Submission Transmittal Cover

To:	Claudia Simonato	**Phone:**	1-403-613-6328
Company:	PSPC	**Fax:**	
E-mail Address:	Claudia.Simonato@tpsgc-pwgsc.gc.ca		
From:	Jonathan Markiewicz	**Phone:**	1-514-984-6405
Company:	Sudliq Developments Ltd.	**Fax:**	867.925.8190
Date:	July 18, 2023	**Pages: (incl. cover)**	33
Project Title:	**Coral Harbour Remediation Project**		
Client Project No.:	**R.112158.017**		
Submittal Title:	DRAFT Process Water Treatment Plan		
Submittal No.:	008	**Specification:**	01 35 15

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- ☐ Information
- ☒ As Requested
- ☐ Review
- ☐ Tender
- ☐ Construction
- ☐ Other

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CONTRACTOR CERTIFICATION	CONTRACTOR COMMENTS
Jonathan Markiewicz Digitally signed by: Jonathan Markiewicz DN: CN = Jonathan Markiewicz email = jonathanm@milestoneenv.ca C = CA O = Milestone Environmental Contracting Inc. OU = Eastern and Northern Canada Date: 2023.07.20 14:58:44 -04'00'	Submitted as final
ENGINEER CERTIFICATION	ENGINEER COMMENTS

Process Water Treatment Design

Prepared For:

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada

Public Works and Government Services Canada
9700 Jasper Avenue, Suite 1000
Edmonton, Alberta T5J 4C3

Project: ***EW699-222278/001 – Coral Harbour Remediation Project***
Coral Harbour, Nunavut

Document History:

The Document Author is authorized to make the following types of changes to the document without requiring that the document be re-approved:

- Editorial, formatting, and spelling
- Clarification

To request a change to this document, contact the Document Author or Owner.

Changes to this document are summarized in the following table in reverse chronological order (latest version first).

Revision	Date	Created by	Short Description of Changes
000	May 29, 2023	Justin Horne / Paul Bandler	DRAFT
001	July 12, 2023	Paul Bandler	Final

Approval / Acknowledgements / Acceptance

Prepared By:

Paul Bandler, Project Manager	July 12, 2023	PBandler
Name and Title (please print)	Date	Signature

Reviewed By:

Mark Somers, P.Eng (NAPEG)	18/JULY/2023	18/JULY/2023
Name and Title (please print)	Date	Signature

REGISTERED PROFESSIONAL ENGINEER M.J. SOMERS LICENSEE NT/NU

Approved By:

Dino Bruce, SDL Director	x 18/July/2023	X
Name and Title (please print)	Date	Signature

Client Acceptance:

Name and Title (please print)	Date	Signature

All aspects of the work will be conducted in accordance with:

- ✓ Local / Provincial / Federal Legislation, Permits and Regulations, as applicable
- ✓ Contract Specification
- ✓ Site Specific Health and Safety Plan (HASP)

Table of Contents

1 PROJECT INFORMATION AND BACKGROUND

This Process Water Treatment Design will be retained on the site during field activities and will be reviewed, as necessary. The plan will be amended or revised as project activities or conditions change or when supplemental information becomes available.

1.1 Project Information and Background

Project Number:	PWGSC – EW699-222278/001/NCS Milestone – 03230272 SDL -
Client(s):	Public Works and Government Services Canada (PWGSC) on behalf of Crown-Indigenous Relations and Northern Affairs (CIRNAC)
Client Reference Number(s):	PWGSC Project Reference - EW699-222278 Contract Number - EW699-222278/001/NCS
Project Site Name:	Coral Harbour Site
Site Address:	Coral Harbour, NU The project Site is located approximately 10 kilometres (km) northwest of the Hamlet of Coral Harbour, Nunavut, on Southampton Island.
Project Manager:	Tyler Libby Jonathan Markiewicz
MILESTONE Office Location:	200 – 1550 Laperriere Avenue, Ottawa, Ontario, K1Z 7T2
Project Start Date:	May 1, 2023
Project End Date:	March 31, 2025
Site Background:	The former military base in Coral Harbour was used by Canadian and American forces during the construction of the Distant Early Warning (DEW) Line in Northern Canada during the Second World War and for various other northern projects. The Site was active from the 1940s until the 1970s and the on-site infrastructure included an airstrip, hospital, and housing for military personnel. When the Site was decommissioned in the 1970s, most buildings were decommissioned, and remaining equipment was abandoned. Several areas of environmental concern (AECs) including physical hazards related to unconsolidated surface debris and aged structures, and environmental impacts associated with soil contamination, buried debris, petroleum liquids in tanks and drums and hazardous building materials remain

on-site. These AECs and physical hazards are the target of the remediation activities under this contract.

Surrounding Areas: The Site is located along the local road system in the vicinity of the active Coral Harbour Airstrip and northwest of the town proper.

The areas around the Site are generally flat with limited ground cover. The surface soils are mostly gravel deposits with fine materials. Permafrost is at an approximate depth of 1 meter below ground surface (mbgs).

Work to be Performed: The primary components of the Remediation Works to be carried out by The Project Team are highlighted in this section:

- Abatement, packaging and proper off-site disposal of hazardous liquids and solids.
- Incineration of acceptable liquid and solid waste on site.
- Demolition, segregation and proper disposal of remaining buildings.
- Sorting and proper disposal of surface debris.
- Excavation, sorting and proper disposal of buried debris.
- Excavation and treatment or disposal of contaminated soil:
  - Type B soil to be treated in on-site land treatment unit (LTU).
  - Type A soil to be disposed in non-hazardous waste landfill (NHW) on site.
  - Tier II Soil to be properly packaged and disposed off-site.
- Construction, filling and operation of the on-site LTU.
- Construction, filling and closure of the on-site NHW.
- Backfilling of excavated areas with clean fill.

2 SCOPE OF WORK

Part of the Scope of Work (SOW) for this project is to design, install, commission, and operate a wastewater treatment system to treat residual oily water from old tanks and drums, rinsate from barrel and fuel storage tank washing operations and water from excavation dewatering.

The primary contaminants of concern are petroleum hydrocarbons, glycol and dissolved solvent/detergent from drum washing.

Requirements for the water treatment system are outlined in the memorandum titled *Issued for Tender Specifications for the Environmental Site Remediation at Coral Harbour, Nunavut* received by Milestone and dated September 13, 2022; SECTION 01 35 15.

NOTE: the requirements for management and treatment of wastewater originating from the on-site Camp are addressed in the Camp Facility Plan (Submittal 006).

Approximately 2800 barrels in varying condition with unknown contents require washing before disposal on site. Several fuel tanks require the same treatment. Due to restrictions of water usage and scarcity of fresh water sources, this system is designed to recirculate treated water back to the feed tanks to be reused as wash water.

The Project Team will implement a water treatment plant to meet or exceed the following regulatory requirements:

- The system design must be stamped by a NAPEG-registered Engineer.
- All federal, territorial, and local anti-pollution laws, ordinances, codes, regulations and applicable permits for disposing waste materials, debris, and rubbish.
- Nunavut Waters and Nunavut Surface Rights Tribunal Act (S.C. 2002, c.10).

The water treatment system will be required to meet or exceed following performance requirements:

- Design life for the course of the project (2 years).
- Equipment operation for the months of June to September.
- Removal of liquid phase and dissolved hydrocarbons from wash water.
- Meet all regulatory requirements for equipment and installation at Coral Harbour.
- Include all necessary pumps, generators, vessels and lines.

2.1 Relate Specification Sections

The following specification sections apply to this Work Plan.

Section	Detail
01 35 15 – 1.7	Wastewater Treatment
01 35 15 – 1.9	Wastewater discharge requirements
01 35 29.13	Health, Safety and Emergency Response Procedures for Contaminated Sites
01 35 43	Environmental Procedures
02 81 01	Hazardous Materials
02 81 01 – 3.7.2	Barrel Processing Methodology

2.2 Applicable Regulations and Guidelines

Regulatory requirements around safe works covering fluid handling, hazardous materials handling and transport and discharge to the environment applicable to this work plan include:

- Canada Labour Code – Occupational Health and Safety (R.S.C. 1985, c.L-2).
  Canada Occupational Health and Safety Regulations (SOR/86-304).
- Environment, Health & Safety Control Framework, Northern Contaminated Sites Program (INAC, 2008).
- Construction Project Safety Management Guide, 5th Edition (PWGSC, 2008).
- Abandoned Military Site Remediation Protocol (INAC, 2009).
- Canadian Standards Association, Selection Use and Care of Respirators (CSA Standard Z94.4-11 (R2016)).
- Spill Contingency Planning and Reporting Regulations (R-068-93).
- Consolidation of Occupational Health and Safety Regulations (R-003-2016).
- Consolidation of Safety Act (R.S.N.W.T. 1988, c.S-1; as amended by S.Nu. 2015, c.19).
- Environmental Guideline for Used Oil and Waste Fuel, June 2012.
- Transportation of Dangerous Goods Act, 1992 and Regulations (SOR/2001-286).
- Nunavut Waters and Nunavut Surface Rights Tribunal Act (S.C. 2002, c.10)
- Environmental Guideline for the Management of Contaminated Sites (Government of Nunavut, 2014)

2.3 Health Safety and Emergency Response

Details on health and safety are presented in the Site Specific Health and Safety Plan (Submittal 005).

Task specific hazards and planned mitigation measures are presented in the following table.

Personal protective equipment (PPE) per Section 01 35 29.13 – Health, Safety, and Emergency Response Procedures for Contaminated Sites and in compliance with NIOSH Guidelines.

Task- Specific Hazard	**Mitigation Measures**
Respiratory risk from organic vapours in drums.	Staff to be trained and properly fitted with minimum half-face respirators with organic vapour (OV) cartridges.
Chemical hazards: - Organic liquids in drums and other vessels - Detergents and chemical cleaners - Wash water and rinsate - Fuel to run pumps	- Staff to be trained on proper use and fitted with adequate PPE including, eye protection, face shields, respirators with OV cartridges, hard hat, rubber safety boots, double gloves (chemically resistant on the outside and latex on the inside) and disposable chemical resistant-coated coveralls. - Eye wash stations to be available during work. - SDS will be available for all new chemical products. - Spill kits will be on hand - Properly rated fire extinguishers will be on hand
Physical Hazards: - Slips, trips, falls - Noise (pumps, generators, etc) - Heavy equipment, tank trucks, flatbeds with slip tanks	- Proper foot wear and extra care to be taken when suited up in PPE. - Ear protection to be available as needed - Hard hats to be worn.

A decontamination Zone will be established adjacent to work areas where handling of drum contents occurs (e.g. sampling, consolidation/transfer, washing, etc.) to prevent tracking potentially contaminated liquids outside of the work area. The decontamination zone will be lined to contain any liquids and oily residues and will be equipped with boot wash, rinse down and rinsate containment. Rinsate will be passed through the process water treatment system (see below). Waste containers will be present to discard used/soiled PPE.

The work will be conducted with one person present outside of the sampling area, who is fully suited in protective clothing to observe the work in case of any unexpected health and safety concerns and also to assist as needed.

3 PROCESS WATER TREATMENT DESIGN

3.1 System Components

A simple water treatment system is proposed for the removal of hydrocarbons in raw water from the sources identified above. The proposed system will be comprised of:

- One lined barrel washing station with water collection sump
- One Easy-Kleen EZO4035G-K-GP-12 3.5gpm heated pressure washer
- Three 1000L poly tanks and or other approved cleaned tank from site for clean feed water to the pressure washer
- One floatable drum oil skimmer unit powered by compressed air
- 12-inch floatable oil booms and floatable oil absorbent socks
- One 1000L poly tank or pre-washed approved bulk tank from on-site for skimmer oil collection
- Two 2-inch sump pumps;
    - One pump for feeding the pressure washer from the water feed tanks
    - One pump for feeding the treatment system from the barrel washing sump
- One stainless steel bag filter unit supplied by Newterra (see attached Specification).
- Interchangeable sediment filter bags with size 10 microns or less.
- Two 55gal GAC filter drums system supplied by QNDE (see Spec sheet attached)
- 8x30 regen liquid phase Granular Activated Carbon supplied by Continental Carbon
    - U.S. standard series sieve size: 8 x 30 mesh (min 90%)
        - Less than No. 30: 5% (max)
        - Greater than No. 8: 5% (max)
    - Iodine No.: 900 mg/g (min)
    - Surface Area: 900 m2/g (min)
    - Hardness: 90% (min)
    - Abrasion No.: 80 (min)
    - Moisture (as packaged): 5.0% (max)
    - Typical density: 27-30 lbs/ft3 (0.43 -0.48 g/cc)
- One FLOMEC 2-inch TM20NQ9LMB PVC turbine flow meter
- One 1500W portable diesel generator
- One air compressor to operate the skimmer

The attached drawing (Appendix C) shows a schematic of the proposed system. The treatment system will include the following processes:

3.2 Wash Area

The barrel wash process is detailed in submittal 010. A schematic of the wash areas is included herein, in Appendix C. Briefly, the wash area will be constructed of raised dirt berms on four sides. The area will have a slight grade and a sump at the low end. The area including the sump will be lined with polyethylene that overlaps the top of the berms to contain and collect rinse water. The size and location of the wash area will be determined in the field. The base of the wash area will be lined with pallets or filter cloth or similar, to provide tracking and slip mitigation to works when washing and handling drums.

Barrels will be cleaned by applying fresh or recycled water using an Easy-Kleen 3.5gpm, 3200psi heated pressure washer with drum washer wand attachment. Water that drains from the barrels will run to the sump. An oil skimmer set in the sump will collect oily residues. Water will be drawn from the bottom of the sump to holding tanks to either recycle into the wash process or to the treatment system for processing.

As water will drain to the sump and be skimmed and drawn off it is not anticipated that the wash area will collect appreciable amounts of water. However, the berms will provide additional contingency holding capacity of rinse water if needed, and the process will be paused to allow drawdown and processing of water as needed.

The integrity of the wash area will be inspected daily prior to commencement of washing.

3.3 Contaminated Water Collection

Barrels will be cleaned by applying fresh or recycled water using an Easy-Kleen 3.5gpm, 3200psi heated pressure washer with drum washer wand attachment. Fresh water will be used to initially rinse the drums. If hydrocarbon residue persists in the drums, a light detergent (Crystal Simple Green) will be added to the pressure washer feed to assist with removal. If the detergent is unsuccessful in removing the hydrocarbons, a solvent wash using SUPER KLEEN 550 will be used to further clean the drums. SDSs for Crystal Simple Green and SUPER KLEEN 550 are available in Appendix A.

Rinse water will be collected in the sump of the poly-lined bermed wash area. A geotextile cloth and wooden pallets will cover the poly wash area to provide workers with a non-slip surface while still draining water to the sump.

The bulk of the oil will be collected from the sump using floatable drum oil skimmer to draw hydrocarbons from the water surface. A 2-inch diaphragm pump will transfer collected oil from the skimmer to a holding tank located in the wash area , or with its own secondary containment, for storage, testing and eventual incineration. A floatable 12-inch oil boom and a series of oil absorbent socks will be used to enclose a section of the sump around a submersible pump used to feed the treatment system to reduce hydrocarbon content entering the system. A 2-inch sump pump will be used to feed the system once the barrel washing sump has reached design capacity. Water will be pumped from the sump at a maximum rate of 10gpm.

3.4 Filtration and Treatment

Water will be pumped from the collection sump through a stainless-steel bag filter supplied by Newterra rated to 150gpm and 150psi (see attached specification) to remove any coarse particulate from the water. Filter bags will be replaced as required when feed pressure increases due to particulate buildup. Spent filters will be placed in an overpack for disposal off-site.

After the bag filter, the water will flow sequentially through two 55-gallon granular activated carbon (GAC) drum vessels situated in series. The drums will be filled with 8x30 regen liquid phase GAC. Organic contaminants and wash detergents will be removed through adsorption to the GAC. Gauges will be used to monitor the internal pressure of the vessels and to determine (i) sediment build-up and (ii) GAC utilization, and if a backwash sequence is required in any vessel.

The carbon vessel in the lead position will accumulate a small amount of suspended solids that remain in the water after the bag filter. The vessels are anticipated to require backwashing periodically (depending on frequency of system use) with backwash water sent back to the barrel washing sump. The vessels will be piped with PVC ball valves and will require manual adjustment to initiate the backwash process. Backwash water and any flushed solids may be removed from the cycle and containerized for off-site disposal.

The carbon vessels will have removable lids and internal piping to allow for spent carbon to be changed out. Persistent pressure increases in the lead vessel (even after backwashing) will indicate that carbon is spent and needs to be changed. In this case the second vessel will be moved to the lead position and a spare 55-gallon vessel filled with fresh carbon will replace the second vessel when a changeout is required to reduce system downtime. The bag filter and GAC vessels will be mounted on skids for easy portability.

3.5 Treated Water Storage and Re-use

Treated water will flow from the GAC vessels back to the pressure washer feed tanks. This set-up will reduce the need for fresh clean water to feed the pressure washer. As a due diligence step, processed water that is intended for recirculation to the wash process may be tested approximately every 10,000 liters as a QAQC check for hydrocarbon breakthrough, as a backup step to the pressure gauge monitoring which will be the primary indicator of GAC utilization.

At the completion of barrel washing, treated water will be held in clean totes or other tanks, while testing is completed to determine final disposal options; either discharge to land if criteria are met, or containerization for off-site disposal.

3.6 General Operation Plan

System operation will be on an as needed basis. At this time it is unknown how much water will require treatment. The following table provides an estimate of treatment capacity based on a 10hr operating day.

Water Treatment Capacity	Value	Units
Limiting Stage Flow Rate (Carbon Barrels) 5 - 10 gal/min optimal range (avg used):	7.5	gal/min
Liters per gallon conversion	3.8	L/gal
Average production rate	28.4	L/min
treatment production in a 10 hr shift	17032.5	L / shift
treatment production in a 10 hr shift	17.03	m3 / shift

The following table provides an estimate of water production during barrel washing in a similar 10hr shift.

Barrel Washing Production Estimate (10hr shift)	Value	Units
Pressure Washer Flow Rate:	13.2	L/min
Time to Wash One Barrel:	3	min
Water Quantity per Barrel:	39.6	L/barrel
Total Loading/Washing/Unloading per Barrel:	5	min
Barrels Washed per Shift:	120	barrel/shift
Water Quantity per Shift:	4752.0	L/shift
Water Quantity per Shift:	4.8	m3/shift

Treatment capability is three times greater than estimated rinse water production, providing some contingency to manage rinse water.

The system will be operated by the Project Team and overseen by a Superintendent or other qualified team member. Operators will be given a briefing on system function, operation and monitoring parameters including, pressure gauges, flow rates. System condition monitoring will include checks on all connection points and values. The system will be set up with its own secondary containment.

When operating, input quantities will be tracked daily based on the flow meter which will be installed ahead of the initial filtration step.

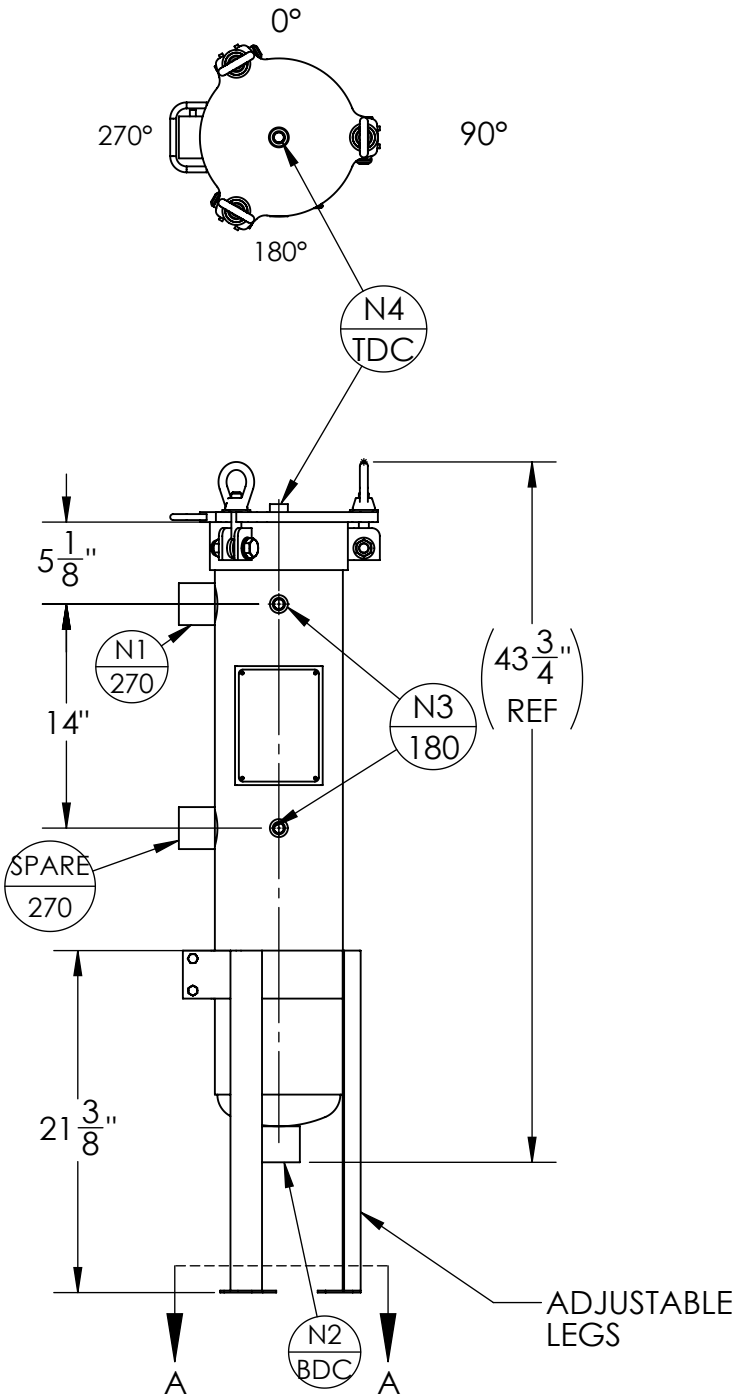
APPENDIX A

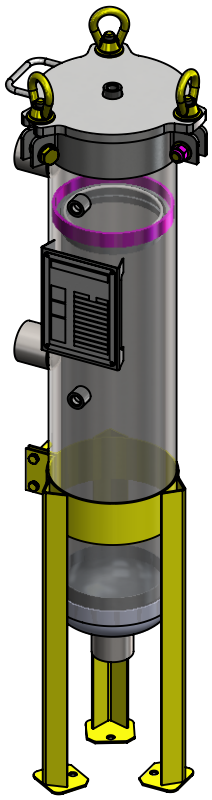
Spec Sheets for Treatment System Components

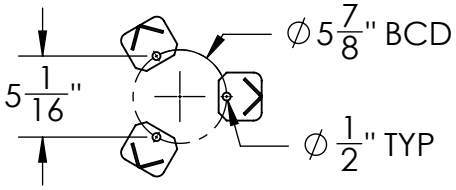
NOZZLE SCHEDULE			
MARK	QTY	SIZE / RATING	DESCRIPTION
N1	1	2" 150# NPT	INLET
N2	1	2" 150# NPT	OUTLET
N3	2	1/2" 3000# NPT	PRESSURE GAUGE
N4	1	1/2" 3000# NPT	VENT
SPARE	1	2" 150# NPT	SPARE

VESSEL DESIGN CONDITIONS			
CODE:	BEST COMMERCIAL PRACTICE		
M.A.W.P.:	150 PSI @ 400°F	GASKET:	BUNA-N
M.A.W.P.:	FV PSI @ 400°F		
M.D.M.T.:	-50° F @ 150 PSI		
HYDROTEST PRESS:	210 PSI		
MATERIAL:	SS304		

NOTES:
1. VESSEL WILL HOUSE (QTY=1) DOUBLE LENGTH BASKET.
2. DRY WEIGHT: 80 LBS
3. FLOODED WEIGHT: 160 LBS
4. SHIPPING WEIGHT: 120 LBS
5. VESSEL VOLUME: 1.20 FT³







SECTION A-A
SCALE 1 : 12

APPROVED WITH MARK-UPS ☐ APPROVED ☐

THIRD ANGLE PROJECTION

TOLERANCES-UNLESS OTHERWISE NOTED
DECIMAL .X =±.1" .XX =±.02" .XXX =±.005"
FRACTIONAL =±1/8"
ANGULAR =± 1°
MAX. MACHINED SURFACE FINISH 125

newterra

EQUIPMENT: ESL SERIES (BAG FILTER HOUSING)
MODEL NO: S4ESL112-2P-CD-150
CUSTOMER:

PARENT: NEW DESIGN	DRAWN: UP	DATE: 16/01/21	SERIAL No.	Part No. 002001-18521	REV. No. 0
	CHK'D: NV	SCALE: NTS			

Quality NDE
164, St-Jean-Baptiste
Mercier, Quebec J6R 2C2
Tel.: (450) 691-9090 / 1-800-361-3630
www.qnde.ca

INSTALLATION & OPERATING INSTRUCTIONS

The CARBON ACTIVATED canister should be placed in an accessible area, preferably close to the source of liquid to be treated. Once the CARBON ACTIVATED canister is installed it is designed to operate virtually unattended.

As contaminated liquid flows through the canister, the activated carbon adsorbs the impurities. The treated liquid flows into a collector at the bottom of the carbon bed and is directed to the outlet nozzle at the top. As impurities are adsorbed in the carbon bed, it will start to become saturated and some impurities will bleed into the effluent.

Replacing the first DRUM

Two (or three) canisters are connected in series and operated until the lead canister becomes completely saturated with impurities (i.e., the effluent concentration equals the influent concentration); or the effluent impurity level of the second canister approaches the treatment objective; or when the lead canister's inlet pressure reads 10 psig or more (clogged with solids).

The lead canister is then removed from service and replaced with the second canister. The second canister is then replaced with the third canister… and a fresh new third canister is installed.

The useful life of the canister will differ from one application to another, as the capacity of the activated carbon will vary with the type and concentration of contaminants in the liquid passed through it. For that reason the most precise measurement of canister life will come from the practical experience of using it under a specific set of operating conditions.

IMPORTANT: The drum is designed for a maximum pressure of 10 PSIG and a maximum flow rate of 10 GPM. Exceeding this may damage the drum.

INSTALLATION

1- Remove the plastic inlet and outlet plugs on the canister.
   NEW System
   a. Make sure to properly degas both drums to prevent air entrapment. Fill with water or the liquid to be treated at a slow rate (1 - 2 gpm) into the canister outlet port until filled. The canister should then be allowed to stand for 24 hours with inlet connection open to permit de-gassing of the carbon bed. Periodically during this time, additional liquid should be added to the canister as the level drops due to gas displacement.
   b. Once degassed, connect the whole system and start using.
   c. NOTE: During initial startup, carbons fines will be washed away which is normal (approx. 5 bed volumes).

   EXISTING System – Replacing the first DRUM
2- Remove the lead canister and replaced with the second canister (DRUM 2).
3- If applicable, the second canister (DRUM 2) is then replaced with the third canister (DRUM 3).
4- The last canister is then replaced with a fresh new canister.
5- Reinstall the plumbing as per instructions below.

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164, St-Jean-Baptiste
Mercier, Quebec J6R 2C2
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CLOSURE INSTRUCTIONS FOR HAZARDOUS SPENT CANISTERS

Spent canisters should be drained for transport. Open the 2" outlet on the lower side of the canister and let gravity drain the drum. Alternatively, compressed air at 5 psi maximum can be applied to the inlet connection to force the water out through the outlet connection. Drained liquids should be returned to the upstream feed point for reprocessing.

Prior to offsite recycling or disposal, hazardous spent canisters need to be properly closed for transportation. Two (2) 2" FNPT pipe plugs are needed to plug the inlet and outlet fittings in the lid. All plugs need to be tightened according to the following torque requirements:

2" NPT plugs for inlet/outlet in lid	Tightening torque: 20 ft.-lbs.

CAUTION

1. Operating pressure for CARBON ACTIVATED canisters should not exceed 10 psig.
2. Activated carbon has been known to react adversely with some contaminants. If the effect of the contaminant you wish to treat on activated carbon is unknown, then it must be tested.
3. Best results are obtained when suspended solids in the untreated liquid are removed prior to treatment in the canister. This will prevent fouling of the activated carbon, which may result in a reduction of its useful life, and an increased back pressure.
4. Install appropriate shipping plugs and follow all State and Federal EPA Regulations when regenerating or disposing of spent carbon canisters.

WARRANTY

This product is designed to remove toxic elements from liquids. However, there is no assurance of its capacity. SELLER WARRANTS THAT THE GOODS ARE AS DESCRIBED, BUT NO OTHER WARRANTY IS GIVEN, WHETHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Seller will not be liable for loss or damage to property or any incidental or consequential loss or expense from property damage due directly or indirectly from the use of the product.

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164, St-Jean-Baptiste
Mercier, Quebec J6R 2C2
Tel.: (450) 691-9090 / 1-800-361-3630
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Plumbing installation – NPT everywhere

1. Install the Tee with a pressure gauge on Drum 1's INLET.
2. Install the BARBED elbow on Drum 1's OUTLET towards Drum 2's INLET with sufficient hose length.
3. Install the Tee with a sample valve on Drum 2's INLET.
4. Install the BARBED elbow on Drum 2's OUTLET towards Drum 3's INLET with sufficient hose length.
5. Install the BARBED elbow on Drum 3's INLET.
6. Install the BARBED elbow on Drum 3's OUTLET with the remaining hose length to the sewer.

APPENDIX B

SDS – Crystal Simple Green Detergent
SDS – SUPER-KLEEN 550 solvent

Safety Data Sheet: **Crystal Simple Green® Industrial Cleaner & Degreaser**

Fiche signalétique: **Crystal Simple Green® Nettoyant et Dégraisseur Industriel**

Version No. 19000-21A | Issue Date: April 1, 2021 | Supersedes Date: April 11, 2017 | *HPR (WHMIS 2015)*

N° de vesion : 19000-21A | Date du parution : avril 1, 2021 | Remplace la parution du : avril 11, 2017 | *HPR (SIMDUT 2015)*

Section 1: IDENTIFICATION

Product Name: Crystal Simple Green® Industrial Cleaner & Degreaser
Additional Names:

Manufacturer's Part Number: **Please refer to Section 16*

Recommended Use: Cleaner & Degreaser for water tolerant surfaces.
Restrictions on Use: Do not use on non-rinsable surfaces.

Company: Sunshine Makers, Inc.
300-840 6 Ave SW
Calgary, AB T2P 3E Canada

Telephone: 587-393-2801 *Mon – Fri, 8am – 5pm PST*
Fax: 562-592-3830
Email: info@simplegreen.com

Emergency Phone: Chem-Tel 24-Hour Emergency Service: 800-255-3924

Section 2: HAZARDS IDENTIFICATION

This product is considered hazardous under WHMIS 2015.
WHMIS 2015 Classification: Serious Eye Damage / Irritant 2B

WHMIS 2015
Label Elements
Signal Word: Warning

Hazard Symbol(s)/Pictogram(s): None required

Hazard Statements: Causes eye irritation.

Precautionary Statements: Wash hands thoroughly after handling. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Hazards Not Otherwise Classified (HNOC): None

Other Information: None Known

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS Number	Percent Range (w/w)
Water	7732-18-5	> 82%*
C9-11 Alcohols Ethoxylated	68439-46-3	< 5%*
Surfactant	Proprietary	< 5%*
Sodium Citrate	68-04-2	< 5%*
Sodium Carbonate	497-19-8	< 1%*
Tetrasodium Glutamate Diacetate	51981-21-6	< 1%*
Citric Acid	77-92-9	< 1%*

**specific percentages of composition are being withheld as a trade secret*

Section 4: FIRST-AID MEASURES

Inhalation: Not expected to cause respiratory irritation. If adverse effect occurs, move to fresh air.
Skin Contact: Not expected to cause skin irritation. If adverse effect occurs, rinse skin with water.

Section 4: FIRST-AID MEASURES - continued

Eye Contact: Causes eye irritation. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion: May cause upset stomach. Drink plenty of water to dilute. See section 11.

Most Important Symptoms/Effects, Acute and Delayed: None known.

Indication of Immediate Medical Attention and Special Treatment Needed, if necessary: Treat symptomatically

Section 5: FIRE-FIGHTING MEASURES

Suitable & Unsuitable Extinguishing Media: Use Dry chemical, CO2, water spray or "alcohol" foam. Avoid high volume jet water.
Specific Hazards Arising from Chemical: In event of fire, fire created carbon oxides may be formed.
Special Protective Actions for Fire-Fighters: Wear positive pressure self-contained breathing apparatus; Wear full protective clothing.

This product is non-flammable. See Section 9 for Physical Properties.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: *For non-emergency and emergency personnel:* See section 8 – personal protection. Avoid eye contact. Wear safety goggles.

Environmental Precautions: Do not allow into open waterways and ground water systems.

Methods and Materials for Containment and Clean Up: Dike or soak up with inert absorbent material. See section 13 for disposal considerations.

Section 7: HANDLING AND STORAGE

Precautions for Safe Handling: Ensure adequate ventilation. Keep out of reach of children. Keep away from heat, sparks, open flame and direct sunlight. Do not pierce any part of the container. Do not mix or contaminate with any other chemical. Do not eat, drink or smoke while using this product.

Conditions for Safe Storage including Incompatibilities: Keep container tightly closed. Keep in cool dry area. Avoid prolonged exposure to sunlight. Do not store at temperatures above 109°F (42.7°C). If separation occurs, mix the product for reconstitution.

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limit Values: No components listed with TWA or STEL values.

Appropriate Engineering Controls: Showers, eyewash stations, ventilation systems

Individual Protection Measures / Personal Protective Equipment (PPE)
Eye Contact: Use protective glasses or safety goggles if splashing or spray-back is likely.
Respiratory: Use in well ventilated areas or local exhaust ventilations when cleaning small spaces.
Skin Contact: Use protective gloves (any material) when used for prolonged periods or dermally sensitive.
General Hygiene Considerations: Wash thoroughly after handling and before eating or drinking.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear Colorless Liquid	**Partition Coefficient: n-octanol/water:**	Not determined
Odor:	No added odor	**Autoignition Temperature:**	Non-flammable
Odor Threshold:	Not determined	**Decomposition Temperature:**	109°F
pH:	9.8 – 10.8	**Viscosity:**	Like water
Freezing Point:	0-3.33°C (32-38°F)	**Specific Gravity:**	1.01 – 1.03
Boiling Point & Range:	101°C (213.8°F)	**VOCs:**	***Water & fragrance exemption in calculation*
Flash Point:	> 212°F	CARB Method 310**: 4.0 g/L	0.033 lb/gal 0.4%
Evaporation Rate:	½ Butyl Acetate @ 25°C	**VOC Composite Partial Pressure:**	Not determined
Flammability (solid, gas):	Not applicable	**Relative Density:**	8.34 – 8.42 lb/gal
Upper/Lower Flammability or Explosive Limits:	Not applicable	**Solubility:**	100% in water
Vapor Pressure:	0.60 PSI @77°F, 2.05 PSI @100°F		
Vapor Density:	Not determined		

Section 10: STABILITY AND REACTIVITY

Reactivity: Non-reactive.
Chemical Stability: Stable under normal conditions 70°F (21°C) and 14.7 psig (760 mmHg).
Possibility of Hazardous Reactions: None known.
Conditions to Avoid: Excessive heat or cold.
Incompatible Materials: Do not mix with oxidizers, acids, bathroom cleaners, or disinfecting agents.
Hazardous Decomposition Products: Normal products of combustion - CO, CO2.

Section 11: TOXICOLOGICAL INFORMATION

Likely Routes of Exposure:
Inhalation - Overexposure may cause headache.
Skin Contact - Not expected to cause irritation, repeated contact may cause dry skin.
Eye Contact - Causes eye irritation.
Ingestion - May cause upset stomach.

Symptoms related to the physical, chemical and toxicological characteristics: no symptoms expected under typical use conditions.
Delayed and immediate effects and or chronic effects from short term exposure: no symptoms expected under typical use conditions.
Delayed and immediate effects and or chronic effects from long term exposure: headache, dry skin, or skin irritation may occur.
Interactive effects: Not known.

Numerical Measures of Toxicity

Acute Toxicity:
Oral LD_{50} (rat) > 5 g/kg body weight
Dermal LD_{50} (rabbit) > 5 g/kg body weight
Calculated via OSHA HCS 2012 / Globally Harmonized System of Classification and Labelling of Chemicals

Skin Corrosion/Irritation: Non-irritant per Dermal Irritection® assay modeling. No animal testing performed.
Eye Damage/Irritation: Irritant per Ocular Irritection® assay modeling. No animal testing performed.
Germ Cell Mutagenicity: Mixture does not classify under this category.
Carcinogenicity: Mixture does not classify under this category.
Reproductive Toxicity: Mixture does not classify under this category.
STOT-Single Exposure: Mixture does not classify under this category.
STOT-Repeated Exposure: Mixture does not classify under this category.
Aspiration Hazard: Mixture does not classify under this category.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity: Volume of ingredients used does not trigger toxicity classifications under the Globally Harmonized System of Classification and Labelling of Chemicals.
Aquatic: Not tested on finished formulation.
Terrestrial: Not tested on finished formulation.

Persistence and Degradability: Reaches 100% biodegradability within 140 days in a sanitary sewer or septic system (extended OECD 301D testing).
Bioaccumulative Potential: No data available.
Mobility in Soil: No data available.
Other Adverse Effects: No data available.

Section 13: DISPOSAL CONSIDERATIONS

Unused or Used Liquid: May be considered hazardous in your area depending on usage and tonnage of disposal – check with local, regional, and or national regulations for appropriate methods of disposal.

Empty Containers: Dispose of in accordance with local regulations.

Never dispose of used degreasing rinsates into lakes, streams, and open bodies of water or storm drains.

Section 14: TRANSPORT INFORMATION

U.N. Number: Not applicable
U.N. Proper Shipping Name: Cleaning Compound, Liquid NOI
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Marine Pollutant - NO
Transport in Bulk (according to Annex II of MARPOL 73/78 and IBC Code): Unknown.
Special precautions which user needs to be aware of/comply with, in connection with transport or conveyance either within or outside their premises: None known.

U.S. (DOT) / Canadian TDG: Not Regulated for shipping.
IMO / IDMG: Not classified as Hazardous
ICAO/ IATA: Not classified as Hazardous
ADR/RID: Not classified as Hazardous

Section 15: REGULATORY INFORMATION

All components are listed on: DSL Inventory.

Toxic Substances List – Schedule 1 – CEPA: Nothing listed
NPRI Inventory: Nothing listed

Section 16: OTHER INFORMATION

Size	UPC
709 ml	043318000164
3.78 Liter	043318000188
18.9 Liter	043318000140
56.78 Liter	043318000263

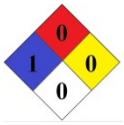
Section 16: OTHER INFORMATION - continued

Size	**UPC**
208 Liter	043318190599
1040 Liter	043318000195

Canada items listed only. Not all items listed. Items may not be valid for international sale.

NFPA:

Health – Eye Irritant
Flammability – Non-flammable
Stability – Stable
Special - None



Acronyms

IARC	International Agency for Research on Cancer	DSL	Domestic Substances List
CEPA	Canadian Environmental Protection Act	NPRI	National Pollutant Release Inventory

Prepared / Revised By: Sunshine Makers, Inc., Regulatory Department.
Revision Date: April 1, 2021
This SDS has been revised in the following sections: SDS updated with ingredient disclosure

DISCLAIMER: The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

SAFETY DATA SHEET
SDS REVISION DATE: 12/20/2022

SUPER KLEEN 550

THIS APPLIES TO UNDILUTED MATERIAL ONLY

1. PRODUCT & COMPANY NAME

1.1. Product identifier

Product Identity SUPER KLEEN 550

Alternate Names NA **ID NO:** 550.1220

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use See Product Label

Application Method See Technical Data Sheet.

1.3. Details of the supplier of the safety data sheet

Company Name Easy Kleen Pressure Systems, LTD
41 Earnhard Road
Sussex Corner NB. E4E 6A1

Customer Service: Easy Kleen Pressure Systems **PHONE:** 800-315-5533

1.4 Medical and Emergency Spill Info 24/7 **CHEMTREC:** (800) 424-9300 (CCN#206316)

2. HAZARD IDENTIFICATION OF THE PRODUCT

2.1. Classification of the substance or mixture

Acute Tox. 5;H303	May be harmful if swallowed. (Not adopted by US OSHA)
Skin Corr. 1B;H314	May cause severe skin burns and eye damage.
Eye Dam. 1;H318	May cause serious eye damage.

2.2. Label elements

Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.

[Warning]:

H303 May be harmful if swallowed. *H314* May cause severe skin burns and eye damage. *H318* May cause serious eye damage.

[Prevention]:

P202 Do not handle until all safety precautions have been read and understood. *P260* Do not breathe mist/vapors/spray. *P264* Wash thoroughly after handling. *P280* Wear protective gloves/eye protection/face protection.

[Response]:

P301+330+331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. *P302+352* IF ON SKIN: Wash with plenty of soap and water. *P303+361+353* IF ON SKIN (or hair): Remove / Take off immediately all contaminated clothing. Rinse skin with water / shower. *P305+351+338* IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing. *P308+313* IF exposed or concerned: Get medical advice / attention. *P363* Wash contaminated clothing before reuse.

[Storage]:

P405 Store locked up.

[Disposal]:

P501 Dispose of contents / container in accordance with local / national regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product contains the following substances that present a hazard within the meaning of the relevant State and Federal Hazardous Substances regulations.

INGREDIENT/CHEMICAL DESIGNATIONS	WEIGHT %
Ethylene glycol monobutyl ether CAS Number: 0000111-76-2	1.0 - 10
Sodium hydroxide CAS Number: 0001310-73-2	1.0 - 10
Disodium metasilicate CAS Number: 0006834-92-0	1.0 - 10
Proprietary	1.0 - 10
Ester Blend – (proprietary)	1.0 – 10

4. FIRST AID MEASURES

4.1. Description of first aid measures

General In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. **NOTES TO PHYSICIAN:** All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Inhalation If breathing is difficult move to fresh air.

Eyes Allow streaming water to flow over the face while blinking both eyes for 15 minutes for optimum irrigation. Get medical attention.

Skin Wash area thoroughly with water while removing contaminated clothing/shoes. If irritation persists, consult physician. Discard any clothing or shoes that cannot be cleaned.

Ingestion Do NOT induce vomiting. Give water or milk of Magnesia. Seek immediate medical attention. If vomiting occurs, keep airway passages open.

4.2. Most important symptoms and effects, both acute and delayed

Overview **IMMEDIATE CONCERNS: CAUTION**: May cause eye or skin burns. **POTENTIAL SIDE EFFECTS: EYES:** Mist could cause eye damage if not treated immediately. **SKIN:** May be irritant if not rinsed off. **INGESTION:** May be an irritant to mouth and throat. **INHALATION:** Avoid mist, may be an irritant **SIGNS AND SYMPTOMS OF OVEREXPOSURE EYES:** Irritation **SKIN:** Mist can cause skin irritation. **INGESTION:** Can cause irritation to the stomach. **INHALATION:** Avoid mist, can be an irritant. **ACUTE TOXICITY:** Irritation may be caused with exposure to mist. See section 2 for further details. **Eyes:** May cause serious eye damage. **Skin:** May cause severe skin burns and eye damage. **Ingestion:** May be harmful if swallowed.
(Not adopted by US OSHA)

5. FIREFIGHTING MEASURES

5.1. Extinguishing media: Water, Carbon Dioxide, Foam, water.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition: NA
Do not breathe mist / vapors / spray.

5.3. Advice for fire-fighters

Respiratory and eye protection are required for fire- fighting personnel. Full protective equipment (Bunker Gear) and self- contained breathing apparatus (SCBA) should be used for all indoor fires and any significant outdoor fires

ERG Guide No. ----

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Put on appropriate personal protective equipment (see section 8).

6.2. Environmental precautions

WATER SPILL: Use appropriate containment to avoid runoff.

LAND SPILL: Use appropriate containment to avoid runoff.

RELEASE NOTES: If spill could potentially enter any waterway, including intermittent dry creeks, contact the local authorities. If in the US, contact the US Coast Guard National Response Center toll free at 800-424-8802. Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

6.3. Methods and material for containment and cleaning up

SMALL SPILL: Shut off leak if it can be done without injury. Contain spill as much as possible and place in recovery container. Neutralize remaining spill with baking soda, flush with water.

LARGE SPILL: Shut off leak if it can be done without injury. Contain spill as much as possible and Place in recovery container. Neutralize remaining spill with baking soda, flush with water.

7. HANDLING & STORAGE

7.1. Precautions for safe handling

Handle in a well ventilated area. Handle and use in a manner consistent with good industrial and/or manufacturing techniques and practices.

See section 2 for further details. - [Prevention]:

7.2. Conditions for safe storage, including any incompatibilities

Store in a cool dry area. Keep container closed when not in use. Freeze/thaw stable, however container may become damaged when frozen.

Incompatible materials: Acids. Oxidizers.

See section 2 for further details. - [Storage]:

7.3. Specific end use(s): Industrial detergent

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

CAS NO.	INGREDIENT	SOURCE	VALUE
0000111-76-2	Ethylene glycol monobutyl ether	OSHA ACGIH NIOSH Supplier	TWA 50 ppm (240 mg/m3) [skin] TWA: 20 ppm Revised 2003, TWA 5 ppm (24 mg/m3) [skin] No Established Limit
0001310-73-2	Sodium hydroxide	OSHA ACGIH NIOSH Supplier	TWA 2 mg/m3 Ceiling: 2 mg/m3 C 2 mg/m3 No Established Limit
0006834-92-0	Disodium metasilicate	OSHA ACGIH NIOSH Supplier	No Established Limit No Established Limit No Established Limit ACHAN TLV/OSHA 2mg/m3PEL 2mg/m3

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

Carcinogen Data:	No suspected or known carcinogens.
8.2. Exposure controls	
Respiratory	Mist Mask
Eyes	Safety glasses or goggles.
Skin	Chemical resistant clothing such as coveralls/apron boots should be worn. When handling wear alkaline resistant gloves.
Engineering Controls	Provide adequate ventilation.
Other Work Practices	Facilities storing or using this material should be equipped with an eyewash facility and a safety shower. Good personal hygiene practices should always be followed.

REMARKS: This product contains hazardous ingredients per OSHA 29 CFR 1910.1200. No PEL's TLV's or OEL's for this product or its ingredients are listed in the current issue of ACGIH's Guide to Occupational Exposure values nor have they been determined by the manufacturer.

9. PHYSICAL & CHEMICAL PROPERTIES

Appearance	Red Liquid
Odor	Ether
Odor threshold	Not Measured
pH	5% solution: 11.7
Melting point / freezing point	32 F
Initial boiling point and boiling range	>212 F
Flash Point	>212 F. ASTM D-56
Evaporation rate (Ether = 1)	Not Applicable
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	Lower Explosive Limit: NA Upper Explosive Limit: NA
Vapor pressure (Pa)	70 F
Vapor Density	(Air=1) 1.2
Specific Gravity	1.03
Solubility in Water	Soluble
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature	NA
Decomposition temperature	Not Measured
Viscosity (cSt)	NA

9.2. Other information: No other relevant information.

10. STABILITY & REACTIVITY

10.1. Reactivity: Hazardous Polymerization will not occur.
10.2. Chemical stability: Stable under normal circumstances.
10.3. Possibility of hazardous reactions: No data available.
10.4. Conditions to avoid: Do not mix with acids.
10.5. Incompatible materials: Acids
10.6. Hazardous decomposition products: Oxides of Carbon

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11. TOXICOLOGICAL

Acute toxicity

INGREDIENT	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LD50, mg/L/4hr	Inhalation Dust/Mist LD50, mg/L/4hr	Inhalation Gas LD50, ppm
Ethylene glycol monobutyl ether - (111-76-2)	1,414.00, Guinea Pig - Category: 4	1,200.00, Guinea Pig - Category: 4	173.00, Guinea Pig - Category: NA	No data available	No data available
Sodium hydroxide - (1310-73-2)	6,600.00, Mouse - Category: NA	1,350.00, Rabbit - Category: 4	600.00, Mouse - Category: NA	No data available	No data available
Disodium metasilicate - (6834-92-0)	1,153.00, Rat - Category: 4	No data available	No data available	No data available	No data available
Proprietary	No data available	No data available	No data available	No data available	No data available

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

CLASSIFICATION	CATEGORY	HAZARD DESCRIPTION
Acute toxicity (oral)	5	May be harmful if swallowed. (Not adopted by US OSHA)
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	1A	Causes severe skin burns and eye damage.
Serious eye damage/irritation	1	Causes serious eye damage.
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

12. ECOLOGIAL INFORMATION

12.1. Toxicity No additional information provided for this product. **Aquatic Ecotoxicity**

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Ethylene glycol monobutyl ether - (111-76-2)	220.00, Fish (Piscis)	1,000.00, Daphnia magna	Not Available
Sodium hydroxide - (1310-73-2)	196.00, Poecilia reticulata	40.38, Ceriodaphnia dubia	Not Available
Disodium metasilicate - (6834-92-0)	210.00, Danio rerio	33.53, Ceriodaphnia dubia	400.00 (72 hr), Pseudokirchneriella subcapitata
Proprietary	Not Available	Not Available	Not Available

12.2. Persistence and degradability: There is no data available on the preparation itself.
12.3. Bioaccumulative potential: Not Measured
12.4. Mobility in soil: No data available.
12.5. Results of PBT and vPvB assessment: This product contains no PBT/vPvB chemicals.
12.6. Other adverse effects: No data available

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods: Observe all federal, state and local regulations when disposing of this substance.

14. TRANSPORT INFORMATION

	DOT (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
14.1. UN number	UN1719	UN1719	UN1719
14.2. UN proper shipping name	UN1719, Caustic, Alkali Liquids n.o.s., (Contains Sodium Hydroxide Solution, Sodium Metasilicate) 8, II	Caustic, Alkali Liquids n.o.s., (Contains Sodium Hydroxide solution, Sodium Metasilicate)	Not legal
14.3. Transport hazard class(es)	**DOT Hazard Class:** 8 **DOT Label:** 8	**IMDG:** 8 **Sub Class:** None	**Air Class:** Not Legal
14.4. Packing group	**II**	**II**	**II**
14.5. Environmental hazards			
IMDG	Marine Pollutant: No		

14.6. Special precautions for user: No further information

15. REGULATORY INFORMATION

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

Toxic Substance Control Act (TSCA) All components of this material are either listed or exempt from listing on the TSCA Inventory.

WHMIS Classification D2A E

US EPA Tier II Hazards

Fire:	No
Sudden Release of Pressure:	No
Reactive:	No
Immediate (Acute):	Yes
Delayed (Chronic):	Yes

EPCRA 311/312 Chemicals and RQs (lbs.): Sodium hydroxide (1,000.00)
EPCRA 302 Extremely Hazardous : (No Product Ingredients Listed)
EPCRA 313 Toxic Chemicals: Ethylene glycol monobutyl ether
Proposition 65 - Carcinogens (>0.0%): (No Product Ingredients Listed)
Proposition 65 - Developmental Toxins (>0.0%): (No Product Ingredients Listed)
Proposition 65 - Female Repro Toxins (>0.0%): (No Product Ingredients Listed)
Proposition 65 - Male Repro Toxins (>0.0%): (No Product Ingredients Listed)
N.J. RTK Substances (>1%): %): Ethylene glycol monobutyl ether, Sodium hydroxide
Penn RTK Substances (>1%): Ethylene glycol monobutyl ether, Sodium hydroxide

16. OTHER INFORMATION

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

We believe this Safety Data Sheet conforms to the requirements of US OSHA 29 CFR 1910.1200, 91/155/EEC and Canadian Hazardous Products Act. We believe the information contained on this Safety Data Sheet is current and offered in good faith. The information is provided for your guidance only. Easy Kleen Pressure Systemsmakes no warranty of any kind, express or implied, concerning the accuracy or completeness of the information and data herein. It is the user's obligation to determine the suitability of this product for a specific purpose and the conditions for safe use of the product. We reserve the right to revise this Safety Data Sheet as newer information becomes available. Easy Kleen Pressure Systems makes no warranty of any kind.

END OF DOCUMENT

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APPENDIX C

Treatment System Process Flow Diagram

DISCHARGE TO ENVIRONMENT OR
TRANSPORT FOR DISPOSAL
UPON APPROVAL

FLOW METER

TESTING /
SAMPLING PORT

CLEAN WATER HOLDING TANKS

EFFLUENT
OVERFLOW

SUMP PUMP

WASTE TO BE SAMPLED AND
TESTED AGAINST INAC 2009
INCINERATION CRITERIA AND
INCINERATED OR PACKAGED
FOR OFF-SITE DISPOSAL UPON
APPROVAL

PRESSURE WASHER

WASH STATION

INFLUENT

OIL BOOM

OIL SKIMMER

SUMP PUMP

BARREL WASHING AREA AND
WATER COLLECTION SUMP

FLOW METER

BAG FILTER c/w
10um FILTER

GAC
VESSELS

RECYCLE TO PRESSURE WASHER HOLDING TANKS

FILE PATH:C:\WDvault\PROPOSALS\NUNAVUT-TEMPOORARY WATER TREATMENT SYSTEM\NUNAVUT-14-002.dwg SAVE DATE:July 18, 2023 SAVED BY:lmuncaciu

PERMIT TO PRACTICE
BLUMETRIC ENVIRONMENTAL INC.
Signature
Date 18/JULY/2023
PERMIT NUMBER: P 284
NT/NU Association of Professional
Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER
M.J. SOMERS
LICENSEE
NT/NU
18/JULY/2023

USED ON	PROJECT NUMBER/NAME	
EST. WEIGHT	PROPRIETARY INFORMATION MAY NOT BE REPRODUCED OR DIVULGED WITHOUT PRIOR WRITTEN CONSENT OF BLUMETRIC ENVIRONMENTAL INC. DO NOT SCALE DRAWING.	DIMENSIONS ARE IN INCHES [mm]. TOLERANCES UNLESS OTHERWISE SPECIFIED ARE: INCHES MM; X. 0.10 2.54; X.X 0.05 1.3; X.XX 0.01 0.25; X.XXX 0.005 0.13; ANGLES +/- 1°

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BluMetric Environmental Inc.
1682 Woodward Drive, Ottawa, Ontario K2C 3R8
TEL: (613) 839-3053; FAX: (613) 839-5376
Email: info@blumetric.ca Web: http://www.blumetric.ca

DRAWN L. MUNCACIU	DATE 31/05/2023	TITLE: CORAL HARBOUR WATER TREATMENT PROCESS AND FLOW DIAGRAM	
CHECKED M. SOMERS	DATE 31/05/2023	SIZE B	DWG NO NUNAVUT-14-002
APPROVED M. SOMERS	DATE 18/07/2023	CODE	REV A
ECR NUMBER	APPROVED	DATE	SCALE N.T.S
			SHEET 01 OF 01