# O.Reg. 455/09 Toxic Substance Reduction Plan Summary
# Parmalat Canada Inc.

| | | | |
|---|---|---|---|
| **Substance & CAS No:** | | Nitric Acid | 7697-37-2 |
| **Substances at the Facility for which a Plan has been developed:** | | Sulphuric Acid, Nitrate Ion | |
| **Facility Identification and Site Address** | | | |
| **Company Name** | | Parmalat Canada Inc. | |
| **Facility Name** | | Rakely Plant | |
| **Facility Address** | | **Physical Address** | **Mailing Address (if different)** |
| | | 25 Rakely Court<br>Etobicoke, ON<br>M9C 5G2 | Same as Physical Address |
| **Spatial Coordinates of Facility** | | 612542 n E, 483367 m N | *Expressed as UTM within NAD* |
| **Number of Employees** | | 140 | |
| **NPRI ID Number** | | 4535 | |
| **Ontario MOE ID Number** | | 10738 | |
| **Parent Company Information** | | | |
| **Parent Company Name** | | Parmalat Canada Inc. | |
| **Parent Company Address** | | 405 The West Mall | |
| **Percent Ownership** | | 100% | |
| **Parent Company Contact** | | Tony Cugliari | |
| **Primary North American Industrial Classification System Code (NAICS)** | | | |
| | | **Code** | **Description** |
| **2-digit NAICS Code** | | 31 | Food Manufacturing |
| **4-digit NAICS Code** | | 3115 | Dairy Product Manufacturing |
| **6-digit NAICS Code** | | 311515 | Butter, cheese and dry condensed dairy product manufacturing |
| **Company Contact Information** | | | |
| **Facility public contact** | **Name** | Bruce Shurtleff | Same as Facility Address |
| | **Title** | Director, Plant Operations | |
| | **Email** | bruce_shurtleff@parmalat.ca | |
| | **Telephone #** | (416) 695-5740 | |
| | **Fax #** | (416) 622-4180 | |
| **Toxic Substance Reduction Planner Information** | | | |
| **Planner Responsible for Making Recommendations** | **Name** | Patsy Duever | Dillon Consulting Limited<br>51 Breithaupt Street<br>Kitchener, ON<br>N2H 5G5 |
| | **Company** | Dillon Consulting Limited | |
| | **License #** | TSRP0119 | |
| | **Email** | pduever@dillon.ca | |
| | **Telephone #** | 519-571-9833 x3106 | |
| | **Fax #** | 519-571-7424 | |
| **Planner Responsible for Certification** | **Name** | Patsy Duever | Dillon Consulting Limited<br>51 Breithaupt Street<br>Kitchener, ON<br>N2H 5G5 |
| | **Company** | Dillon Consulting Limited | |
| | **License #** | TSRP0119 | |
| | **Email** | pduever@dillon.ca | |
| | **Telephone #** | 519-571-9833 x3106 | |
| | **Fax #** | 519-571-7424 | |

## O.Reg. 455/09 Toxic Substance Reduction Plan Summary
## Parmalat Canada Inc.

| **Plan Summary Statement** |
|---|
| This plan summary accurately reflects the content of the toxic substance reduction plan for Nitric Acid, prepared by Parmalat Canada Inc.Etobicoke (Rakely) Plant, dated November 28, 2013. |
| **Statement of Intent** |
| Parmalat Canada Inc. Etobicoke (Rakely) Plant does not intend to reduce the use of nitric acid as no options were identified as technically and economically feasible. |
| **Objective** |
| While Parmalat Canada Inc. has not identified any reduction options as technically and economically feasible, the facility will continue to monitor industry standards for the use of nitric acid in CIP systems. |
| **Description of Substance and Use/Creation** |
| For a description of how, when, where, and why nitric acid is used, including quantifications for accounting and process flow diagrams see Attachment 1. |
| **Options to be Implemented** |
| As no options were identifed as technically and economically feasible, the facility does not intend to implement any options. |
| **Certifications (s. 19)** |
| **Highest Ranking Employee** |
| As of November 28, 2013, I, Bruce Shurtleff, 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. |
| *Nitric Acid* |

| | | |
|---|---|---|
| **HRE:** | Bruce Shurtleff Director, Plant Operations<br>*Digital Signature on File* | **Date:** December 2, 2013 |

| **Toxic Substance Reduction Planner** |
|---|
| As of November 28, 2013, I, Patsy Duever, certify that I am familiar with the processes at Parmalat Canada Inc. Rakely plant 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 28, 2013 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act. |
| *Nitric Acid* |

| | | |
|---|---|---|
| **TSRP:** | Patsy Duever | **Date: November 28, 2013** |

Stages and Processes

Operations at the Parmalat Rakely facility have been divided into the following stages:

- Receiving;
- Material storage;
- Preparation;
- Production;
- Final storage, and
- Shipping.

Nitric acid was used as a formula component of cleaners used as part of the "clean-in-place" process at the site. Cleaning chemicals containing nitric acid were circulated through the production equipment as required to meet applicable food safety standards.

As nitric acid was used, it is assumed that 100% consumed through the cleaning process, resulting in a complete molecular conversion to nitrate ion (based on Environment Canada guidance). Rinse water containing nitrate ion was discharged to the neutralization tank for stabilization prior to discharge.

Sulphuric acid was used at the site for pH neutralization. Wastewater generated from production activities at the site (dairy production) was generally caustic (from the use of cleaning chemicals) and required stabilization prior to discharge to the municipal sewer system. Sulphuric acid was added to the wastewater within a neutralization tank prior to discharge to the sewer. The pH of the wastewater was measured on the routine basis to ensure an adequate level of neutralization has occurred prior to discharge.

Detailed Process Flow Diagrams

Detailed process flow diagrams showing the amounts of nitric acid, nitrate ion and sulphuric acid at various stages of the production process can be found on Figures 1, 2 and 3.

Air Releases

Nitric acid was assumed to be fully consumed through the cleaning process. Also, the release of nitric acid from bulk storage containers was deemed to be negligible. As a result, there were no air emissions of nitric acid.

Nitrate ion generated from the conversion of nitric acid was within solution and did not result in an air emission.

Sulphuric acid was assumed to be fully neutralized as the pH of the discharge wastewater from the site was maintained above 6. Also, the release of sulphuric acid from bulk storage containers was deemed to be negligible. As a result, there were no air emissions of sulphuric acid.

Off-Site Disposals

Nitric acid was assumed to be fully consumed through the cleaning process as the pH of the discharge wastewater from the site was maintained above 6. As a result, there were no releases of nitric acid to the sewer (or off-site disposals to the municipal sewage treatment plant).

Nitric acid was assumed to be completed converted to nitrate ion based on a molecular conversion. The quantity of nitrate ion that was discharged to the municipal sewer, and ultimately the municipal sewage treatment plant, was calculated based on the annual usage quantities of nitric acid provided by Parmalat, the composition of nitric acid outlined in the product material safety data sheet (MSDS), and a molecular conversion from nitric acid to nitrate ion.

Sulphuric acid was assumed to be fully neutralized as the pH of the discharge wastewater from the site was maintained above 6. As a result, there were no releases of sulphuric acid to the sewer (or off-site disposals to the municipal sewage treatment plant).

Use

The quantities of nitric acid and sulphuric acid used at the site were calculated based on the annual product usage quantities provided by Parmalat and the composition of nitric acid and sulphuric acid outlined in the product MSDSs.

Created

Nitrate ion was created through the use of nitric acid in the cleaning process, as outlined above.

Nitric acid and sulphuric acid were not created as part of the production process.

Transformed

Nitric acid, nitrate ion and sulphuric acid were not transformed as part of the production process.

Destroyed

Nitric acid was assumed to be fully (100%) destroyed through the cleaning process as it converts to nitrate ion.

Sulphuric acid was assumed to be fully (100%) destroyed (neutralized) as the pH of the discharge wastewater from the site was maintained above 6.

Contained in Product

Based on information provided by Parmalat, nitric acid, nitrate ion and sulphuric acid were not contained in any products produced at the site.

TRA Summary

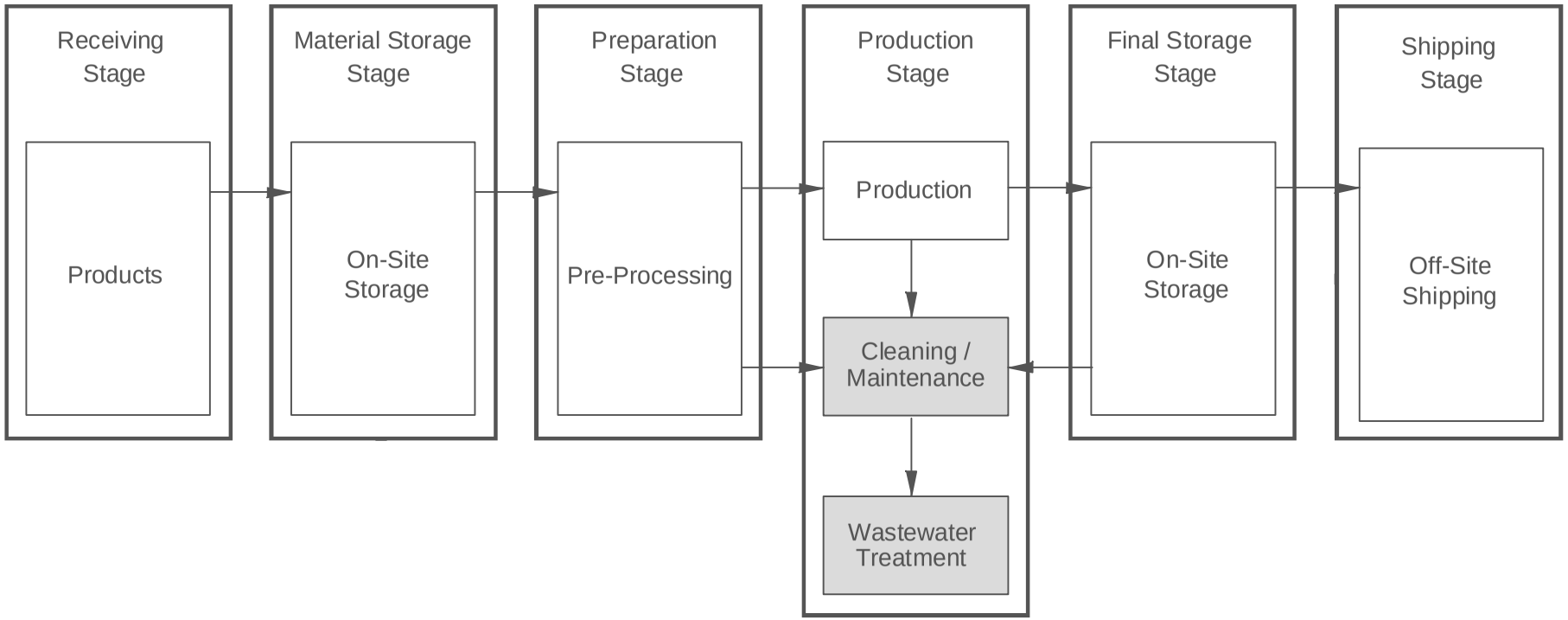
A summary of the TRA accounting quantities and input/output analysis is presented in the attached tables.

Data Quality

Methodologies used to complete the TRA calculations at the site were based on:

- Engineering calculations/judgment – derived from fundamental scientific and engineering principles.

As a result, based on Ministry guidance, the data quality can be considered to be “above-average”.




Note: The Toxic Substance is not associated with the product that leaves the facility.

Toxic Subtance associated with process.

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August 2013

Project No. 13-7387

Scale: n/a

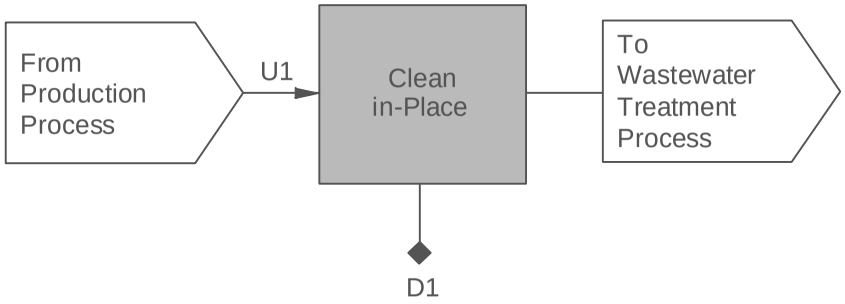
Parmalat Canada - Parmalat Rakely

Toxics Reduction Act Accounting

2012 Reporting Year

FIGURE 1

Dairy Production




| Accounting Category | Quantity (tonne) | Data Quality | Estimation Method |
|---|---|---|---|
| U1 | >10 to 100 | Above Average | Engineering Calculations |
| D1 | >10 to 100 | Above Average | Engineering Calculations |

On-site or off-site release, or off-site transfer of a toxic substance, either in its original form or in another form.

Destruction of a toxic substance.

Denotes the presence of a toxic substance.

| | |
|---|---|
| U | Enters the process (Use) of toxic substance. |
| C | Creation of toxic substance. |
| T | Transformation of toxic substance. |
| D | Destruction of toxic substance. |
| P | Toxic substance Contained in Product. |
| A | On-site release of toxic substance to Air. |
| L | On-site release of toxic substance to Land. |
| W | On-site release of toxic substance to Water. |
| DIS | On-site or off-site disposal of toxic substance. |
| TR | Off-site transfer of toxic substance for treatment or recycling. |
| Int | Intermediate step to describe what happens to the substance during the process. |
| DQL | Data Level Quality (H = High, AA = Above Average, A = Average, U = Uncertain). |

| | |
|---|---|
| "1" | Refers to Nitric Acid. |

Toxic Subtance associated with process.

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August 2013

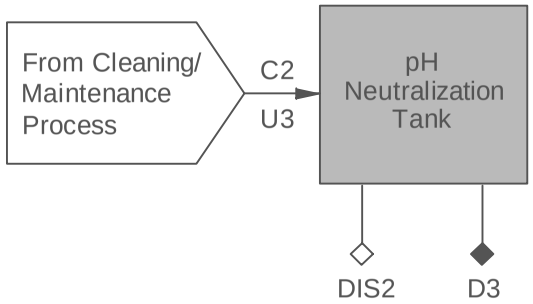
Project No. 13-7387

Scale: n/a

# Parmalat Canada - Parmalat Rakely

Toxics Reduction Act Accounting
2012 Reporting Year

## FIGURE 2
Cleaning/Maintenance




| Accounting Category | Quantity (tonne) | Data Quality | Estimation Method |
|---|---|---|---|
| C2 | >10 to 100 | Above Average | Engineering Calculations |
| DIS2 | >10 to 100 | Above Average | Engineering Calculations |

| Accounting Category | Quantity (tonne) | Data Quality | Estimation Method |
|---|---|---|---|
| U3 | >10 to 100 | Above Average | Engineering Calculations |
| D3 | >10 to 100 | Above Average | Engineering Calculations |

On-site or off-site release, or off-site transfer of a toxic substance, either in its original form or in another form.

Destruction of a toxic substance.

Denotes the presence of a toxic substance.

| | |
|---|---|
| U | Enters the process (Use) of toxic substance. |
| C | Creation of toxic substance. |
| T | Transformation of toxic substance. |
| D | Destruction of toxic substance. |
| P | Toxic substance Contained in Product. |
| A | On-site release of toxic substance to Air. |
| L | On-site release of toxic substance to Land. |
| W | On-site release of toxic substance to Water. |
| DIS | On-site or off-site disposal of toxic substance. |
| TR | Off-site transfer of toxic substance for treatment or recycling. |
| Int | Intermediate step to describe what happens to the substance during the process. |
| DQL | Data Level Quality (H = High, AA = Above Average, A = Average, U = Uncertain). |

| | |
|---|---|
| "2" | Refers to Nitrate Ion. |
| "3" | Refers to Sulphuric Acid. |

Toxic Subtance associated with process.

DILLON CONSULTING

August 2013

Project No. 13-7387

Scale: n/a

# Parmalat Canada - Parmalat Rakely

Toxics Reduction Act Accounting
2012 Reporting Year

## FIGURE 3
Wastewater Treatment

## 2012 Toxics Reduction Act - Accounting

Release Estimates - Parmalat Rakely

| **Mass Balance** | **Nitrate Ion** |
|---|---|

**Enters the Process (Use) + Created = Transformed + Destroyed and Leaves Process**

Leaves Process =
- Contained in product
- Released to air
- Released to water
- Released to land
- Disposed of
- Transferred off-site for treatment or recycling

| | | |
|---|---|---|
| Use = | 0 | tonne |
| Created = | > 10 to 100 | tonne |
| Transformed = | 0 | tonne |
| Destroyed = | 0 | tonne |
| Contained in product = | 0 | tonne |
| Released to air = | 0 | tonne |
| Released to water = | 0 | tonne |
| Released to land = | 0 | tonne |
| Disposed of = | > 10 to 100 | tonne |
| Transferred = | 0 | tonne |
| Mass Balance = | 0 | tonne |

**Rationale for Balance**

- All nitric acid used was assumed to be fully neutralized, which resulted in the creation of nitrate ions.
- Nitric acid is used as part of the CIP process, which results in the discharge of cleaning water to the sewer.

## 2012 Toxics Reduction Act - Accounting

Release Estimates - Parmalat Rakely

| **Mass Balance** | **Nitric Acid** |
|---|---|

**Enters the Process (Use) + Created = Transformed + Destroyed and Leaves Process**

| | | |
|---|---|---|
| Leaves Process = | Contained in product | |
| | Released to air | |
| | Released to water | |
| | Released to land | |
| | Disposed of | |
| | Transferred off-site for treatment or recycling | |
| Use = | >10 to 100 | tonne |
| Created = | 0 | tonne |
| Transformed = | 0 | tonne |
| Destroyed = | >10 to 100 | tonne |
| Contained in product = | 0 | tonne |
| Released to air = | 0 | tonne |
| Released to water = | 0 | tonne |
| Released to land = | 0 | tonne |
| Disposed of = | 0 | tonne |
| Transferred = | 0 | tonne |
| Mass Balance = | 0 | tonne |

**Rationale for Balance**

- All nitrate acid used was assumed to be fully neutralized.
- Release estimates for acids are dependent on whether the acid is neutralized to a pH of 6.0 or greater.
- The average pH of wastewater discharged from the Parmalat Rakely facility was greater than 6.0.
- Once an acid is neutralized, its concentration is zero percent, and therefore the estimates release is zero.

## 2012 Toxics Reduction Act - Accounting

Release Estimates - Parmalat Rakely

**Mass Balance** | **Sulphuric Acid**

**Enters the Process (Use) + Created = Transformed + Destroyed and Leaves Process**

| | |
|---|---|
| Leaves Process = | Contained in product |
| | Released to air |
| | Released to water |
| | Released to land |
| | Disposed of |
| | Transferred off-site for treatment or recycling |

| | | |
|---|---|---|
| Use = | >10 to 100 | tonne |
| Created = | 0 | tonne |
| Transformed = | 0 | tonne |
| Destroyed = | >10 to 100 | tonne |
| Contained in product = | 0 | tonne |
| Released to air = | 0 | tonne |
| Released to water = | 0 | tonne |
| Released to land = | 0 | tonne |
| Disposed of = | 0 | tonne |
| Transferred = | 0 | tonne |

| | | |
|---|---|---|
| Mass Balance = | 0 | tonne |

**Rationale for Balance**

- All sulphuric acid used was assumed to be fully neutralized.
- Release estimates for acids are dependent on whether the acid is neutralized to a pH of 6.0 or greater.
- The average pH of wastewater discharged from the Parmalat Rakely facility was greater than 6.0.
- Once an acid is neutralized, its concentration is zero percent, and therefore the estimates release is zero.