are implemented at our facility.

1.3 Reduction Objectives

Johnson Matthey's goal is to reduce the use and release of Nitrate Ion where technically and economically feasible. Based on currently available information and technologies, there are no technically and economically reduction options currently available for this substance. However, Johnson Matthey will continue to explore and investigate potential options as they arise as part

of their sustainability program. It is also important to note that Nitrate Ion is used in integral Facility processes and an effective alternative does not currently exist.

1.4 Description of Substance

Nitrate Ions are not directly used by any of the facility operations but created as a by-product of the Moebius refining reaction involving Silver (Ag) and Nitric Acid (HNO₃). Nitric Acid is initially used to separate impurities from Silver compounds to allow the precipitation of high quality Silver. Nitrate Ions are created as a by-product and when in a pH solution of > 6.0 are a TRA substance. It is assumed that 100 % of the Nitric Acid is converted into Nitrate Ions.

1.5 Toxic Substance Reduction Option to be Implemented

There are currently no options that have been determined to be both technically and economically feasible. Johnson Matthey will continue to explore and investigate potential options as they arise as part of their sustainability program.

1.6 Plan Summary Statement

This plan accurately reflects the content of the toxic substance reduction plan for Nitrate Ion, prepared on behalf of Johnson Matthey, dated December 12, 2013.

1.7 Copy of Plan Certification

A copy of the plan certification is presented in Section 4 of this document.

2. PLAN SUMMARY – NITRIC ACID

Name and CASRN of Substance	Nitric Acid	7697-37-2
Substances for which other plans have been prepared	Arsenic (and its compounds)	Not Applicable
	Cadmium (and its compounds)	Not Applicable
	Chlorine	7782-50-5
	Copper (and its compounds)	Not Applicable
	Hydrochloric Acid	7647-01-0
	Lead (and its compounds)	Not Applicable
	Nitrate Ion	NA-17
	Selenium (and its compounds)	Not Applicable
	Silver (and its compounds)	Not Applicable
	Zinc (and its compounds)	Not Applicable

2.1 Basic Facility Information

Basic facility information has been included in Section 3 of this document.

2.2 Toxic Reduction Policy Statement of Intent

For Johnson Matthey, sustainability is about how they can best run their business in the long term. In the decades to come, they want to be a successful, prosperous business that offers their customers the products and technologies to reduce their sustainability footprint, while also reducing their own. They turn raw materials into products that are much more valuable. Resource efficiency is a win-win for their customers and themselves. They plan to grow their expertise in resource efficiency to develop better and more sustainable products for their customers and improve their competitiveness. Their aim is to show that they have used the fewest resources in the most efficient way to produce the best possible products. They want this to be recognised by their customers as a core part of their competitive advantage. By 2017, they want to do this with zero waste to landfill and using 50% fewer key resources.

Wherever feasible, Johnson Matthey will reduce the use of Nitric Acid in full compliance with all federal and provincial regulations. Toxic substance reduction will be an ongoing effort at Johnson Matthey, and we will continue to monitor technological advancements to ensure that options that are both technologically and financially viable are implemented at our facility.

2.3 Reduction Objectives

Johnson Matthey's goal is to reduce the use and release of Nitric Acid where technically and economically feasible. Based on currently available information and technologies, there are no technically and economically feasible reduction options currently available for this substance. However, Johnson Matthey will continue to explore and investigate potential options as they arise as part of their sustainability program.

2.4 Description of Substance

Nitric Acid is received in liquid form via a tanker truck and stored outside until needed. Nitric Acid is used by several processes at the facility for the refining of Silver Products. The Moebius Electrorefining Processes uses Nitric Acid to dissolve the silver compound into a solution. An electrical current is then applied and pure Silver is deposited out of the Silver Nitrate solution on the cathode. Nitric Acid is also added to the residues treatment process and a small portion is used by the assay laboratory annually.

2.5 Toxic Substance Reduction Option to be Implemented

There are currently no options that have been determined to be both technically and economically feasible.

2.6 Plan Summary Statement

This plan accurately reflects the content of the toxic substance reduction plan for Nitric Acid, prepared on behalf of Johnson Matthey, dated December 12, 2013.

2.7 Copy of Plan Certification

A copy of the plan certification is presented in Section 4 of this document.

3. BASIC FACILITY INFORMATION

Facility Identification and Site Address		
Company Name	Johnson Matthey Limited	
Facility Name	Precious Metals Division	
Facility Address	Physical Address:	Mailing Address
	130 Glidden Road Brampton ON L6W 3M8	130 Glidden Road Brampton ON L6W 3M8
Spatial Coordinates (UTM)	603005 (Easting)	4838353 (Northing)
Datum	WGS84	
Number of Employees	122 (Full time equivalents)	
NPRI ID	3991	
ON MOE ID	-	
Parent Company Information		
Parent Company Name & Address	Johnson Matthey Limited 130 Glidden Road Brampton ON L6W 3M8	
Percent Ownership	100%	
Primary North American Industrial Classification System Code (NAICS)		
2 Digit NAICS Code	31-33 Manufacturing	
4 Digit NAICS Code	3314 - Non-Ferrous (exc. Al) Production & Processing	
6 Digit NAICS Code	331410 - Non-Ferrous (except Al) Smelting & Refining	
Company Contact Information		
Facility Public Contact	Andy Calovini Environmental, Health and Safety Manager	Contact Address
	calovinia@matthey.com	Johnson Matthey Limited 130 Glidden Road Brampton ON L6W 3M8
	Phone: (905) 454-6851	
	Fax: (905) 454-6874	

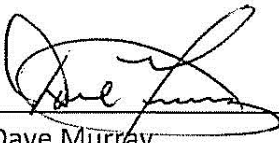
4. COPY OF PLAN CONFIRMATION

Certification by the Highest Ranking Employee

As of December 12, 2013, I, Dave Murray, certify that I have read the toxic substance reduction plans for the toxic substances referred to below and am familiar with their contents, and to my knowledge the plans are factually accurate and comply with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under that Act.

Toxic Substances:

Nitrate Ions (in a solution with pH >6.0) Nitric Acid



Dave Murray
Operations Manager
Johnson Matthey Limited – Precious Metals Division

Certification by Licensed Planner

As of December 12, 2013, I, Tim Logan certify that I am familiar with the processes at Johnson Matthey Limited's Precious Metals Division 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 plans dated December 12, 2013 and that the plans comply with that Act and Ontario Regulation 455/09 (General) made under that Act.

Toxic Substances:

Nitrate Ions (in a solution with pH >6.0) Nitric Acid



Tim Logan (License No. TSRP0003)
President
O2E Inc. Environmental Consultants