



December 23, 2020

Cory Barker
Technical Advisor I
Nunavut Impact Review Board

Solomon Amuno
Technical Advisor II
Nunavut Impact Review Board

Sent via email: info@nirb.ca

Re: Baffinland Response to NIRB's 2020 Marine Monitoring and Marine Mitigation Workshop Report for the Mary River Project and NIRB's Recommendations

Dear Cory and Solomon,

Baffinland Iron Mines Corporation (Baffinland, the Company) acknowledges receipt of the Nunavut Impact Review Board (NIRB)'s Marine Monitoring and Marine Mitigation Workshop (the Workshop) Report for the Mary River Project (the Project) and NIRB's Recommendations provided to Baffinland on November 25, 2020.

Detailed responses to recommendations 1 and 3 issued by the NIRB and as requested within 30 days are included in Attachment 1. Baffinland's response to NIRB Recommendation No. 2 will be provided separately.

Baffinland wishes to thank the NIRB for continuing to support the execution of the Mary River Project and its associated ongoing monitoring activities. Furthermore, Baffinland is grateful to the NIRB for its efforts in facilitating a successful Workshop despite the additional challenges and associated restrictions related to the COVID-19 pandemic. Although the Workshop could only be scheduled after the start of the shipping season, Baffinland was pleased to present a summary of both its past (2019) and 2020 shipping season already under way. During this Workshop, Baffinland was able to summarize the latest mitigation/management measures implemented to avoid and/or minimize potential Project-related effects associated with the marine environment and provide an overview of marine monitoring results obtained to date. Baffinland is appreciative of the opportunity to respond to questions from community members and other attendees as this helps to maintain active dialogue among various parties.

Should you have any additional concerns or questions regarding the attached responses, please do not hesitate to contact the undersigned at your convenience.

Regards,

A handwritten signature in black ink, appearing to read "Lou Kamermans".

Lou Kamermans

Senor Director, Sustainable Development

Cc: Kelli Gillard (NIRB)
Jared Ottenhof, Chris Spencer (QIA)
Megan Lord-Hoyle, Christopher Murray, Genevieve Morinville, Emma Malcolm, Connor
Devereaux, Aaron MacDonell (Baffinland)

Attachments

Attachment 1 – Baffinland Response to NIRB Recommendations Nos. 1 and 3

Attachment 2 – Figure of Ballast Water Exchange Locations of Ore Carriers 2020

Attachment 3 – DusTreat® Safety Data Sheets

Attachment 4 – Ore Pad Dust Suppressant Application Log

ATTACHMENT 1

Baffinland Response to NIRB Recommendations Nos. 1 and 3

Baffinland Response to NIRB's 2020 Marine Monitoring and Marine Mitigation Workshop Report for the Mary River Project and NIRB's Recommendation Nos. 1 and 3

No.	Topic	NIRB Comment	NIRB Recommendation	Baffinland Response	Attachments
1	Ballast Water Exchange and Invasive Species	<p>During the Workshop, the Mittimatalik Hunters and Trappers Organization and the Qikiqtani Inuit Association posed several questions to Baffinland regarding the effectiveness of the ballast water treatment system onboard its ore transportation vessels and noted the potential for introduction of invasive species into the marine environment. Baffinland indicated that every ore carrier that enters into the port at Milne Inlet performs a salinity test on a random ballast tank; if the test shows the salinity level is below 30 parts per thousand then the ship is required to travel to Baffin Bay to perform another exchange and re-test. Unfortunately, in 2020 due to COVID-19, Baffinland was unable to begin biological monitoring due to restricted access to vessels; however, they plan to initiate biological monitoring in the 2021 shipping season.</p> <p>World Wildlife Fund submitted during the Technical Meeting that several Project vessels used by Baffinland in 2019 did not treat ballast water raising the risk of accidental release of invasive species, and the NIRB notes that in Baffinland's 2019 Annual Report for the Mary River Project there was indication that a</p>	<p>The Board requests that the Proponent provide an update regarding how many vessels contracted by Baffinland in 2020 monitored for high salinity levels and identify all ballast water exchange locations. Further, the Board directs Baffinland to report the status of any new species detected or identified through the Aquatic Invasive Species Monitoring program to the community of Pond Inlet as well as Marine Environmental Working Group members.</p> <p>It is requested that this update be provided within 30 days to the NIRB and included within the 2021 Annual Reports to the NIRB moving forward.</p>	<p>Baffinland has committed to managing risks associated with the potential introduction of aquatic invasive species (AIS) through Project-related shipping activities, as demonstrated through its implemented voluntary practices that exceed federal and international regulations, and the ongoing commitment for monitoring potential effects to the marine environment. However, Baffinland notes that ship operators/owners are legally responsible for ensuring their ships are compliant with federal Ballast Water Control and Management Regulations (the Regulations) and the International Maritime Organization (IMO)'s International Convention for the Control and Management of Ships' Ballast Water and Sediment (the Ballast Water Management [BWM] Convention, IMO 2017). The International Maritime Organization (IMO) adopted the International Convention for the Control and Management of Ships' Ballast Water and Sediments (i.e., the Ballast Water Management [BWM] Convention) and was entered into force in 2017. Two performance standards for the discharge of ballast water exist under the BWM Convention: the D-1 standard involves ballast water exchanges undertaken within open ocean areas, and the D-2 standard which covers approved ballast water treatment systems.</p> <p>Overall responsibility for ensuring vessel compliance prior to entering the Canadian Exclusive Zone (EEZ) and discharging ballast water within the EEZ lies with Transport Canada. The Regulations under the Canada Shipping Act (SOR/2011-237) specify that at a minimum and in absence of onboard vessel treatment systems, all ships entering the Canadian Exclusive Economic Zone (EEZ) must comply with the D-1 standard and are required to exchange their ballast water in open seas, away from coastal waters (i.e., over 200 nautical miles from land and in water at least 2,000 metres deep) prior to entry into the EEZ. The D-2 standard (treatment) is being implemented over a phased time period depending on individual vessel's date of construction and the timing of its International Oil Pollution Prevention (IOPP) certificate renewal survey.</p> <p>Baffinland notes that all new ships contracted to Baffinland and built after September 8, 2017 will have to meet the D-2 (treatment) standard whereas existing vessels will need to meet the D-1 standard at a minimum until installation of approved onboard treatment systems. All existing ships without onboard treatment systems who are subject to the phased implementation schedule, dependent on the renewal of their ship certificates, will have to comply with the D-2 standard by September 8, 2024.</p> <p>All vessels prior to arriving from foreign waters must fill out a Transport Canada-issued Canadian Ballast Water Reporting Form documenting employed ballast water management methods. All forms are submitted to Transport Canada, the responsible authority, to ensure compliance with applicable ballast water regulations. Accordingly, Baffinland notes to the NIRB that any request on specific details related to ballast water management, including exchange locations, should be directed to Transport Canada.</p>	Attachment 2:

Baffinland Response to NIRB's 2020 Marine Monitoring and Marine Mitigation Workshop Report for the Mary River Project and NIRB's Recommendation Nos. 1 and 3

	<p>potentially invasive species "<i>Marenzelleria viridis</i>" (a mudflat worm found normally in southern Canada and overseas) was identified in Milne Port and that further analysis was required to determine next steps.</p> <p>The Board has heard many comments from communities and parties throughout the reconsideration and monitoring processes related to Baffinland's annual shipping and that ships may not be equipped with the appropriate treatment systems for removing potentially invasive species. While the Board understands and is aware of the limitations that COVID-19 brings to ongoing monitoring programs of approved Project, the NIRB reminds the Proponent that it is still responsible for the treatment of ballast water as required in the Project Certificate.</p>		<p>In good faith, Baffinland has prepared, as a response to a comment that arose during the pre-shipping season meeting held in July 2020 with the Mittimatalik Hunters and Trappers Organization (MHTO), a figure showing general locations of 10 randomly-selected ballast water exchanges completed towards the start of the shipping season in 2020 and the approximate area where exchanges likely occurred later in the season (Attachment 2). As noted in the figure, all of the ballast water exchanges occurred prior to entering the EEZ. Any additional questions the NIRB may have on locations should be directed to Transport Canada.</p> <p>Baffinland would like to reemphasize that it implements over the entire duration of its shipping season, including in 2020, its Ballast Water Management Plan (BWMP; Baffinland 2019) to prevent and/or minimize potential adverse impacts to the marine environment that could result from the accidental introduction of non-native aquatic invasive species (AIS) via Project vessel ballast water discharges. The BWMP was developed in accordance with Transport Canada's Regulations pursuant to the Canada Shipping Act, 2001 (S.C. 2001, c. 26) and the IMO's BWM Convention. Specific sections of the BWMP outline the relevant regulatory context (e.g., sections 1.5.1.1 and 1.5.1.2).</p> <p>Baffinland notes that a core component of the BWMP is the additional and voluntary compliance measure (i.e., it exceeds regulations) that Baffinland implements yearly to ensure a precautionary approach is applied to operations management. As described in Section 3.2 of the BWMP, Baffinland has elected to conduct ballast water sampling in one randomly selected ballast water tank on all foreign flag vessels arriving directly to Milne Port from international waters to confirm water salinities are at least 30 parts per thousand (ppt). Section 4 Adaptive Management of the BWMP describes follow-up actions should the average salinity reading recorded be less than 30 ppt. Baffinland again reiterates that Transport Canada has ultimate responsibility for overseeing ballast water management.</p> <p>In 2020, all foreign-flag vessels arriving to Milne Port from international ports had average salinity values that were at least 30 ppt and thus were considered compliant with the D-1 standard. Individual temperature and salinity test results for each vessel will be reported in the 2020 Annual Report to the NIRB.</p> <p>In keeping with its commitment to managing risks associated with potential introduction of AIS, Baffinland currently also requests that all Project vessels calling to Milne Port from international waters with approved treatment systems installed onboard perform a ballast water exchange (D-1 standard) and treat water (D-2 standard) prior to discharging ballast water in Milne Port. This practice exceeds regulations where either the D-1 or the D-2 standards are to be met for entry into the EEZ.</p> <p>In 2020, 15 of the 36 (42%) ore carriers that called to Milne Port had IMO-approved D-2 ballast water treatment systems installed on-board. This is an increase from 2019 where nine (9) of the forty-one (41) ore carriers (22%) that serviced Milne Port had IMO-approved D-2 treatment systems. Similar to 2019, many of these vessels with onboard treatment systems undertook repeat voyages to Milne Port during the 2020 shipping season, resulting in 50% (equivalent to 36 of the 72 voyages) of all ore carriers calling to Milne Port completing both ballast water exchange and treatment methods prior to release in Milne Port. This is a marked increase (almost doubling) from</p>	
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				<p>2019 where 28% (21 of 82) of vessel voyages calling to Milne Port both exchanged and treated their ballast waters prior to discharge.</p> <p>It is noted that a number of species collected during 2017 to 2019 sampling years were identified as potentially non-indigenous to the region, or to Arctic waters. Fauna of the Canadian Arctic are not thoroughly described, and marine surveys have been non-exhaustive, therefore it is possible that a species not described from the region may represent a first observation within a native range and not the introduction of a non-native species, or it may represent a record of a new species.</p> <p>As reported in the 2019 Annual Report to the NIRB, species described in the AIS program that had not been previously reported as Arctic species are compared against available databases for invasive species and their known distributions. Species that were identified as potentially non-indigenous or invasive samples are flagged by the independent taxonomic lab for secondary review by the taxonomic lab. Additionally, independent verification of the samples have been made by the Benthic Ecology Lab at Université Laval (Laval) in order to confirm the presence of any non-indigenous species.</p> <p>As reported by Baffinland and acknowledged by the NIRB, specimens identified as <i>Marenzelleria viridis</i>, were found in benthic samples in 2019. The specimens were later sent to Laval for independent verification and the identification of the species was confirmed recently. As previously reported, <i>M. viridis</i> is considered a specimen of concern for Milne Port due to its presence on invasive species watch lists and databases. However, there are indications that the natural range may be wider than originally indicated, or that the species may have already been present in the area prior to project activities. Species records for <i>M. viridis</i> indicate a potentially wider range, or historical occurrences outside the natural range including the North Atlantic and Arctic Oceans, including the Canadian Arctic and Baffin Island (Cusson et al. 2018). Additionally, under the former identification for this species, <i>Scolecopides viridis</i>, multiple specimens were collected in the Canadian Arctic in the 1970s and 1980s (GBIF 2020; Miller et al. 2014). Accordingly, Baffinland will continue to monitor for the potential presence of AIS and will continue to expand its species database as part of its ongoing monitoring efforts.</p> <p>Although the COVID-19 pandemic resulted in additional logistical challenges for implementing monitoring programs in 2020, Baffinland was able to complete the Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Program. Detailed taxonomic results will be summarized as part of 2020 annual reporting efforts to the NIRB; species identification from the 2020 program is ongoing and will continue into early 2021 due to the number of samples being processed. Baffinland will continue to report the status of any new species detected or identified through the Aquatic Invasive Species Monitoring program to the community of Pond Inlet as well as to Marine Environmental Working Group members as new results become available.</p> <p>References: Baffinland (Baffinland Iron Mines Corporation). 2019. Ballast Water Management Plan. Rev 1. March 31, 2019. Cusson M. 2018. Biodiversity of benthic assemblages on the Arctic continental shelf: historical data from Canada (1955 to 1977). v1.2. Canadian node of the Ocean Biogeographic Information System (OBIS Canada). Published by OBIS [Accessed February 2020] http://ipt.iobis.org/obiscanada/resource?r=cusson_arcticbenthos&v=1.2.</p>	
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Baffinland Response to NIRB's 2020 Marine Monitoring and Marine Mitigation Workshop Report for the Mary River Project and NIRB's Recommendation Nos. 1 and 3

				<p>GBIF. 2020. Global Biodiversity Information Facility (GBIF). [Accessed February 2020]. https://www.gbif.org/</p> <p>IMO (International Maritime Organization). 2017. International convention for the control and management of ships' ballast water and sediments (BWM). https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships%27-Ballast-Water-and-Sediments-(BWM).aspx. Accessed 16 December 2020.</p> <p>Miller R, Nozères C, Kennedy M. 2014. DFO Quebec Region MLI Museum Collection. Version 2. OBIS Canada Digital Collections. Published by OBIS. [Accessed February 2020]. http://ipt.iobis.org/obiscanada/resource?r=dfo_que_mli_museum</p>	
<p>3</p>	<p>Dust</p>	<p>During the Workshop, community members expressed concerns about dust deposition and accumulation on sea ice. Several community members expressed concern that impacts have not been properly monitored and mitigated related to dust on sea ice and the impacts to marine mammals. While the Proponent acknowledged that most of the dust deposition around Milne Inlet is caused by blowing dust from ore stockpiling, Term and Condition 21 of the Project Certificate directs the establishment of thresholds for aquatic systems around Milne Port. Baffinland has indicated that it will be applying a suppressant to the ore stockpiles to reduce dust emissions from the ore stockpile in Milne Inlet during the next monitoring year and the Board would like further information regarding Baffinland's ore stockpile dust</p>	<p>The Board requests that within 30 days Baffinland submit information about the technology to be used to suppress dust on the ore stock pile and include specific notes on the operating conditions for best performance and if seasonality will impact application and performance. Details should also include how data will be collected to determine success of the program (i.e., dust study) and if visual comparisons will be tracked along with weather-related events. Further, Baffinland is required to report the results of this ore stockpile dust trail/experiment as part of its annual reporting requirements.</p>	<p>Baffinland has made dustfall mitigation a priority since operations began. Baffinland has also been implementing its Marine Environmental Effects Monitoring Program (MEEMP), which aims to monitor potential Project-related effects on the marine environment, covering both physical (e.g., water and sediment quality) and biological components (e.g., benthic organisms and fish). Details on past and ongoing dustfall mitigation efforts are summarized in Baffinland's response to the NIRB related to recommendations made following the February 2020 Site Visit (Document 200821-08MN053-BIMC Follow up Re NIRB Feb 2020 Site Visit; Baffinland 2020). As part of its response, Baffinland described its intentions to explore the use of a new dust suppression agent specific to management of dust at the Milne Port ore stockpiles.</p> <p>Baffinland has since moved forward on its commitment to implement dust mitigation solutions at Milne Port. In November 2020, Baffinland the process for controlling fugitive dust from the Milne Port Ore Stockpiles using a crusting agent called DusTreat® to reduce wind erosion and mobilization of fine iron ore particles. DusTreat® is composed of two primary ingredients named DC9168 and DC9163E (refer to Safety Data Sheets, Attachment 3, for additional product information) that are mixed with water in a trailer-mounted mixing tank at supplier-specified temperature-dependent ratios to produce a fluid product that can be distributed onto stockpile surfaces using a manually-controlled sprayer. The fluid product hardens to form a protective crust after it is applied to stockpile surfaces. Baffinland intends to apply DusTreat® during periods of calm winds and low snowfall accumulations on stockpile surfaces. DusTreat® can be applied during cold winter temperatures as it is mixed at the specified ratio for the mixing tank temperature required to produce fluid conditions that will not harden in the mixing tank or plug application equipment.</p> <p>DusTreat® was first applied to the side surfaces of a stockpile section at the Milne Port Ore Stockpile in November 2020 as a trial run to test the performance of the mixing tank and application equipment under low temperature conditions (Photo 1). DusTreat® was subsequently applied to the side surfaces of another stockpile section in early December and is intended to be applied to the side surfaces of 200 to 300-foot-long stockpile sections on an approximately monthly</p>	<p>Attachment 3: DusTreat® Safety Data Sheets</p> <p>Attachment 4: Ore Pad Dust Suppressant Application Log</p>

Baffinland Response to NIRB's 2020 Marine Monitoring and Marine Mitigation Workshop Report for the Mary River Project and NIRB's Recommendation Nos. 1 and 3

		<p>control strategy. Further, this Recommendation is being proposed in conjunction with the items discussed in the NIRB's 2019-2020 Annual Monitoring Report for Baffinland's Mary River Project.</p>		<p>basis in 2021 as the ore stockpiles increase in size. The application will be ongoing and stockpiles will be treated as they are developed.</p> <p>To document details during product application, Baffinland intends on recording the following data in the Ore Pad Dust Suppressant Application Log (Attachment 4):</p> <ul style="list-style-type: none"> • Date of application • Start and end times for application of tank load • Weather conditions at time of application including ambient air temperature, wind speed and direction • Stockpile location • Mixing ratio of DC9168, DC9163E, and water • Fluid tank temperature during product mixing • Volume of product applied (L) • Area of stockpile covered by product (m²) • Follow up assessment (crust details) • Operator comments related to the DusTreat[®] application, mixing tank, application equipment, and treated surfaces <p>Performance monitoring of DusTreat[®] applications will be evaluated using data obtained from existing dustfall monitoring programs including metals content in samples collected from passive dustfall sampling stations located near the ore stockpiles and remote sensing of dust deposition using available satellite imagery.</p> <p>Additional details on results of the DusTreat[®] application program will be summarized as part of Baffinland's 2020 Annual Report to the NIRB.</p>	
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Photo 1. Application of DusTreat® onto ore stockpiles at Milne Port during pilot application in November 2020.

ATTACHMENT 2

Figure of Ballast Water Exchange Locations of Ore Carriers 2020

ATTACHMENT 3

DusTreat[®] Safety Data Sheets



SAFETY DATA SHEET

DUSTREAT* DC9163E

1. Identification

Product identifier	DUSTREAT DC9163E
Other means of identification	None.
Version #	3.2
Prepared by	This SDS has been prepared by SUEZ Regulatory Department (1-215-355-3300).
Revision date	May-27-2018
Supersedes date	Dec-20-2017
Recommended use	Material handling treatment.
Recommended restrictions	None known.

Company/undertaking identification

SUEZ Water Technologies & Solutions Canada
3239 Dundas Street West
Oakville, Ontario, L6M 4B2
T 905-465-3030

Emergency telephone

(800) 877-1940

2. Hazard(s) identification

Physical hazards	Not classified.
Health hazards	Not classified.

Label elements

Hazard symbol	None.
Signal word	None.
Hazard statement	The mixture does not meet the criteria for classification.

Precautionary statement

Prevention	Observe good industrial hygiene practices.
Response	Wash hands after handling.
Storage	Store away from incompatible materials.
Disposal	Dispose of waste and residues in accordance with local authority requirements.

Other hazards None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

The components are not hazardous or are below required disclosure limits.

Composition comments Information for specific product ingredients as required by the WHMIS Regulations is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Direct contact with eyes may cause temporary irritation.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Store away from oxidizers.

8. Exposure controls/personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Not available.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.
Other	Wear suitable protective clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	Emulsion
Color	White
Odor	Acrid
Odor threshold	Not available.
pH (concentrated product)	5
Melting point/freezing point	32 °F (0 °C) / < 32 °F (< 0 °C)
Initial boiling point and boiling range	212 °F (100 °C)
Flash point	> 213 °F (> 101 °C) P-M(CC)
Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	1.04
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	750 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Density	8.90 - 9.15 lb/gal
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Pour point	< 32 °F (< 0 °C)
Specific gravity	1.039

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Oxides of carbon evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Inhalation	No adverse effects due to inhalation are expected.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity

Product	Species	Test Results
DUSTREAT DC9163E (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization This product is not expected to cause respiratory sensitization.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Not classified.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Based on available data, the classification criteria are not met.

12. Ecological information

Ecotoxicity

Product	Species	Test Results	
DUSTREAT DC9163E (CAS Mixture)			
	LC50	Fathead Minnow	329.9 mg/l, Static Renewal Bioassay, 96 Hour
	NOEL	Fathead Minnow	250 mg/l, Static Renewal Bioassay, 96 Hour
Aquatic			
Crustacea	LC50	Ceriodaphnia dubia	82.4 mg/l, Static Renewal Bioassay, 48 Hour
		Daphnia magna	219.3 mg/l, Static Renewal Bioassay, 48 Hour
	NOEL	Ceriodaphnia dubia	62.5 mg/l, Static Renewal Bioassay, 48 Hour

Product		Species	Test Results
		Daphnia magna	62.5 mg/l, Static Renewal Bioassay, 48 Hour
Fish	LC50	Rainbow Trout	176.8 mg/l, Static Renewal Bioassay, 96 Hour
	NOEL	Rainbow Trout	125 mg/l, Static Renewal Bioassay, 96 Hour

Bioaccumulative potential No data available.
Mobility in soil No data available.
Other adverse effects Not available.
Persistence and degradability

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Local disposal regulations Dispose in accordance with all applicable regulations.
Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

TDG
Not regulated as dangerous goods.
The goods described above have been classified using a combination of testing, technical data, calculations and manufacturer knowledge in accordance with Part 2, Classification. TDG Classification is valid for road or rail transport only. For shipment by air or water, refer to IATA or IMDG regulations.

DOT
Not regulated as a dangerous good.
Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IMDG
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

15. Regulatory information

Canadian regulations This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

Controlled Drugs and Substances Act
Not regulated.

Export Control List (CEPA 1999, Schedule 3)
Not listed.

Greenhouse Gases
Not listed.

Precursor Control Regulations
Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date Oct-04-2016

Revision date May-27-2018

Version # 3.2

List of abbreviations

CAS: Chemical Abstract Service Registration Number
TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.
ACGIH: American Conference of Governmental Industrial Hygienists
NOEL: No Observed Effect Level
STEL: Short Term Exposure Limit
LC50: Lethal Concentration, 50%
LD50: Lethal Dose, 50%
TWA: Time Weighted Average
BOD: Biochemical Oxygen Demand
COD: Chemical Oxygen Demand
TOC: Total Organic Carbon
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods Code
TLV: Threshold Limit Value

References: No data available

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 a 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.

Revision information Physical & Chemical Properties: Multiple Properties

* Trademark of SUEZ. May be registered in one or more countries.



SAFETY DATA SHEET

DUSTREAT* DC9168

1. Identification

Product identifier	DUSTREAT DC9168
Other means of identification	None.
Version #	3.0
Prepared by	This SDS has been prepared by SUEZ Regulatory Department (1-215-355-3300).
Revision date	Jul-08-2019
Supersedes date	May-27-2018
Recommended use	Material handling treatment.
Recommended restrictions	None known.

Company/undertaking identification

SUEZ Water Technologies & Solutions Canada
3239 Dundas Street West
Oakville, Ontario, L6M 4B2
T 905-465-3030

Emergency telephone

(800) 877-1940

2. Hazard identification

Physical hazards	Not classified.
Health hazards	Not classified.
Label elements	
Hazard symbol	None.
Signal word	None.
Hazard statement	The material is not hazardous under the criteria of the Hazardous Product Regulations (WHMIS 2015) implementation of the Globally Harmonized System (GHS), i.e., the material is not a dangerous substance or mixture requiring GHS classification.
Precautionary statement	
Prevention	Observe good industrial hygiene practices.
Response	Wash hands after handling.
Storage	Store away from incompatible materials.
Disposal	Dispose of waste and residues in accordance with local authority requirements.
Other hazards	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

The components are not hazardous or are below required disclosure limits.

Composition comments	The exact concentrations of the above listed chemicals are being withheld as confidential business information. Information for specific product ingredients as required by the WHMIS Regulations is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.
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4. First-aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Headache. Nausea, vomiting.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Dry powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away.
Methods and materials for containment and cleaning up	Use water spray to reduce vapors or divert vapor cloud drift. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Avoid prolonged exposure. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Store in accordance with local/regional/national/international regulation.

8. Exposure controls/personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Wear safety glasses with side shields (or goggles).

Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.
Other	Wear suitable protective clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	Liquid
Color	Light brown
Odor	Musty
Odor threshold	Not available.
pH (concentrated product)	6.3
Melting point/freezing point	< 0 °F (< -18 °C)
Initial boiling point and boiling range	Not available.
Flash point	> 213 °F (> 101 °C) P-M(CC)
Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	1.2
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	45 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Pour point	< 0 °F (< -18 °C)
Specific gravity	1.204
VOC	0 % (SUPPLIER DATA)

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
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Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Oxides of carbon evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics Headache. Nausea, vomiting.

Information on toxicological effects

Acute toxicity Not known.

Product	Species	Test Results
DUSTREAT DC9168 (CAS Mixture)		
Acute		
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg, (Calculated value)

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization This product is not expected to cause respiratory sensitization.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Not classified.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Based on available data, the classification criteria are not met.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity

Product	Species	Test Results
DUSTREAT DC9168 (CAS Mixture)		
Aquatic		
Crustacea	LC50 Daphnia magna	> 5000 mg/L, Estimated Acute Toxicity, 48 H, (Estimated)
Fish	LC50 Fathead Minnow	> 5000 mg/L, Estimated Acute Toxicity, 96 H, (Estimated)
	Rainbow Trout	> 5000 mg/L, Estimated Acute Toxicity, 96 H, (Estimated)

Bioaccumulative potential

Material name: DUSTREAT* DC9168

Version number: 3.0

Mobility in soil No data available.
Other adverse effects Not available.
Persistence and degradability

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Local disposal regulations Dispose in accordance with all applicable regulations.
Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

TDG

Not regulated as dangerous goods.

The goods described above have been classified using a combination of testing, technical data, calculations and manufacturer knowledge in accordance with Part 2, Classification. TDG Classification is valid for road or rail transport only. For shipment by air or water, refer to IATA or IMDG regulations.

DOT

Not regulated as a dangerous good.

Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IMDG

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

15. Regulatory information

Canadian regulations This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

Controlled Drugs and Substances Act

Not regulated.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

Inventory status

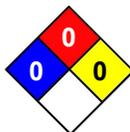
Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date Sep-07-2017
Revision date Jul-08-2019
Version # 3.0
NFPA ratings Health: 0
Flammability: 0
Instability: 0

NFPA ratings**List of abbreviations**

CAS: Chemical Abstract Service Registration Number
TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.
ACGIH: American Conference of Governmental Industrial Hygienists
NOEL: No Observed Effect Level
STEL: Short Term Exposure Limit
LC50: Lethal Concentration, 50%
LD50: Lethal Dose, 50%
TWA: Time Weighted Average
BOD: Biochemical Oxygen Demand
COD: Chemical Oxygen Demand
TOC: Total Organic Carbon
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods Code
TLV: Threshold Limit Value
NFPA: National Fire Protection Association

References:

No data available

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Revision information

Hazard identification: Supplemental information
Composition/information on ingredients: Composition comments
First-aid measures: Ingestion
First-aid measures: Inhalation
Stability and reactivity: Conditions to avoid
Other information: List of abbreviations

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ATTACHMENT 4

Ore Pad Dust Suppressant Application Log

