2018 TOXICS SUBSTANCE REPORT

CRH Canada Group Inc. – Mississauga Cement Plant

2391 Lakeshore Road West
Mississauga, ON
L5J 1K1

crhcanada.com

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1. Introduction

Commissioned in 1956, the CRH Canada Mississauga Plant is one of the largest and most environmentally responsible suppliers of cement in Canada. The Plant employs approximately 148 people and has an annual capacity of 1.5 million tonnes of cement, plus 0.5 million tonnes of CRH Slag Cement. Since 1956, the Mississauga Plant has witnessed ongoing technological advancements designed to meet the increasing needs of the marketplace, improve environmental performance, enhance employee safety and mitigate impacts on the local community.

CRH Canada Group Inc. is one of the country's largest vertically integrated building materials and construction companies. With 3,000 employees, CRH Canada manufactures cement, aggregates and ready-mix concrete and provides construction services to many of Canada's largest infrastructure projects.

CRH Canada Group Inc. is a member of the CRH Group of companies, a leading diversified international building materials group, employing 90,000 people at 3,700 operating locations in 31 countries worldwide. CRH is the largest building materials company in North America and the second largest worldwide and is committed to improving the built environment through the delivery of superior materials and products for the construction and maintenance of infrastructure, housing and commercial projects. A Fortune 500 company, CRH is a constituent member of the FTSE 100 index and the ISEQ 20 with American Depositary Shares listed on the NYSE.

2. Reporting Criteria

Section 3(1) of the Toxics Reduction Act (TRA) specifies the criteria requiring the preparation of a toxic substance plan.

These criteria are as follows:

> *3. (1) The owner and the operator of a facility shall ensure that a toxic substance reduction plan is prepared for a toxic substance in accordance with this Act and the regulations if all of the following criteria are met:*
> *1. The facility belongs to a class of facilities prescribed by the regulations.*
> *2. The number of persons employed at the facility exceeds the number of persons prescribed by the regulations.*
> *3. The toxic substance is used or created at the facility and the amounts of the substance that are used or created meet the criteria prescribed by the regulations.*
> *4. Such other criteria as are prescribed by the regulations. 2009, c. 19, s. 3 (1).*

Section 4(1) of O. Reg. 455/09 specifies the types of facilities subject to toxic substance reduction planning and includes facilities that begin in North American Industry Classification System (NAICS) code "31", "32" or "33" and "212". The CRH Canada Mississauga plant operates under the category of "cement manufacturing", and therefore has a NAICS code beginning with "32".

In addition to the plan, toxics substance reporting must be conducted annually and a summary of this report must be made available for public viewing. This document summarizes the toxic substances reported as part of the TRA for the year ending December 31, 2017 by the CRH Canada Mississauga Cement Plant.

- Acetone
- Ammonia
- Benzene
- Carbon Monoxide
- Dioxins and Furans
- Hexachlorobenzine
- Hydrochloric Acid
- Mercury
- Methyl Ethyl Ketone
- Nitrogen Oxides (expressed as NO2)
- Particulate Matter
- Particulate Matter <= 10 microns
- Particulate Matter <= 2.5 microns
- Sulphur Dioxide
- Toluene
- Total Volatile Organic Compounds (VOCs)
- Xylene

3. Company Information

Parent Company Name	CRH Canada Group Inc.
Parent Company Address	2300 Steeles Ave. West, 4th Floor Concord, Ontario L4K 5X6
Facility Name	CRH Canada Mississauga Plant
Facility Address	2391 Lakeshore Road West Mississauga, Ontario L5J 1K1
Geographic Coordinates of Facility	43.49720N, -79.62770W
National Pollutant Release Inventory Identification Number	2182
Ontario Regulation 127/01 Identification Number	5112
Two Digit North American Industry Classification System (NAICS) Code	32 – Manufacturing
Four Digit North American Industry Classification System (NAICS) Code	3273 - Cement and Concrete Product Manufacturing
Six Digit North American Industry Classification System (NAICS) Code	327310 - Cement Manufacturing
Number of Full-time Employee Equivalents at the Facility	148
Facility Public Contact	Nicolle Bellissimo Environment Manager 2391 Lakeshore Road West Mississauga, ON L5J 1K1 905 822-1653 ext. 44371 Nicolle.bellissimo@ca.crh.com

4. Substance Reporting

Acenaphthylene, Fluorine and Phenanthrene were previously reported but did not meet the reporting requirements for NPRI in the 2018 operating year. TRA exit reports have been created for these substances.

Acetone, CAS # 67-64-1				
	2018	**2017**	**Diff (tonnes)**	**Diff %**
Used	3673.59 tonnes	1803 tonnes	1870.59 tonnes	103%
Created	29.27 tonnes	14.6 tonnes	14.67 tonnes	100%
Contained in Product	0.00 tonnes	0.00 tonnes	-	-
Released	29.27 tonnes	14.6 tonnes	14.67 tonnes	100%
Destroyed	3673.59 tonnes	1803 tonnes	1870.59 tonnes	103%
The changes in the quantities of substance used and released are due to: **Used:** Fluctuation in material chemistry and input rates. **Released:** Fluctuation in process resulting in change to specific VOC creation.				

Ammonia, CAS # 16				
	2018	**2017**	**Diff (tonnes)**	**Diff %**
Used	536.29 tonnes	252 tonnes	284.29 tonnes	112%
Created	79.78 tonnes	99 tonnes	-19.22 tonnes	-19.41%
Contained in Product	0.00 tonnes	0.00 tonnes	-	-
Released	79.78 tonnes	99 tonnes	19.22 tonnes	-19.41%
Destroyed	536.29 tonnes	252 tonnes	284.29 tonnes	112%
The changes in the quantities of substance used and released are due to: **Used:** Fluctuations in material chemistry and input rates. **Released:** Fluctuations in material usage and production rates.				

Speciated VOCs Benzene, CAS # 71-43-2				
	2018	**2017**	**Diff (tonnes)**	**Diff %**
Used	86.52 tonnes	44 tonnes	42.52 tonnes	96.63%
Created	3.77 tonnes	4 tonnes	-0.23 tonnes	-5.75%
Contained in Product	0.00 tonnes	0.00 tonnes	-	-
Released	3.77 tonnes	4 tonnes	-0.23 tonnes	-5.75%
Destroyed	86.52 tonnes	44 tonnes	42.52 tonnes	96.63%
The changes in the quantities of substance used and released are due to: **Used:** Fluctuation in material chemistry **Released:** Fluctuation in process resulting in change to specific VOC creation.				

Carbon Monoxide, CAS # 630-08-0				
	2018	**2017**	**Diff (tonnes)**	**Diff %**
Used	0.00 tonnes	0.00 tonnes	-	-
Created	3419.58 tonnes	3071 tonnes	348.58 tonnes	11.35%
Contained in Product	0.00 tonnes	0.00 tonnes	-	-
Released	3419.58 tonnes	3071 tonnes	348.58 tonnes	11.35%
Destroyed	0.00 tonnes	0.00 tonnes	-	-
The changes in the quantities of substance used and released are due to: **Used:** No reasons – quantities are the same. **Released:** Fluctuations in process conditions.				

Dioxins and Furans				
	2018	**2017**	**Diff**	**Diff %**
Used	Below level of quantification	Below level of quantification	-	-
Created	Below level of quantification	Below level of quantification	-	-
Contained in Product	Below level of quantification	Below level of quantification	-	-
Released	Below level of quantification	Below level of quantification	-	-
Destroyed	Below level of quantification	Below level of quantification	-	-
The changes in the quantities of substance used and released are due to: **Used:** No reasons - quantities are the same. **Released:** No reasons - quantities are the same.				

Hexachlorobenzene, CAS # 118-74-1				
	2018	**2017**	**Diff (g)**	**Diff %**
Used	0.00 grams	0.00 grams	-	-
Created	26.99 grams	29.6 grams	-2.61 grams	-8.82%
Contained in Product	0.00 grams	0.00 grams	-	-
Released	26.99 grams	29.6 grams	-2.61 grams	-8.82%
Destroyed	0.00 grams	0.00 grams	-	-
The changes in the quantities of substance used and released are due to: **Used:** No reasons – quantities are the same. **Released:** No reasons – quantities approximately the same.				

Hydrochloric Acid, CAS # 7647-01-0				
	2018	**2017**	**Diff (tonnes)**	**Diff %**
Used	0.00 tonnes	0.00 tonnes	-	-
Created	28.06 tonnes	23.9 tonnes	4.16 tonnes	17.40%
Contained in Product	0.00 tonnes	0.00 tonnes	-	-
Released	28.06 tonnes	23.9 tonnes	4.16 tonnes	17.40%
Destroyed	0.00 tonnes	0.00 tonnes	-	-
The changes in the quantities of substance used and released are due to: **Used:** No reasons – this substance is not used as a process input. **Released:** Fluctuations in process resulting in change to HCl creation.				

Mercury, CAS # 7439-97-6				
	2018	**2017**	**Diff (kg)**	**Diff %**
Used	37.31 kilograms	59.1 kilograms	-21.79 kilograms	-36.87%
Created	0.00 kilograms	0.00 kilograms	-	-
Contained in Product	2.13 kilograms	24.2 kilograms	-22.07 kilograms	-91.20%
Released	7.22 kilograms	18.9 kilograms	-11.68 kilograms	-61.80%
Destroyed	0.00 kilograms	0.00 kilograms	-	-
The changes in the quantities of substance used and released are due to: **Used:** Fluctuations in material chemistry and decreased production rates. **Released:** Fluctuations in material chemistry and decreased production rates.				

Methyl Ethyl Ketone, CAS # 78-93-3				
	2018	**2017**	**Diff (tonnes)**	**Diff %**
Used	1951.24 tonnes	1111 tonnes	840.24 tonnes	75.63%
Created	0.82 tonnes	1.4 tonnes	-0.58 tonnes	-41.43%
Contained in Product	0.00 tonnes	0.00 tonnes	-	-
Released	0.82 tonnes	1.4 tonnes	-0.58 tonnes	-41.43%
Destroyed	1951.24 tonnes	1111 tonnes	840.24 tonnes	75.63%
The changes in the quantities of substance used and released are due to: **Used:** Fluctuation in material chemistry. **Released:** Fluctuation in process resulting in change to specific VOC creation				

Nitrogen oxides (expressed as NO2), CAS # 11104-93-1				
	2018	**2017**	**Diff (tonnes)**	**Diff %**
Used	0.00 tonnes	0.00 tonnes	-	-
Created	1936.87 tonnes	2435 tonnes	-498.13 tonnes	-20.46%
Contained in Product	0.00 tonnes	0.00 tonnes	-	-
Released	1936.87 tonnes	2435 tonnes	-498.13 tonnes	-20.46%
Destroyed	0.00 tonnes	0.00 tonnes	-	-
The changes in the quantities of substance used and released are due to: **Used:** No reasons - quantities are the same. **Released:** Changes in production levels.				

Particulate Matter – Total (PM), CAS # M08				
	2018	**2017**	**Diff (tonnes)**	**Diff %**
Used	93805 tonnes	89882 tonnes	3923 tonnes	4.36%
Created	0.00 tonnes	0.00 tonnes	-	-
Contained in Product	N/A *	N/A *	N/A *	N/A *
Released	66.25 tonnes	93 tonnes	-26.75	-28.76%
Destroyed	0.00 tonnes	0.00 tonnes	-	-
The changes in the quantities of substance used and released are due to: **Used:** Fluctuations in production rates and material input. **Released:** Fluctuations in the process and weather conditions resulting in a change in dust creation.				

*Quantification for the amount of the substance that is contained in product is not required for Criteria Air Contaminants (Part 4 of NPRI Schedule 1).

Particulate Matter <= 10 Microns (PM10), CAS # M09				
	2018	**2017**	**Diff (tonnes)**	**Diff %**
Used	27182 tonnes	29969 tonnes	-2787 tonnes	-9.30%
Created	0.00 tonnes	0.00 tonnes	-	-
Contained in Product	N/A *	N/A *	N/A *	N/A *
Released	38.40 tonnes	27 tonnes	11.4 tonnes	42.22%
Destroyed	0.00 tonnes	0.00 tonnes	-	-
The changes in the quantities of substance used and released are due to: **Used:** Fluctuations in production rates and material input. **Released:** Fluctuations in the process and weather conditions resulting in a change in dust creation.				

*Quantification for the amount of the substance that is contained in product is not required for Criteria Air Contaminants (Part 4 of NPRI Schedule 1).

Particulate Matter <= 2.5 Microns (PM2.5), CAS # M10				
	2018	**2017**	**Diff (tonnes)**	**Diff %**
Used	8061 tonnes	8848 tonnes	-787 tonnes	-8.90%
Created	0.00 tonnes	0.00 tonnes	-	-
Contained in Product	N/A *	N/A *	N/A *	N/A *
Released	23.69 tonnes	19.8 tonnes	3.89 tonnes	19.65%
Destroyed	0.00 tonnes	0.00 tonnes	-	-
The changes in the quantities of substance used and released are due to: **Used:** Fluctuations in production rates and material input. **Released:** Fluctuations in the process and weather conditions resulting in a change in dust creation.				

*Quantification for the amount of the substance that is contained in product is not required for Criteria Air Contaminants (Part 4 of NPRI Schedule 1).

Sulphur dioxide, CAS # 7446-09-5				
	2018	**2017**	**Diff (tonnes)**	**Diff %**
Used	0.00 tonnes	0.00 tonnes	-	-
Created	1596.07 tonnes	1505 tonnes	91.07 tonnes	6.05%
Contained in Product	0.00 tonnes	0.00 tonnes	-	-
Released	1596.07 tonnes	1505 tonnes	91.07 tonnes	6.05%
Destroyed	0.00 tonnes	0.00 tonnes	-	-
The changes in the quantities of substance used and released are due to: **Used:** No reasons – quantities are the same. **Released:** No reasons – quantities approximately the same.				

Toluene, CAS # 108-88-3				
	2018	**2017**	**Diff (tonnes)**	**Diff %**
Used	9084.32 tonnes	4989 tonnes	4095.32 tonnes	82.09%
Created	2.70 tonnes	3.8 tonnes	-1.1 tonnes	28.95%
Contained in Product	0.00 tonnes	0.00 tonnes	-	-
Released	2.70 tonnes	3.8 tonnes	-1.1 tonnes	28.95%
Destroyed	9084.32 tonnes	4989 tonnes	4095.32 tonnes	82.09%
The changes in the quantities of substance used and released are due to: **Used:** Fluctuations in material chemistry and material usage rates. **Released:** Fluctuation in process resulting in change to specific VOC creation				

Total VOCs (Volatile Organic Compounds)				
	2018	**2017**	**Diff (tonnes)**	**Diff %**
Used	30380.82 tonnes	12778 tonnes	17602.82 tonnes	137.76%
Created	34.08 tonnes	24.0 tonnes	10.08 tonnes	42%
Contained in Product	0.00 tonnes	0.00 tonnes	-	-
Released	34.08 tonnes	24.0 tonnes	10.08 tonnes	42%
Destroyed	30380.82 tonnes	12778 tonnes	17602.82 tonnes	137.76%
The changes in the quantities of substance used and released are due to: **Used:** Fluctuations in material chemistry and usage rates. **Released:** Fluctuation in process resulting in change to specific VOC creation.				

Xylene, CAS # 1330-20-7				
	2018	**2017**	**Diff (tonnes)**	**Diff %**
Used	5256.66 tonnes	2975 tonnes	2281.66 tonnes	76.69%
Created	2.49 tonnes	5.2 tonnes	-2.71 tonnes	-52.12%
Contained in Product	0.00 tonnes	0.00 tonnes	-	-
Released	2.49 tonnes	5.2 tonnes	-2.71 tonnes	-52.12%
Destroyed	5256.66 tonnes	2975 tonnes	2281.66 tonnes	76.69%
The changes in the quantities of substance used and released are due to: **Used:** Fluctuations in material chemistry and usage rates. **Released:** Fluctuation in process resulting in change to specific VOC creation				

Exit Record Certification

As of June 1, 2019, I, Raul E. Gomez Morales, certify that I have read the reports on the toxic substance reduction plans for the toxic substances referred to below and am familiar with their contents, and to my knowledge the information contained in the reports is factually accurate and the reports comply with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under that Act.

- Acenaphthylene
- Fluorine
- Phenanthrene

Raul E. Gomez Morales
Plant Manager, CRH Mississauga Cement Plant

Certification by the Highest Ranking Employee

As of June 1, 2019, I, Raul E. Gomez Morales, certify that I have read the reports on the toxic substance reduction plans for the toxic substances referred to below and am familiar with their contents, and to my knowledge the information contained in the reports is factually accurate and the reports comply with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under that Act.

- Acetone
- Ammonia
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- Hexachlorobenzine
- Hydrochloric Acid
- Mercury
- Methyl Ethyl Ketone
- Nitrogen Oxides (expressed as N02)
- Particulate Matter
- Particulate Matter<= 10 microns
- Particulate Matter<= 2.5 microns
- Sulphur Dioxide
- Toluene
- Total Volatile Organic Compounds (VOCs)
- Xylene

Raul E. Gomez Morales
Plant Manager, CRH Mississauga Cement Plant