

Recochem Inc. Milton Ontario facility

Final

Toxic reduction plan prepared under the Toxics Reduction Act O. Reg 455-09

Prepared dec 2013 using the 2012 data

(Ethylene Glycol, Butoxy Ethanol, Sodium Nitrate and Sodium Nitrite)

Toxics reduction plan Multi products (Ethylene Glycol, Butoxy Ethanol, Sodium Nitrate and Sodium Nitrite)

Recochem Inc:

Recochem has been operating in Ontario since 1965t is primarily a blender and packager of consumer chemicals such as windshield washer fluid, paint thinner and automotive antifreeze.

Recochem has developed an extensive Health & Safety and Environmental program which includes procedures, regular training of its employees and regular audits of its facilities, and systems to ensure compliance.

Recochem purchases and uses the following chemicals that are reported to Environment Canada under the NPRI Regulation. Ethylene Glycol, Butoxy Ethanol, Sodium Nitrate and Sodium Nitrite. Because they are reported under NPRI and the Toxic Reduction Act, they also require the creation of a Toxic Reduction Plan as required by the Phase II of the Ontario Toxics Reduction Plan Act.

Ethylene Glycol (EG) is the primary component used in the manufacturing of automotive antifreeze/coolant; it is present at approximately 98% for concentrated coolant and 50% for ready to use (50-50) formulations. EG provides the freeze and boil protection to automotive coolant.

Butoxy Ethanol is used in very small amount as a detergent in windshield washer fluid.

Sodium Nitrate is used as a corrosion inhibitor in automotive antifreeze/coolant.

Sodium Nitrite is used as a corrosion inhibitor in automotive antifreeze/coolant.

Ethylene Glycol

Process Flow Description:

Ethylene Glycol (EG) is received on the premise by railcars. The EG is transferred from the railcars into the exterior storage tanks via pumping through a network of hard pipes and directed with manually operated valves. During this operation there is no evaporation lost to the atmosphere from the tank as the EG fills the empty tank and the air in the tank escapes to make place to the liquid. Once empty, some residual EG stays in the railcars as they returned to the supplier. We have estimated that an empty railcar still has about 10 litres of EG inside.

From the storage tank, the EG is pumped to the Blending Room where it is mixed with corrosion inhibitors and water to create the automotive antifreeze/coolant concentrate. The antifreeze/coolant concentrate is transferred by pumping to an exterior storage tank or directly to the Filling Room to be filled in bottles. Bottles are filled and a cap is applied to the bottle. They are then packaged in cartons and ready to be shipped. The only waste generated relates to the change over process, during which the process pipes and hoses are rinsed with water to flush the automotive antifreeze/coolant. All the clean flushed antifreeze/coolant is retained and reused in other batches. A minimal amount of antifreeze/coolant deemed not fit for production is stored in drums and sent for disposal through a licensed waste recycler.

Butoxy ethanol

Process Flow Description:

Butoxy ethanol is received in 205 Litre drums. The Butoxy ethanol is pumped out of the drum through hard pipe system, directly into the blending tank to prepare windshield washer pre-mix (containing: detergent, dye, and some water). Once empty, the drums have an estimated Butoxy ethanol residue of 250mL, wetting the drum, which is returned to the manufacturer.

The windshield washer pre-mix is pumped to the Automatic Blending Unit (ABU) where it is mixed with water, and methanol to create windshield washer fluid. Based on the ABU manufacturer the unit has a calculated error of approximately 0.25% (we assumed ½ that error in our calculation). The bottles are filled and a cap is applied to the bottle. They are then packaged in cartons and ready to be shipped. The only waste generated relates to the change over process, during which the process pipes and hoses are rinsed with water to flush the windshield washer fluid. All the clean flush water is retained and reused in other batches of windshield washer fluid. Any dirty windshield washer fluid is stored in drums and sent for disposal through a licensed waste recycler.

Sodium nitrate

Process Flow Description:

Sodium nitrate pure is received in powder form in plastic bags of 22.68kg. The Sodium nitrate is manually transferred into a large blending tank to prepare the automotive antifreeze/coolant concentrate. The tank is kept under negative pressure to prevent any dust from escaping into the air. There is a minimal amount of product left in the bag in the form of dust that cannot be removed from the bag. The antifreeze/coolant concentrate is transferred by pumping to an exterior storage tank or directly to the Filling Room to be filled in bottles. Bottles are filled and a cap is applied to the bottle. They are then packaged in cartons and ready to be shipped. The only waste generated relates to the change over process, during which the process pipes and hoses are rinsed with water to flush the automotive antifreeze/coolant. All the clean flushed antifreeze/coolant is retained and reused in other batches. A minimal amount of antifreeze/coolant deemed not fit for production is stored in drums and sent for disposal through a licensed waste recycler.

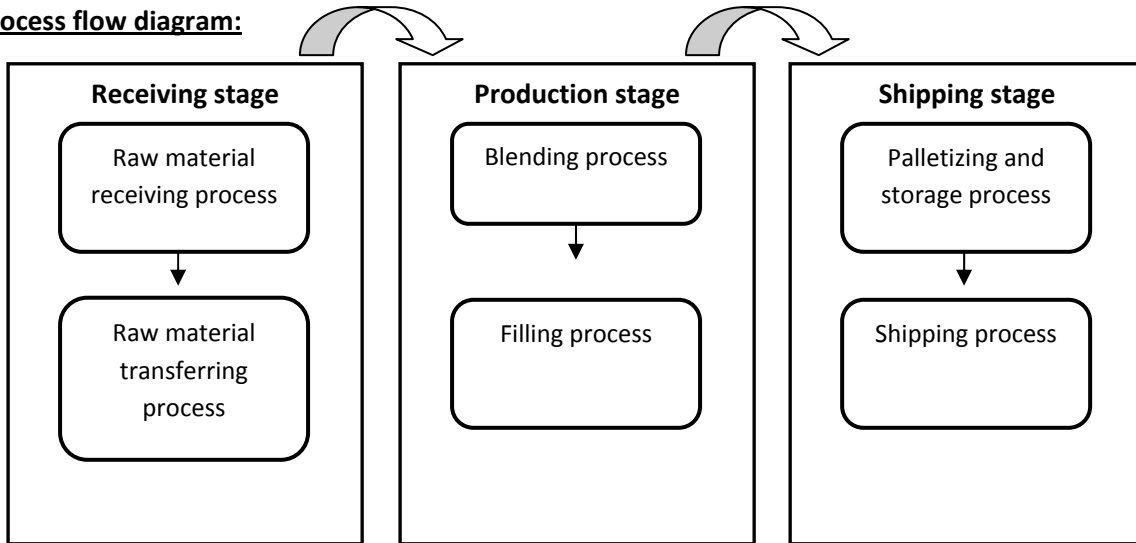
Sodium nitrite

Process Flow Description :

Sodium nitrite pure is received in powder form in plastic bags of 22.68kg. The Sodium nitrite is manually transferred into a large blending tank to prepare the automotive antifreeze/coolant concentrate. The tank is kept under negative pressure to prevent any dust from escaping into the air. There is a minimal amount of product left in the bag in the form of dust that cannot be removed from the bag. The antifreeze/coolant concentrate is transferred by pumping to an exterior storage tank or directly to the Filling Room to be filled in bottles. Bottles are filled and a cap is applied to the bottle. They are then packaged in cartons and ready to be shipped. The only waste generated relates to the change over process, during which the process pipes and hoses are rinsed with water to flush the automotive antifreeze/coolant. All the clean flushed antifreeze/coolant is retained and reused in other batches. A minimal amount of antifreeze/coolant deemed not fit for production is stored in drums and sent for disposal through a licensed waste recycler.

Ethylene Glycol, Butoxy ethanol, Sodium nitrate and Sodium nitrite

Process flow diagram:



Process flow Legend descriptions

A	outside release of vapours to air
U	input into the process
P	product moving to the next process
DIS	disposal through secured recycler
DQL	Data Quality Level (H-high, AA- above average, A-average, U-uncertain)

High quality data:

- Continuous monitoring of toxic substances, according to an approach that has been validated by a regulatory agency.
- Comprehensive and validated source testing over a range of operating conditions.
- Quantifications that are derived from comprehensive-specific testing.
- Mass balance for processes where 100% of the materials balance is accounted for and the toxic substance will not undergo a chemical transformation.

Above Average quality data:

- Source testing at one specific operating condition
- Quantifications that are developed from tests on a moderate to large number of industry sources where the source category population is sufficiently specific to minimize variability.
- Engineering calculation/judgment: quantifications derived from fundamental scientific and engineering principles.

Average quality data:

- Quantifications that are developed from test on reasonable number of facilities where the source category population is sufficiently specific to minimize variability.
- Engineering calculation/judgment quantifications derived from fundamental scientific and engineering principles and/or relevant data.
- Partially validated source testing where the testing has only been partially validated at a specific operating condition.

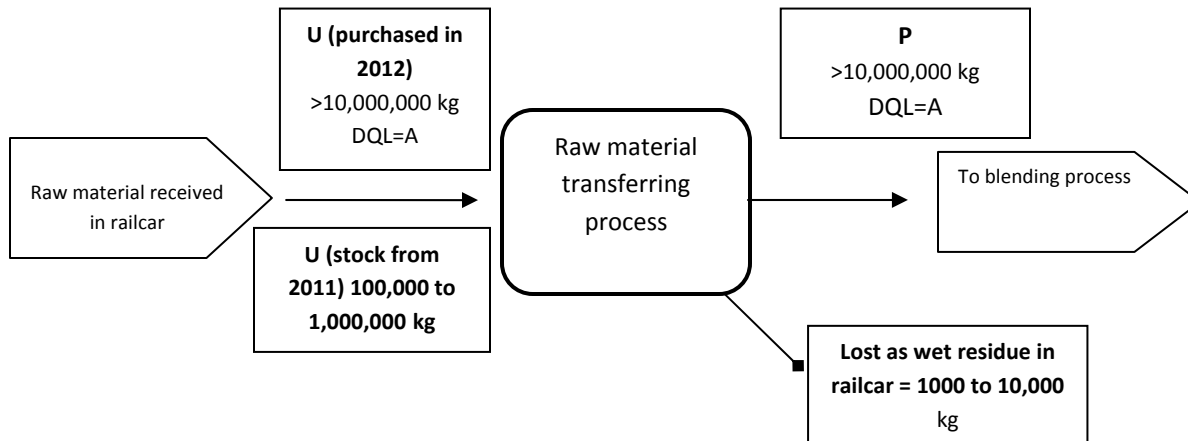
Uncertain quality data:

- Un-validated source testing at one operating condition: emission rate estimates that are from un-validated source testing.
- Quantifications that are developed from test on only small number of facilities where there is evidence of variability within the source category population.
- Calculation/judgment quantifications derived from calculations where the scientific/technical integrity of the approach is uncertain are considered to have uncertain data quality.

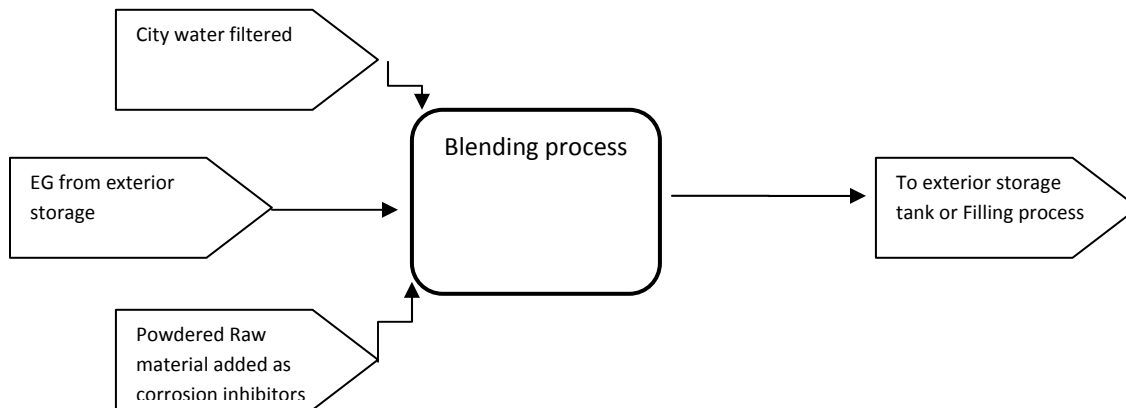
Ethylene glycol mass balance 2012 data (all values in kilograms)

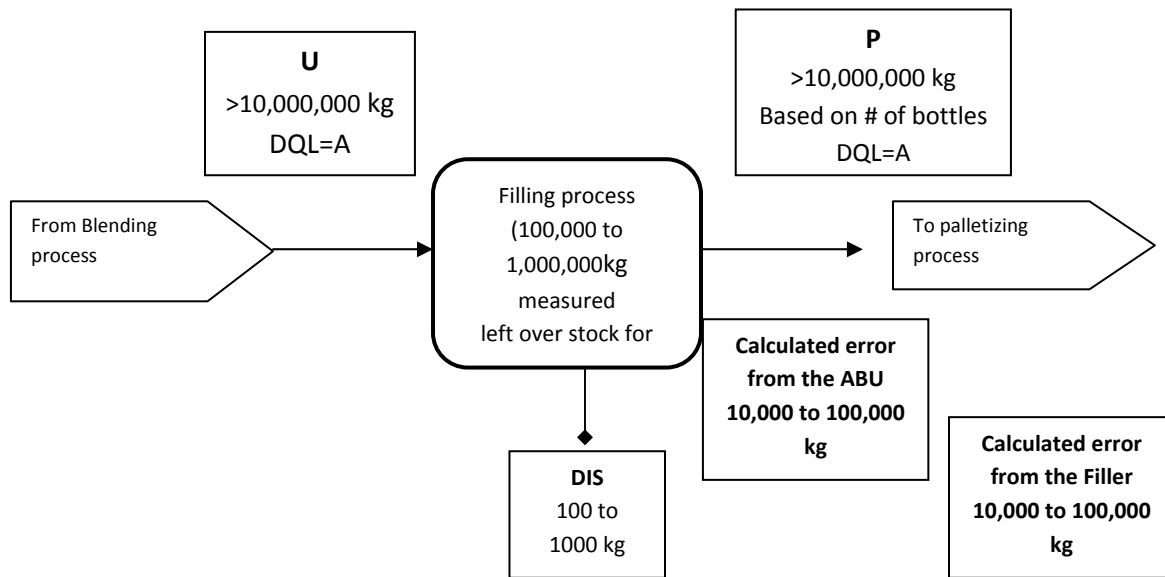
	Kg
Ethylene Glycol used	>10 000 000
Ethylene Glycol created	none
Ethylene Glycol contained in product	>10 000 000

Ethylene glycol:



- Purchased Ethylene glycol is tracked using the weight of each railcar indicated on the invoice for the manufacturer.
- Tank breathing is estimated at 0 since glycol does not evaporate at regular operating temperatures
- Transfer processes are supervised by an operator. Spills could occur if a pipe fails but all the system is contained either by the property design (the property is designed to contain all spilled liquids through grading and a system of underground pipes) or by the tank farm retaining wall (surrounding the major part of the piping system, all the exterior storage tanks as well as the interior blending process and the filling equipment). Spills to water are impossible in our location, there is no body of water near or on the property
- Loss as wet residue in the railcar is estimated
- EG is pumped via hard piping to the Blending tank, and when the blending is completed, the liquid is pumped (via hard piping) to the tank farm for storage or to the Filling process to fill bottles.



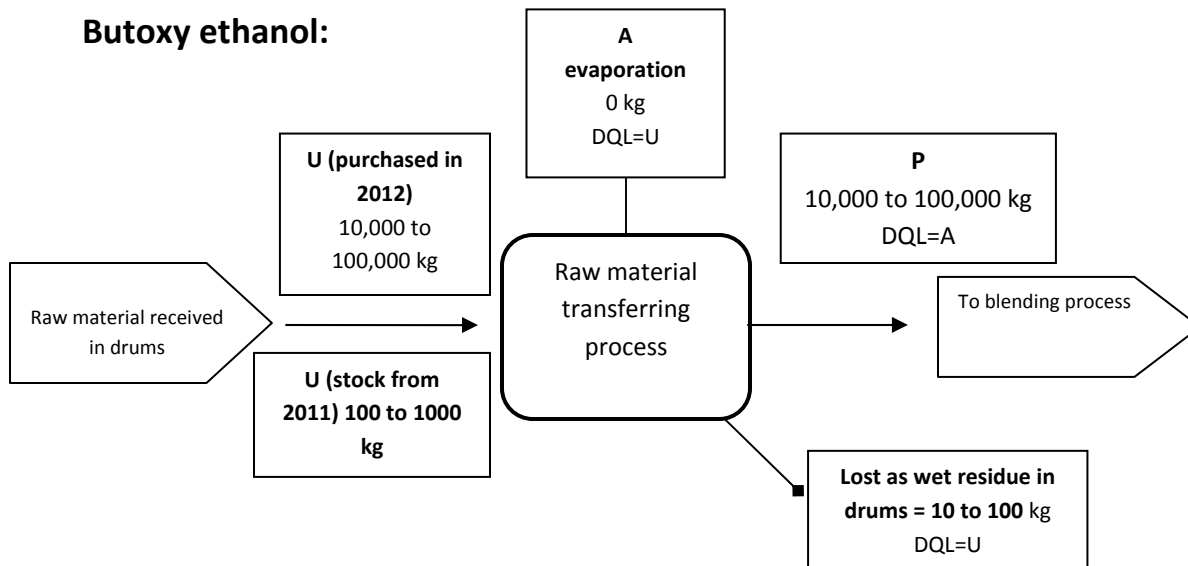


- Change over are done by rinsing down the automatic blending unit and filling lines with water, and the water is collected in totes which are store in the filling room (which is designed to collect potential spills) The liquid in the totes are recycled in the next batch of the same product at a later date.
- Quantity produced is tracked through our inventory and production records.
- Calculated error from ABU is based on the manufacturers data
- Calculated error from Filler is based on sample measurement, done at regular interval during the production process DQL=AA.
- Disposed EG is estimated based on the amount of liquid mixed waste that is picked up by the waste hauler annually (0.01% of production)

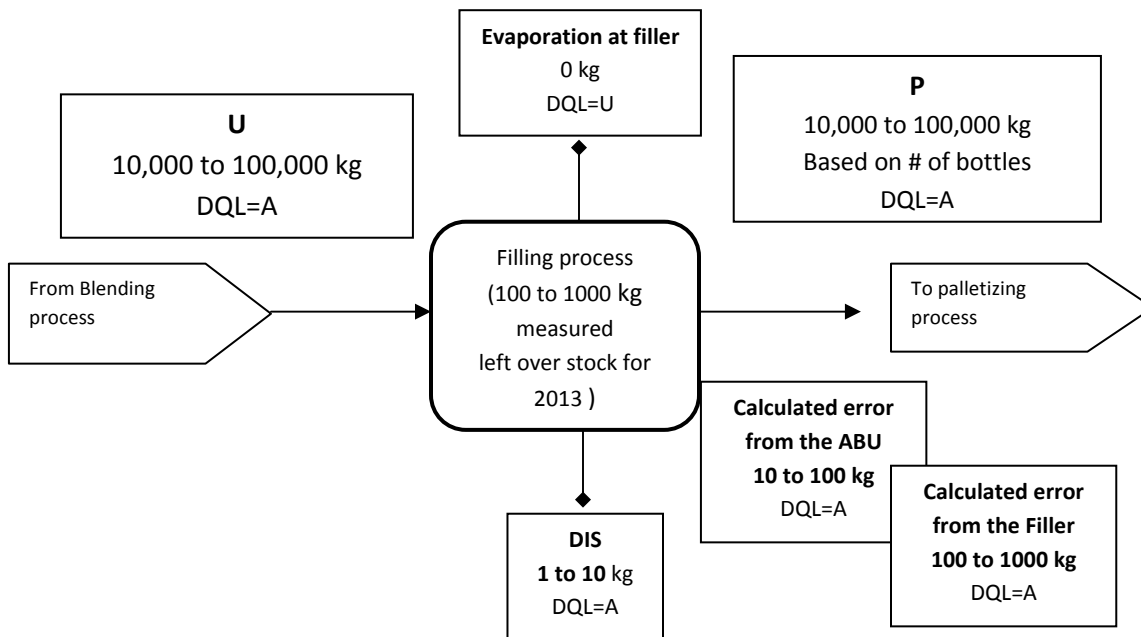
Butoxy ethanol mass balance 2012 data (all values in kilograms)

	Kg
Butoxy ethanol used	>10 000 to 100 000
Butoxy ethanol created	none
Butoxy ethanol contained in product	>10 000 to 100 000

Butoxy ethanol:



- Purchased Butoxy ethanol is tracked using the weight of each drum indicated on the invoice for the manufacturer.
- Evaporation: this product does not evaporate from the drum.
- Loss is estimated

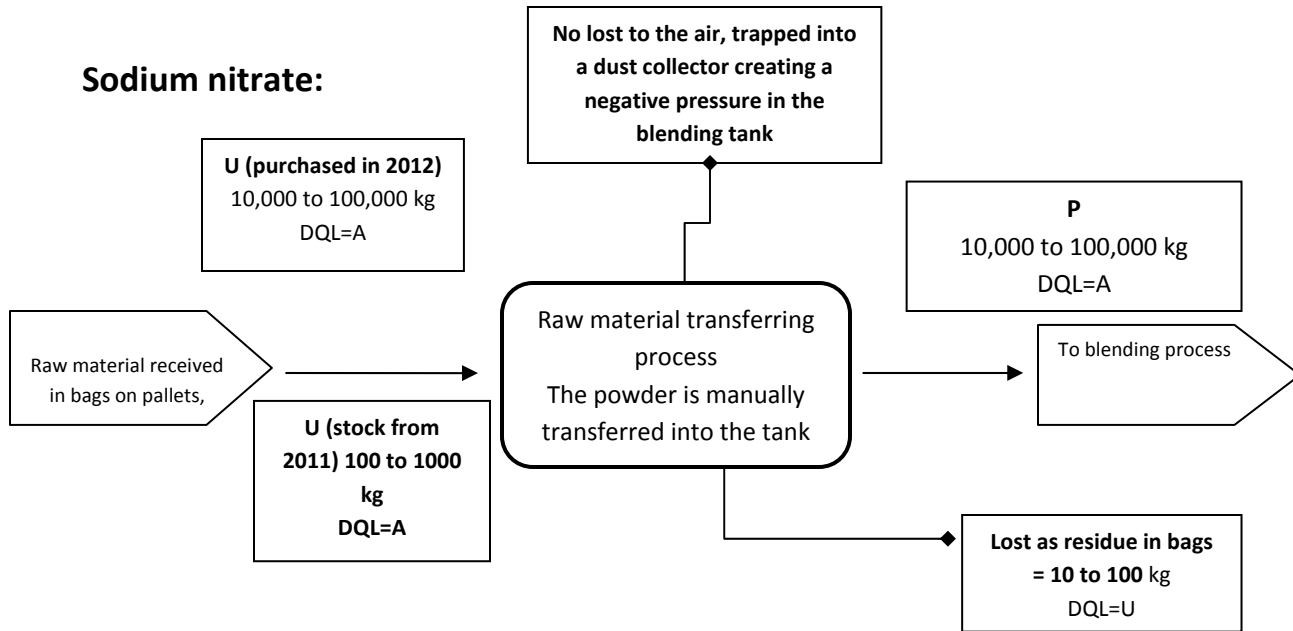


- Quantity produced is tracked through our inventory and production records.
- Evaporation at filler is "0" this product does not evaporate.
- Calculated error from ABU is based on the manufacturers data
- Calculated error from Filler is based on sample measurement
- Disposed Butoxy ethanol is estimated (0.01% of production)

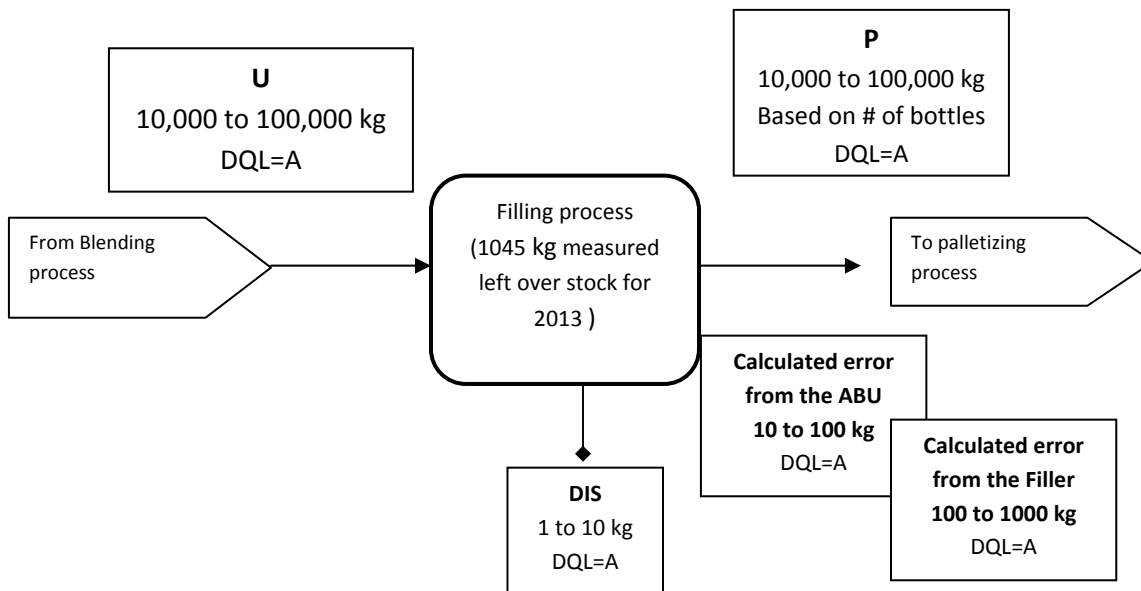
Sodium nitrate mass balance 2012 data (all values in kilograms)

	Kg
Sodium Nitrate used	>10 000 to 100 000
Sodium Nitrate created	none
Sodium Nitrate contained in product	>10 000 to 100 000

Sodium nitrate:



- Purchased Sodium nitrate is tracked using the weight of each bag indicated on the invoice for the manufacturer.
- Loss as residue in the bag is estimated

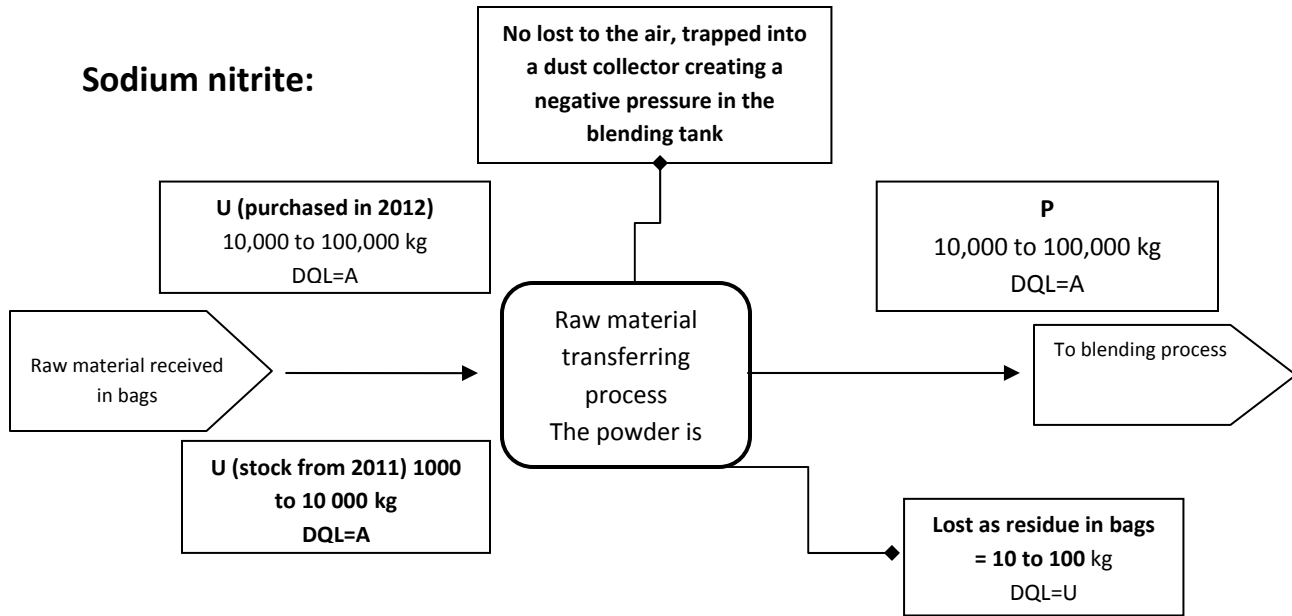


- Quantity produced is tracked through our inventory and production records.
- Calculated error from ABU is based on the manufacturers data
- Calculated error from Filler is based on sample measurement
- Disposed Sodium nitrate is estimated (0.01% of production)

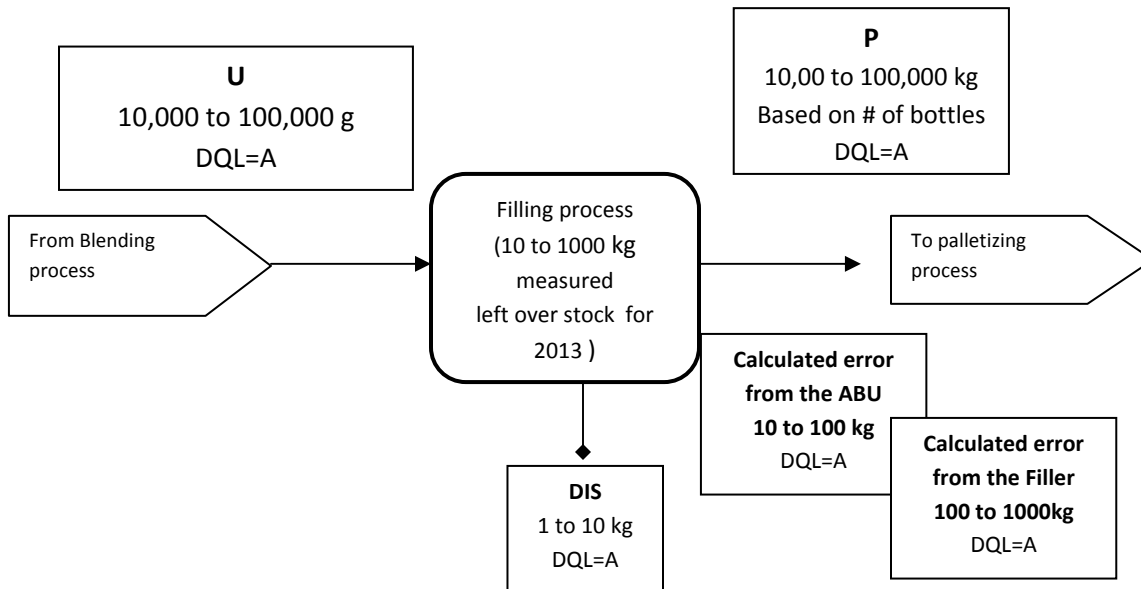
Sodium nitrite mass balance 2012 data (all values in kilograms)

	Kg
Sodium Nitrite used	>10 000 to 100 000
Sodium Nitrite created	none
Sodium Nitrite contained in product	>10 000 to 100 000

Sodium nitrite:



- Purchased Sodium nitrite is tracked using the weight of each bag indicated on the invoice for the manufacturer.
- Loss as residue in bag is estimated



- Quantity produced is tracked through our inventory and production records.
- Calculated error from ABU is based on the manufacturers data
- Calculated error from Filler is based on sample measurement
- Disposed Sodium nitrite is estimated (0.01% of production)

7 categories for reducing toxics use of Ethylene glycol

1. Material or feedstock substitution

Replace Ethylene glycol (EG) with Propylene glycol (PG)

- i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. >10 000 000 kg
- ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable
- iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.
- iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility.
➤ >10 000 000 kg

Technical feasibility: not feasible. Diminished freeze and boil point extension (less efficient than EG, need to use more PG than EG to provide the same temperature range.

Economic feasibility: not feasible. PG is significantly more expensive than EG. Recochem offered for a few years a PG based antifreeze/coolant and we had to pull it off the market because its higher price was cost prohibitive.

2. Product design or reformulation

Using something other than EG or PG to manufacture antifreeze/coolant.

- i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. >10 000 000 kg
- ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable
- iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. Not available (some polyalcohols could evaporate more than EG).
- iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility.
>10 000 000 kg

Technical feasibility: not feasible. Our research has shown that there is no other chemical available that performs like EG for antifreeze/coolant. All other options require the use of more chemical to achieve the same efficiency. Furthermore, there are industry standards requiring automotive antifreeze coolant to be made of EG or PG.

Economic feasibility: not feasible. All other known substances that could be used are more expensive and are not produced in large enough quantity for the demand.

3. Equipment or process modification

Using high volume alarm in storage tanks to prevent overflow spills

- i. estimates of the amount by which the use of the substance at the facility will be reduced, if the system is used at the facility. 0 kg
- ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable
- iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water
- iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technical feasibility: feasible. Already done (no gain)

Economic feasibility: feasible. Already done, no cost since the equipment is already in use.

4. Spill and leak prevention

Using check valves on all hoses

- i. estimates of the amount by which the use of the substance at the facility will be reduced, if the system is used at the facility. 100 to 1000 Kg collected and recycled into blending.
- ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable
- iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water
- iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technical feasibility: feasible. But the use a check valves introduces the problem of thermal expansion of the Ethylene glycol in the pipes and hoses, which causes the seals to leak when the liquid expands.

Economic feasibility: not feasible.

Anticipated payback period: 11 yrs

5. On-site reuse or recycling

On-site reuse or recycling

This activity is already practiced, all Ethylene glycol collected outside the normal filling process (pipe rinse, rework, spills etc) of good quality is reused into the production

i. estimates of the amount by which the use of the substance at the facility will be reduced, if the system is used at the facility. 0 kg,

ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable

iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.

iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technical feasibility: feasible. Already done (no gain)

Economic feasibility: feasible. Already done, no cost since the equipment is already in use.

6. Improved inventory management or purchasing techniques

More accurate inventory management including metering of raw material, installing a meter to monitor the volume received by railcars

i. estimates of the amount by which the use of the substance at the facility will be reduced, if the system is used at the facility. 0 kg

ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable

iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.

iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technical feasibility: feasible. It would only help us get slightly better accuracy for our inventory of raw material.

Economic feasibility: not feasible.

Anticipated payback period: no payback possible

7. Training or improved operating practices

Review training of blending employees and Production employees to emphasize spill prevention

- i. estimates of the amount by which the use of the substance at the facility will be reduced, if the training is used at the facility. 0 Kg
- ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable
- iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0kg to air, land or water.
- iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technically feasibility: feasible (no gain)

Economic feasibility: feasible (already done)

Anticipated payback period: 2 yrs

Training at Recochem Inc. is regarded as extremely important for all employees handling hazardous material. Recochem has developed an extensive annual training program that deals with Health and Safety as well as environmental issues like spills prevention and management.

List of the options that have been determined to be technically feasible

- ✓ *Using high volume alarm in storage tanks to prevent overflow spills*
- ✓ Using check valves on all hoses (*although feasible, the use of check valves introduces the problem of thermal expansion of the Ethylene glycol in the pipes and hoses, which causes the seals to leak when the liquid expands*).
- ✓ On-site reuse or recycling.
- ✓ More accurate inventory management including metering of raw material.
- ✓ Review training of blending employees and Production employees to emphasize spill prevention.

List of the options that have been determined to be both technically and economically feasible.

- ✓ Using high volume alarm in storage tanks to prevent overflow spills

This option is already in place, and is there to prevent over flow spills when transferring liquids.

This option will not reduce the amount of Ethylene glycol contained in product leaving the facility. The reduction of Ethylene glycol contained in product leaving our facility is not an option in our plan.

- ✓ On-site reuse or recycling

This option is already in place, the technology allows us to recuperate the maximum amount of Ethylene glycol. Wastes generated by this process, is estimated at 0.01 percent, which is acceptable.

This option will not reduce the amount of Ethylene glycol contained in product leaving the facility. The reduction of Ethylene glycol contained in product leaving our facility is not an option in our plan.

- ✓ Review training of blending employees and Production employees to emphasize spill prevention.

This option is already in place, has been for several years, the training program is ongoing annually to ensure employees do not forget and to introduce changes when necessary Wastes generated by this process, that cannot be re-used, is less than 1/10th of a percent, which is acceptable. Training is in place to help prevent large spills which would have a negative impact on our environmental program.

This option will not reduce the amount of Ethylene glycol contained in product leaving the facility. The reduction of Ethylene Glycol contained in product leaving our facility is not an option in our plan.

7 categories for reducing toxics use of Butoxy ethanol

1. Material or feedstock substitution

Replace Butoxy ethanol by Dipropylene Glycol Methyl Ether

- i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 10,000 to 100,000 kg
- ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable
- iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.
- iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility.
10,000 to 100,000 kg

Technical feasibility: not feasible. Dipropylene Glycol Methyl Ether or other Glycol ethers are less performing than Butoxy ethanol in our formulation. A larger concentration of glycol ethers would be required.

Economic feasibility: not feasible. Dipropylene Glycol Methyl Ether or other Glycol ethers are significantly more expensive than Butoxy ethanol, (Windshield washer fluid is our finished product and the product could not command a higher selling price).

2. Product design or reformulation

Using something other than Butoxy ethanol in the manufacturing of WW

- i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 10,000 to 100,000 kg
- ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable
- iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.
- iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility.
10,000 to 100,000 kg

Technical feasibility: not feasible. Our research has shown that there is no other chemical available domestically that performs like Butoxy ethanol or Glycol ethers for windshield washer fluid.

Economic feasibility: not feasible. All other known substances that could be used are more expensive. (Windshield washer fluid is our finished product and the product could not command a higher selling price).

3. Equipment or process modification

Use digital scale with automated pumping control

- i. estimates of the amount by which the use of the substance at the facility will be reduced, if the process is used at the facility. 100 to 1000 kg (estimated 1% of usage could be operator error when using the mechanical scale)
- ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable
- iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.
- iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 100 to 1000 kg

Technical feasibility: Feasible

Economic feasibility: Not Feasible

Anticipated payback period: 21 yrs

4. Spill and leak prevention

- i. estimates of the amount by which the use of the substance at the facility will be reduced, with better spill and leak prevention. 0 Kg
- ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable
- iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg air, land or water.
- iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technical feasibility: feasible. Recochem has a spill and leak prevention program that includes scheduled inspection and preventative maintenance.

Economic feasibility: feasible. Already in place. no additional cost since the equipment is already in use

5. On-site reuse or recycling

On-site reuse or recycling

This activity is already practiced, all butoxy ethanol (in Windshield washer fluid) collected outside the normal filling process (pipe rinse, rework, spills etc) of good quality is reused into the production

i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 0 kg,

ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable

iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.

iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technical feasibility: feasible. Already done

Economic feasibility: feasible. Already done, no cost since the equipment is already in use.

6. Improved inventory management or purchasing techniques

More accurate inventory management by better tracking of formulation adjustments

i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 0 kg

ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable

iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.

iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technical feasibility: feasible. It would only help us get slightly better accuracy for our inventory of raw material.

Economic feasibility: feasible. No cost since no new equipment is required

7. Training or improved operating practices

Review training of blending employees and Production employees to emphasize spill prevention

i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 0 Kg

ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable

iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.
Accidental Spill can be costly to the company.

iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technically feasibility: feasible

Economic feasibility: feasible (already done)

Training at Recochem Inc. is regarded as extremely important for all employees handling hazardous material. Recochem has developed an extensive training program that deals with Health and Safety as well as environmental issues like spills prevention and management.

List of the options that have been determined to be technically feasible

- ✓ Use digital scale with automated pumping control
- ✓ Spill and leak prevention
- ✓ On-site reuse or recycling.
- ✓ More accurate inventory management by better tracking of formulation adjustments.
- ✓ Review training of blending employees and Production employees to emphasize spill prevention.

List of the options that have been determined to be both technically and economically feasible.

- ✓ Spill and leak prevention

Good housekeeping methods are necessary to prevent spill and leaks

This option is already in place and is maintained by regular inspection and training sessions with employees.

This option will not reduce the amount of butoxy ethanol contained in product leaving the facility. The reduction of butoxy ethanol contained in product leaving our facility is not an option in our plan.

- ✓ On-site reuse or recycling

This option is already in place, the technology allows us to recuperate the maximum amount of Butoxy ethanol. Wastes generated by this process, is less than 0.01 percent, which is acceptable.

This option will not reduce the amount of butoxy ethanol contained in product leaving the facility. The reduction of butoxy ethanol contained in product leaving our facility is not an option in our plan.

- ✓ More accurate inventory management by better tracking of formulation adjustments.

This option will require more training of the employees.

This option will not reduce the amount of butoxy ethanol contained in product leaving the facility. The reduction of butoxy ethanol contained in product leaving our facility is not an option in our plan.

- ✓ Review training of blending employees and Production employees to emphasize spill prevention.

This option is already in place, has been for several years, the training program is ongoing annually to ensure employees do not forget and to introduce changes when necessary Wastes generated by this process, that cannot be re-used, is less than 1/10th of a percent, which is acceptable. Training is in place to help prevent large spills which would have a negative impact on our environmental program.

This option will not reduce the amount of butoxy ethanol contained in product leaving the facility. The reduction of butoxy ethanol contained in product leaving our facility is not an option in our plan.

7 categories for reducing toxics use (Sodium nitrate)

1. Material or feedstock substitution

Replace Sodium nitrate by another inorganic salt

- i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 10,000 to 100,000 kg
- ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable
- iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.
- iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility.
10,000 to 100,000 kg

Technical feasibility: not feasible. Sodium nitrate is used as a corrosion inhibitor in Diesel engine coolants. It is specified in OEM coolant formulation by auto manufacturer. There is no know direct replacement chemical available on the market.

Economic feasibility: not feasible. Sodium nitrate is very inexpensive compared to any other potential replacement. Because it is specified in OEM coolant formulation by auto manufacturer, developing a substitution would cost potentially 100's of thousands of dollars in research and testing before getting anything approved by OEM.

There would be no pay back possibility for the replacement of Sodium nitrate.

2. Product design or reformulation

Using something other than Sodium nitrate as a corrosion inhibitor in automotive

- i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 10,000 to 100,000 kg
- ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable
- iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.
- iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility.
10,000 to 100,000 kg

Technical feasibility: not feasible. There are already formulations for automotive coolant on the market that do not use Sodium nitrate. As mentioned above, Sodium Nitrate is the prescribed corrosion inhibitor in Diesel engine coolant because of its efficacy at protecting cast iron parts. This formulation is mandated by OEM automotive constructors.

Economic feasibility: not feasible. Sodium nitrate is very inexpensive compared to any other potential replacement. Because it is specified in OEM coolant formulation by auto manufacturer, developing a substitution would cost potentially 100's of thousands of dollars in research and testing before getting anything approved by OEM.

There would be no pay back possibility for the replacement of Sodium nitrate

3. Equipment or process modification

Using a bag emptying machine equipped with vacuum to help ensure there is no residue of powder in the bag.

i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 10 to 100 kg

ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable

iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.

iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technical feasibility: Feasible

Economic feasibility: not feasible

Anticipated payback period: 160 yrs

4. Spill and leak prevention

i. estimates of the amount by which the use of the substance at the facility will be reduced, with better spill and leak prevention. 0 Kg

ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable

iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.

iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technical feasibility: feasible. Recochem has a spill and leak prevention program that includes scheduled inspection, preventative maintenance and regular housekeeping practice training .

Economic feasibility: feasible. Already in place. no additional cost since the equipment is already in use.

5. On-site reuse or recycling

On-site reuse or recycling

This activity is already practiced, all Sodium nitrate (in automotive coolant) collected outside the normal filling process (pipe rinse, rework, spills etc) of good quality is reused into the production

i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 0 kg

ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable

iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.

iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technical feasibility: feasible. Already done (no gain)

Economic feasibility: feasible. Already done, no cost since the equipment is already in use.

6. Improved inventory management or purchasing techniques

More accurate inventory management better tracking of formulation adjustments

i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 0 kg

ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable

iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.

iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technical feasibility: feasible. It would only help us get slightly better accuracy for our inventory of raw material.

Economic feasibility: feasible. No cost since no new equipment required

7. Training or improved operating practices

Review training of blending employees and Production employees to emphasize spill prevention

i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 0 Kg

ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable

iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.
Accidental Spill can be costly to the company.

iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technically feasibility: feasible (no gain)

Economic feasibility: feasible (already done)

Training at Recochem Inc. is regarded as extremely important for all employees handling hazardous material. Recochem has developed an extensive training program that deals with Health and Safety as well as environmental issues like spills prevention and management.

List of the options that have been determined to be technically feasible

- ✓ Using a bag emptying machine equipped with vacuum to help ensure there is no residue of powder in the bag
- ✓ Spill and leak prevention
- ✓ On-site reuse or recycling.
- ✓ More accurate inventory management by better tracking of formulation adjustments.
- ✓ Review training of blending employees and Production employees to emphasize spill prevention.

List of the options that have been determined to be both technically and economically feasible.

✓ Spill and leak prevention

Good housekeeping methods are necessary to prevent spill and leaks

This option is already in place and is maintained by regular inspection and training sessions with employees.

This option will not reduce the amount of Sodium nitrate contained in product leaving the facility. The reduction of Sodium nitrate contained in product leaving our facility is not an option in our plan.

✓ On-site reuse or recycling

This option is already in place, the technology allows us to recuperate the maximum amount of Sodium nitrate. Wastes generated by this process, is less than 0.01 percent, which is acceptable.

This option will not reduce the amount of sodium nitrate contained in product leaving the facility. The reduction of Sodium nitrate contained in product leaving our facility is not an option in our plan.

✓ More accurate inventory management by better tracking of formulation adjustments .

This option will require more training of the employees.

This option will not reduce the amount of Sodium nitrate contained in product leaving the facility. The reduction of Sodium nitrate contained in product leaving our facility is not an option in our plan.

✓ Review training of blending employees and Production employees to emphasize spill prevention.

This option is already in place, has been for several years, the training program is ongoing annually to ensure employees do not forget and to introduce changes when necessary Wastes generated by this process, that cannot be re-used, is less than 1/10th of a percent, which is acceptable. Training is in place to help prevent large spills which would have a negative impact on our environmental program.

This option will not reduce the amount of Sodium nitrate contained in product leaving the facility. The reduction of Sodium nitrate contained in product leaving our facility is not an option in our plan.

7 categories for reducing toxics use (Sodium nitrite)

1. Material or feedstock substitution

Replace Sodium nitrite by another inorganic salt

- i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 10,000 to 100,000 kg
- ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable
- iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.
- iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility.
10,000 to 100,000 kg

Technical feasibility: not feasible. Sodium nitrite is used as a corrosion inhibitor in Diesel engine coolants. It is specified in OEM coolant formulation by auto manufacturer. There is no know direct replacement chemical available on the market.

Economic feasibility: not feasible. Sodium nitrite is very inexpensive compared to any other potential replacement. Because it is specified in OEM coolant formulation by auto manufacturer, developing a substitution would cost potentially 100's of thousands of dollars in research and testing before getting anything approved by OEM.

There would be no pay back possibility for the replacement of Sodium nitrite.

2. Product design or reformulation

Using something other than Sodium nitrite as a corrosion inhibitor in automotive

- i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 10,000 to 100,000 kg)
- ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable
- iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.
- iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility.
10,000 to 100,000 kg

Technical feasibility: not feasible. There are already formulations for automotive coolant on the market that do not use Sodium nitrite. As mentioned above, Sodium nitrite is the prescribed corrosion inhibitor in Diesel engine coolant because of it efficacy at protecting cast iron parts. This formulation is mandated by OEM automotive constructors.

Economic feasibility: not feasible. Sodium nitrite is very inexpensive compared to any other potential replacement. Because it is specified in OEM coolant formulation by auto manufacturer, developing a substitution would cost potentially 100's of thousands of dollars in research and testing before getting anything approved by OEM.

There would be no pay back possibility for the replacement of Sodium nitrite

3. Equipment or process modification

Using a bag emptying machine equiped with vacuum to help ensure there is no residue of powder in the bag.

i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 10 to 100 kg

ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable

iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.

iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technical feasibility: Feasible

Economic feasibility: not feasible

Anticipated payback period: 156 yrs

4. Spill and leak prevention

i. estimates of the amount by which the use of the substance at the facility will be reduced, with better spill and leak prevention. 0 Kg

ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable

iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.

iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technical feasibility: feasible. Recochem has a spill and leak prevention program that includes scheduled inspection, preventative maintenance and regular housekeeping practice training .

Economic feasibility: feasible. Already in place. no additional cost since the equipment is already in use.

5. On-site reuse or recycling

On-site reuse or recycling

This activity is already practiced, all Sodium nitrite (in automotive coolant) collected outside the normal filling process (pipe rinse, rework, spills etc) of good quality is reused into the production

- i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 0 kg,
- ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable
- iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.
- iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technical feasibility: feasible. Already done

Economic feasibility: feasible. Already done, no cost since the equipment is already in use.

6. Improved inventory management or purchasing techniques

More accurate inventory management better tracking of formulation adjustments

- i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 0 kg
- ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable
- iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to the air.
- iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technical feasibility: feasible. It would only help us get slightly better accuracy for our inventory of raw material.

Economic feasibility: feasible. No cost since no new equipment required

7. Training or improved operating practices

Review training of blending employees and Production employees to emphasize spill prevention

i. estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility. 0 Kg

ii. estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility. Not applicable

iii. estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water. 0 kg to air, land or water.
Accidental Spill can be costly to the company.

iv. estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility. 0 kg

Technically feasibility: feasible (no gain)

Economic feasibility: feasible (already done)

Training at Recochem Inc. is regarded as extremely important for all employees handling hazardous material. Recochem has developed an extensive training program that deals with Health and Safety as well as environmental issues like spills prevention and management.

List of the options that have been determined to be technically feasible

- ✓ Using a bag emptying machine equipped with vacuum to help ensure there is no residue of powder in the bag.
- ✓ Spill and leak prevention.
- ✓ On-site reuse or recycling.
- ✓ More accurate inventory management by better tracking of formulation adjustments.
- ✓ Review training of blending employees and Production employees to emphasize spill prevention.

List of the options that have been determined to be both technically and economically feasible.

- ✓ Spill and leak prevention

Good housekeeping methods are necessary to prevent spill and leaks

This option is already in place and is maintained by regular inspection and training sessions with employees.

This option will not reduce the amount of Sodium nitrite contained in product leaving the facility. The reduction of Sodium nitrite contained in product leaving our facility is not an option in our plan.

- ✓ On-site reuse or recycling

This option is already in place, the technology allows us to recuperate the maximum amount of Sodium nitrite. Wastes generated by this process, is less than 0.01 percent, which is acceptable.

This option will not reduce the amount of sodium nitrite contained in product leaving the facility. The reduction of Sodium nitrite contained in product leaving our facility is not an option in our plan.

- ✓ More accurate inventory management by better tracking of formulation adjustments .

This option will require more training of the employees.

This option will not reduce the amount of Sodium nitrite contained in product leaving the facility. The reduction of Sodium nitrite contained in product leaving our facility is not an option in our plan.

- ✓ Review training of blending employees and Production employees to emphasize spill prevention.

This option is already in place, has been for several years, the training program is ongoing annually to ensure employees do not forget and to introduce changes when necessary Wastes generated by this process, that cannot be re-used, is less than 1/10th of a percent, which is acceptable. Training is in place to help prevent large spills which would have a negative impact on our environmental program.

This option will not reduce the amount of Sodium nitrite contained in product leaving the facility. The reduction of Sodium nitrite contained in product leaving our facility is not an option in our plan.

Facility Information:

Facility	Recochem Inc. 8725 Holgate Crescent, Milton Ontario, L9T 5G7 905-878-5544
Substance identified under the Toxic Reduction Plan	Ethylene glycol, Butoxy ethanol, Sodium nitrate and Sodium Nitrite
C.A.S. registry number	Ethylene glycol(107-21-1), Butoxy ethanol (111-76-2), Sodium nitrate (7631-99-4) and Sodium Nitrite (7632-00-0)
Public contact	Robin Le Sage, Compliance & Technical Information Manager, 905-878-5544
Highest ranking employee	General Manager, 905-878-5544
Toxic substance reduction planner License number regarding section 18.2	Jim Anderson, M.Eng., P.Eng., TSRP0127
Toxic substance reduction planner License number regarding section 19.1	Jim Anderson, M.Eng., P.Eng., TSRP0127
spatial coordinates of the facility expressed in UTM	Zone: 17 Easting: 587990 Northing: 4821311
Canadian parent company	Recochem Inc.
Address of parent company	850 Montée de Liesse, Montréal, Québec, H4T 1P4

TSP Statements:

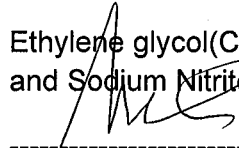
Substances for which plans have been prepared at facility	Ethylene glycol(107-21-1), Butoxy ethanol (111-76-2), Sodium nitrate (7631-99-4) and Sodium Nitrite (7632-00-0)
Statement of Intent to Reduce	Recochem Inc. does not intend to reduce the use of Ethylene glycol, Butoxy ethanol, Sodium nitrate and Sodium Nitrite, because reducing use of this compound would limit production.
Objectives of the Plan	Recochem Inc. does not intend to reduce the use of Ethylene glycol, Butoxy ethanol, Sodium nitrate and Sodium Nitrite
Plan Summary Statement	This plan summary accurately reflects the content of the toxic substance reduction plan for Ethylene glycol, Butoxy ethanol, Sodium nitrate and Sodium Nitrite, prepared by Recochem Inc. for their facility located in Milton, Ontario, Canada, dated March 30, 2013.
Reduction Objectives	Recochem Inc. does not intend to reduce the use of Ethylene glycol, Butoxy ethanol, Sodium nitrate and Sodium Nitrite.
Description of Substance	Ethylene glycol, Sodium nitrate and Sodium Nitrite are used in the production of automotive coolant. Butoxy ethanol, is used in the production of windshield washer fluid formulated by Recochem Inc.
Toxic Substance Reduction Option to be Implemented	None
Planner Recommendations and Rationale	<p>Draft TRSP:</p> <ul style="list-style-type: none"> Accounting items and approach are reasonable with the mass balance. After itemizing 7 categories of reductions, need to show (a) technical feasibility, (b) if technically feasible, economic feasibility. Summarize the actual quantity of reduction in use/release/contained in product from those 7 items. (the draft document shows percentages mainly for only use and releases, and should relate back to accounted quantities). If technically feasible, and you do economic feasibility, you should provide some numbers for economics – eg. actual costs of substitute materials, costs of new equipment, costs to train personnel, etc. Economic analysis must provide a payback analysis. Have you ever considered compressed air to clean pipes or rinse pipes and re-use that material? Certification statements to be prepared for Ethylene glycol(CAS# 107-21-1), Butoxy ethanol (CAS# 111-76-2), Sodium nitrate (CAS# 7631-99-4) and Sodium Nitrite (CAS# 7632-00-0) – need plan summary statements, statements of intent, reduction objectives, toxic substances reduction option to be implemented. <p>Final TRSP:</p> <ul style="list-style-type: none"> Certification statements to be prepared for Ethylene glycol(CAS# 107-21-1), Butoxy ethanol (CAS# 111-76-2), Sodium nitrate (CAS# 7631-99-4) and Sodium

	Nitrite (CAS# 7632-00-0) – need plan summary statements, statements of intent, reduction objectives, toxic substances reduction option to be implemented.
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Certification by highest ranking employee

As of March 30, 2014 I 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.

Ethylene glycol(CAS# 107-21-1), Butoxy ethanol (CAS# 111-76-2), Sodium nitrate (CAS# 7631-99-4) and Sodium Nitrite (CAS# 7632-00-0)



Mike Wilson
General Manager


6/1/14

Date

Certification by toxic substance reduction planner

As of March 30, 2013, I, Jim Anderson, M.Eng., P.Eng. certify that I am familiar with the processes at Recochem Inc. 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 toxic substance reduction plans referred to below for the toxic substances and that the plans comply with that Act and Ontario Regulation 455/09 (General) made under that Act.

Ethylene glycol(CAS# 107-21-1), Butoxy ethanol (CAS# 111-76-2), Sodium nitrate (CAS# 7631-99-4) and Sodium Nitrite (CAS# 7632-00-0)



Jim Anderson, M.Eng., P.Eng.
Toxic Substance Reduction Planner 0127
MBN Environmental Engineering Inc.

30 March 2014

Date

Recochem Inc. position regarding the Toxics Reduction Plan

Recochem appreciates the effort from the Ministry of the Environment to inform and guide Ontario companies in their attempts to reduce their use and emission of targeted “toxic” products.

In the case of Ethylene glycol(CAS# 107-21-1), Butoxy ethanol (CAS# 111-76-2), Sodium nitrate (CAS# 7631-99-4) and Sodium Nitrite (CAS# 7632-00-0), Recochem handles these chemicals as primary raw materials and as such, does not intend to reduce its annual volume. Recochem has 60 years of experience in handling the aforementioned substance in a safe manner for its employees and the environment. After investigating potential alternatives to the substances, it was determined that our direct and indirect costs would remain the same since all available alternatives would not change our requirements regarding infrastructure, maintenance, regulatory aspect and health & Safety aspects would remain the same more or less.

Furthermore, all alternatives investigated are either more expensive, less effective or inexistent. Therefore Recochem will not make any changes to its process in the immediate future, but continue to investigate new raw material and new processes that are developed and that could improve our process and benefit the environment, with minimal compromise to the quality, efficacy and security offered by our product.