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

Substance & CAS No:		Nitrate Ion	NA-17
Substances at the Facility for which a Plan has been developed:		Sulphuric Acid, Nitric Acid	
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 Etobicoke, ON 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 51 Breithaupt Street Kitchener, ON 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 51 Breithaupt Street Kitchener, ON 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 nitrate ion, 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 creation of nitrate ion 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 which creates nitrate ion.

Description of Substance and Use/Creation

For a description of how, when, where, and why nitrate ion is created, 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.

Nitrate Ion

HRE:	Bruce Shurtleff Director, Plant Operations *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.

Nitrate Ion

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

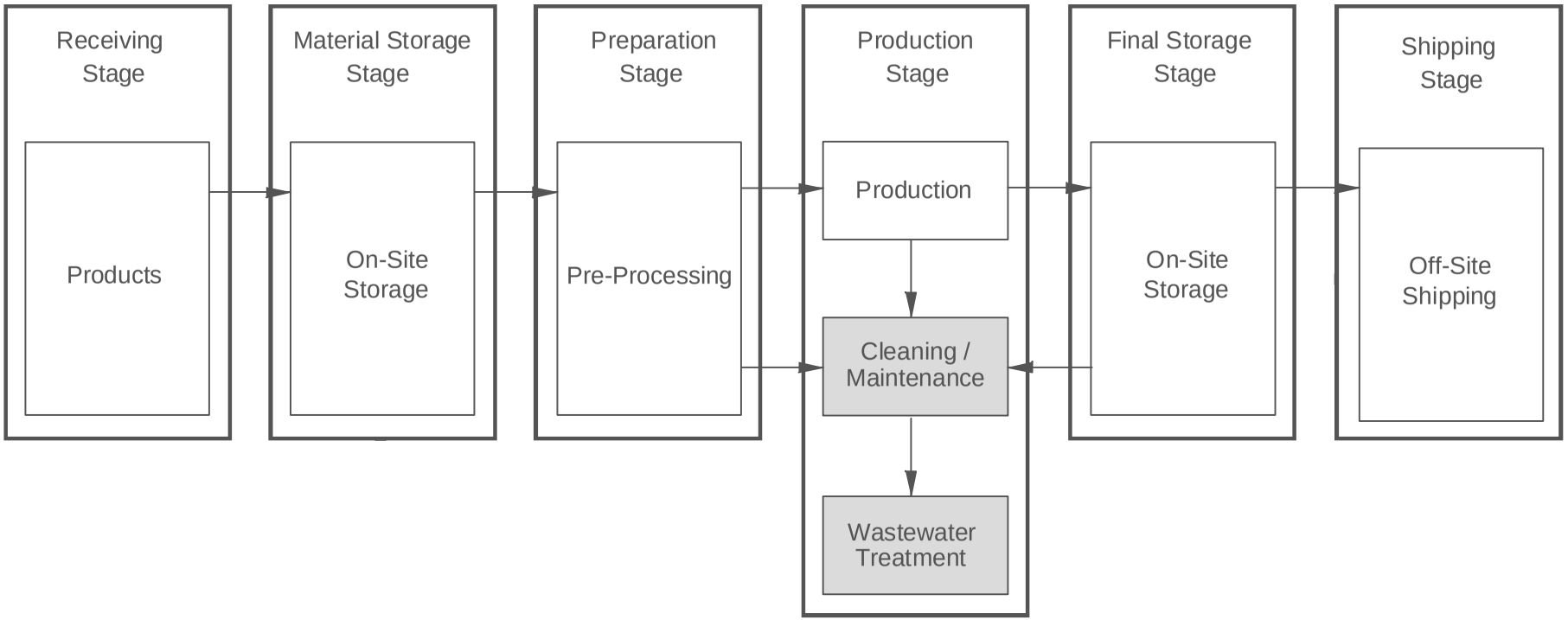
A summary of the TRA accounting quantities and input/output analysis is presented in the attached tables.

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.

DILLON CONSULTING

August 2013

Project No. 13-7387

Scale: n/a

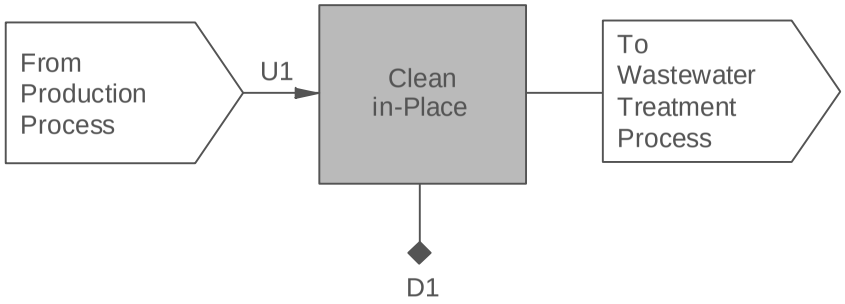
Parmalat Canada - Parmalat Rakely

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.

DILLON CONSULTING

August 2013

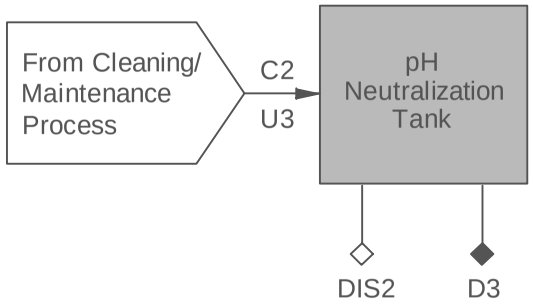
Project No. 13-7387

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.