



RETURN BIDS TO:

RETOURNER LES SOUMISSIONS À:

Bid Receiving Public Works and Government
Services Canada/Réception des soumissions Travaux
publics et Services gouvernementaux Canada
1713 Bedford Row
Halifax, N.S./Halifax, (N.É.)
Halifax
Nova Scotia
B3J 1T3
Bid Fax: (902) 496-5016

Revision to a Request for a Standing Offer

Révision à une demande d'offre à commandes

Regional Individual Standing Offer (RISO)

Offre à commandes individuelle régionale (OCIR)

The referenced document is hereby revised; unless
otherwise indicated, all other terms and conditions of
the Offer remain the same.

Ce document est par la présente révisé; sauf
indication contraire, les modalités de l'offre demeurent
les mêmes.

Comments - Commentaires

Vendor/Firm Name and Address

Raison sociale et adresse du
fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution

Atlantic Region Acquisitions/Région de l'Atlantique
Acquisitions
1713 Bedford Row
Halifax, N.S./Halifax, (N.É.)
Halifax
Nova Scot
B3J 1T3

Title - Sujet Hazardous Waste Disposal		
Solicitation No. - N° de l'invitation W3554-206280/A		Date 2020-03-10
Client Reference No. - N° de référence du client W3554-20-6280		Amendment No. - N° modif. 002
File No. - N° de dossier HAL-9-83065 (218)	CCC No./N° CCC - FMS No./N° VME	
GETS Reference No. - N° de référence de SEAG PW-\$HAL-218-10906		
Date of Original Request for Standing Offer Date de la demande de l'offre à commandes originale		2020-02-04
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2020-03-16		Time Zone Fuseau horaire Atlantic Daylight Saving Time ADT
Address Enquiries to: - Adresser toutes questions à: Conrad, Darren		Buyer Id - Id de l'acheteur hal218
Telephone No. - N° de téléphone (902) 403-8584 ()	FAX No. - N° de FAX (902) 496-5016	
Delivery Required - Livraison exigée		
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:		
Security - Sécurité This revision does not change the security requirements of the Offer. Cette révision ne change pas les besoins en matière de sécurité de la présente offre.		

Instructions: See Herein

Instructions: Voir aux présentes

Acknowledgement copy required Accusé de réception requis	Yes - Oui <input type="checkbox"/>	No - Non <input type="checkbox"/>
The Offeror hereby acknowledges this revision to its Offer. Le proposant constate, par la présente, cette révision à son offre.		
Signature	Date	
Name and title of person authorized to sign on behalf of offeror. (type or print) Nom et titre de la personne autorisée à signer au nom du proposant. (taper ou écrire en caractères d'imprimerie)		
For the Minister - Pour le Ministre		

Amendment 002 is raised to provide answers to questions and revise the Basis of Payment.

Question 5: AFFF Shipboard Tank

Is a typical msds available for this AFFF? Is the AFFF material mixed with water prior to removal?

Answer 5: AFFF comes usually comes in 20L pail or when pumped out of the ships AFFF tanks it will come in a 205L poly drum. It is usually always just AFFF that we dispose of and not any mixture of AFFF and water. See attached SDS.

Question 6: Emergency Escape Breathing Devices (EEBD's):

What are the typical dimensions of these EEBD? How are they packaged? Can this be bid per DRUM instead of per Kg? Please provide a spec sheet if available.

Answer 6: Unused EEBDs are a class 5.1 oxidizer contained in a plastic shrink wrap surrounded by a 9" x 8" x 4" plastic container. These can be disposed on in single qtys due to the fact we do not dispose of unused ones frequently.

Used EEBD are considered to be class 9 and are approximately 8" x 7 " x 3" in size. These we drum up into 205L Blue poly drums and dispose of them by the drum. We get approximately 50 used ones each into one drum. I see no reason why we could not bid by the drum for used EEBDs.
See attached SDS.

Question 7: Absorbent Waste:

What is the typical type of absorbent, or is this a mixture: i.e. rags, oil pads, clay based floor spill cleanup? What has been absorbed? (i.e. fuels/oils)

Answer 7: Absorbent waste is just rags, spill pads and used filters. They contain oil and fuel products. We ship them out in 306L Overpack drums and do expect the drums to be returned once emptied.

ANNEX B

BASIS OF PAYMENT

Normal working hours: Monday to Friday, 0730 - 1700 hrs.

Outside normal working hours: To include all day Saturday, Sunday and statutory holidays.

Estimated quantity (B) for each item of this Basis of Payment is an estimate only for evaluation purposes and does not infer all the quantities for that item will be utilized or that the quantities may not be exceeded.

Table 1
Pricing Table – Year 1
April 01, 2020 to March 31, 2021

Solicitation No. - N° de l'invitation
W3554-206280/A
Client Ref. No. - N° de réf. du client
W3554-20-6280

Amd. No. - N° de la modif.
002
File No. - N° du dossier
HAL-9-83065

Buyer ID - Id de l'acheteur
HAL218
CCC No./N° CCC - FMS No./N° VME

Item	Description	Unit of issue	Rates (A)	Est. Qty (B)	Year 1 Unit Price (A x B)
A.	Labour rates - On-site service				
.1	Technician (normal hours)	per hour	\$ _____	800	\$ _____
.2	Technician (outside normal hours)	per hour	\$ _____	300	\$ _____
.3	Transport Truck	per hour	\$ _____	200	\$ _____
.4	Vacuum Truck	per hour	\$ _____	200	\$ _____
.5	Hydroblast unit – nominal pressure min 3000 psi, max 5000 psi	per hour	\$ _____	50	\$ _____
B.	Disposal Fees				
.1	Black Water Pumping	per litre	\$ _____	28,000 l	\$ _____
.2	Black Water Tank Cleaning	per tank	\$ _____	2 tanks	\$ _____
.3	Grey Water	per litre	\$ _____	2,600 l	\$ _____
.4	Waste Fuel	Per litre	\$ _____	8,190 l	\$ _____
.5	Waste Oil	per litre	\$ _____	40,000 l	\$ _____
.6	AFFF Shipboard Tank	per litre	\$ _____	7,200 l	\$ _____
.7	AFFF Cans	per litre	\$ _____	7,000 l	\$ _____
.8	Paint Cans in Triwalls	per triwall	\$ _____	20 triwalls	\$ _____
.9	Paint Liquid, in 205 l drums	per litre	\$ _____	2,500 l	\$ _____
.10	Engine Coolant	per litre	\$ _____	7,000 l	\$ _____
.11	Used Oxygen Generators from Emergency Escape Breathing Devices, (EEBD's)	Per 205 l drum	\$ _____	8 drums / approx. 50 units per drum	\$ _____

.12	Unused/Expired Oxygen Generators from Emergency Escape Breathing Devices, (EEBD's):	Per 205 l drum	\$ _____	8 drums / approx. 50 units per drum	\$ _____
.13	Absorbent Waste	per 360 l drum	\$ _____	600 drum	\$ _____
.14	Sample Testing	per test	\$ _____	20 test	\$ _____
Table 1 – Year 1 Total Price					\$ _____
Note: Contractor to provide a fixed price list of additional analysis and materials that could be used during this Standing Offer Agreement.					

Table 2 Pricing Table – Year 2 April 01, 2021 to March 31, 2022					
Item	Description	Unit of issue	Rates (A)	Est. Qty (B)	Year 2 Unit Price (A x B)
A.	Labour rates - On-site service				
.1	Technician (normal hours)	per hour	\$ _____	800	\$ _____
.2	Technician (outside normal hours)	per hour	\$ _____	300	\$ _____
.3	Transport Truck	per hour	\$ _____	200	\$ _____
.4	Vacuum Truck	per hour	\$ _____	200	\$ _____
.5	Hydroblast unit – nominal pressure min 3000 psi, max 5000 psi	per hour	\$ _____	50	\$ _____
B.	Disposal Fees				
.1	Black Water Pumping	per litre	\$ _____	28,000 l	\$ _____
.2	Black Water Tank Cleaning	per tank	\$ _____	2 tanks	\$ _____
.3	Grey Water	per litre	\$ _____	2,600 l	\$ _____

Solicitation No. - N° de l'invitation
W3554-206280/A
Client Ref. No. - N° de réf. du client
W3554-20-6280

Amd. No. - N° de la modif.
002
File No. - N° du dossier
HAL-9-83065

Buyer ID - Id de l'acheteur
HAL218
CCC No./N° CCC - FMS No./N° VME

.4	Waste Fuel	Per litre	\$ _____	8,190 l	\$ _____
.5	Waste Oil	per litre	\$ _____	40,000 l	\$ _____
.6	AFFF Shipboard Tank	per litre	\$ _____	7,200 l	\$ _____
.7	AFFF Cans	per litre	\$ _____	7,000 l	\$ _____
.8	Paint Cans in Triwalls	per triwall	\$ _____	20 triwalls	\$ _____
.9	Paint Liquid in 205 l drums	per litre	\$ _____	2,500 l	\$ _____
.10	Engine Coolant	per litre	\$ _____	7,000 l	\$ _____
.11	Used Oxygen Generators from Emergency Escape Breathing Devices, (EEBD's)	Per 205 l drum	\$ _____	8 drums / approx. 50 units per drum	\$ _____
.12	Unused/Expired Oxygen Generators from Emergency Escape Breathing Devices, (EEBD's)	Per 205 l drum	\$ _____	8 drums / approx. 50 units per drum	\$ _____
.13	Absorbent Waste	per 360 l drum	\$ _____	600 drum	\$ _____
.14	Sample Testing	per test	\$ _____	20 test	\$ _____
Table 2 – Year 2 Total Price					\$ _____
Note: Contractor to provide a fixed price list of additional analysis and materials that could be used during this Standing Offer Agreement.					

Table 3 Pricing Table – Option Year 1 April 01, 2022 to March 31, 2023					
Item	Description	Unit of issue	Rates (A)	Est. Qty (B)	Opt Year 1 Unit Price (A x B)
A.	Labour rates - On-site service				
.1	Technician (normal hours)	per hour	\$ _____	800	\$ _____

.2	Technician (outside normal hours)	per hour	\$_____	300	\$_____
.3	Transport Truck	per hour	\$_____	200	\$_____
.4	Vacuum Truck	per hour	\$_____	200	\$_____
.5	Hydroblast unit – nominal pressure min 3000 psi, max 5000 psi	per hour	\$_____	50	\$_____
B.	Disposal Fees				
.1	Black Water Pumping	per litre	\$_____	28,000 l	\$_____
.2	Black Water Tank Cleaning	per tank	\$_____	2 tanks	\$_____
.3	Grey Water	per litre	\$_____	2,600 l	\$_____
.4	Waste Fuel	Per litre	\$_____	8,190 l	\$_____
.5	Waste Oil	per litre	\$_____	40,000 l	\$_____
.6	AFFF Shipboard Tank	per litre	\$_____	7,200 l	\$_____
.7	AFFF Cans	per litre	\$_____	7,000 l	\$_____
.8	Paint Cans in Triwalls	per triwall	\$_____	20 triwalls	\$_____
.9	Paint Liquid in 205 l drums	per litre	\$_____	2,500 l	\$_____
.10	Engine Coolant	per litre	\$_____	7,000 l	\$_____
.11	Used Oxygen Generators from Emergency Escape Breathing Devices, (EEBD's):	Per 205 l drum	\$_____	8 drums / approx. 50 units per drum	\$_____
.12	Unused/Expired Oxygen Generators from Emergency Escape Breathing Devices, (EEBD's)	Per 205 l drum	\$_____	8 drums / approx. 50 units per drum	\$_____
.13	Absorbent Waste	per 360 l drum	\$_____	600 drum	\$_____
.14	Sample Testing	per test	\$_____	20 test	\$_____

Solicitation No. - N° de l'invitation
W3554-206280/A
Client Ref. No. - N° de réf. du client
W3554-20-6280

Amd. No. - N° de la modif.
002
File No. - N° du dossier
HAL-9-83065

Buyer ID - Id de l'acheteur
HAL218
CCC No./N° CCC - FMS No./N° VME

Table 3 – Option Year 1 Total Price					\$ _____
Note: Contractor to provide a fixed price list of additional analysis and materials that could be used during this Standing Offer Agreement.					
Table 4 Pricing Table – Option Year 2 April 01, 2023 to March 31, 2024					
Item	Description	Unit of issue	Rates (A)	Est. Qty (B)	Opt Year 2 Unit Price (A x B)
A.	Labour rates - On-site service				
.1	Technician (normal hours)	per hour	\$ _____	800	\$ _____
.2	Technician (outside normal hours)	per hour	\$ _____	300	\$ _____
.3	Transport Truck	per hour	\$ _____	200	\$ _____
.4	Vacuum Truck	per hour	\$ _____	200	\$ _____
.5	Hydroblast unit – nominal pressure min 3000 psi, max 5000 psi	per hour	\$ _____	50	\$ _____
B.	Disposal Fees				
.1	Black Water Pumping	per litre	\$ _____	28,000 l	\$ _____
.2	Black Water Tank Cleaning	per tank	\$ _____	2 tanks	\$ _____
.3	Grey Water	per litre	\$ _____	2,600 l	\$ _____
.4	Waste Fuel	Per litre	\$ _____	8,190 l	\$ _____
.5	Waste Oil	per litre	\$ _____	40,000 l	\$ _____
.6	AFFF Shipboard Tank	per litre	\$ _____	7,200 l	\$ _____
.7	AFFF Cans	per litre	\$ _____	7,000 l	\$ _____
.8	Paint Cans in Triwalls	per triwall	\$ _____	20 triwalls	\$ _____
.9	Paint Liquid in 205 l drums	per litre	\$ _____	2,500 l	\$ _____

Solicitation No. - N° de l'invitation
W3554-206280/A
Client Ref. No. - N° de réf. du client
W3554-20-6280

Amd. No. - N° de la modif.
002
File No. - N° du dossier
HAL-9-83065

Buyer ID - Id de l'acheteur
HAL218
CCC No./N° CCC - FMS No./N° VME

.10	Engine Coolant	per litre	\$ _____	7,000 l	\$ _____
.11	Used Oxygen Generators from Emergency Escape Breathing Devices, (EEBD's):	Per 205 l drum	\$ _____	8 drums / approx. 50 units per drum	\$ _____
.12	Unused/Expired Oxygen Generators from Emergency Escape Breathing Devices, (EEBD's)	Per 205 l drum	\$ _____	8 drums / approx. 50 units per drum	\$ _____
.13	Absorbent Waste	per 360 l drum	\$ _____	600 drum	\$ _____
.14	Sample Testing	per test	\$ _____	20 test	\$ _____
Table 4 – Option Year 2 Total Price					\$ _____
Note: Contractor to provide a fixed price list of additional analysis and materials that could be used during this Standing Offer Agreement.					

Table 5 Pricing Table – Option Year 3 April 01, 2024 to March 31, 2025					
Item	Description	Unit of issue	Rates (A)	Est. Qty (B)	Opt Year 3 Unit Price (A x B)
A.	Labour rates - On-site service				
.1	Technician (normal hours)	per hour	\$ _____	800	\$ _____
.2	Technician (outside normal hours)	per hour	\$ _____	300	\$ _____
.3	Transport Truck	per hour	\$ _____	200	\$ _____
.4	Vacuum Truck	per hour	\$ _____	200	\$ _____
.5	Hydroblast unit – nominal pressure min 3000 psi, max 5000 psi	per hour	\$ _____	50	\$ _____
B.	Disposal Fees				

.1	Black Water Pumping	per litre	\$_____	28,000 l	\$_____
.2	Black Water Tank Cleaning	per tank	\$_____	2 tanks	\$_____
.3	Grey Water	per litre	\$_____	2,600 l	\$_____
.4	Waste Fuel	Per litre	\$_____	8,190 l	\$_____
.5	Waste Oil	per litre	\$_____	40,000 l	\$_____
.6	AFFF Shipboard Tank	per litre	\$_____	7,200 l	\$_____
.7	AFFF Cans	per litre	\$_____	7,000 l	\$_____
.8	Paint Cans in Triwalls	per triwall	\$_____	20 triwalls	\$_____
.9	Paint Liquid in 205 l drums	per litre	\$_____	2,500 l	\$_____
.10	Engine Coolant	per litre	\$_____	7,000 l	\$_____
.11	Used Oxygen Generators from Emergency Escape Breathing Devices, (EEBD's):	Per 205 l drum	\$_____	8 drums / approx. 50 units per drum	\$_____
.12	Unused/Expired Oxygen Generators from Emergency Escape Breathing Devices, (EEBD's)	Per 205 l drum	\$_____	8 drums / approx. 50 units per drum	\$_____
.13	Absorbent Waste	per 360 l drum	\$_____	600 drum	\$_____
.14	Sample Testing	per test	\$_____	20 test	\$_____
Table 5 – Option Year 3 Total Price					\$_____
Note: Contractor to provide a fixed price list of additional analysis and materials that could be used during this Standing Offer Agreement.					

Total bid pricing = Table 1 + Table 2 + Table 3 + Table 4

Table 1 \$_____

Table 2 \$_____

Solicitation No. - N° de l'invitation
W3554-206280/A
Client Ref. No. - N° de réf. du client
W3554-20-6280

Amd. No. - N° de la modif.
002
File No. - N° du dossier
HAL-9-83065

Buyer ID - Id de l'acheteur
HAL218
CCC No./N° CCC - FMS No./N° VME

Table 3 \$ _____

Table 4 \$ _____

Table 5 \$ _____

Total Bid Price: \$ _____

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED.



Product code 026700

/ Product name ANSULITE 3%
(AFC-3A) AFFF Concentrate

PAGE 2 / 8

OTHER INFORMATION

3. Composition/information on Ingredients

Substance

Not Applicable.

Mixture

Chemical name	CAS No.	weight-%	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
2-(2-Butoxyethoxy)ethanol	112-34-5	0 - 10%	-	-
Lauryl Imino Propionate, Sodium Salt	14960-06-6	0 - 10%	-	-

4. First aid measures

Description of first aid measures

Inhalation	Remove to fresh air.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact	Wash skin with soap and water.
Ingestion	Clean mouth with water and drink afterwards plenty of water.

Most Important Symptoms and Effects, Both Acute and Delayed

Symptoms	No information available.
----------	---------------------------

Indication of Any Immediate Medical Attention and Special Treatment Needed

Note to physicians	Treat symptomatically.
--------------------	------------------------

5. Fire-fighting measures

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	Caution: Use of water spray when fighting fire may be inefficient.
Specific hazards arising from the chemical	No information available.



Product code 026700

/ Product name ANSULITE 3%
(AFC-3A) AFFF Concentrate

PAGE 3 / 8

Hazardous Combustion Products Carbon oxides. Fluorinated oxides. Nitrogen oxides (NOx). Oxides of sulfur.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

Environmental Precautions

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

7. Handling and Storage

Precautions for Safe Handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure Controls/Personal Protection

Control Parameters

Exposure Limits

Chemical name	Alberta	British Columbia	Ontario TWA	Quebec
2-(2-Butoxyethoxy)ethanol 112-34-5			TWA: 10 ppm	

OTHER INFORMATION

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962



Product code 026700

/ Product name ANSULITE 3%
(AFC-3A) AFFF Concentrate

PAGE 4 / 8

(11th Cir., 1992).

Appropriate Engineering Controls

Engineering controls Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Eye/face protection No special protective equipment required.

Skin and body protection No special protective equipment required.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical State	Liquid
Appearance	No data available
Color	Light yellow
Odor	Characteristic
Odor Threshold	No data available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	7.5	
Melting point/freezing point	No data available	No data available
Boiling point / boiling range	> 100 °C / 212 °F	
Flash Point	°C / °F	No flash up to boiling point.
Evaporation Rate	No data available	No data available
Flammability (solid, gas)		No data available
Flammability limit in air		No data available
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Vapor Pressure	No data available	No data available
Vapor Density	No data available	No data available
Relative Density		No data available
Water Solubility	No data available	No data available
Solubility in Other Solvents	No data available	No data available
Partition coefficient	No data available	No data available
Autoignition Temperature	No data available	No data available
Decomposition Temperature	No data available	No data available
Kinematic viscosity	2.9 mm ² /s	
Dynamic viscosity	No data available	No data available
Explosive properties	No data available.	
Oxidizing properties	No data available.	

OTHER INFORMATION

softening point	No data available
Molecular Weight	No data available
VOC content (%)	9.21317



Product code 026700

/ Product name ANSULITE 3%
(AFC-3A) AFFF Concentrate

PAGE 5 / 8

Density 1.03
Bulk Density No data available

10. Stability and Reactivity

Reactivity No information available.

Chemical Stability Stable under normal conditions.

Possibility of hazardous reactions None under normal processing.

Hazardous Polymerization Hazardous polymerization does not occur.

Conditions to Avoid None known based on information supplied.

Incompatible Materials None known based on information supplied.

Hazardous decomposition products Carbon oxides. Nitrogen oxides (NOx). Oxides of sulfur. Fluorinated oxides.

11. Toxicological Information

Information on Likely Routes of Exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available.

Eye contact Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available.

Information on Toxicological Effects

Symptoms No information available.

Numerical Measures of Toxicity

Acute Toxicity

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 28,637.00 mg/kg
ATEmix (dermal) 30,928.00 mg/kg

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
2-(2-Butoxyethoxy)ethanol 112-34-5	= 5660 mg/kg (Rat)	= 2700 mg/kg (Rabbit)	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No information available.



Product code 026700

/ Product name ANSULITE 3%
(AFC-3A) AFFF Concentrate

PAGE 6 / 8

Serious eye damage/eye irritation No information available.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity No information available.

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

12. Ecological Information

Ecotoxicity

Chemical name	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
2-(2-Butoxyethoxy)ethanol 112-34-5	EC50 (96h) > 100 mg/L Desmodesmus subspicatus	LC50 (96h) static = 1300 mg/L Lepomis macrochirus	-	EC50 (48h) > 100 mg/L Daphnia magna EC50 (24h) = 2850 mg/L Daphnia magna

Persistence and Degradability No information available.

Bioaccumulation No information available.

Other Adverse Effects No information available.

13. Disposal Considerations

Waste Treatment Methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

14. Transport Information

TDG NOT REGULATED

MEX NOT REGULATED



Product code 026700

/ Product name ANSULITE 3%
(AFC-3A) AFFF Concentrate

PAGE 7 / 8

<u>ICAO (air)</u>	NOT REGULATED
<u>IATA</u>	NOT REGULATED
<u>IMDG</u>	NOT REGULATED
<u>RID</u>	NOT REGULATED
<u>ADR</u>	NOT REGULATED
<u>ADN</u>	NOT REGULATED

15. Regulatory Information

REGULATORY INFORMATION

International regulations

Ozone-depleting substances (ODS) Not Applicable

Persistent Organic Pollutants Not Applicable

Export Notification requirements Not Applicable

International Inventories

TSCA	Complies
DSL/NDSL	Complies
ENCS	Does not comply
IECSC	Does not comply
KECL	Complies
PICCS	Does not comply
AICS	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

16. Other information, including date of preparation of the last revision

<u>NFPA</u>	Health Hazards 0	Flammability 0	Instability 0	Physical and chemical properties -
<u>HMIS</u>	Health Hazards 0	Flammability 0	Physical Hazards 0	Personal Protection X

Revision date 22-May-2018

Revision note 9, 16.

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



Product code 026700

/ **Product name** ANSULITE 3% /
(AFC-3A) AFFF Concentrate

PAGE 8 / 8

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.

End of Safety Data Sheet



Product code 030915

/ Product name ANSULITE 6%
(AFC-3) AFFF Concentrate

PAGE 2 / 8

OTHER INFORMATION

3. Composition/information on Ingredients

Substance

Not Applicable.

Mixture

Chemical name	CAS No.	weight-%	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
2-(2-Butoxyethoxy)ethanol	112-34-5	0 - 10%	-	-

4. First aid measures

Description of first aid measures

Inhalation	Remove to fresh air.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact	Wash skin with soap and water.
Ingestion	Clean mouth with water and drink afterwards plenty of water.

Most Important Symptoms and Effects, Both Acute and Delayed

Symptoms	No information available.
----------	---------------------------

Indication of Any Immediate Medical Attention and Special Treatment Needed

Note to physicians	Treat symptomatically.
--------------------	------------------------

5. Fire-fighting measures

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	Caution: Use of water spray when fighting fire may be inefficient.
Specific hazards arising from the chemical	No information available.
Hazardous Combustion Products	Carbon oxides. Fluorinated oxides. Nitrogen oxides (NOx). Oxides of sulfur.



Product code 030915

/ Product name ANSULITE 6%
(AFC-3) AFFF Concentrate

PAGE 3 / 8

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Special protective equipment for fire-fighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

Environmental Precautions

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

7. Handling and Storage

Precautions for Safe Handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure Controls/Personal Protection

Control Parameters

Exposure Limits

Chemical name	Alberta	British Columbia	Ontario TWA	Quebec
2-(2-Butoxyethoxy)ethanol 112-34-5			TWA: 10 ppm	

OTHER INFORMATION None known.

Appropriate Engineering Controls



Product code 030915

/ Product name ANSULITE 6%
(AFC-3) AFFF Concentrate

PAGE 4 / 8

Engineering controls	Ensure adequate ventilation, especially in confined areas.
<u>Individual protection measures, such as personal protective equipment</u>	
Eye/face protection	No special protective equipment required.
Skin and body protection	No special protective equipment required.
Respiratory protection	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical State	Liquid
Appearance	No data available
Color	Light yellow
Odor	Characteristic
Odor Threshold	No data available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	No data available
Melting point/freezing point	No data available	No data available
Boiling point / boiling range	> 100 °C / 212 °F	
Flash Point	> 100 °C / 212 °F	
Evaporation Rate	No data available	No data available
Flammability (solid, gas)		No data available
Flammability limit in air		No data available
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Vapor Pressure	No data available	No data available
Vapor Density	No data available	No data available
Relative Density		No data available
Water Solubility	No data available	No data available
Solubility in Other Solvents	No data available	No data available
Partition coefficient	No data available	No data available
Autoignition Temperature	No data available	No data available
Decomposition Temperature	No data available	No data available
Kinematic viscosity	No data available	No data available
Dynamic viscosity	No data available	No data available
Explosive properties	No data available.	
Oxidizing properties	No data available.	

OTHER INFORMATION

softening point	No data available
Molecular Weight	No data available
VOC content (%)	4.37985
Density	No data available
Bulk Density	No data available



Product code 030915

/ Product name ANSULITE 6%
(AFC-3) AFFF Concentrate

PAGE 5 / 8

10. Stability and Reactivity

Reactivity	No information available.
Chemical Stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Hazardous Polymerization	Hazardous polymerization does not occur.
Conditions to Avoid	None known based on information supplied.
Incompatible Materials	None known based on information supplied.
Hazardous decomposition products	Carbon oxides. Nitrogen oxides (NOx). Oxides of sulfur. Fluorinated oxides.

11. Toxicological Information

Information on Likely Routes of Exposure

Product Information

Inhalation	Specific test data for the substance or mixture is not available.
Eye contact	Specific test data for the substance or mixture is not available.
Skin contact	Specific test data for the substance or mixture is not available.
Ingestion	Specific test data for the substance or mixture is not available.

Information on Toxicological Effects

Symptoms	No information available.
----------	---------------------------

Numerical Measures of Toxicity

Acute Toxicity

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral)	60,096.00 mg/kg
ATEmix (dermal)	64,904.00 mg/kg

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
2-(2-Butoxyethoxy)ethanol 112-34-5	= 5660 mg/kg (Rat)	= 2700 mg/kg (Rabbit)	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	No information available.
Serious eye damage/eye irritation	No information available.



Product code 030915

/ Product name ANSULITE 6%
(AFC-3) AFFF Concentrate

PAGE 6 / 8

Respiratory or skin sensitization	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.

12. Ecological Information

Ecotoxicity

Chemical name	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
2-(2-Butoxyethoxy)ethanol 112-34-5	EC50 (96h) > 100 mg/L Desmodesmus subspicatus	LC50 (96h) static = 1300 mg/L Lepomis macrochirus	-	EC50 (48h) > 100 mg/L Daphnia magna EC50 (24h) = 2850 mg/L Daphnia magna

Persistence and Degradability	No information available.
Bioaccumulation	No information available.
Other Adverse Effects	No information available.

13. Disposal Considerations

Waste Treatment Methods

Waste from residues/unused products	Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
Contaminated packaging	Do not reuse empty containers.

14. Transport Information

<u>TDG</u>	NOT REGULATED
<u>MEX</u>	NOT REGULATED
<u>ICAO (air)</u>	NOT REGULATED
<u>IATA</u>	NOT REGULATED



Product code 030915

/ Product name ANSULITE 6%
(AFC-3) AFFF Concentrate

PAGE 7 / 8

IMDG NOT REGULATED

RID NOT REGULATED

ADR NOT REGULATED

ADN NOT REGULATED

15. Regulatory Information

REGULATORY INFORMATION

International regulations

Ozone-depleting substances (ODS) Not Applicable

Persistent Organic Pollutants Not Applicable

Export Notification requirements Not Applicable

International Inventories

TSCA	Complies
DSL/NDSL	Complies
ENCS	Does not comply
IECSC	Does not comply
KECL	Complies
PICCS	Does not comply
AICS	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

16. Other information, including date of preparation of the last revision

<u>NFPA</u>	Health Hazards 0	Flammability 1	Instability 0	Physical and chemical properties -
<u>HMIS</u>	Health Hazards 0	Flammability 1	Physical Hazards 0	Personal Protection X

Revision date 22-May-2018

Revision note No information 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.



Product code 030915

/

Product name ANSULITE 6%
(AFC-3) AFFF Concentrate

/

PAGE 8 / 8

End of Safety Data Sheet

Safety Data Sheet

Oxygen Generator, Chemical – Type B

SDS Revision Date:

10/21/2016

**ZODIAC
AEROSPACE**



1. Identification

1.1. Product identifier

Product Identity Oxygen Generator, Chemical – Type B

Product Part Numbers:

803000-02, -03, -04, -12, -13, -14, -15, -21, -22, -23, -24, -25	801462-04, -05, -06	803338-01
801386-11, -22, -32, -34, -81, -82, -83, -84, -87	805100-03, -04	802093-01
801387 -03, -12, -13, -14, -15, -22, -23, -42	S117019-02, -03	802111-00, -06
802501-13, -15, -16, -19	802502-10, -15, -16, -23	802512-15

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

Intended use

For use in Aircraft oxygen module assemblies that provide supplemental emergency oxygen,

Application Method

See Technical Data Sheet.

1.3. Details of the supplier of the safety data sheet

Company Name

Zodiac Oxygen Systems US (ZOSU)
225 Erie Street
Lancaster, NY 14086

Emergency

CHEMTREC (USA)

United States: 800-424-9300
International: 703-527-3887 (collect)

Customer Service: Zodiac Oxygen Systems US (ZOSU) Telephone 716-683-5100

2. Hazard(s) identification

2.1. Classification of the substance or mixture

Ox. Sol. 1;H271

May cause fire or explosion; strong oxidizer.

Acute Tox. 4;H302

Harmful if swallowed.

Carc. 1A;H350

May cause cancer.

STOT RE 2;H373

May cause damage to organs through prolonged or repeated exposure. Specific Target Organs: (Not Available)

Aquatic Chronic 2;H411

Toxic to aquatic life with long lasting effects.

Safety Data Sheet

Oxygen Generator, Chemical – Type B

SDS Revision Date:

10/21/2016

**ZODIAC
AEROSPACE**



2.2. Label elements

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



Danger

H271 May cause fire or explosion; strong oxidizer.

H302 Harmful if swallowed.

H350 May cause cancer.

H373 May cause damage to organs through prolonged or repeated exposure.

H411 Toxic to aquatic life with long lasting effects.

[Prevention]:

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat / sparks / open flames / hot surfaces - No smoking.

P220 Keep / Store away from clothing combustible materials.

P221 Take any precaution to avoid mixing with combustibles.

P260 Do not breathe dust / fume/ mist / vapors / spray.

P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

P280 Wear protective gloves / eye protection / face protection.

P283 Wear fire / flame resistant / retardant clothing.

[Response]:

P301+312 IF SWALLOWED: Call a POISON CENTER or doctor / physician if you feel unwell.

P306+360 IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.

P308+313 IF exposed or concerned: Get medical advice / attention.

P314 Get Medical advice / attention if you feel unwell.

P330 Rinse mouth.

P370+380+375 In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.

P371 In case of major fire and large quantities:

P378 Use alcohol resistant foam, CO₂, powder, water spray for extinction. Do not use water jet.

Safety Data Sheet

Oxygen Generator, Chemical – Type B

SDS Revision Date:

10/21/2016

**ZODIAC
AEROSPACE**



P391 Collect spillage.

[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 %	GHS Classification	Notes
Chloric acid, sodium salt CAS Number: 0007775-09-9	75 - 100	Ox. Sol. 1;H271 Acute Tox. 4;H302 Aquatic Chronic 2;H411	[1]
Barium peroxide (Ba(O ₂)) CAS Number: 0001304-29-6	5 - 10	Ox. Sol. 2;H272 Acute Tox. 4;H332 Acute Tox. 4;H302	[1]
Iron CAS Number: 0007439-89-6	5 - 10	Not Classified	[1]
Perchloric acid, potassium salt CAS Number: 0007778-74-7	5 - 10	Ox. Sol. 1;H271 Acute Tox. 4;H302	[1]
MICA CAS Number: 0012001-26-2	5 - 10	Not Classified	[1][2]
Titanium dioxide CAS Number: 0013463-67-7	5 - 10	Not Classified	[1][2]
Quartz CAS Number: 0014808-60-7	5 - 10	Acute Tox. 4;H332 STOT RE 2;H373 Carc. 1A;H350	[1][2]

In accordance with paragraph (i) of §1910.1200, the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

[1] Substance classified with a health or environmental hazard.

[2] Substance with a workplace exposure limit.

[3] PBT-substance or vPvB-substance.

*The full texts of the phrases are shown in Section 16.

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.

Safety Data Sheet

Oxygen Generator, Chemical – Type B

SDS Revision Date:

10/21/2016

**ZODIAC
AEROSPACE**



Inhalation	Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious, place in the recovery position and obtain immediate medical attention. Give nothing by mouth.
Eyes	Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.
Skin	Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.
Ingestion	If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

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

Overview	No specific symptom data available. Possible cancer hazard. Contains an ingredient which may cause cancer based on animal data (See Section 3 and Section 15 for each ingredient). Risk of cancer depends on duration and level of exposure. See section 2 for further details.
Ingestion	Harmful if swallowed.

5. Fire-fighting measures

5.1. Extinguishing media

Recommended extinguishing media; alcohol resistant foam, CO₂, powder, water spray.
Do not use: water jet.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition: Can include chlorine and chlorine dioxide.
Keep away from heat / sparks / open flames / hot surfaces - No smoking.
Keep / Store away from clothing combustible materials.
Take any precaution to avoid mixing with combustibles.
Do not breathe dust / fume/ mist / vapors / spray.

5.3. Advice for fire-fighters

Generators contain oxidizers. Oxidizers generate their own oxygen as they burn and therefore cannot be extinguished by means other than water. Do not use CO₂ or dry extinguishers as they are ineffective and may create a worse situation. Contact between the generator contents and other materials may cause fire.

Avoid bodily contact. Wear self contained breathing apparatus and wear appropriate protective equipment. Keep material from exposure to high heat by using water to cool containers.

ERG Guide No. 140

Safety Data Sheet
Oxygen Generator, Chemical – Type B

SDS Revision Date:

10/21/2016

ZODIAC
AEROSPACE



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

Do not allow spills to enter drains or waterways.

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

Loose chemicals and components should be carefully placed into a dry metal container. Vacuuming or wet sweep may be used to avoid dust dispersal. Be sure to wear appropriate PPE while conducting clean up. If an amount spills that is too large for local clean up, call HAZMAT responders immediately.

7. Handling and storage

7.1. Precautions for safe handling

Handle containers carefully to prevent damage and spillage.

Do not disassemble the generator or allow the generator to become damaged. Do not store in wet or moist environments. Keep generators in manufacturer's original packaging when not in use. Practice good housekeeping techniques.

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

7.2. Conditions for safe storage, including any incompatibilities

Store the generators in a well ventilated, dry area at normal ambient temperature and pressure.

Incompatible materials: The contents of the generator are incompatible with oils, organic chemicals, acids and metals including aluminum.

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

7.3. Specific end use(s)

No data available.

Safety Data Sheet

Oxygen Generator, Chemical – Type B

SDS Revision Date:

10/21/2016

**ZODIAC
AEROSPACE**



8. Exposure controls and personal protection

8.1. Control parameters

Exposure

CAS No.	Ingredient	Source	Value
0001304-29-6	Barium peroxide (Ba(O ₂))	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit
0007439-89-6	Iron	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit
0007775-09-9	Chloric acid, sodium salt	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit
0007778-74-7	Perchloric acid, potassium salt	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit
0012001-26-2	MICA	OSHA	TWA 20 mppcf
		ACGIH	TWA: 3 mg/m ³
		NIOSH	TWA 3 mg/m ³ (resp)
		Supplier	No Established Limit
0013463-67-7	Titanium dioxide	OSHA	TWA 15 mg/m ³
		ACGIH	TWA: 10 mg/m ³ 2B, Revised 2006,
		NIOSH	Footnote ca
		Supplier	No Established Limit
0014808-60-7	Quartz	OSHA	PEL 50 µg/m ³
		ACGIH	TWA: 0.025 mg/m ³ A1, 1
		NIOSH	0.05 mg/m ³ TWA (respirable)
		Supplier	No Established Limit

Safety Data Sheet

Oxygen Generator, Chemical – Type B

SDS Revision Date:

10/21/2016

**ZODIAC
AEROSPACE**



8.2. Exposure controls

Respiratory	If workers are exposed to concentrations above the exposure limit they must use the appropriate, certified respirators.
Eyes	Protective safety glasses recommended
Skin	Protective clothing should be selected. Impervious gloves.
Engineering Controls	Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.
Other Work Practices	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

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

9. Physical and chemical properties

Appearance	A compressed, gray, chemical core enclosed within a metal canister. Solid
Odor	Not Applicable
Odor threshold	Not determined
pH	Alkaline
Melting point / freezing point	Not Measured
Initial boiling point and boiling range	Not Measured
Flash Point	Not Measured
Evaporation rate (Ether = 1)	Not Measured
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	Lower Explosive Limit: Not Measured Upper Explosive Limit: Not Measured
Vapor pressure (Pa)	Not Measured
Vapor Density	Not Measured
Specific Gravity	Not Measured
Solubility in Water	Appreciable
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature	Not Measured
Decomposition temperature	Not Measured
Viscosity (cSt)	Not Measured

Safety Data Sheet

Oxygen Generator, Chemical – Type B

SDS Revision Date:

10/21/2016

**ZODIAC
AEROSPACE**



9.2. Other information

No other relevant information.

10. Stability and 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 disassemble the generator or allow the generator to become damaged. Avoid storing generators with chemicals, acids, ignition sources and combustible materials. Avoid mixing or contaminating the contents of the generator with other chemicals, including acids, and combustible materials. Keep contents of generator away from sources of friction and ignition sources.

10.5. Incompatible materials

The contents of the generator are incompatible with oils, organic chemicals, acids and metals including aluminum.

10.6. Hazardous decomposition products

Can include chlorine and chlorine dioxide.

11. Toxicological information

Acute toxicity

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).

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Chloric acid, sodium salt - (7775-09-9)	> 5,000.00, Rat - Category: NA	>2,000.00, Rabbit - Category: 5	No data available	No data available	No data available
Barium peroxide (Ba(O2)) - (1304-29-6)	No data available	No data available	No data available	No data available	No data available
Iron - (7439-89-6)	30,000.00, Rat - Category: NA	No data available	No data available	No data available	No data available
Perchloric acid, potassium salt - (7778-74-7)	1,060.00, Rat - Category: 4	No data available	No data available	No data available	No data available

Safety Data Sheet

Oxygen Generator, Chemical – Type B

SDS Revision Date:

10/21/2016

**ZODIAC
AEROSPACE**



MICA - (12001-26-2)	No data available	No data available	No data available	No data available	No data available
Titanium dioxide - (13463-67-7)	10,000.00, Rat - Category: NA	10,000.00, Rabbit - Category: NA	No data available	6.82, Rat - Category: NA	No data available
Quartz - (14808-60-7)	No data available	No data available	No data available	No data available	No data available

Carcinogen Data

CAS No.	Ingredient	Source	Value
0001304-29-6	Barium peroxide (Ba(O ₂))	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0007439-89-6	Iron	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0007775-09-9	Chloric acid, sodium salt	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0007778-74-7	Perchloric acid, potassium salt	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0012001-26-2	MICA	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0013463-67-7	Titanium dioxide	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: Yes; Group 3: No; Group 4: No;
0014808-60-7	Quartz	OSHA	Select Carcinogen: No
		NTP	Known: Yes; Suspected: No
		IARC	Group 1: Yes; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

Classification	Category	Hazard Description
Acute toxicity (oral)	4	Harmful if swallowed.
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	---	Not Applicable
Serious eye damage/irritation	---	Not Applicable
Respiratory sensitization	---	Not Applicable

Safety Data Sheet

Oxygen Generator, Chemical – Type B

SDS Revision Date:

10/21/2016

**ZODIAC
AEROSPACE**



Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	1A	May cause cancer.
Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	2	May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	---	Not Applicable

12. Ecological information

12.1. Toxicity

Toxic to aquatic life with long lasting effects.

No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Chloric acid, sodium salt - (7775-09-9)	> 1,000, Fish	> 1,000, Daphnia Magna	1,001.00 (96 hr), Algae
Barium peroxide (Ba(O ₂)) - (1304-29-6)	Not Available	Not Available	Not Available
Iron - (7439-89-6)	Not Available	Not Available	Not Available
Perchloric acid, potassium salt - (7778-74-7)	Not Available	Not Available	Not Available
MICA - (12001-26-2)	Not Available	Not Available	Not Available
Titanium dioxide - (13463-67-7)	Not Available	Not Available	Not Available
Quartz - (14808-60-7)	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.

Safety Data Sheet

Oxygen Generator, Chemical – Type B

SDS Revision Date:

10/21/2016

**ZODIAC
AEROSPACE**



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	UN3356	UN3356	UN3356
14.2. UN proper shipping name	UN3356, Oxygen generator, chemical., 5.1, II	Oxygen generator, chemical	Oxygen generator, chemical
14.3. Transport hazard class(es)	DOT Hazard Class: 5.1	IMDG: 5.1 Sub Class: Not Applicable	Air Class: 5.1
14.4. Packing group	II	II	II
14.5. Environmental hazards			
IMDG	Marine Pollutant: No; (Chloric acid, sodium salt)		
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 C
US EPA Tier II Hazards	<p style="text-align: right;">Fire: No</p> <p style="text-align: right;">Sudden Release of Pressure: No</p> <p style="text-align: right;">Reactive: Yes</p> <p style="text-align: right;">Immediate (Acute): Yes</p> <p style="text-align: right;">Delayed (Chronic): Yes</p>

Safety Data Sheet

Oxygen Generator, Chemical – Type B

SDS Revision Date:

10/21/2016

**ZODIAC
AEROSPACE**



EPCRA 311/312 Chemicals and RQs:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 302 Extremely Hazardous:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 313 Toxic Chemicals:

Barium peroxide ($\text{Ba}(\text{O}_2)$)

Quartz

Proposition 65 - Carcinogens (>0.0%):

Lead thiocyanate

Normal Lead Styphnate

Quartz

TALC ($\text{Mg}_3\text{H}_2(\text{SiO}_3)_4$)

Titanium dioxide

Proposition 65 - Developmental Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Female Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

New Jersey RTK Substances (>1%):

Barium peroxide ($\text{Ba}(\text{O}_2)$)

Chloric acid, sodium salt

MICA

Perchloric acid, potassium salt

Quartz

Titanium dioxide

Pennsylvania RTK Substances (>1%):

Barium peroxide ($\text{Ba}(\text{O}_2)$)

Chloric acid, sodium salt

MICA

Perchloric acid, potassium salt

Quartz

Safety Data Sheet
Oxygen Generator, Chemical – Type B

SDS Revision Date:

10/21/2016

ZODIAC
AEROSPACE



Titanium dioxide

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.

The full text of the phrases appearing in section 3 is:

H271 May cause fire or explosion; strong oxidizer.

H272 May intensify fire; oxidizer.

H302 Harmful if swallowed.

H332 Harmful if inhaled.

H350 May cause cancer.

H373 May cause damage to organs through prolonged or repeated exposure.

H411 Toxic to aquatic life with long lasting effects.

The information contained herein is, to the best of our knowledge and belief, accurate. However, AVOX Systems Inc. assumes no liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. It is the responsibility of the user to comply with all applicable Federal, State, and Local laws and regulations

End of Document