

SPILL CONTIGENCY MANAGEMENT PLAN:

LUPIN MINE WINTER ACCESS ROAD PROJECT

September 2024



Emergency Contact Information

Organization	Contact	Location	Telephone/Radio	
Discovery Mining Services Rod Brown (c/o Lupin Mines)		Yellowknife	867-920-4600	
JDS (c/o Lupin Mines)	Darren Kress	Yellowknife	204-558-6023	
Stantec	Steve Bundrock	Calgary	403-990-5443	
NT-NU Spill Centre	Inspector	Yellowknife	867-920-8130	
Government of Northwest	Resource Management	Yellowknife	867-767-9188	
Territories Officer				
Crown-Indigenous	Field Operations	Iqaluit	867-975-4295	
Relations and Northern				
Affairs				
Mackenzie Valley Land and	Regulatory Specialist	Yellowknife	867-766-7464	
Water Board				
Nunavut Water Board	Licencing Department	Gjoa Haven	867-360-6338	
Road Building and	TBD	TBD	TBD	
Maintenance Contractor				

Plain Language Summary

This Plan describes how people are trained and what needs to be done to respond safely to a spill of fuel or other hazardous material while building and using the winter road from Lac de Gras to Lupin.

Revision History

Revision #	Date	Section	Summary of Changes	Author	Approver
1	Apr 2024	All	New document	N. McLaren	



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1.0 Introduction

A spill is an unplanned or uncontrolled release of a regulated or hazardous material, either as a solid, liquid or gas. Spills associated with Lupin Mine Inc. (Lupin Mine) Lupin Winter Access Program (the Program) may occur along the winter road route either on ice or on a portage overland. Regardless of the type or quantity of material involved, all work areas must implement measures to reduce the potential for spills and have an action plan for responding to spills. This Spill Contingency Plan (the Plan) describes methods for preventing and responding to spills during the Program and considers the guidance provided in the documents listed in Table 1.

1.1 Scope

The purpose of the Program is to construct and operate a portion of the Tibbitt to Contwoyto Winter Road (TCWR) route from the Ekati Mine turnoff on Lac de Gras in the Northwest Territories (NT; Lac de Gras) to the Lupin Mine in Nunavut (NU; Lupin) to mobilize and demobilize equipment and supplies that may be used for ongoing reclamation of Lupin in the Kitikmeot Region of Nunavut (the Program).

The Program includes transportation only of equipment and supplies such as bulk fuel, lime, and explosives; materials storage, other than supplies that may be housed in the emergency shelter, is outside of the scope of the Program.

This Plan is effective for the duration of the land use operations, commencing upon approval of this Plan and effective through winter road construction, operations, and closure activities for a period of up to five (years) or as otherwise permitted.

The Plan considers spills to snow, ice, land and water.

Document	Authority
Contingency Planning and Spill Reporting in Nunavut: A	Government of Nunavut
guide to the new regulations	
Environmental Guidelines for the Construction,	Government of Northwest Territories
Maintenance and Closure of Winter Roads in the	
Northwest Territories (1993)	
A Guide to the Spill Contingency Planning and Reporting	Government of Northwest Territories
Regulations (2011)	
Nunavut Water Nunavut Surface Rights Tribunal Act	Indigenous and Northern Affairs Canada
(2002) and Nunavut Water Regulations (2013)	
Territorial Lands Act (1985) and Land Use Regulations	Indigenous and Northern Affairs Canada
(2016)	
Mackenzie Valley Resource Management Act (1998)	Government of Canada
Northwest Territories Lands Act (2014)	Government of Northwest Territories
Northwest Territories Lands Use Regulations (2014)	Government of Northwest Territories
Northwest Territories Waters Regulations (2014)	Government of Northwest Territories
Environmental Protection Act (1988)	Government of Northwest Territories
Waters Act (2014)	Government of Northwest Territories
Spill Contingency Planning and Reporting Regulations	Government of Northwest Territories, Nunavut
(1993)	
Canadian Environmental Protection Act (1999)	Environment and Climate Change Canada

Table 1 Relevant guidance documents including legislation, permits and licences.



Environmental Emergency Regulations (2003)	Environment and Climate Change Canada
Transportation of Dangerous Goods Act (1992)	Transport Canada
Transportation of Dangerous Goods Regulations (2012)	Transport Canada
Hazardous Products Act (1985)	Health Canada
Canada Labour Code (1985)	Employment and Social Development Canada
Canada Occupational Safety and Health Regulation	Employment and Social Development Canada
(1986)	
Screening Decision Report	Nunavut Impact Review Board
Approval Without a Licence	Nunavut Water Board
Land Use Permit	Crown-Indigenous Relations and Northern Affairs Canada
	Government of Northwest Territories

1.2 Objectives

Lupin Mine strives to meet and exceed best management practices regarding materials handling, however, it is recognized that accidental spills and unplanned releases may occur. Accordingly, the objective of this Plan is to:

- Ensure employees and contractors are trained to respond to spills in an effective manner; and
- Outline appropriate spill response measures to ensure personnel safety and environmental protection.

1.3 Site Description

The Program occurs along an existing winter road route established in the 1970's and since used intermittently to service the Lupin Mine and the Jericho Mine (the Winter Road). The Winter Road route predominantly traverses lakes, with few portages where the road occurs overland. Of the 213 km, 95 km occur in Northwest Territories and 118 occur in Nunavut. Seven (7) portages occur in Northwest Territories and there is one (1) portage in Nunavut.

The Winter Road occurs entirely above the tree line, with overland portions traversing the the Southern Arctic Ecozone and the Tundra Shield Low Arctic Ecoregion, within the Slave Geologic province. Portages generally follow low-lying terrain found between lakes along the road route (EBA 2001, GNWT 2012).

The Winter Road is accessed in mid- to late-winter only. At this time, ground is frozen and snow covered, and ice thickness on lakes is up to 2 m thick.

1.4 Plan Management

This Plan is intended to fulfill requirements associated with the land use permit and existing legislation. The Plan will be updated to maintain a current contact list, as needed.

The Plan will be reviewed annually by the Project Manager and updated as needed. When material changes occur, the updated document will be issued externally as needed.

1.5 Plan Implementation



This Plan is effective upon approval and is valid throughout all phases of the Project.

The Project Manager or designate is responsible for Plan implementation.

A copy of this Plan is maintained on site at the Lupin Mine, and a copy will be maintained by the Project Lead of the Contracting company who will be building and maintaining the winter road.



Figure 1 Lupin Winter Road Location.



2.0 Roles and Responsibilities

Lupin Mine is responsible for activities associated with winter access to the Lupin Mine, including implementation and management of this Plan, and directing, documenting, and reporting pertaining to closure activities.

Lupin Mine's contact information is provided below.

Lupin Mines Incorporated

c/o Mandalay Resources Corp. Suite 330-76 Richmond Street Toronto, ON Canada M5C 1P1 **Contact: Kellie Leedham** Phone: (403) 808-1534 Email: <u>kellie@falkirk.ca</u>

2.1 Staff, Contractors, Suppliers, and Vendors

All personnel conducting activities on site, including staff, contractors, suppliers and visitors, are required to implement this Plan as it pertains to their activities on site. Specifically, these responsibilities include:

- Taking all necessary steps to minimize the chance of spills when working with materials that may pose a risk to worker health and the environment;
- Cooperating with your supervisor and/or management to implement a spill prevention program;
- Carrying out only those duties and tasks that you are experienced at and trained to perform;
- Where there is uncertainty, asking questions and bring concerns to the attention of your supervisor when working with products that pose potential environmental and health risks;
- Responding to spills for which you are responsible or discover, and for which you have the requisite training and equipment; and
- Reporting all spills, regardless of size, to your supervisor or management in a timely manner.

2.2 Managers and Supervisors

Managers and supervisors have a responsibility to ensure that staff, contractors, consultants and visitors have been trained in Lupin Mine spill response expectations and procedures. Additional supervisor and manager responsibilities include:

- Maintaining a no blame work environment in initiating a spill response and related follow-up actions;
- Ensuring site-specific and material-specific training is provided to all departments and staff;
- Ensuring there are appropriate and sufficient spill response supplies in work area for the hazard characteristics and quantities of materials handled or transported;



- Provide assistance in response to chemical spills including the coordination of additional response personnel or equipment;
- Maintain records regarding inspections, personnel training, emergency equipment testing and spill kit maintenance; and
- Contact appropriate government agencies and emergency services where appropriate.

3.0 Spill Prevention

Successful spill prevention is based on safe handling and transport of materials.

3.1 Product Inventory

Table 2 provides a list of materials expected to be transported along the winter road. Note that products are not stored on site.

Should the need for temporary storage arise, such in the event of an emergency response, secondary containment will be established, and the inspector will be notified.

Material	Amount	Container	Hazardous
ANFO	10,400 kg	Bags or sticks, on bulk haul trucks	Yes
	6	450 L truck-mounted tidy tanks	Yes
Diagol	1,500,000	Bulk haul trucks	
Dieset	Lin to F	210 L drums in secondary containment,	
	00103	in emergency shelter	
Gasoline	10	50 L jerry cans	Yes
Lime	40,000 kg	Bulk haul trucks	Yes
Propane	Up to 5	100 lb cylinders, in emergency shelter	Yes
Spent spill response materials	Various	205 L drums or lined mega bags	Yes
Various lubricanta	5	5 gal pails	Yes
	40,000 L	Bulk haul trucks	

Table 2 Petroleum and chemical products typically transported along the winter road.

Safety Data Sheets (SDS) for all hazardous materials involved in this project are listen in Appendix C.

3.2 Material Handling and Disposal

Material handling during the program will be minimal as most materials will be transported along the Winter Road, with loading and unloading to occur at separately permitted facilities. Instances where materials may be handled includes during a spill response or vehicle and equipment refuelling during Construction. Considerations for proper material handling include:

- Conduct refueling and equipment repair in a designated area within secondary containment or utilizing a drip tray;
- Use equipment or seek assistance when transporting heavy or awkward containers;
- Use funnels and spill containment trays when pouring or transferring chemicals from one container to another; and
- Utilize proper PPE when handling hazardous materials.



Disposal is limited to the disposal of spent spill response materials. Should a spill and related cleanup occur, spend response materials will be backhauled for proper disposal off site.

4.0 Spill Response

The nature of a spill response will vary depending upon the situation, the material spilled and location of the spill and the spill receiving environment. In all spill response scenarios, the following steps should be taken to ensure employee safety and environmental protection are maintained:

- 1. Ensure your own safety and the safety of your coworkers by:
 - a. Stop what you are doing;
 - b. Stay clear of the spill;
 - c. Warn others nearby,
 - d. Shut down nearby equipment;
- 2. If required, and if it is safe to do so, assist injured or contaminated persons;
- 3. Assess the situation. Notify and report, as needed:
 - a. Emergency
 - if the spill poses a significant risk to persons, property or the environment, call for help and contact your supervisor or the Project Manager immediately;
 - b. Non-emergency: proceed with appropriate spill response;
- 4. Consult the Safety Data System (SDS) sheets for exposure risk;
- 5. Put on appropriate personal protective equipment (PPE; gloves, safety glasses, apron, footwear);
- 6. Contain the spill as outlined in the following sections;
- 7. Label and prepare containers of waste and spent spill response materials for disposal in accordance with Sections 3.1 and 3.2;
- 8. Conduct spill reporting as outlined in Section 5;
- 9. Where required, participate in incident investigations and follow-up measures.

Reportable Spill Volumes are references in Appendix B.

4.1 Spills to Snow

In the event of a spill to snow:

- If flowing fluid, construct an ice berm or barrier downslope of the spill by compacting snow and spraying with water (if conditions permit) or use synthetic, impervious sheeting;
- Compact snow around the perimeter of the spill area;
- Locate the low point of the spill area and clear channels in the snow towards this low point, to allow free product to flow into the low point;
- Recover free product through manual or mechanical means including shovels, heavy equipment and pumps, or if approved, combust in situ;
- Absorb petroleum residue with synthetic sorbent socks, pillows, pads or granular materials;
- Mechanically recover all contaminated snow and ice.

4.2 Spills to Ice



In the event of a spill to ice:

• Follow procedures for a spill to snow.

If materials penetrate and are under the ice:

- Drill holes through ice using ice auger to locate fuel/petroleum product;
- Once detected, cut slots in the ice using chain saws and remove ice blocks. Light nonaqueous phase liquids will collect in openings in the ice;
- Recover free product through manual or mechanical means including scoops or pumps, or, if approved, combust in situ; and
- Absorb petroleum residue with synthetic sorbent socks, pillows, or pads.

4.3 Spills to Water

A spills to water is less likely for this Project as is expected that water will generally be covered in ice. Regardless, all measures should be taken to prevent spills from entering water, as spills to water pose a greater environmental threat. In the event of a spill to water:

- Employ all measures possible to contain the spill.
- Booms can be used to recover petroleum products on lakes or slow-moving streams. Booms can be deployed near shore, or with the assistance of a boat if the spill is in a lake. If the spill occurs in a stream, the boom should be installed at an angle to the current.
- Once the boom has collected and pooled the spill, collection will be required with a pump or additional sorbent products.
- Weirs can be used to contain spills in streams, providing the weir allows water to flow. Sorbents can then be used to collect the the
- Sorbents in conjunction with barriers, such as netting or fencing can be used in flowing water. Place sorbents in the barrier to allow water to pass through. Sorbents need to be changed as soon as they are saturated.
- All fuel or other products collected in the boom, weirs, sorbents and pumps will require appropriate disposal.

4.4 Spills to Land

A spill to land is less likely for this Project as it is expected that land will be covered in snow. In the event of a spill to land:

- If soil is thawed, trenches can be dug to contain the spill. Digging the trench to the depth of bedrock or permafrost will allow for spill containment, and then removal and proper disposal.
- Dykes can be create around or down hill of the spill. The dyke should be large enough to contain all the spilled fuel. Plastic tarps can be used to line the berm and contain the spill.



• Spilled material recovered from land, either with pumps or sorbents will require appropriate disposal.

4.5 Spill Kits

Spill kits on site may vary based on location and supplier. Contents of typical small and large kits are presented below.

A typical small (68 L) spill kit may contain the following:

- 50 oil sorbent pads
- 4 small pillows
- 2 large pillows
- 4-4 inch socks
- 1 plug patty (instant leak-stop)
- 1 pair of nitrile gloves
- 1 pair of splash goggles
- 1 disposable respirator

A typical large (220 L) spill kit may contain the following:

- 4 socks (3" x 10')
- 5 socks (3" x 4')
- 50 pads
- 5 pillows
- 1 roll
- 1 drain cover
- 1 caution tape
- 2 pairs nitrile gloves
- 2 pairs safety goggles
- 2 protective coveralls
- 10 disposable bags
- 1 instruction book

Spill kits are inspected at the start of each field season and following each spill response to ensure contents are sufficient.



5.0 Reporting and Documentation

5.1 Safety Data Sheets (SDS)

SDS will be maintained by the road building and maintenance contractor, as a condition of employment. The SDS sheets are reviewed at the start of the field program to ensure that appropriate and current SDS sheets are available. An example of the required SDS for the Project are included as Appendix

5.2 Spill Reporting

As mentioned in Section 4, spill reporting is a key component of the spill response efforts. Once it is safe to do so, the first responder shall collect the following info:

- 1) Date and time of spill
- 2) Location of spill
- 3) Direction the spill is moving
- 4) Name of contact person at location of spill, and phone number where applicable
- 5) Material and quantity spilled
- 6) Cause of spill
- 7) Whether spill is contained or stopped
- 8) Action taken to contain, recover, clean-up and dispose of spilled material

All spills and unplanned releases are reported to the Project Manager. Materials and quantities listed in Appendix B that are spilled or released in an unplanned manner require external reporting. In the event of a reportable spill and once it is safe to do so, the Project Manager or designate will initiate notification of the following:

- 1) Lupin Mine Project Manager.
- 2) NT-NU 24-hour spill report line.
- 3) CIRNAC and/or GNWT Inspector.

Following initial notification, the Project Manager will complete a NT-NU Spill Reporting Form, which is included as Appendix A. The completed form must be submitted to the Inspector within seven calendar days of the incident.

A detailed follow-up report must be submitted to the Inspector within 30 days of the incident.

6.0 Training

All attendees to site participate in a site orientation which outlines onsite hazards and roles and responsibilities regarding material handling, storage, and spill response. Spill kit contents and deployment are periodically reviewed at weekly site safety meetings.

All attendees to site must be trained in Workplace Hazardous Materials Information System (WHMIS) procedures.



7.0 Available References

Canada Labour Code R.S.C., 1985, c. L-2 Canada Occupational Safety and Health Regulation. 1986. SOR/86-304 Canadian Environmental Protection Act (CEPA). S.C. 1999, c.33 Environmental Emergency Regulations SOR/2003-307 Environmental Protection Act. R.S.N.W.T. 1988, c.E-7 Hazardous Products Act R.S.C., 1985, C. H-3 Government of the Northwest Territories, 2011. A Guide to the Spill Contingency Planning and Reporting Regulations. Environment and Natural Resources. Updated March 2011. Government of the Northwest Territories, 2003. Environmental Guidelines for the Construction, Maintenance and Closure of Winter Roads in the Northwest Territories. Government of Nunavut, 2011. Contingency Planning and Spill Reporting in Nunavut: A guide to the new regulations. Mackenzie Valley Resource Management Act. S.C. 1998, c. 25 Mine Health and Safety Act, SNWT (Nu) 1994, c25 Mine Health and Safety Regulations, NWT Reg (Nu) 125-95 Northwest Territories Lands Act. S.N.W.T. 2014,c.13 Northwest Territories Lands Use Regulations. R-012-2014 Northwest Territories Waters Regulations. R-019-2014 Nunavut Waters and Nunavut Surface Rights Tribunal Act. S.C. 2002, c.10 Nunavut Waters Regulations. SOR/2013-69 Spill Contingency Planning and Reporting Regulations R-068-93 Territorial Lands Act. R.S.C. 1985, c. T-7 Territorial Land Use Regulations. SOR/2016 R-32, s.1. Transportation of Dangerous Goods Act (TDGA). S.C. 1992, c.34 Transportation of Dangerous Goods Regulations. SOR/2012-245



Appendix A.

NT-NU SPILL REPORT. OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS (2024)



NT-NU SPILL REPORT



OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE Tel: (867) 920-8130 • Email: spills@gov.nt.ca

А	Report Date: MM	DD	Report Tim	ne:		Original Spill Report		port Number:			
В	Occurrence Date:	DD	Occurrenc	e Time:		OR Update #					
с	Land Use Permit Number	(if applica	ble):			Water Lice	nce Nur	mber (if ap	plicable):		
D	Geographic Place Name or Distance and Direction from the Named Locat				med Locatio	n:		Region:	Nunavut Trans-b	ounda	ry or Ocean
E	Latitude: Degrees Minutes				Seconds	Longi	tude:	egrees	Minutes		Seconds
F	Responsible Party or Vess	el Name:			Responsible	Party Addre	ess or O	ffice Locati	on:		
G	Any Contractor Involved:				Contractor	Address or O	ffice Lo	cation:			
н	Product Spilled: Pot	ential Spil	I	Quantity	/ in Litres, Ki	lograms or C	ubic M	etres:	U.N. Number:		
I	Spill Source:			Spill Cau	ise:				Area of Contamination	on in S	quare Metres:
J	Factors Affecting Spill or Recovery: Describe Any Assis			e Any Assista	nce Require	d:		Hazards to Persons,	Proper	ty or Environment:	
к	Summary of the spill incident and efforts / description of the incident:										
L	Reported to Spill Line by:		Position:		Employer:			Loca	ation Calling From:		Telephone:
м	Any Alternate Contact:		Position:		Employer:	Employer: Alternate Contact Location:			Alternate Telephone:		
REPO	RT LINE USE ONLY										
Ν	Received at Spill Line by: Position:			Employer: Loca		Locatio	Location Called: Report Line Number:				
Lead	Lead Agency: EC CCG/TCMSS GNWT GN ILA CIRNAC CER File Status: Open										
Agency: Contact Name:		Co	intact Time:	Remarks:							
Lead	Agency:										
First S	Support Agency:										
Secor	nd Support Agency:										
Third	Support Agency:										



Appendix B. Reportable Spill Volumes

Substance	Reportable Quantity
Explosives	
Compressed gas (toxic/corrosive)	
Infectious substances	
• Sewage and Wastewater (unless otherwise authorized)	Any amount
Radioactive materials	
Unknown substance	
Compressed gas (Flammable)	Any amount of gas from containers with a
Compressed gas (Non-corrosive, non- flammable)	capacity grater than 100L
Flammable liquid	≥100 L
Flammable solid	
Substances liable to spontaneous combustion	≥ 25 kg
Water reactant substances	
Oxidizing substances	≥ 50 L or 50 kg
Organic peroxides	
Environmentally hazardous substances intended for disposal	≥1 L or 1 kg
Toxic substances	≥ 5 L or 5 kg
Corrosive substances	
 Miscellaneous products, substances or organisms 	≥ 5 L or 5 kg
PCB mixtures of 5 or more ppm	≥ 0.5 L or 0.5 kg



Substa	ance	Reportable Quantity		
Other of fluid, p waste of vehicle	contaminantsfor example, crude oil, drilling roduced water, or spent chemicals, used or waste oil, e fluids, wastewater.	≥ 100 L or 100 kg		
Sour na Sweet	atural gas (i.e., contains H₂S) natural gas	Uncontrolled release or sustained flow of 10 minutes or more		
Flamm Vehicle	able liquid e fluid	≥ 20 L When released on a frozen water body that is being used as a working surface		
Report that:	ed releases or potential releases of any size			
1.	are near or in an open water body;			
2. are near or in a designated sensitive environment or habitat;		Any amount		
3.	Pose an imminent threat to human health or safety; or			
4.	Pose an imminent threat to a listed species at risk or its critical habitat			

Note: L = litre; kg = kilogram; PCB = Polychlorinated Biphenyls; ppm = parts per million

Source: https://www.gov.nt.ca/ecc/en/services/report-spill (September, 2024)



Appendix C. Safety Data Sheets (SDS)



SAFETY DATA SHEET ANFO, ANFO HE, ANFO LF, **STOPE CHARGE**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name: ANFO, ANFO HE, ANFO LF Synonym(s): ANFO (AMMONIUM NITRATE FUEL OIL) • ANFO HE • ANFO HE110 • ANFO HE 115 • ANFO HE 120 • ANFO LF • STOPE CHARGE

1.2 Uses and uses advised against

Use(s): EXPLOSIVES • MINING EXPLOSIVE

1.3 Details of the supplier of the product

Supplier name: JOHNSON HI-TECH (AUSTRALIA) PTY LTD Address: Level 1, 63 Abernethy Road, Belmont WA 6104 AUSTRALIA Telephone: +61 8 6250 8200 Fax: +61 8 9473 2379 Email: info@johnex.com.au Website: www.johnex.com.au

1.4 Emergency telephone number(s)

Emergency: 1800 014 100

SDS Date: 18 Jan 2021

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO AUSTRALIAN WHS REGULATIONS

GHS classification(s): Explosives: Division 1.1 Serious Eye Damage / Eye Irritation: Category 2A Carcinogenicity: Category 2

2.2 Label elements

Signal word: DANGER Pictogram(s):



Hazard statement(s)

Hazard statemer	11(5)
H201	Explosive; mass explosion hazard.
H319	Causes serious eye irritation.
H351	Suspected of causing cancer.
Prevention state	ment(s)
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.
P240	Ground/bond container and receiving equipment.
P250	Do not subject to grinding/shock/friction/rough handling.

	P264	Wash thoroughly after handling.				
	P280	Wear protective gloves/protective clothing/eye protection/				
		face protection.				
	Response statement(s)					
	P305 + P351 + P	338 IF IN EYES: Rinse cautiously with water for several				
		minutes. Remove contact lenses, if present and easy				
		to do. Continue rinsing.				
	P308 + P313	IF exposed or concerned: Get medical advice/attention.				
	P370 + P380	In case of fire: Evacuate area.				
	P372	Explosion risk in case of fire.				
	P373	DO NOT fight fire when fire reaches explosives.				
Storage statement(s)						
	P401	Store in accordance with relevant site and storage				
provisions.						
	P405	Store locked up.				
	· · · · · · · · · · · · · · · · · · ·					

(L) a

20k

ANFO STD HE

Disposal statement(s)

Dispose of contents/container in accordance with relevant regulations.

2.3 Other hazards

P501

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
AMMONIUM NITRATE	6484-52-2	229-347-8	<94%
ALUMINIUM	7429-90-5	231-072-3	<20%
INERT MINERAL(S)	-	-	<15%
DIESEL FUEL NO. 2	68476-34-6	270-676-1	<7%
ZINC OXIDE	1314-13-2	215-222-5	<5%

4.1 Description of first aid measures

Eye	If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by
	a Poisons Information Centrre, a doctor, or for at least
	15 minutes.
Inhalation	If inhaled, remove from contaminated area. To protect
	rescuer, use an Air-line respirator where an inhalation
	risk exists. Apply artificial respiration if not breathing
Skin	Continue flushing with water until advised to stop by a
	Poisons Information Centre or a doctor.
Ingestion	For advice, contact a Poison Information Centre on
	13 11 26 (Australia Wide) or a doctor (at once). If
	swallowed, do not induce vomiting.
First aid facilities	Eye wash facilities and safety shower should be
	available.

4.2 Most important symptoms and effects, both acute and delayed See Section 11 for more detailed information on health effects and symptoms.



PRODUCT DISCLAIMER: The information contained in this technical bulletin is believed to be accurate, but can not possibly cover every application or variation of conditions under which the product is used or tested. The specifications herein are based on the manufacturer's experiences, research and testing, Johnson Hi-Tech (Australia) Ptv Ltd trading as JOHNEX explosives can not anticipate or control conditions under which this information and its products may be used. Each user is responsible for being aware of the details in the technical bulletin and the product applications in the specific context of the intended use. Johnson Hi-Tech (Australia) Pty Ltd will not be responsible for damages of any nature resulting from the use or reliance upon the information. No express or implied warranties are given other than those implied as mandatory by Commonwealth, State or Territory legislation.

4.3 Immediate medical attention and special treatment needed Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

DO NOT attempt to extinguish burning explosives. Evacuate area immediately. Notify trained emergency response personnel.

5.2 Special hazards arising from the substance or mixture

EXPLOSIVE. Will explode under specific conditions. May evolve toxic gases (carbon/ nitrogen oxides, hydrocarbons) when heated to decomposition. Eliminate all ignition sources including cigarettes, open flames, spark producing switches/tools, heaters, naked lights, pilot lights, etc when handling. CAUTION: Will explode if exposed to heat or with heavy impact.

5.3 Advice for firefighters

Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Do not attempt to fight fire. Use waterfog to cool intact containers and nearby storage areas. May explode from heat, pressure, friction or shock.

5.4 Hazchem code

E Evacuation of people in and around the immediate vicinity of the incident should be considered.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. CAUTION: Heating, impact or static charge may cause explosion.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

Explosive Material. Do not clean-up or dispose except under supervision of a specialist. Contain spillage, collect and place in suitable containers for disposal in accordance with AS2187.2. Eliminate all sources of ignition.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Store in clean, well ventilated and dry magazine licensed for Class 1 Explosives. Segregate from all incompatible substances and foodstuffs. Ensure magazines are adequately labelled and protected from physical damage/shock or friction.

7.3 Specific end use(s) No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

Ingradiant	Deference	TWA		STEL	
Ingredient	ppm		mg/m ³	ppm	mg/m ³
Aluminium (metal dust)	SWA (AUS)		10		
Zinc oxide (dust)	SWA (AUS)		10		
Zinc oxide (fume)	SWA (AUS)		5		10

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical explosion proof extraction ventilation is recommended.

PPE

 Eye / Face
 Wear safety glasses.

 Hands
 Wear PVC or rubber gloves.

 Body
 Wear coveralls.

 Respiratory
 If entering poorly ventilated or confined areas shortly after explosions wear self contained breathing



9. PHYSICAL AND CHEMICAL PROPERTIES

apparatus.

9.1 Information on basic physical and chemical properties Appearance OFF-WHITE SOLID PRILLS

FUEL OIL ODOUR OR Odour **KEROSENE ODOUR** Flammability **EXPLOSIVE** Flash point NOT AVAILABLE **Boiling point** NOT AVAILABLE Melting point > 169°C NOT AVAILABLE **Evaporation rate** NOT AVAILABLE pH NOT AVAILABLE Vapour density Specific gravity 0.7 to 1.10 95% SOLUBLE Solubility (water) Vapour pressure NOT AVAILABLE Upper explosion limit NOT AVAILABLE Lower explosion limit NOT AVAILABLE Partition coefficient NOT AVAILABLE NOT AVAILABLE Autoignition temperature Decomposition temperature > 210°C Viscositv NOT AVAILABLE **Explosive properties** EXPLOSIVE; mass explosion hazard **Oxidising properties** NOT AVAILABLE Odour threshold NOT AVAILABLE

< 8 %

9.2 Other information % Volatiles

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.



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recomme personal drinking 7.2 Com Store in Explosive famage No infor

10.2 Chemical stability

Potential for exothermic hazard.

10.3 Possibility of hazardous reactions

Polymerization will not occur.

10.4 Conditions to avoid

Avoid shock, friction, heavy impact, heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

May detonate if heated strongly or exposed to severe shock. Incompatible (explosively) with acids (e.g. nitric acid), metal powders, combustible materials, alkalis (e.g. sodium hydroxide), oxidising agents (e.g. hypochlorites), chloride salts, sulphur, urea, nitrites and reducing agents.

10.6 Hazardous decomposition products

May evolve toxic gases (carbon/nitrogen oxides, hydrocarbons) when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Information available for the product: Based on available data, the classification criteria are not met. WARNING: May explode with shock, heat, friction or static charge. Serious damage may result from explosive fragments.

Information available for the ingredient(s):

Ingredient	Oral Toxicity (LD50)	Dermal Toxicity (LD50)	Inhalation Toxicity (LC50)
AMMONIUM NITRATE	2217 mg/kg (rat)	-	-
DIESEL FUEL NO. 2	5-15 g/kg diesel oil	-	-
ZINC OXIDE	7950 mg/kg (mouse)	-	2500 mg/m ³ (mouse)
Skin	Contact may re	esult in irritation	redness, pain

Eye	rash and dermatitis. Contact may result in irritation, lacrimation, pain, blurred vision and redness.
Sensitisation	Not classified as causing skin or respiratory sensitisation.
Mutagenicity	Not classified as a mutagen.
Carcinogenicity	Diesel fuels, distillate (light) is not classifiable as
	to its carcinogenicity to humans (IARC Group 3).
Reproductive	Not classified as a reproductive toxin.
STOT – single exposure	Over exposure may result in irritation of
	the nose and throat, coughing, nausea and
	headache. High level exposure may result
	in drowsiness, breathing difficulties and
	methaemoglobinemia (blood's oxygen-carrying
	capacity is reduced).
STOT – repeated exposure	Not classified as causing organ damage from
	repeated exposure.
Aspiration	Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity No information provided.

12.2 Persistence and degradability No information provided.

12.3 Bioaccumulative potential No information provided.

12.4 Mobility in soil

No information provided.

12.5 Other adverse effects

Ammonium nitrate is a nutrient in water. Spills can cause massive algal blooms in static waters and affect local species population balance in the aquatic environment. If water is used to disperse ammonium nitrate spilled on soil, the solution produced can end up in the groundwater. Ammonium nitrate will be taken up by bacteria. Nitrate is more persistent in water than the ammonium ion.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Waste must be disposed of in accordance with AS2187.2 as well as state regulatory and environmental legislation. Small quantities of damaged or deteriorated material may be destroyed by inclusion in a blast hole containing good explosives (by licensed personnel). Detonators should not be inserted into defective explosives. For large quantities, contact the manufacturer/supplier for additional information.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE



	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	0082	0082	PROH
14.2 Proper Shipping Name	EXPLOSIVE, BLASTING, TYPE B	EXPLOSIVE, BLASTING, TYPE B	Air transport PROHIBITED under the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air in passenger and cargo aircraft.
14.3 Transport Hazard Class	1.1D	1.1D	None Allocated
14.4 Packing Group	None Allocated	None Allocated	None Allocated

14.5 Environmental hazards

No information provided

14.6 Special precautions for user Hazchem code E



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Other information

AIR TRANSPORT PROHIBITED under the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air in passenger aircraft and cargo aircraft.

15. REGULATORY INFORMATION

F-B, S-Y

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule	A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).
Classifications	Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.
	The classifications and phrases listed below are based on the Approved Criteria for Classifying
Hazard codes	Carc. Carcinogen E Explosive
Risk phrases	R2 Risk of explosion by shock, friction, fire or other sources of ignition. R36 Irritating to eyes.
Safety phrases	R40 Limited evidence of a carcinogenic effect. S16 Keep away from sources of ignition - No smoking.
Inventory listing(s)	S36/37 Wear suitable protective clothing and gloves. AUSTRALIA: AICS (Australian Inventory of Chemical Substances)
	All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

EXPLOSIVES & BLASTING AGENTS: Refer to Local State and Federal legislation that specifically relates to the use of Explosives. Users of products described in this ChemAlert Report are advised to ensure familiarity and compliance with the appropriate legal requirements (e.g. Regulations) prior to the use of this product. Where any further information is required, users may contact their local authority in Explosives and Dangerous Goods.

EXPLOSIONS: Fires involving explosives or explosive mixtures may undergo further explosions and rapid propagation. Police and emergency personnel should be notified immediately. Evacuate individuals to a safe sheltered area at least 800 metres away. If possible remove vehicles and further heat and ignition sources from the area. Do not return to areas until at least one hour after fire and explosions have ceased.

EXPLOSIVES - DETONATION: If explosives are detonated on stony ground or in an area where debris is likely to become missiles, damage can be expected within 400 metres when three kilograms of explosives are detonated. For this reason it is recommended that explosives should be detonated in sand or earth that is free from stones.

EXPLOSIVES - BURNING SAFETY: Note: Disposal in a blast with fresh explosives may be preferable to burning.

- (a) Make a sawdust (or newspaper) trail 450mm wide and ~20mm deep in the direction of the wind. The trail should be 2m longer than necessary.
- (b) Place the cartridges on the sawdust (or paper), they may be touching, but not piled on top of each other
- (c) Individual trails should be no closer than 2m and should not contain more than 12kgs of explosives.
- (d) Trails should be side by side, not in a line. No more than 4 should be set up at one time.
- (e) Remove explosives not being burnt, to at least 300m away, unless the material can be stored behind something substantial.
- (f) Thoroughly wet the trail with kerosene or diesel (never petrol or any

JOHNEX explosives

other highly flammable liquid). Use at least 2L of fuel per 10m of trail.

- (g) Light the trail from a long rolled paper wick, place down wind and contact the 2m of trail which is not covered by explosives. The flame should blow away from the unburned explosives otherwise preheating and detonation may occur.
- (g) Use a plastic igniter if available instead of paper. Coil one end into the sawdust or under the paper and light the other end from a minimum distance of 7m away from the trail.
- (h) Move away at least 300m. Do not return for a period of at least 30mins after burning has finished.
- (j) If the fire goes out, do not approach for at least 15mins. Do not add kerosene or diesel oil unless certain that the flame is completely extinguished.

(k) Bury the residue as it is poisonous to livestock.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:

It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify
	chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships
	Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
рН	relates to hydrogen ion concentration using a scale of 0 (high
	acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

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DIESEL FUEL

SDS Number: 000003000395

Version: 7.1

Revision Date: 2024/05/06

Print Date: 2024/05/07

SECTION 1. IDENTIFICATION

Product name	:	DIESEL FUEL
Product code	:	11798, 12016, 11958, 11796, 11771, 11770, 11769, 11768, 11767, 11766, 11612, 11560, 11558, 11555, 11437, 11302, 10979, 10978, 10977, 10976, 10975, 10974, 10973, 10972, 10971, 10970, 10969, 10968, 10966, 10965, 10964, 10786, 10785, 10784, 10783, 10690, 10689, 10687, 10636, 10635, 10626, 10621, 10616, 10610, 10601, 10600, 10598, 10595, 10427, 10041

Other means of identification : Seasonal Diesel, #2 Diesel, #1 Diesel, #2 Heating Oil, #1 Heating Oil, OSX, D50, Arctic Diesel, Farm Diesel, Marine Diesel, Low Sulphur Diesel, LSD, Ultra Low Sulphur Diesel, ULSD, Mining Diesel, Naval Distillate, Dyed Diesel, Marked Diesel, Coloured Diesel, Furnace special, Biodiesel blend (BX where X is representative of volume %), Renewable Diesel blend (RX where X is represent ative of volume %). Diesel Low Cloud (LC), Marine Gas Oil, Marine Gas Oil Dyed.

Manufacturer or supplier's details

Company name of supplier Address	:	Petro-Canada P.O. Box 2844, 150 - 6th Avenue South-West Calgary, Alberta T2P 3E3 Canada, Telephone: 1-866-786-2671
Emergency telephone	:	CHEMTREC: 1-800-424-9300 (toll free) or +1 703-527-3887; Suncor Energy: +1 403-296-3000
Recommended use of the c	hen	nical and restrictions on use
Recommended use	:	Diesel fuels are distillate fuels suitable for use in high and medium speed internal combustion engines of the compres- sion ignition type. Mining diesels, marine diesels, marine diesel oil, marine gas oil and naval distillates may have a higher flash point require-

ment.



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SECTION 2. HAZARDS IDENTIFICATION

	GHS classification in accord Flammable liquids	dan :	ce with the Hazardous Products Regulations Category 3
	Acute toxicity (Inhalation)	:	Category 4
	Skin irritation	:	Category 2
	Eye irritation	:	Category 2B
	Carcinogenicity	:	Category 2
	Specific target organ toxicity - repeated exposure	:	Category 2 (Liver, thymus, Bone)
	Aspiration hazard	:	Category 1
	GHS label elements Hazard pictograms	:	
	Signal Word	:	Danger
	Hazard Statements	:	 H226 Flammable liquid and vapor. H304 May be fatal if swallowed and enters airways. H315 + H320 Causes skin and eye irritation. H332 Harmful if inhaled. H351 Suspected of causing cancer. H373 May cause damage to organs (Liver, thymus, Bone) through prolonged or repeated exposure.
	Precautionary Statements	:	 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, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233 Keep container tightly closed. P240 Ground and bond container and receiving equipment. P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment. P242 Use non-sparking tools. P243 Take action to prevent static discharges. P260 Do not breathe mist or vapors. P264 Wash skin thoroughly after handling. P271 Use only outdoors or in a well-ventilated area.
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P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P331 Do NOT induce vomiting.

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

P362 + P364 Take off contaminated clothing and wash it before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P235 Store in a well-ventilated place. Keep cool. P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	Common	CAS-No.	Concentration (% w/w)
	Name/Synonym		
Fuels, diesel; Gasoil —	Fuels, diesel;	68334-30-5	
unspecified	Gasoil — un-		25 - 100
	specified		
Alkanes, C10-20-	Alkanes, C10-	928771-01-1	
branched and linear	20-branched		<= 75
	and linear		
Fatty acids, C14-18	Fatty acids,	129756-24-7	<= 20

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and C14-18-unsatd., Me esters	C14-18 and C14-18-unsatd., Me esters	

SECTION 4. FIRST AID MEASURES

If inhaled	:	Move to fresh air. Artificial respiration and/or oxygen may be necessary. Seek medical advice.
In case of skin contact	:	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Wash clothing before reuse. Seek medical advice.
In case of eye contact	:	Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
If swallowed	:	Rinse mouth with water. DO NOT induce vomiting unless directed to do so by a physi- cian or poison control center. Never give anything by mouth to an unconscious person. Seek medical advice.
Most important symptoms and effects, both acute and delayed	:	Harmful if inhaled. Respiratory, skin and eye irritation; nausea; cancer.
Indication of immediate med- ical attention and special treatment needed, if neces- sary	:	Treat symptomatically. For specialist advice physicians should contact the Poisons Information Service.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Dry chemical Carbon dioxide (CO2) Water fog. Foam
Unsuitable extinguishing media	:	Do NOT use water jet.
Specific hazards during fire fighting	:	Cool closed containers exposed to fire with water spray.



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Hazardous combustion prod- ucts	:	Carbon oxides (CO, CO2), nitro oxides (SOx), smoke and irritati incomplete combustion.	gen oxides (NOx), sulphur ng vapours as products of
Further information	:	Prevent fire extinguishing water water or the ground water syste	from contaminating surface m.
Special protective equipment for fire-fighters	:	Wear self-contained breathing a essary.	apparatus for firefighting if nec-

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protec- tive equipment and emer- gency procedures	:	For personal protection see section 8. Ensure adequate ventilation. Evacuate personnel to safe areas. Material can create slippery conditions. Mark the contaminated area with signs and prevent access to unauthorized personnel. Only qualified personnel equipped with suitable protective equipment may intervene.
Environmental precautions	:	If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Prevent further leakage or spillage if safe to do so. Remove all sources of ignition. Soak up with inert absorbent material. Non-sparking tools should be used. Ensure adequate ventilation. Contact the proper local authorities.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	 For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Use only with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Avoid contact with skin, eyes and clothing. Do not ingest. Keep away from heat and sources of ignition. Keep container closed when not in use.
Conditions for safe storage	: Store in original container. Containers which are opened must be carefully resealed and
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kept upright to prevent leakage. Keep in a dry, cool and well-ventilated place. Keep in properly labeled containers. To maintain product quality, do not store in heat or direct sunlight. Ensure the storage containers are grounded/bonded.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components	CAS-No.	Value type (Form of exposure)	Control parame- ters / Permissible concentration	Basis
Fuels, diesel; Gasoil — un- specified	68334-30-5	TWA	100 mg/m³ (total hydrocar- bons)	CA AB OEL
		TWA (inhal- able fraction and vapour)	100 mg/m ³ (total hydrocar- bons)	CA BC OEL
		TWAEV (in- halable frac- tion and va- pour)	100 mg/m ³ (total hydrocar- bons)	CA QC OEL
		TWA (Inhal- able fraction and vapor)	100 mg/m³ (total hydrocar- bons)	ACGIH
Engineering measures	 Adequate ventilation to ensure that Occupational Exposure Limits are not exceeded. Use only in well-ventilated areas. Ensure that eyewash station and safety shower are proximal to the work-station location. 			
Respiratory protection	Concentration Use respirato ventilation is p that exposure Respirator se exposure leve working limits	n in air determine ry protection unl provided or expo s are within reco lection must be l els, the hazards of the selected	es protection needed. ess adequate local es sure assessment der ommended exposure based on known or ar of the product and the respirator.	xhaust monstrates guidelines. nticipated e safe
Filter type	organic vapour cartridge or canister may be permissible un- der certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a positive-pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circum- stances where air-purifying respirators may not provide ade- quate protection.			

Ingredients with workplace control parameters



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Material	:	neoprene, nitrile, polyvinyl alcol your PPE provider for breakthro glove that is best for you based should be realized that eventua their imperviousness, will get per Therefore, protective gloves sh wear and tear. At the first signs should be changed.	hol (PVA), Viton(R). Consult ough times and the specific on your use patterns. It illy any material regardless of ermeated by chemicals. ould be regularly checked for of hardening and cracks, they
Remarks	:	Chemical-resistant, impervious approved standard should be w chemical products if a risk asse essary.	gloves complying with an orn at all times when handling essment indicates this is nec-
Eye protection	:	Wear safety glasses with side s Wear face-shield if splashing ha Chemical splash goggles and a worn when handling this materi	shields or goggles. azard is likely. ι full-face shield should be al.
Skin and body protection	:	Choose body protection in relat tration and amount of dangerou cific work-place.	ion to its type, to the concen- is substances, and to the spe-
Protective measures	:	Wash contaminated clothing be	ofre re-use.
Hygiene measures	:	Remove and wash contaminate ing the inside, before re-use. Wash face, hands and any exp handling.	ed clothing and gloves, includ-

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

	Appearance	:	Bright oily liquid.	
	Color	:	Clear to yellow (This product may be dyed red for taxat purposes)	tion
	Odor	:	Mild petroleum oil like.	
	Odor Threshold	:	No data available	
	рН	:	No data available	
	Melting point/freezing point	:	No data available	
	Initial boiling point and boiling	:	150 - 371 °C	
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range Flash point	:	> 40 °C	
		Method: closed cup	
		Marine Gas Oil/Naval Distillate: 60°	C min
		Mining Diesel: 52°C min	
		All other Diesel fuels: 40°C min	
Evaporation rate	:	No data available	
Flammability (solid, gas)	:	not applicable	
Upper explosion limit / Upper flammability limit	:	6 %(V)	
Lower explosion limit / Lower flammability limit	:	0.7 %(V)	
Vapor pressure	:	7.5 mmHg (20 °C)	
Relative vapor density	:	4.5	
Relative density	:	0.8 - 0.88	
Density	:	No data available	
Water solubility	:	insoluble	
Partition coefficient: n- octanol/water	:	No data available	
Autoignition temperature	:	204 °C	
Decomposition temperature	:	No data available	
Viscosity			
Viscosity, kinematic	:	1.3 - 4.1 cSt (40 °C)	

SECTION 10. STABILITY AND REACTIVITY

Internet: www.petro-canada.ca/msds Petro-Canada is a Suncor Energy business.		Page: 8 / 13 ™ Trademark of Suncor Energy Inc. Used under licence.
Possibility of hazardous reac-	:	Hazardous polymerization does not occur.
Chemical stability	:	Stable under normal conditions.
Reactivity	:	Stable at normal ambient temperature and pressure.



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tions			
Conditions to avoid	:	Extremes of temperature and d	lirect sunlight.
Incompatible materials	:	Reactive with oxidising agents	and acids.
Hazardous decomposition products	:	May release COx, NOx, SOx, s when heated to decomposition	moke and irritating vapours

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure Eye contact Ingestion Inhalation Skin contact Acute toxicity Harmful if inhaled. Product: Acute oral toxicity : Remarks: Based on available data, the classification criteria are not met. Acute inhalation toxicity : Acute toxicity estimate: 11 mg/L Exposure time: 4 h Test atmosphere: vapor Method: Calculation method Acute dermal toxicity Remarks: Based on available data, the classification criteria : are not met.

Components:

Fuels, diesel; Gasoil — unspecified:

Acute oral toxicity	:	LD50 (Rat): 7,500 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): 4.1 mg/l Exposure time: 4 h Test atmosphere: vapor

Acute dermal toxicity : LD50 (Mouse): 24,500 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation Causes eye irritation.



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Varcian	71
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Respiratory or skin sensitization

Skin sensitization

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

Respiratory sensitization

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

Germ cell mutagenicity

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

Carcinogenicity

Suspected of causing cancer.

Reproductive toxicity

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

STOT-single exposure

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

STOT-repeated exposure

May cause damage to organs (Liver, thymus, Bone) through prolonged or repeated exposure.

Aspiration toxicity

May be fatal if swallowed and enters airways.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	Remarks: No data available			
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: No data available			
Toxicity to algae/aquatic plants	:	Remarks: No data available			
Toxicity to microorganisms	:	Remarks: No data available			
Persistence and degradability					
<u>Product:</u> Biodegradability	:	Remarks: No data available			
Bioaccumulative potential					

No data available

Mobility in soil

No data available



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Print Date: 2024/05/07

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods	
Waste from residues :	The product should not be allowed to enter drains, water courses or the soil. Offer surplus and non-recyclable solutions to a licensed dis- posal company. Waste must be classified and labeled prior to recycling or disposal. Send to a licensed waste management company. Dispose of as hazardous waste in compliance with local and national regulations. Dispose of product residue in accordance with the instructions of the person responsible for waste disposal.
Contaminated packaging :	Contact local or business unit authorities for guidance on disposal of product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR		
UN/ID No.	:	UN 1202
Proper shipping name	:	Diesel fuel
Class	:	3
Packing group	:	III
Labels	:	Flammable Liquids
Packing instruction (cargo aircraft)	:	366
IMDG-Code		
UN number	:	UN 1202
Proper shipping name	:	DIESEL FUEL
Class	:	3
Packing group	:	III
Labels	:	3
EmS Code	:	F-E, S-E
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

TDG UN number

: UN 1202





DIESEL FUEL

SDS Number: 000003000395

Version: 7.1	Revision Date: 2024/05/06	Print Date: 2024/05/07	
Proper shipping name	: DIESEL FUEL		
Class	: 3		
Packing group	: 111		
Labels	: 3		
ERG Code	: 128		

Special precautions for user

Marine pollutant

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

NPRI Components :	Solvent naphtha (petroleum), heavy arom.; Kerosine — un- specified naphthalene 1,2,4-trimethylbenzene toluene propan-2-ol methanol
The ingredients of this product	are reported in the following inventories:
DSL :	All components of this product are on the Canadian DSL

Canadian lists

No substances are subject to a Significant New Activity Notification.

: yes

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
CA AB OEL	:	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	:	Canada. British Columbia OEL
CA QC OEL	:	Québec. Regulation respecting occupational health and safe- ty, Schedule 1, Part 1: Permissible exposure values for air- borne contaminants
ACGIH / TWA	:	8-hour time weighted average
CA AB OEL / TWA	:	8-hour time weighted average
CA BC OEL / TWA	:	8-hour time weighted average
CA QC OEL / TWAEV	:	Time-weighted average exposure value

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for

DIESEL FUEL

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Standardisation: DSL - Domestic Substances List (Canada): ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization: ISHL - Industrial Safety and Health Law (Japan): ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Revision Date

: 2024/05/06

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.

CA / EN





GASOLINE, UNLEADED

SDS Number: 000003000644

Version: 4.0	Revision Date: 2023/04/19	Print Date: 2023/04/20
SECTION 1. IDENTIFICATION		
Product name	: GASOLINE, UNLEADED	

- Product code : 11949, 11000, 10999, 10998, 10995, 10993, 10991, 10990, 10989, 10988, 10987, 10474, 10473, 10461, 10455, 10111, 10108, 10097, 10096, 10040, 10039
- Other means of identification : TN-PE-TM15-X00-1499; LVB87, Regular, Unleaded Gasoline (US Grade), Mid-Grade, Plus, Super, WinterGas, Summer-Gas, Supreme, SuperClean, SuperClean WinterGas, RegularClean, PlusClean, Premium, marked or dyed gasoline, TQRUL, transitional quality regular unleaded, BOB, Blend-stock for Oxygenate Blending, Conventional Gasoline, RUL, MUL, SUL, PUL, Additive Denaturant

Manufacturer or supplier's details

Company name of supplier : Address	Petro-Canada P.O. Box 2844, 150 - 6th Avenue South-West Calgary, Alberta T2P 3E3 Canada, Telephone: 1-866-786-2671
Emergency telephone :	CHEMTREC: 1-800-424-9300 (toll free) or +1 703-527-3887; Suncor Energy: +1 403-296-3000

Recommended use of the chemical and restrictions on use

Recommended use	:	Unleaded gasoline is used in spark ignition engines including motor vehicles, inboard and outboard boat engines, small engines such as chain saws and lawn mowers, and recrea-
		tional vehicles.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Flammable liquids	:	Category 1
Skin irritation	:	Category 2
Germ cell mutagenicity	:	Category 1B
Carcinogenicity	:	Category 1A
Reproductive toxicity	:	Category 2


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Specific target organ toxicity - single exposure	: Category 3 (C	Central nervous syste	em)
Specific target organ toxicity - repeated exposure	: Category 1		
Aspiration hazard	: Category 1		
GHS label elements			
Hazard pictograms			
Signal Word	: Danger		
Hazard Statements	: H224 Extreme H304 May be H315 Causes H336 May cau H340 May cau H350 May cau H361 Suspec H372 Causes exposure.	ely flammable liquid fatal if swallowed ar skin irritation. use drowsiness or di use genetic defects. use cancer. ted of damaging fert damage to organs t	and vapor. nd enters airways. izziness. ility or the unborn child. through prolonged or repeated
Precautionary Statements	 Prevention: P201 Obtains P202 Do not H and understood P210 Keep av and other ignini P233 Keep condition P240 Ground P241 Use exponent. P242 Use nori P243 Take action P260 Do not H P264 Wash sinishing P270 Do not end P271 Use onli P280 Wear priface protection Response: 	special instructions b handle until all safety od. way from heat, hot su ition sources. No sm ontainer tightly close and bond container olosion-proof electric n-sparking tools. ction to prevent static breathe mist or vapo kin thoroughly after l eat, drink or smoke w y outdoors or in a we rotective gloves/ pro-	pefore use. y precautions have been read urfaces, sparks, open flames oking. d. and receiving equipment. cal/ ventilating/ lighting/ equip- c discharges. rs. handling. when using this product. ell-ventilated area. tective clothing/ eye protection/
	P301 + P310 CENTER/ doc	IF SWALLOWED: Ir	nmediately call a POISON

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately



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	all contaminated clothing. Rins P304 + P340 + P312 IF INHAL and keep comfortable for breat doctor if you feel unwell. P308 + P313 IF exposed or co attention. P331 Do NOT induce vomiting P332 + P313 If skin irritation of tion. P362 + P364 Take off contami reuse. P370 + P378 In case of fire: Us hol-resistant foam to extinguish	e skin with water. ED: Remove person to fresh air hing. Call a POISON CENTER/ ncerned: Get medical advice/ ccurs: Get medical advice/ atten- nated clothing and wash it before se dry sand, dry chemical or alco
	Storage: P403 + P233 Store in a well-ve tightly closed. P403 + P235 Store in a well-ve P405 Store locked up.	entilated place. Keep container entilated place. Keep cool.
	Disposal:	
	P501 Dispose of contents/ con posal plant.	tainer to an approved waste dis-
Other hazards		
None known.		

Substance / Mixture : Mixture

Components

Chemical name	Common Name/Synonym	CAS-No.	Concentration (% w/w)
Gasoline; Low boiling point naphtha - unspecified	Gasoline; Low boiling point naphtha - unspecified	86290-81-5	85 - 100
toluene	toluene	108-88-3	0 - 40
benzene	benzene	71-43-2	0.006 - 1.5
ethanol	ethanol	64-17-5	0 - 0.3
methanol	methanol	67-56-1	0 - 0.08

SECTION 4. FIRST AID MEASURES

If inhaled

: Move to fresh air. Artificial respiration and/or oxygen may be necessary. Seek medical advice.

In case of skin contact Internet: www.petro-canada.ca/msds Petro-Canada is a Suncor Energy business. : In case of contact, immediately flush skin with plenty of water $$Page: 3\,/\,15$$



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		for at least 15 minutes while re and shoes. Wash skin thoroughly with soa skin cleanser. Wash clothing before reuse. Seek medical advice.	moving contaminated clothing p and water or use recognized
In case of eye contact	:	Remove contact lenses. Rinse immediately with plenty of for at least 15 minutes. Obtain medical attention.	of water, also under the eyelids,
If swallowed	:	Rinse mouth with water. DO NOT induce vomiting unles cian or poison control center. Never give anything by mouth Seek medical advice.	s directed to do so by a physi- to an unconscious person.
Most important symptoms and effects, both acute and delayed	:	Respiratory, skin and eye irritat Inhalation may cause central n Ingestion may cause gastrointe ing and diarrhea. Chronic exposure to benzene r leukemia and other blood disor	tion; nausea; cancer. ervous system effects. estinal irritation, nausea, vomit- nay result in increased risk of ders.
Indication of immediate med- ical attention and special treatment needed, if neces- sary	:	Treat symptomatically. Contact poison treatment spec tities have been ingested or inh	ialist immediately if large quan- naled.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Dry chemical Carbon dioxide (CO2) Water fog. Foam
Unsuitable extinguishing media	:	Do NOT use water jet.
Specific hazards during fire fighting	:	Cool closed containers exposed to fire with water spray.
Hazardous combustion prod- ucts	:	Carbon oxides (CO, CO2), nitrogen oxides (NOx), polynuclear aromatic hydrocarbons, phenols, aldehydes, ketones, smoke and irritating vapours as products of incomplete combustion.
Further information	:	Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment	:	Wear self-contained breathing apparatus and full protective
Internet: www.petro-canada.ca/msds Petro-Canada is a Suncor Energy business.		Page: 4 / 15 ™ Trademark of Suncor Energy Inc. Used under licence.



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for fire-fighters	wear. Wear a positive-pressure supplied piece.	-air respirator with full face-
SECTION 6. ACCIDENTAL RELEAS	E MEASURES	
Personal precautions, protec- : tive equipment and emer- gency procedures	For personal protection see section Ensure adequate ventilation. Evacuate personnel to safe areas. Material can create slippery condition Mark the contaminated area with sunauthorized personnel. Only qualified personnel equipped equipment may intervene.	n 8. tions. signs and prevent access to with suitable protective
Environmental precautions :	If the product contaminates rivers respective authorities.	and lakes or drains inform
Methods and materials for : containment and cleaning up	Prevent further leakage or spillage Remove all sources of ignition. Soak up with inert absorbent mate Non-sparking tools should be used Ensure adequate ventilation. Contact the proper local authoritie	e if safe to do so. erial. d. s.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling :	 For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Use only with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Avoid contact with skin, eyes and clothing. Do not ingest. Keep away from heat and sources of ignition. Keep container closed when not in use.
Conditions for safe storage :	Store in original container. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in a dry, cool and well-ventilated place. Keep in properly labeled containers. To maintain product quality, do not store in heat or direct sun- light.



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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parame- ters / Permissible concentration	Basis
Gasoline; Low boiling point naphtha -unspecified	86290-81-5	TWA	300 ppm	CA AB OEL
		STEL	500 ppm	CA AB OEL
		TWA	300 ppm	CA BC OEL
		STEL	500 ppm	CA BC OEL
		TWA	300 ppm	ACGIH
		STEL	500 ppm	ACGIH
ethanol	64-17-5	STEL	1,000 ppm	CA BC OEL
		STEV	1,000 ppm	CA QC OEL
		TWA	300 ppm	CA AB OEL
		STEL	500 ppm	CA AB OEL
		STEL	1,000 ppm	ACGIH
methanol	67-56-1	TWA	200 ppm	CA BC OEL
		STEL	250 ppm	CA BC OEL
		TWA	200 ppm	CA AB OEL
		STEL	250 ppm	CA AB OEL
		TWA	200 ppm	ACGIH
		STEL	250 ppm	ACGIH
toluene	108-88-3	TWA	20 ppm	CA BC OEL
		TWAEV	20 ppm	CA QC OEL
		TWA	50 ppm	CA AB OEL
		TWA	20 ppm	ACGIH
benzene	71-43-2	TWA	0.5 ppm	CA BC OEL
		STEL	2.5 ppm	CA BC OEL
		TWA	0.5 ppm	CA ON OEL
		STEL	2.5 ppm	CA ON OEL
		TWAEV	0.5 ppm	CA QC OEL
		STEV	2.5 ppm	CA QC OEL
		TWA	300 ppm	CA AB OEL
		STEL	500 ppm	CA AB OEL
		TWA	0.5 ppm	ACGIH
		STEL	2.5 ppm	ACGIH

Engineering measures

Adequate ventilation to ensure that Occupational Exposure Limits are not exceeded. Use only in well-ventilated areas. Ensure that eyewash station and safety shower are proximal to the work-station location.

Personal protective equipment

:

:

Respiratory protection

Concentration in air determines protection needed. Use respiratory protection unless adequate local exhaust



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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Clear liquid.
Color	:	Clear to slightly yellow of

Clear to slightly yellow or green, undyed liquid. May be dyed red for taxation purposes.





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Odor	: Gasoline	

Odor Threshold	:	No data available
рН	:	No data available
Melting point/freezing point	:	No data available
Initial boiling point and boiling	:	25 - 225 °C
Flash point	:	-5038 °C
		Method: Tagliabue.
Evaporation rate	:	No data available
Flammability (solid, gas)	:	not applicable
Self-ignition	:	257 °C
Upper explosion limit / Upper flammability limit	:	7.6 %(V)
Lower explosion limit / Lower flammability limit	:	1.3 %(V)
Vapor pressure	:	< 802.5 mmHg (20 °C)
Relative vapor density	:	3
Relative density	:	0.685 - 0.8
Density	:	No data available
Solubility(ies) Water solubility	:	insoluble
Partition coefficient: n- octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity Viscosity, kinematic net: www.petro-canada.ca/msds	:	No data available



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SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reac- tions	:	Hazardous polymerization does not occur.
Conditions to avoid	:	Extremes of temperature and direct sunlight.
Incompatible materials	:	Reactive with oxidising agents, acids and interhalogens.
Hazardous decomposition products	:	May release COx, NOx, phenols, polycyclic aromatic hydro- carbons, aldehydes, ketones, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of Eye contact Ingestion Inhalation Skin contact	exposure
Acute toxicity	
Product: Acute oral toxicity :	Acute toxicity estimate: > 2,000 mg/kg Method: Calculation method Remarks: Based on available data, the classification criteria are not met.
Acute inhalation toxicity :	Acute toxicity estimate: > 20 mg/L Exposure time: 4 h Test atmosphere: vapor Method: Calculation method Remarks: Based on available data, the classification criteria are not met.
Acute dermal toxicity :	Acute toxicity estimate: > 2,000 mg/kg Method: Calculation method Remarks: Based on available data, the classification criteria are not met.

Components:

Gasoline; Low boiling point naphtha -unspecified:



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Acute oral toxicity	: LD50 (Rat): 13,600 mg/kg	
Acute dermal toxicity	: LD50 (Rabbit): > 3,750 mg/kg	
toluene:		
Acute oral toxicity	: LD50 (Rat): 5,580 mg/kg	
Acute inhalation toxicity	: LC50 (Rat): > 20 mg/l Exposure time: 4 h Test atmosphere: vapor	
Acute dermal toxicity	: LD50 (Rabbit): 12,125 mg/kg	
benzene:		
Acute oral toxicity	: LD50 (Rat): 2,990 mg/kg	
Acute inhalation toxicity	: LC50 (Rat): 13700 ppm Exposure time: 4 h Test atmosphere: vapor	
Acute dermal toxicity	: LD50 (Rabbit): > 8,240 mg/kg	
ethanol:		
Acute oral toxicity	: LD50 (Rat): 7,060 mg/kg	
Acute inhalation toxicity	: LC50 (Rat): > 32380 ppm Exposure time: 4 h Test atmosphere: vapor	
methanol:		
Acute oral toxicity	: LD50 (Rat): 5,600 mg/kg	
Acute dermal toxicity	: LD50 (Rabbit): 15,800 mg/kg	
Skin corrosion/irritation Causes skin irritation.		
Serious eye damage/eye i	rritation	
Based on available data, the	e classification criteria are not met.	
Respiratory or skin sensit	Ization	
Skin sensitization Based on available data, the	e classification criteria are not met.	
Respiratory sensitization		
Based on available data, the	e classification criteria are not met.	



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Germ cell mutagenicity

May cause genetic defects.

Carcinogenicity

May cause cancer.

Reproductive toxicity Suspected of damaging fertility or the unborn child.

STOT-single exposure

May cause drowsiness or dizziness.

Product:

Target Organs : Central nervous system

STOT-repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Product:

Aspiration toxicity

May be fatal if swallowed and enters airways.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

D
-	oduc	:T -
	0444	

Toxicity to fish	:	Remarks: No data available
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: No data available
Toxicity to algae/aquatic plants	:	Remarks: No data available
Toxicity to microorganisms	:	Remarks: No data available
Persistence and degradabilit	ty	
Persistence and degradabilit Product:	ty	
Persistence and degradability Product: Biodegradability	t y :	Remarks: No data available
Persistence and degradability Product: Biodegradability Bioaccumulative potential	t y :	Remarks: No data available
Persistence and degradability Product: Biodegradability Bioaccumulative potential No data available	t y	Remarks: No data available

No data available



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Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods		
Waste from residues	:	The product should not be allowed to enter drains, water courses or the soil. Offer surplus and non-recyclable solutions to a licensed dis- posal company. Waste must be classified and labeled prior to recycling or disposal. Send to a licensed waste management company. Dispose of as hazardous waste in compliance with local and national regulations. Dispose of product residue in accordance with the instructions of the person responsible for waste disposal.
Contaminated packaging	:	Contact local or business unit authorities for guidance on disposal of product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR		
UN/ID No.	:	UN 1203
Proper shipping name	:	Gasoline
Class	:	3
Packing group	:	II
Labels	:	Flammable Liquids
Packing instruction (cargo aircraft)	:	364
IMDG-Code UN number Proper shipping name	:	UN 1203 GASOLINE
Class		3
Packing group	÷	U U
Labels	÷	3
EmS Code	÷	F-E. S-E
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

TDG UN number

: UN 1203



GASOLINE, UNLEADED

SDS Number: 000003000644

ERG Code

Marine pollutant

Version: 4.0	Revision Date: 2023/04/	Print Date: 2023/04/20
Proper shipping name	: GASOLINE	
Class	: 3	
Packing group	: 11	
Labels	: 3	

: 128

: yes

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

NPRI Components	 toluene benzene ethanol methanol xylene Naphtha (petroleum), hydrotreated heavy; Low boiling point ydrogen treated naphtha Ethylbenzene Solvent naphtha (petroleum), heavy arom.; Kerosine — un- specified naphthalene 1,2,4-trimethylbenzene
The ingredients of this prod	uct are reported in the following inventories:

DSL

: All components of this product are on the Canadian DSL

Canadian lists

No substances are subject to a Significant New Activity Notification.

SECTION 16. OTHER INFORMATION

Full text of other abbreviation	ons	
ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
CA AB OEL	:	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	:	Canada. British Columbia OEL
CA ON OEL	:	Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.
CA QC OEL	:	Québec. Regulation respecting occupational health and safe- ty, Schedule 1, Part 1: Permissible exposure values for air- borne contaminants
ACGIH / TWA	:	8-hour, time-weighted average
met: www.petro-canada.ca/msds		Page: 13

Internet: www.petro-canada.ca/msds Petro-Canada is a Suncor Energy business.



GASOLINE, UNLEADED

SDS Number: 000003000644

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ACGIH / STEL	:	Short-term exposure limit		
CA AB OEL / STEL		Short term exposure limit		
CA AB OEL / TWA		Time weighted average		
CA AB OEL / TWA	:	8-hour Occupational exposure limit	<u>.</u>	
CA AB OEL / STEL		15-minute occupational exposure li	mit	
CA BC OEL / TWA	:	8-hour time weighted average		
CA BC OEL / STEL	:	short-term exposure limit		

CA ON OEL / TWA:Time-Weighted Average Limit (TWA)CA ON OEL / STEL:Short-Term Exposure Limit (STEL)CA QC OEL / TWAEV:Time-weighted average exposure valueCA QC OEL / STEV:Short-term exposure value

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR -Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration: NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Revision Date

: 2023/04/19

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



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SDS Number: 000003000644

Version: 4.0

Revision Date: 2023/04/19

Print Date: 2023/04/20

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.

CA / EN



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SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture

Product Name: Lafarge Hydrated Lime

Synonyms: Slaked Lime, Dolomitic Hydrated Lime, Lime, Caustic Lime, Lime Hydrate, Calcium Hydroxide, Calcium Dihydroxide, Calcium Magnesium Hydroxide, Type N Lime, Type S Lime

Note: This SDS covers many types of hydrated lime. Individual composition of hazardous constituents will vary between types of hydrated lime.

1.2. Intended Use of the Product

Hydrated lime is used as an additive for mortar, cement, concrete and concrete products. It is also used in soil stabilization, as an anti-stripping agent in asphalt, for pH adjustment, and in other products that are widely used in construction.

1.3. Name, Address, and Telephone of the Responsible Party

Company – Lafarge Canada

Western Canada #300 115 Quarry Park Road SE Calgary, AB T2C 5G9 Phone: (403) 225-5400 Eastern Canada 6509 Airport Road Mississauga, ON L4V 157 Phone: (905) 738-7070

Website:<u>www.lafarge.ca</u>

1.4. Emergency Telephone Number

Emergency Number : Chemtel 1-800-255-3924 (24 hours)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US/CA Classification

Skin Corr. 1C	H314
Eye Dam. 1	H318
Carc. 1A	H350

Full text of hazard classes and H-statements : see Section 16.

2.2. Label Elements

GHS-US/CA Labeling Hazard Pictograms (GHS-US/CA)



Signal Word (GHS-US/CA)	:	Danger
Hazard Statements (GHS-US/CA)	:	H314 - Causes severe skin burns and eye damage.
		H318 - Causes serious eye damage.
		H350 - May cause cancer (Inhalation).
Precautionary Statements (GHS-US/CA)	:	P201 - Obtain special instructions before use.
		P202 - Do not handle until all safety precautions have been read and understood.
		P260 - Do not breathe dust.
		P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
		P280 - Wear protective gloves, protective clothing, and eye protection.
		P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
		P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing.
		Rinse skin with water.
		P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for

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breathing.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove

contact lenses, if present and easy to do. Continue rinsing.

P308+P313 - If exposed or concerned: Get medical advice/attention.

P310 - Immediately call a POISON CENTER or doctor.

P321 - Specific treatment (see Section 4 on this SDS).

P363 - Wash contaminated clothing before reuse.

P405 - Store locked up.

P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations.

2.3. Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions. Individuals with lung disease (e.g. bronchitis, emphysema, COPD, pulmonary disease) or sensitivity to hexavalent chromium can be aggravated by exposure.

2.4. Unknown Acute Toxicity (GHS-US/CA)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixture

Name	Product Identifier	% *	GHS Ingredient Classification
Calcium hydroxide	(CAS-No.) 1305-62-0	50 - 95	Skin Corr. 1C, H314
			Eye Dam. 1, H318
Magnesium hydroxide	(CAS-No.) 1309-42-8	0 - 50	Not classified
Calcium oxide	(CAS-No.) 1305-78-8	0 - 5	Skin Irrit. 2, H315
			Eye Dam. 1, H318
			STOT SE 3, H335
			Aquatic Acute 3, H402
Magnesium oxide (MgO)	(CAS-No.) 1309-48-4	0 - 5	Not classified
Limestone	(CAS-No.) 1317-65-3	0 - 3	Not classified
Quartz	(CAS-No.) 14808-60-7	0 - 1	Carc. 1A, H350
			STOT SE 3, H335
			STOT RE 1, H372

Full text of H-phrases: see Section 16.

*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

Skin Contact: Remove contaminated clothing. Immediately flush skin with plenty of water for at least 30 minutes and continue flushing throughout emergency transport, if needed. Immediately call a poison center or physician. Wash contaminated clothing before reuse.

Eye Contact: Get medical attention immediately and begin flushing eyes with plenty of water for at least 30 minutes and continue flushing eyes throughout emergency transport. Immediately call a poison center or physician. Occasionally lift the upper and lower eyelids during flushing. Remove any contact lenses, if possible. Chemical burns should be treated promptly by a physician. **Ingestion:** Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: Causes severe skin burns and eye damage. May cause cancer.

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Inhalation: May be corrosive to the respiratory tract. The three types of silicosis include: 1) Simple chronic silicosis – which results from long-term exposure (more than 20 years) to low amounts of respirable crystalline silica. Nodules of chronic inflammation and scarring provoked by the respirable crystalline silica form in the lungs and chest lymph nodes. This disease may feature breathlessness and may resemble chronic obstructive pulmonary disease (COPD); 2) Accelerated silicosis – occurs after exposure to larger amounts of respirable crystalline silica over a shorter period of time (5-15 years); 3) Acute silicosis – results from short-term exposure to very large amounts of respirable crystalline silica. The lungs become very inflamed and may fill with fluid, causing severe shortness of breath and low blood oxygen levels. Inflammation, scarring, and symptoms progress faster in accelerated silicosis than in simple silicosis. Progressive massive fibrosis may occur in simple or accelerated silicosis, but is more common in the accelerated form. Progressive massive fibrosis results from severe scarring and leads to the destruction of normal lung structures.

Skin Contact: Causes severe irritation which will progress to chemical burns. Hydrated lime may cause dry skin, discomfort, irritation, severe burns. Exposure of sufficient duration to wet or dry hydrated lime can cause serious, potentially irreversible damage to skin due to chemical (caustic) burns, including third degree burns. A skin exposure may be hazardous even if there is no pain or discomfort.

Eye Contact: Potentially causes permanent damage to the cornea, iris, or conjunctiva. Hydrated lime dust may cause immediate or delayed irritation or inflammation. Eye contact with dry powder or with wet hydrated lime can cause moderate eye irritation, chemical burns and blindness. Eye exposures require immediate first aid and medical attention to prevent significant damage to the eye.

Ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

Chronic Symptoms: May cause cancer.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Water spray, dry chemical, foam, carbon dioxide.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not considered flammable but may burn at high temperatures.

Explosion Hazard: Product is not explosive.

Reactivity: May react exothermically with water releasing heat. Adding an acid to a base or base to an acid may cause a violent reaction.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. **Hazardous Combustion Products**: Silicon oxides. Calcium oxides.

Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Do not handle until all safety precautions have been read and understood.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

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6.3. Methods and Materials for Containment and Cleaning Up

For Containment: Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams. As an immediate precautionary measure, isolate spill or leak area in all directions.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Recover the product by vacuuming, shoveling or sweeping. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill. Cautiously neutralize spilled solid. Avoid actions that cause dust to become airborne during clean-up such as dry sweeping or using compressed air. Use HEPA vacuum or thoroughly wet with water to clean-up dust. Use PPE described in Section 8.

6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: May release corrosive vapors. Cutting, crushing or grinding wet or dry lime or other crystalline silica-bearing materials will release respirable crystalline silica. Use all appropriate measures of dust control or suppression, and Personal Protective Equipment (PPE) described in Section 8 below.

Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not get in eyes, on skin, or on clothing. Handle empty containers with care because they may still present a hazard. Do not breathe dust. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations.

Storage Conditions: Keep container closed when not in use. Store in a dry, cool place. Store in original container or corrosive resistant and/or lined container. Store away from incompatible materials.

Incompatible Materials: Wet hydrated lime and cement is alkaline and is incompatible with acids, ammonium salts and aluminum metal. Hydrated lime and cement dissolves in hydrofluoric acid, producing corrosive silicon tetrafluoride gas. Hydrated lime and cement reacts with water to form silicates and calcium hydroxide. Silicates react with powerful oxidizers such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride.

7.3. Specific End Use(s)

Hydrated lime is used as an additive for mortar, cement, concrete and concrete products. It is also used in soil stabilization, as an anti-stripping agent in asphalt, for pH adjustment, and in other products that are widely used in construction.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in Section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Quartz (14808-60-7)		
Mexico	OEL TWA (mg/m³)	0.1 mg/m ³ (respirable fraction)
USA ACGIH	ACGIH TWA (mg/m ³)	0.025 mg/m ³ (respirable particulate matter)
USA ACGIH	ACGIH chemical category	A2 - Suspected Human Carcinogen
USA OSHA	OSHA PEL (TWA) (mg/m³)	50 μg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.05 mg/m ³ (respirable dust)
USA IDLH	US IDLH (mg/m ³)	50 mg/m ³ (respirable dust)
Alberta	OEL TWA (mg/m³)	0.025 mg/m ³ (respirable particulate)
British Columbia	OEL TWA (mg/m³)	0.025 mg/m ³ (respirable)
Manitoba	OEL TWA (mg/m³)	0.025 mg/m ³ (respirable particulate matter)
New Brunswick	OEL TWA (mg/m³)	0.1 mg/m ³ (respirable fraction)
Newfoundland & Labrador	OEL TWA (mg/m³)	0.025 mg/m ³ (respirable particulate matter)
Nova Scotia	OEL TWA (mg/m³)	0.025 mg/m ³ (respirable particulate matter)
Nunavut	OEL TWA (mg/m³)	0.05 mg/m ³ (respirable fraction)
Northwest Territories	OEL TWA (mg/m³)	0.05 mg/m ³ (respirable fraction)
Ontario	OEL TWA (mg/m³)	0.1 mg/m ³ (designated substances regulation-respirable)
Prince Edward Island	OEL TWA (mg/m³)	0.025 mg/m ³ (respirable particulate matter)

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Québec	VEMP (mg/m ³)	0.1 mg/m ³ (respirable dust)
Saskatchewan	OEL TWA (mg/m ³)	0.05 mg/m ³ (respirable fraction)
Yukon	OEL TWA (mg/m ³)	300 particle/mL
Limestone (1317-65-3)	· · ·	
Mexico	OEL TWA (mg/m ³)	10 mg/m ³
Mexico	OEL STEL (mg/m ³)	20 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	15 mg/m ³ (total dust)
		5 mg/m ³ (respirable fraction)
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	10 mg/m ³ (total dust)
		5 mg/m ³ (respirable dust)
Alberta	OEL TWA (mg/m ³)	10 mg/m ³
British Columbia	OEL STEL (mg/m ³)	20 mg/m ³ (total dust)
British Columbia	OEL TWA (mg/m ³)	10 mg/m ³ (total dust)
		3 mg/m ³ (respirable fraction)
New Brunswick	OEL TWA (mg/m ³)	10 mg/m ³ (particulate matter containing no Asbestos and
		<1% Crystalline silica)
Nunavut	OEL STEL (mg/m ³)	20 mg/m ³
Nunavut	OEL TWA (mg/m³)	10 mg/m ³
Northwest Territories	OEL STEL (mg/m ³)	20 mg/m ³
Northwest Territories	OEL TWA (mg/m³)	10 mg/m ³
Québec	VEMP (mg/m ³)	10 mg/m ³ (Limestone, containing no Asbestos and <1%
		Crystalline silica-total dust)
Saskatchewan	OEL STEL (mg/m³)	20 mg/m ³
Saskatchewan	OEL TWA (mg/m³)	10 mg/m ³
Yukon	OEL STEL (mg/m³)	20 mg/m ³
Yukon	OEL TWA (mg/m³)	30 mppcf
		10 mg/m ³
Calcium oxide (1305-78-8)	-	
Mexico	OEL TWA (mg/m³)	2 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	2 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	2 mg/m ³
USA IDLH	US IDLH (mg/m ³)	25 mg/m ³
Alberta	OEL TWA (mg/m³)	2 mg/m ³
British Columbia	OEL TWA (mg/m³)	2 mg/m ³
Manitoba	OEL TWA (mg/m ³)	2 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	2 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	2 mg/m ³
Nova Scotia	OEL TWA (mg/m ³)	2 mg/m ³
Nunavut	OEL STEL (mg/m ³)	4 mg/m ³
Nunavut	OEL TWA (mg/m ³)	2 mg/m ³
Northwest Territories	OEL STEL (mg/m³)	4 mg/m ³
Northwest Territories	OEL TWA (mg/m ³)	2 mg/m ³
Ontario	OEL TWA (mg/m ³)	2 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	2 mg/m ³
Québec	VEMP (mg/m ³)	2 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	4 mg/m ³
Saskatchewan	OEL TWA (mg/m³)	2 mg/m ³
Yukon	OEL STEL (mg/m³)	4 mg/m ³
Yukon	OEL TWA (mg/m³)	2 mg/m ³
Magnesium oxide (MgO) (13	809-48-4)	
Mexico	OEL TWA (mg/m³)	10 mg/m³ (fume)
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USA ACGIH	ACGIH TWA (mg/m ³)	10 mg/m ³ (inhalable particulate matter)
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA OSHA	OSHA PEL (TWA) (mg/m ³)	15 mg/m ³ (fume, total particulate)
USA IDLH	US IDLH (mg/m ³)	750 mg/m ³ (fume)
Alberta	OEL TWA (mg/m ³)	10 mg/m ³ (fume)
British Columbia	OEL STEL (mg/m ³)	10 mg/m ³ (respirable dust and fume)
British Columbia	OEL TWA (mg/m ³)	10 mg/m³ (fume, inhalable)
		3 mg/m ³ (respirable dust and fume)
Manitoba	OEL TWA (mg/m³)	10 mg/m ³ (inhalable particulate matter)
New Brunswick	OEL TWA (mg/m³)	10 mg/m³ (fume)
Newfoundland & Labrador	OEL TWA (mg/m³)	10 mg/m ³ (inhalable particulate matter)
Nova Scotia	OEL TWA (mg/m³)	10 mg/m ³ (inhalable particulate matter)
Nunavut	OEL STEL (mg/m ³)	20 mg/m ³ (inhalable fraction)
Nunavut	OEL TWA (mg/m³)	10 mg/m ³ (inhalable fraction)
Northwest Territories	OEL STEL (mg/m ³)	20 mg/m ³ (inhalable fraction)
Northwest Territories	OEL TWA (mg/m³)	10 mg/m ³ (inhalable fraction)
Ontario	OEL TWA (mg/m³)	10 mg/m ³ (inhalable)
Prince Edward Island	OEL TWA (mg/m³)	10 mg/m ³ (inhalable particulate matter)
Québec	VEMP (mg/m ³)	10 mg/m³ (fume)
Saskatchewan	OEL STEL (mg/m ³)	20 mg/m ³ (inhalable fraction)
Saskatchewan	OEL TWA (mg/m³)	10 mg/m ³ (inhalable fraction)
Yukon	OEL STEL (mg/m ³)	10 mg/m³ (fume)
Yukon	OEL TWA (mg/m³)	10 mg/m³ (fume)
Calcium hydroxide (1305-62	-0)	
Mexico	OEL TWA (mg/m ³)	5 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	5 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m ³ (total dust)
		5 mg/m ³ (respirable fraction)
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	5 mg/m ³
Alberta	OEL TWA (mg/m³)	5 mg/m ³
British Columbia	OEL TWA (mg/m³)	5 mg/m ³
Manitoba	OEL TWA (mg/m ³)	5 mg/m ³
New Brunswick	OEL TWA (mg/m³)	5 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	5 mg/m ³
Nova Scotia	OEL TWA (mg/m ³)	5 mg/m ³
Nunavut	OEL STEL (mg/m ³)	10 mg/m ³
Nunavut	OEL TWA (mg/m ³)	5 mg/m ³
Northwest Territories	OEL STEL (mg/m ³)	10 mg/m ³
Northwest Territories	OEL TWA (mg/m³)	5 mg/m ³
Ontario	OEL TWA (mg/m³)	5 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	5 mg/m ³
Québec	VEMP (mg/m ³)	5 mg/m ³
Saskatchewan	OEL STEL (mg/m³)	10 mg/m ³
Saskatchewan	OEL TWA (mg/m³)	5 mg/m ³
Yukon	OEL STEL (mg/m³)	10 mg/m ³
Yukon	OEL TWA (mg/m³)	5 mg/m ³

8.2. Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

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Personal Protective Equipment: Gloves. Protective clothing. Protective goggles. Insufficient ventilation and/or dust generation: wear respiratory protection.



Materials for Protective Clothing: Chemically resistant materials and fabrics. Corrosion-proof clothing.

Hand Protection: Wear protective gloves.

Eye and Face Protection: Chemical safety goggles and face shield.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: White or Grey Powder
Odor	: Odorless
Odor Threshold	: Not available
рН	: 12 - 13 (In Water)
Evaporation Rate	: Not available
Melting Point	: Not available
Freezing Point	: Not available
Boiling Point	: > 1000 °C (> 1832 °F)
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20°C	: Not available
Relative Density	: 1.9 - 2.4 (Water = 1)
Specific Gravity	: Not available
Solubility	: Negligible.
Partition Coefficient: N-Octanol/Water	: Not available
Viscosity	: Not available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: May react exothermically with water releasing heat. Adding an acid to a base or base to an acid may cause a violent reaction.

10.2. Chemical Stability: Stable under recommended handling and storage conditions (see Section 7).

10.3. Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

10.4. Conditions to Avoid: Extremely high or low temperatures and incompatible materials.

10.5. Incompatible Materials: Wet hydrated lime and cement is alkaline and is incompatible with acids, ammonium salts and aluminum metal. Hydrated lime and cement dissolves in hydrofluoric acid, producing corrosive silicon tetrafluoride gas. Hydrated lime and cement reacts with water to form silicates and calcium hydroxide. Silicates react with powerful oxidizers such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride.

10.6. Hazardous Decomposition Products: Hydrated lime will decompose at 540°C to produce calcium oxide (quicklime), magnesium oxide, and water.

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SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Causes severe skin burns and eye damage.

pH: 12 - 13 (in water)

Eye Damage/Irritation: Causes serious eye damage.

pH: 12 - 13 (in water)

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer (Inhalation).

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: May be corrosive to the respiratory tract. The three types of silicosis include: 1) Simple chronic silicosis – which results from long-term exposure (more than 20 years) to low amounts of respirable crystalline silica. Nodules of chronic inflammation and scarring provoked by the respirable crystalline silica form in the lungs and chest lymph nodes. This disease may feature breathlessness and may resemble chronic obstructive pulmonary disease (COPD); 2) Accelerated silicosis – occurs after exposure to larger amounts of respirable crystalline silica over a shorter period of time (5-15 years); 3) Acute silicosis – results from short-term exposure to very large amounts of respirable crystalline silica. The lungs become very inflamed and may fill with fluid, causing severe shortness of breath and low blood oxygen levels. Inflammation, scarring, and symptoms progress faster in accelerated silicosis than in simple silicosis. Progressive massive fibrosis results from severe scarring and leads to the destruction of normal lung structures. **Symptoms/Injuries After Skin Contact:** Causes severe irritation which will progress to chemical burns. Hydrated lime may cause dry skin, discomfort, irritation, severe burns. Exposure of sufficient duration to wet or dry hydrated lime can cause serious, potentially irreversible damage to skin due to chemical (caustic) burns, including third degree burns. A skin exposure may be hazardous even if there is no pain or discomfort.

Symptoms/Injuries After Eye Contact: Potentially causes permanent damage to the cornea, iris, or conjunctiva. Hydrated lime dust may cause immediate or delayed irritation or inflammation. Eye contact with dry powder or with wet hydrated lime can cause moderate eye irritation, chemical burns and blindness. Eye exposures require immediate first aid and medical attention to prevent significant damage to the eye.

Symptoms/Injuries After Ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. **Chronic Symptoms:** May cause cancer.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Quartz (14808-60-7)		
LD50 Oral Rat	> 5000 mg/kg	
LD50 Dermal Rat	> 5000 mg/kg	
Calcium oxide (1305-78-8)		
LD50 Oral Rat	> 2000 mg/kg	
LD50 Dermal Rabbit	> 2500 mg/kg	
Magnesium oxide (MgO) (1309-48-4)		
LD50 Oral Rat	3870 mg/kg	
Calcium hydroxide (1305-62-0)		
LD50 Oral Rat	7340 mg/kg	
Magnesium hydroxide (1309-42-8)		
LD50 Oral Rat	8500 mg/kg	
Quartz (14808-60-7)		

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IARC Group	1
National Toxicology Program (NTP) Status	Known Human Carcinogens.
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General: Not classified.

Calcium oxide (1305-78-8)	
LC50 Fish 1	50.6 mg/l
12.2. Persistence and Degrada	bility
Hydrated Lime	
Persistence and Degradability	Not established.
12.3. Bioaccumulative Potentia	al
Hydrated Lime	

Hydrated Lime		
Bioaccumulative Potential	Not established.	
Calcium oxide (1305-78-8)		
BCF Fish 1	(no bioaccumulation)	
Calcium hydroxide (1305-62-0)		
BCF Fish 1	(no bioaccumulation)	

12.4. Mobility in Soil

Not available

12.5. Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.

Ecology - Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

- 14.1. In Accordance with DOT Not regulated for transport
- 14.2. In Accordance with IMDG Not regulated for transport
- **14.3.** In Accordance with IATA Not regulated for transport
- **14.4.** In Accordance with TDG Not regulated for transport

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Hydrated Lime	
SARA Section 311/312 Hazard Classes	Health hazard - Skin corrosion or Irritation
	Health hazard - Serious eye damage or eye irritation
	Health hazard - Carcinogenicity
Quartz (14808-60-7)	
Listed on the United States TSCA (Toxic Substances	Control Act) inventory
Limestone (1317-65-3)	
Listed on the United States TSCA (Toxic Substances	S Control Act) inventory
Calcium oxide (1305-78-8)	
Listed on the United States TSCA (Toxic Substances	Control Act) inventory
Magnasium avida (MgO) (1200 48 4)	

Magnesium oxide (MgO) (1309-48-4)

Safety Data Sheet According To Federal Regis

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

According to Federal Register / Vol. 77, No. 58 / Mon	uay, warch 26, 2012 / Rules And Regu	ations and according to the Hazardous Products Regulation (February 11, 2015).
Listed on the United States TSCA (Foxic Substances Control A	ct) inventory
Calcium hydroxide (1305-62-0)		
Listed on the United States TSCA (Toxic Substances Control Act) inventory		
Magnesium hydroxide (1309-42-8)	
Listed on the United States TSCA (Zero Substances Control A	ct) inventory
15.2. US State Regulations		
Ouartz (1/808-60-7)		
U.S California - Proposition 65 -	Carcinogens List	WARNING: This product contains chemicals known to the State of
		California to cause cancer
Quartz (1/202 60 7)		
UIS - Massachusetts - Pight To Kno		
U.S Massachusetts - Right to Know H	Jw LISL Hazardous Substance List	
U.S Pennsylvania - RTK (Right to	Know) List	
Limestone (1217-65-3)		
LINestone (1317-03-3)	nw list	
U.S New Jersey - Right to Know H	Hazardous Substance List	
U.S Pennsylvania - RTK (Right to	Know) List	
Calcium oxide (1305-78-8)		
US - Massachusetts - Right To Kno	nw List	
U.S New Jersey - Right to Know H	Hazardous Substance List	
U.S Pennsylvania - RTK (Right to	Know) List	
Magnesium oxide (MgO) (1309-48	<u>-4)</u>	
U.S Massachusetts - Right To Kno	y list	
U.S New Jersey - Right to Know H	lazardous Substance List	
U.S Pennsylvania - RTK (Right to Know) List		
Calcium hydroxide (1305-62-0)	'	
U.S Massachusetts - Right To Kno	ow List	
U.S New Jersey - Right to Know H	lazardous Substance List	
U.S Pennsylvania - RTK (Right to	Know) List	
15.3. Canadian Regulations		
Quartz (14808-60-7)		
Listed on the Canadian DSL (Dome	stic Substances List)	
Limestone (1317-65-3)	,	
Listed on the Canadian NDSL (Non-	-Domestic Substances List)	
Calcium oxide (1305-78-8)	2 000110 04001411000 1101	
Listed on the Canadian DSL (Dome	stic Substances List)	
Magnesium oxide (MgO) (1309-49		
Listed on the Canadian DSL (Dome	stic Substances List)	
Coloium hudrovida (1205 (2 0)	stic Substances Listy	
Calcium hydroxide (1305-62-0)	atia Cultatana an List)	
Listed on the Canadian DSL (Dome	stic Substances List)	
Magnesium hydroxide (1309-42-8)	
Listed on the Canadian DSL (Dome	stic Substances List)	
SECTION 16: OTHER INFORMA	TION, INCLUDING DAT	E OF PREPARATION OR LAST REVISION
Date of Preparation or Latest	: January 1, 2022	
Revision		
Other Information	: This document has b Hazard Communicat Regulations (HPR) SC	een prepared in accordance with the SDS requirements of the OSHA ion Standard 29 CFR 1910.1200 and Canada's Hazardous Products DR/2015-17.
GHS Full Text Phrases:	_ , /	

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Carc. 1A	Carcinogenicity Category 1A
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Corr. 1C	Skin corrosion/irritation Category 1C
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H335	May cause respiratory irritation
H350	May cause cancer
H372	Causes damage to organs through prolonged or repeated exposure
H402	Harmful to aquatic life

An electronic version of this SDS is available on <u>www.lafarge.ca</u> under the Health and Safety Section. Please direct any inquiries regarding the content of this SDS to <u>SDSinfo@Lafarge.com</u>.

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NO WARRANTY IS MADE, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE.

NA GHS SDS 2015 (Can, US, Mex)



Section 1: IDENTIFICATION			
Product Name:	Propane		
Synonyms:	LPG (Liquefied Petroleum Gas); LP-Gas.		
Product Use:	Propane is commonly used as a fuel for heating, cooking, automobiles, forklift trucks, crop drying and welding and cutting operations. Propane is used in industry as a refrigerant, solvent and as a chemical feedstock.		
Restrictions on Use:	Not available.		
Manufacturer/Supplier:	Superior Propane Suite 400, 6750 Century Avenue Mississauga, ON L5N 2V8		
Phone Number:	1-877-873-7467		
Emergency Phone:	CANUTEC 1-888-CAN-UTEC (226-8832) or 613-996-6666 or *666 on a cellular phone		
Date of Preparation of SDS:	September 17, 2021		
Section 2: HAZARD(S) IDENTIFICATION			

GHS INFORMATION

Classification:	Flammable Gases, Category 1
	Gases Under Pressure - Compressed Gas
	Simple Asphyxiant, Category 1

LABEL ELEMENTS

Hazard Pictogram(s):



Signal Word: Danger

HazardExtremely flammable gas.Statements:Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary Statements

Prevention: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

- **Response:** Leaking gas fire: Do not extinguish unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.
 - Storage: Store in a well ventilated place.
- Disposal: Not applicable.

Hazards Not Otherwise Classified: Not applicable.

Ingredients with Unknown Toxicity: None.

This material is considered hazardous by the OSHA Hazard Communication Standard, (29 CFR 1910.1200). This material is considered hazardous by the Hazardous Products Regulations.



Propane Date of Preparation: September 17, 2021

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS				
Hazardous Ingredien	t(s)	Common name / Synonyms	CAS No.	% vol./vol.
Propane		Not available.	74-98-6	90 - 99
Ethane		Not available.	74-84-0	0 - 5
1-Propene		Propylene	115-07-1	0 - 5
Butane		Not available.	106-97-8	0 - 2.5
	Secti	on 4: FIRST-AID MEASURES		
Inhalation:	Call a poison center or doctor if you feel unwell.			
E.s. Osaríasta	rapid suffocation. Central nervous system depression can occur if product is present in concentrations that will reduce the oxygen content of air below 18 % (vol). Symptoms may include headache, lightheadedness, drowsiness, disorientation, vomiting and seizures. Unconsciousness and death may occur with severe oxygen deprivation. May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.			
Eye Contact:	Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if needed. Continue rinsing. Immediately call a poison center o doctor.			contact on center or
	Acute and delayed symptoms and effects: Contact with rapidly expanding of liquefied gas may cause irritation and/or frostbite. The pain after contact with liquid can quickly subside. Permanent eye damage or blindness could result.			
Skin Contact:	Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. If on skin: Wash with plenty of water. Get immediate medical advice/attention. Thaw frosted parts with lukewarm water. Do not rub affected area. Remove non-adhering contaminated clothing. Do not remove adherent material or clothing.		rritation and/or e medical o not rub Do not	
	Acute and delay or liquefied gas include change contact with liq	yed symptoms and effects: C s may cause irritation and/or in skin colour to white or gra uid can quickly subside.	ontact with rapid frostbite. Sympto ayish-yellow. The	ly expanding oms of frostbite e pain after
Ingestion:	Not a normal ro	oute of exposure.		
	Acute and delay	yed symptoms and effects: N	ot a normal route	e of exposure.
General Advice:	In case of accid (show the labe	dent or if you feel unwell, see I or SDS where possible).	k medical advice	e immediately
Note to Physicians:	Symptoms may	/ not appear immediately.		



Section 5: FIRE-FIGHTING MEASURES

FLAMMABILITY AND EXPLOSION INFORMATION

Extremely flammable gas. Contains gas under pressure; may explode if heated. Will be easily ignited by heat, sparks or flames. Will form explosive mixtures with air. Vapors from liquefied gas are initially heavier than air and spread along ground. Vapors may travel to source of ignition and flash back. Cylinders exposed to fire may vent and release flammable gas through pressure relief devices. Containers may explode when heated. Ruptured cylinders may rocket. DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.

If a tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.

Fire involving Tanks: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Do not direct water at source of leak or safety devices; icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discolouration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Sensitivity to Mechanical Impact: Sensitivity to Static Discharge:	This material is not sensitive to mechanical impact. This material is sensitive to static discharge.	
MEANS OF EXTINCTION Suitable Extinguishing Media:	Small Fire: Dry chemical or CO2.	
	Large Fire: Water spray or fog. Move containers from fire area if you can do it without risk.	
Unsuitable Extinguishing Media:	Not available.	
Products of Combustion:	Oxides of carbon.	
Protection of Firefighters:	Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Vapors may cause dizziness or asphyxiation without warning. Some may be irritating if inhaled at high concentrations. Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. Fire may produce irritating and/or toxic gases. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection. Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.	

Section 6: ACCIDENTAL RELEASE MEASURES

Emergency Procedures: As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Keep out of low areas. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded.



	Propane
SAFETY DATA SHEET	Date of Preparation: September 17, 2021
Personal Precautions:	Do not touch or walk through spilled material. Use personal protection recommended in Section 8.
Environmental Precautions:	Not normally required.
Methods for Containment:	Stop leak if you can do it without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. Do not direct water at spill or source of leak.
Methods for Clean-Up:	Prevent spreading of vapors through sewers, ventilation systems and confined areas. Isolate area until gas has dispersed. CAUTION: When in contact with refrigerated/cryogenic liquids, many materials become brittle and are likely to break without warning.
Other Information:	See Section 13 for disposal considerations.

Section 7: HANDLING AND STORAGE

Handling:

Avoid breathing gas. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Pressurized container: Do not pierce or burn, even after use. See Section 8 for information on Personal Protective Equipment.

Storage:

Store in a well-ventilated place. Store away from incompatible materials. See Section 10 for information on Incompatible Materials. Keep out of the reach of children.

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines Component

Propane [CAS No. 74-98-6]

ACGIH: Simple asphyxiant; Explosion hazard **OSHA:** 1000 ppm (TWA), 1800 mg/m³ (TWA);

Ethane [CAS No. 74-84-0]

ACGIH: Simple asphyxiant; Explosion hazard **OSHA:** No PEL established.

Propylene [CAS No. 115-07-1] ACGIH: 500 ppm (TWA); A4 (2005) OSHA: No PEL established.

Butane [CAS No. 106-97-8]

ACGIH: 1000 ppm (STEL); Explosion hazard (2012) OSHA: 800 ppm (TWA) [Vacated];

PEL: Permissible Exposure Limit **TWA:** Time-Weighted Average **C:** Ceiling



Propane Date of Preparation: September 17, 2021

Engineering Controls:

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapour, gas, etc.) below recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT (PPE)



Eye/Face Protection:	Wear safety glasses. Use equipment for eye protection that meets the standards referenced by CSA Standard CAN/CSA-Z94.3 and OSHA regulations in 29 CFR 1910.133 for Personal Protective Equipment.	
Hand Protection:	Wear insulated neoprene gloves. Consult manufacturer specifications for further information.	
Skin and Body Prote	ction: Wear protective clothing.	
Respiratory Protection	If engineering controls and ventilation are not sufficient to control exposure to below the allowable limits then an appropriate NIOSH/MSHA approved air-purifying respirator that meets the requirements of CSA Standard CAN/CSA-Z94.4, or self- contained breathing apparatus must be used. Supplied air breathing apparatus must be used when oxygen concentrations are low or if airborne concentrations exceed the limits of the air- purifying respirators.	
General Hygiene Considerations:	Handle according to established industrial hygiene and safety practices. Consult a competent industrial hygienist to determine hazard potential and/or the PPE manufacturers to ensure adequate protection	

Section 9: PHYSICAL AND CHEMICAL PROPERTIES			
Appearance:	Liquefied gas.		
Colour:	Colourless.		
Odour:	Odourless, unless odourized with ethyl mercaptan (skunky odour, similar to boiling cabbage).		
Odour Threshold:	4800 ppm		
Physical State:	Gas.		
pH:	Not available.		
Melting Point / Freezing Point:	-188 °C (-306.4 °F)		
Initial Boiling Point:	-42.2 °C (-44 °F)		
Boiling Point:	-42 °C (-43.6 °F)		
Flash Point:	-103.4 °C (-154.1 °F) (Closed Cup)		
Evaporation Rate:	Rapid.		
Flammability (solid, gas):	Extremely flammable gas.		



Propane Date of Preparation: September 17, 2021

SAFETY DATA SHEET	Date of Preparation
Lower Flammability Limit:	2.1%
Upper Flammability Limit:	9.5%
Vapor Pressure:	1435 kPa (maximum) at 37.8 °C (100 °F)
Vapor Density:	1.52 (Air = 1)
Relative Density:	0.51 (Water = 1)
Solubilities:	Slight, 6.1% by volume @ 17.8°C (64 °F)
Partition Coefficient: n- Octanol/Water:	Not available.
Auto-ignition Temperature:	432 °C (809.6 °F)
Decomposition Temperature:	Not available.
Viscosity:	Not available.
Percent Volatile, wt. %:	Not available.
VOC content, wt. %:	Not available.
Density:	Not available.
Coefficient of Water/Oil Distribution:	Not available.

Section 10: STABILITY AND REACTIVITY

Reactivity:	Contact with incompatible materials. Sources of ignition. Exposure to heat.
Chemical Stability:	Stable under normal storage conditions.
Possibility of Hazardous Reactions:	Gas explodes spontaneously when mixed with chloride dioxide.
Conditions to Avoid:	Contact with incompatible materials. Sources of ignition. Exposure to heat.
Incompatible Materials:	Oxidizers. Chlorine dioxide.
Hazardous Decomposition Products:	Carbon dioxide. Carbon monoxide.

Section 11: TOXICOLOGICAL INFORMATION

EFFECTS OF ACUTE EXPOSURE Product Toxicity

Oral:	Not available.
Ural.	not available.

Dermal: Not available.

Inhalation: Not available.



Component Toxicity

Component	CAS No.	LD ₅₀ oral	LD50 dermal	LC50
Propane	74-98-6	Not available.	Not available.	Not available.
Ethane	74-84-0	Not available.	Not available.	Not available.
Propylene	115-07-1	Not available.	Not available.	86000 mg/m³ (rat); 4H
Butane	106-97-8	Not available.	Not available.	658000 mg/m³ (rat); 4H

Likely Routes of Exposure: Eye contact. Skin contact. Inhalation.

 Target Organs:
 Skin. Eyes. Respiratory system. Central nervous system.

Symptoms (including delayed and immediate effects)

Inhalation:

May displace oxygen and cause rapid suffocation. Central nervous system depression can occur if product is present in concentrations that will reduce the oxygen content of air below 18 % (vol). Symptoms may include headache, lightheadedness, drowsiness, disorientation, vomiting and seizures. Unconsciousness and death may occur with severe oxygen deprivation. May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

- **Eye:** Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. The pain after contact with liquid can quickly subside. Permanent eye damage or blindness could result.
- **Skin:** Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. Symptoms of frostbite include change in skin colour to white or grayish-yellow. The pain after contact with liquid can quickly subside.
- **Ingestion:** Not a normal route of exposure.

Skin Sensitization:	Not available.
Respiratory Sensitization:	Not available.
Medical Conditions Aggravated By Exposure:	Not available.

EFFECTS OF CHRONIC E	XPOSURE (from	n short and lo	ong-term expos	ure)	
Target Organs:	Skin. Eyes. Respiratory system. Central nervous system.				
Chronic Effects:	Not available.				
Carcinogenicity:	Product is not classified as a carcinogen. See Component Carcinogenicity table below for information on individual components.				
Component Carcinogenicity					
Component	ACGIH	IARC	NTP	OSHA	Prop 65
Propylene	A4	Group 3	Not listed.	Not listed.	Not listed.
Mutagenicity:	Not available.				

Reproductive Effects: Not available.



Developmental Effects

Teratogenicity: Not available.

Embryotoxicity: Not available.

Toxicologically Synergistic Materials: Not available.

	Section 12: ECOLOGICAL INFORMATION			
Ecotoxicity:	Not available.			
Persistence / Degradabil	ity: Not available.			
Bioaccumulation / Accur	nulation: Not available.			
Mobility in Environment:	Not available.			
Other Adverse Effects:	Not available.			
Section 13: DISPOSAL CONSIDERATIONS				
Disposal Instructions: Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.				
	Section 14: TRANSPORT INFORMATION			
U.S. Department of Trans Proper Shipping Name:	sportation (DOT) <u>UN1075</u> , LIQUEFIED PETROLEUM GASES, 2.1			
Class:	2.1			
UN Number:	UN1075			
Packing Group:	Not applicable.			
Label Code:	FLAMMABLE GAS 2			
Canada Transportation o	f Dangerous Goods (TDG)			
Proper Shipping Name:	UN1075, LIQUEFIED PETROLEUM GASES, 2.1			
Class:	2.1			
UN Number:	UN1075			
Packing Group:	Not applicable.			
Label Code:				

Section 15: REGULATORY INFORMATION

Chemical Inventories

US (TSCA)

The components of this product are in compliance with the chemical notification requirements of TSCA.



Canada (DSL)

The components of this product are in compliance with the chemical notification requirements of the NSN Regulations under CEPA, 1999.

Federal Regulations

United States

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SARA Title III

Component	Section 302 (EHS) TPQ (lbs.)	Section 304 EHS RQ (Ibs.)	CERCLA RQ (lbs.)	Section 313	RCRA CODE	CAA 112(r) TQ (lbs.)
Propane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Ethane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Propylene	Not listed.	Not listed.	Not listed.	313	Not listed.	10000
Butane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000

State Regulations Massachusetts

US Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)

CAS No.	RTK List
74-98-6	Listed.
74-84-0	Listed.
115-07-1	Listed.
106-97-8	Listed.
	CAS No. 74-98-6 74-84-0 115-07-1 106-97-8

New Jersey

US New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

Component	CAS No.	RTK List
Propane	74-98-6	SHHS
Ethane	74-84-0	SHHS
Propylene	115-07-1	SHHS
Butane	106-97-8	SHHS

Note: SHHS = Special Health Hazard Substance

Pennsylvania

US Pennsylvania Worker and Community Righ	nt-to-Know Law (34 Pa. Code Chap	. 301-323)
Component	CAS No.	RTK List
Propane	74-98-6	Listed.
Ethane	74-84-0	Listed.
Propylene	115-07-1	Е
Butane	106-97-8	Listed.
Note: E = Environmental Hazard		

California Prop 65: This product does not contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.



Section 16: OTHER INFORMATION

Disclaimer:

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for their own particular use.

Date of Preparation of SDS:	September 17, 2021
Version:	2.0
<u>GHS SDS</u> Prepared by:	Deerfoot Consulting Inc.
	Phone: (403) 720-3700

SPILLFIX SAFETY DATA SHEET

his Safety Data Sheet (SDS) complies with the requirements of the U.S. Federal Occupational Safety and Health Administration Hazard Communication Standard (29 CFR 1910.1200, as updated in 2012), the American National Standards Institute (Z400.1, 1998), and equivalent state Standards. It has also been developed in accordance with the Canadian Workplace Hazardous Materials Standard and the United Nations Globally Harmonized System of Classification of Chemicals, as well as European Union requirements under REACH (Registration, Evaluation, Authorization and Restriction of Chemical substances, per EC 1907/2006) and Directive 91/155/EC. Refer to Section 16 of this document for the definition of terms and abbreviations


1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY UNDERTAKING

1.1 PRODUCT IDENTIFIER

Product Name

13Gal/50L & 4Gal/15L SpillFix Industrial Organic Absorbent 2.25Gal/9L SpillFix Spill Absorbent & Sweeping Compound 10ft/3M & 5ft/1.5M SpillFix Industrial Absorbent Boom SOCs

Chemical Name/Class
 Coir Pith Fiber

1.2 RELEVANT IDENTIFIED USES OF THE MIXTURE OR USES ADVISED AGAINST

- Identified Use
- Uses Advised Against
 Sweeping compound
 Refer to Section 6: (6.6)

1.3 DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

ManufacturerSupplier

Address

Galuku Group Limited American Green Ventures (US) Inc. 180 Towerview Court Cary, North Carolina 27513

(919) 535 8278

Industrial liquid spill absorbent and

Business Phone

1.4 OTHER PERTINENT INFORMATION

This product is sold for use as an industrial liquid/hazardous materials absorbent. This document
has been developed to specifically address safety concerns affecting handling situations specific
to the product alone (e.g., those associated with warehouses and other distribution workplaces).
When used as an absorbent, the safety data sheets and other references for the spilled material
should be reviewed as part of standard release clean-up plans.

2: HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

REGULATION	CLASSIFICATION
OSHA Hazard Communication (GHS)	Not applicable
Reach/CLP (GHS)	Not applicable
EU Directives 67/548/EEC; 1999/45/EC	Not applicable

2.2 LABEL ELEMENTS

OSHA/CLP – Based on Globally Harmonized System

Symbol	Not applicable
Signal Word	Not applicable
Hazard Statement	Not applicable
Precautionary Statements	Not applicable

- EC Directive Symbols, Risk and Safety Phrases

Symbol	Not applicable
Risk Phrases	Not applicable
Safety Phrases	Not applicable

2: HAZARDS IDENTIFICATION (cont.)

2.3 OTHER PERTINENT DATA ON CHEMICAL AND PHYSICAL HAZARDS:

Emergency Overview	
Physical Description	This is a brown organic substance. It is odorless.
Health Hazards	No significant health hazards are anticipated under typical circumstances of use or release response.
Fire Hazards	This product does not present a significant fire hazard.
Physical Hazards	Negligible under typical circumstances of use or reasonably anticipated emergency response situations
Environmental Hazards	This product is not anticipated to cause adverse environmental effects.

Hazardous Materials Identification System

ifica	tion System
0	HMIS PERSONAL PROTECTIVE EQUIPMENT RATING
0	Occupational use situations: Select the personal
0	liquid released, location of the spill, and nature of the
VA	substance to be cleaned-up.
	This product is not classified as hazardous under Canadian Controlled Products regulations (SOR-88-66).

Not applicable

3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 SUBSTANCES

Health

Flammability Physical Hazard

Protective Equipment

- Canadian Regulatory Status

Canadian WHMIS Symbols

.

- Component
- Cas Number
- Einecs # EC
- Class/Risk Phrases
- % (w/w)

3.2 MIXTURES

- Component
- Cas Number
- Einecs # EC
- Class/Risk Phrases
- % (w/w)

Coir Pith Fiber Not Established Not Established Not Established 90-95%

Water 7732-18-5 231-791-2 Not Established Balance



SAFETY DATA SHEET

SPILLFIX

Spill Fix.

4: FIRST AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES

- Eyes
 Flush with copious amounts of water for 15 minutes. "Roll" eyes during flush. Seek medical attention if irritation persists. Skin: Flush area with warm, running water. Inhalation: Obtain fresh air.
- Ingestion Contact a Poison Control Center or physician for instructions.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS/ACUTE AND DELAYED

- Acute The main hazard associated with this product in an occupational setting would be mechanical irritation of the eye, or slight irritation upon contact with the particulates. Inhalation of particulates can be irritating to the nose, throat, and other tissues of the respiratory system. Symptoms of exposure are generally alleviated when overexposure ends.
 Chronic No long-term effects related to chronic exposures are anticipated from occupational use situations involving this product.
- Target Organs Acute: Eyes, skin (mechanical irritation). Chronic: Not applicable

4.3 INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

 Recommendations to Physicians 	Treat symptoms and eliminate overexposure.
Medical Conditions Aggravated	No known medical conditions are anticipated to be aggravated
 By Overexposure 	by occupational exposure to this product.

5: FIREFIGHTING MEASURES

5.1 EXTINGUISHING MEDIA

	Recommended Fire Extinguishing Media	Water Spray, Water Jet, Dry Powder, Foam, Carbon Dioxide, Halon, or any other.
	Unsuitable Fire Extinguishing Media	None known
5.2	SPECIAL HAZARDS ARISING FROM THE SUBS	TANCE OR MIXTURE
	NFPA Flammability Classification	Not flammable
	 Unusual Hazards in Fire Situations 	When involved in a fire, this material may

- Explosion Sensitivity to Mechanical Impact
 Not sensitive
- Explosion Sensitivity to Static Discharge
 Not sensitive

5.3 ADVICE FOR FIREFIGHTERS

• No special hazards or requirements; use methods appropriate to type of fire and size of blaze.

SPILLFIX SAFETY DATA SHEET

produce irritating vapors and toxic gases (e.g.,

carbon monoxide, carbon dioxide).

6: ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, AND EMERGENCY PROCEDURES

• Note	This material is for use as a spill absorbent material and/or sweeping compound. The following section refers only to accidental spills of this product alone. If SpillFix is being used as a universal absorbent, then the safety data sheet and other references pertinent to the released substances must be reviewed.
 Response to Incidental Release 	Personnel who have received basic chemical safety training can generally handle small-scale releases. Wear gloves and safety glasses when cleaning-up spills.
Response to Non-Incidental Re	eleases Unused SpillFix is completely safe and harmless. Simply place back in container.
Response Procedures for any i	Release Carefully sweep up spilled material and place back in container
- Note	This product effectively absorbs an extensive list of materials – Full list shown in 6.6
6.2 ENVIRONMENTAL PRECAUTIO	NS
 Environmental Precautions 	No precautions necessary, SpillFix is an environmentally safe natural organic material.
6.3 METHODS AND MATERIALS FO	OR CONTAINMENT AND CLEANING UP
 Spill Response Equipment 	Broom/dust pan and/or shovel.
6.4 REFERENCES TO OTHER SECT	IONS
Section 8	For exposure levels and detailed personal protective equipment recommendations.
Section 13	For waste handling guidelines.
6.5 USING PRODUCT AS UNIVERS	AL LIQUID ABSORBENT
 These steps should be followed 	d when using this product as a liquid absorbent:
1. Identify and isolat disposal.	e spill. Always follow workplace procedures for cleanup and

- 2. Apply SpillFix to perimeter of spill to stop from spreading.
- 3. Continue to apply SpillFix to center until spill is completely covered and no free liquid is visible.
- 4. Sweep with a stiff broom working over spill area to remove all surface oil. Dispose of in accordance of local and state regulations.

6: ACCIDENTAL RELEASE MEASURES (cont.)

6.6 EFFECTIVELY ABSORBS THE FOLLOWING TYPES OF MATERIALS:

• Full strength:

Acetaldehyde Acetic Acid Acetic Anhydride Acetone Acrylic Paint Aluminum Hydroxide Ammonium Hydroxide Antifreeze Aviation Fuel Automotive Fluids Barium Hydroxide **BBQ** Sauce Battery Acid Bleach Blood **Bodily Fluids** Brake Fluid Boric Acid Calcium Hydroxide Car Wax Carbon Black Calcium Hypochlorite Castor Oil Chlorine Water Chloroform Citric Acid Clorox (Bleach) Coolant Corn Oil Cottonseed Oil Cresol **Dairy Products Drilling Fluids Enamel Paint** Degreasers Detergents Ethylene Glycol Ethylenediamine **Fabric Softeners** Ferric Chloride Floor Wax Formic Acid Fruit Juice Fuel Oil Glycerol Gorilla Glue Grape Juice Hydraulic Fluid Hydrocarbon Fluids Ice Cream Italian Dressing Juice Ketchup Latex Paint Laundry Detergent Linseed Oil Liquid Polymers Magnesium Hydroxide Lubricating Oil Milk Mineral Oil Motor Oil Nitric Acid Nutella Spread Octane Oil **Oil Paint** Olive Oil Paraffin Orange Juice Paint **Paint Thinners** Petroleum Ether Phenol Phosphoric Acid Polymers Power Steering Fluid Propylene Glycol Ranch Dressing Resins Salad Dressing Sauce Silicone Oil Softeners Sodium Bicarbonate Sodium Bisulfite Sodium Chloride Sodium Hydroxide Solvents Soup Soy Bean Oil Soy Milk Spray Paint Sucrose Skydrol Synthetic Motor Oil Tannic Acid Transformer Oil Syrup Tomato Sauce Urine Water Transmission Fluid Turpentine Wine Wood Stain **Xylene**

• In Acceptable Dilutions: (Concentrations shown are relevant to substances in industrial use.)

Hydrochloric Acid (45%)	
Hydrogen Peroxide (70%)	
Peroxide (70%)	
Sulfuric Acid (50%)	

Hypochlorite Solution (18%) Peracetic Acid (15%) Potassium Hydroxide (45%)

- *Note* Before handling used material refer to the SDS (materials safety data sheet) for the substance to be absorbed.
 - Substances Non Listed Above

Please contact the manufacturer and/or distributor for information on SpillFix's ability to absorb substances not listed above. DO NOT use SpillFix as a substitute for safe handling practices of any chemical, or assume its suitability on substances not listed above.

SPILLFIX SAFETY DATA SHEET

6

7: HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING

	 Hygiene Practices 	Keep out of reach of children. Follow good chemical hygiene practices. Do not smoke, drink, eat, or apply cosmetics while using the product for spill clean-up. Unused material (SpillFix) is harmless and safe to touch. Avoid contact with eyes.
	Handling Recommendations	Employees must be appropriately trained to use this product safely as needed.
7.2	CONDITIONS FOR SAFE STORAGE, IN	NCLUDING ANY INCOMPATIBILITIES
	Storage Recommendations	Store in a cool dry place away from incompatible chemicals (See Section 10, Stability and Reactivity).
	 Storing Unused Material After Opening 	Keep tightly closed and store in a cool dry place away from incompatible chemicals.

SPILLFIX SAFETY DATA SHEET

8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 CONTROL PARAMETERS

• U.S. National Exposure Limits

Component	ACGIH TLV	OSHA PEL (ppm)	NIOSH REL (ppm)	Other
Coir Pith Fiber	NE	NE	NE	NE
Water	NE	NE	NE	NE

- International Exposure Limits

Component	Federal Republic of Germany (DFG) Maximum Concentration Values in the Workplace (MAKs)	
Coir Pith Fiber	NE	NE
Water	NE	NE

- Biological Occupational Exposure Limits
 Not Established
- Derived No Effect Level (DNEL)
 Not Established
- Predicted No Effect Concentration (PNEC) Not Established

8: EXPOSURE CONTROLS/PERSONAL PROTECTION (cont.)

8.2 EXPOSURE CONTROLS

As Necessary, Refer to Reference Materials of Spilled Substance. Otherwise, use the Following Guidelines:

Engineering Controls	Use this product in well-ventilated environment. Safety showers, eye wash stations, and hand-washing equipment should be available, based on the chemical inventory specific to the facility.
 Respiratory Protection 	None needed under routine circumstances of use or handling. A dust mask can be considered if inhalation of significant amounts of dusts/particulates could occur.
 Hand Protection 	Nitrile, latex, or neoprene gloves should be used.
Eye Protection	Splash goggles or safety glasses with side shield are recommended if contact with dusts/particulates from this product may occur.
 Body Protection 	Protection appropriate for work situation (e.g., lab coat).

SPILLFIX SAFETY DATA SHEET

9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

a) APPEARANCE	Brown solid	k) VAPOR PRESSURE (mmHg @ 20°C):	Not applicable
b) ODOR	None	I) VAPOR DENSITY	Not applicable
c) ODOR THRESHOLD	None	m) RELATIVE DENSITY (water=1)	Not determined
d) pH	Not applicable	n) SOLUBILITY	Insoluble in water
e) MELTING POINT/ FREEZING POINT	Not applicable	 o) PARTITION COEFFICIENT: NOCTANOL/ WATER 	Not determined
f) INITIAL BOILING POINT AND BOILING RANGE	Not applicable	p) AUTO-IGNITION TEMPERATURE	Not applicable
g) FLASH POINT	Not applicable	q) DECOMPOSITION TEMPERATURE	Not determined
h) EVAPORATION RATE (water=1)	Not applicable	r) VISCOSITY	Not applicable
i) FLAMMABILITY	Not flammable	s) EXPLOSIVE PROPERTIES	Not applicable
j) UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS	Not applicable	t) OXIDIZING PROPERTIES	Not an oxidizer

9.2 OTHER INFORMATION

- VOC (less water & exempt)
- Weight % VOC

Not applicable.

None.



10: STABILITY AND REACTIVITY

10.1 REACTIVITY

- · Not reactive under typical conditions of use or handling.
- 10.2 CHEMICAL STABILITY
 - · Normally stable under standard temperatures and pressures.

10.3 POSSIBILITY OF HAZARDOUS REACTIONS

- This product is not self-reactive, water-reactive, or air-reactive.
- This product will not undergo hazardous polymerization.

10.4 CONDITIONS TO AVOID

· Avoid contact with incompatible chemicals.

10.5 INCOMPATIBLE MATERIALS

• Refer to 6.6 for extensive list of compatible materials that can be absorb by this product (For compatibility of materials not listed please contact manufacture).

10.6 HAZARDOUS DECOMPOSITION PRODUCTS

 Products of thermal decomposition of this product can include carbon monoxide, carbon dioxide, and nitrogen oxides.

11: TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS

Acute Toxicity	There are no specific toxicity data are available for components of this product. This product is non-toxic by all routes of entry.	
Degree of Irritation:	Potentially mild mechanical irritation.	
Sensitization:	Not reported to have skin or respiratory sensitization effects.	
Review of Acute	See Section 2 (Hazards Information) and Section 4	
Symptoms and Effects:	(First-Aid Measures) for details.	
EYES:	Contact with product may cause mild mechanical eye irritation.	
SKIN:	Contact with product may cause mild mechanical skin irritation.	
INHALATION:	Contact with dusts may cause mild mechanical irritation of the mucous membranes of the nose, throat, and mouth.	
INGESTION:	Ingestion may cause a variety of health effects, as described in Section 4 (First-Aid Measures).	
CHRONIC TOXICITY		
Carcinogenicity Status:	The following table summarizes the carcinogenicity listing for the	

components of this product. "NO" indicates that the substance is not considered to be, or suspected to be, a carcinogen by the listed agency.

Chemical	IARC	NTP	NIOSH	OSHA	Other
Coir Pith Fiber	NO	NO	NO	NO	NO

Reproductive Toxicity Information:

11.2

This product is not anticipated to cause adverse reproductive effects under typical circumstances of exposure under routine work situations.

11: TOXICOLOGICAL INFORMATION (cont.)

11.2 CHRONIC TOXICITY (cont.)

Mutagenic Effects	The components of this product are not reported to cause mutagenic effects under typical circumstances of occupational exposure.		
Specific Target Organ Toxicity (Single Exposure)	Not applicable		
Specific Target Organ Toxicity (Repeated Exposure)	Not applicable		
OTHER INFORMATION			
Toxicologically Synergistic Products	None known		

12: ECOLOGICAL INFORMATION

12.1 TOXICITY

- This product is derived from coconut husk. Based on available data, the pure product is not anticipated to be harmful to contaminated plants or animals.
- Based on available data, the pure product is not anticipated be harmful to contaminated aquatic plants or animals in the area immediately surrounding the release of the pure product.

12.2 PERSISTENCE AND DEGRADABILITY

- · When released into the soil, the product is expected to biodegrade.
- Coir Fiber Pith (SpillFix) consists of 53% Lignin. The high lignin composition slows the decomposition of the biodegradable material. This allows the absorbed (and encapsulated) hydrocarbons and/or other chemicals to microbiologically decompose long before the coir material decomposes.

12.3 BIOACCUMULATIVE POTENTIAL

- It is not anticipated that this product will bioaccumulate or bioconcentrate significantly in the environment.

12.4 MOBILITY IN SOIL

• This product is not anticipated to be mobile in soil.

12.5 RESULTS OF PBT and vPvB ASSESSMENT

No data available.

12.6 OTHER ADVERSE EFFECTS

- Endocrine Disruptor Information: No component is reported to be an endocrine disruptor.

12.7 ADDITIONAL ENVIRONMENTAL IMPACT INFORMATION

- SpillFix meets and exceeds Federal EPA leachate standards for hydrocarbon/petroleum products.
- SpillFix Passes the EPA's TCLP and TTLC testing.
- SpillFix encapsulates chemicals and will not leach or release back into the environment.

13: DISPOSAL CONSIDERATION

13.1 WASTE TREATMENT METHODS

- Waste Handling Recommendations:

Prepare, transport, treat, store, and dispose of waste product according to all applicable local, U.S. State and U.S. Federal regulations, the applicable Canadian standards, or the appropriate standards of the nations of the European Community.

Incineration:

13.2 DISPOSAL CONSIDERATIONS

- EPA RCRA Waste Code:
- European Waste Code:

Used SpillFix containing hydrocarbons can be

incinerated in accordance with local regulations.

Not applicable Not applicable.

14: TRANSPORT INFORMATION

14.1/14.2/14.3/14.4 DANGEROUS GOODS BASIC DESCRIPTION AND OTHER TRANSPORT INFORMATION

- Department Of Transportation Hazardous Materials Shipping Regulations

UN/NA Identification Number	Not hazardous, per US DOT regulations.
Proper Shipping Name	SpillFix Industrial Organic Absorbent
Hazard Classification	Not applicable.
Packing Group	Not applicable.
Label	Not applicable.
North American Emergency Response Guidebook (2012)	Not applicable.
Marine Pollutant Status	No component is designated as a DOT Marine Pollutant.
Canadian Transportation Information	This product is NOT regulated by Transport Canada as dangerous goods under Canadian transportation standards.
IATA Designation	This product is NOT regulated as dangerous goods by the International Air Transport Association.
IMO Designation	This product is NOT regulated as dangerous goods by the International Maritime Organization

14.5 ENVIRONMENTAL HAZARDS

• None described, as related to transportation.

14.6 SPECIAL PRECAUTIONS FOR USERS

Not applicable.

14.7 TRANSPORT IN BULK

Not applicable.



15: **REGULATORY INFORMATION**

15.1 SAFETY, HEALTH, AND ENVIRONMENTAL REGULATIONS SPECIFIC FOR THE SUBSTANCE OR MIXTURE.

Other Important U.S., Regulations

	U.S. TSCA Inventory Status:	All ingredients of this product are listed or are excluded from listing under the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.
	CERCLA Reporting Requirements	Not applicable.
	SARA Reporting Requirements	Not applicable.
	SARA Section 311/312 For Product	Not applicable.
	California Safe Drinking Water Act (Proposition 65) Status	Not applicable.
	 International Regulations Canadian DSL/NDSL Inventory Status 	All ingredients of this product are listed or are excluded from inventory reporting requirements.
	Canadian environmental Protection Act (CEPA) Priorities Substances Lists:	The components of this product are not on the CEPA Priorities Substances Lists.
	German Water Hazard Classification:	1 (low hazard to waters).
15.2:	CHEMICAL SAFETY ASSESSMENT	
	 Assessment 	Chemical free natural organic material.

16: OTHER INFORMATION

16.1 INDICATION OF CHANGE. Change Indicated:

Dates of Updates

Update of OSHA Hazard Communication Standard (29 CFR 1910.1200); Format changes. Original Date of Issue October 2013. February 8, 2018.

16.2 **KEY LITERATURE REFERENCES AND SOURCES FOR DATA**

- Safety Data Sheets For Component Products
- Regulations (EC) No 1907/2006, 1272/2008 & 453/2010 of the European Parliament and of the Council
- Federal OSHA Hazard Communication Standard: 29 CFR 1910.1200
- · ESIS -European Chemical Substances Information System http://esis.jrc.ec.europa.eu/

CLASSIFICATION AND PROCEDURE USED TO DERIVE THE CLASSIFICATIONS FOR 16.3 MIXTURES

- Classification: Section 2 (Hazards Information) provides all relevant classification information used for this product. The assignments were based on data available for the component products, calculations, expert judgment, and weight of evidence.

16: OTHER INFORMATION (cont.)

16.4 ABBREVIATIONS AND ACRONYMS.

ALL SECTIONS: OSHA: U.S. Federal Occupational Safety and Health Administration. WHMIS: Canadian Workplace Hazardous Materials Standard, GHS: Globally Harmonized System of Classification of Chemical Substances. REACH: European Union regulation, Registration, Evaluation, Authorization and Restriction of Chemical substances. SECTION 2: CAS Number: Chemical Abstract Service Number, which is used by the American chemical Society to uniquely identify a chemical. EINECS: European Inventory of Existing Commercial Substances. SECTION 3: HAZARDOUS MATERIALS IDENTIFICATION SYSTEM RATING: This is a rating system used by industry to summarize physical and health hazards to chemical users and was originally developed by the National Paint and Coating Association. 0 = No Significant Hazard. 1 = Slight Hazard. 2 = Moderate Hazard, 3 = Severe Hazard, 4 = Extreme Hazard. SECTION 5: NFPA: National Fire Protection Association. NFPA FLAMMABILITY CLASSIFICATION: The NFPA uses the flash point (FI.P.) and boiling point (BP) to classify flammable or combustible liquids. Class IA: FI.P. below 73°F and BP below 100°F. Class IB: FI.P. below 73°F and BP at or above 100°F. Class IC: :FI.P. at or above 73°F and BP at or above 100°F. Class II: : Fl.P. at or above 100°F and below 140°F. Class IIIA: Fl.P. at or above 140°F and below 200°F. Class IIIB: Fl.P. at or above 200°F. NFPA HAZARDOUS MATERIALS RATING: This is a rating system used to summarize physical and health hazards to firefighters. 0 = No Significant Hazard. 1 = Slight Hazard, 2 = Moderate Hazard, 3 = Severe Hazard, 4 = Extreme Hazard. SECTION 8: NE: Not established. ACGIH: American Conference of Government Industrial Hygienists; TWA: Time-Weighted Average (over an 8-hour work day); STEL: Short Term Exposure Limit (15 minute average, no more than 4-times daily and each exposure separated by one-hour minimally); C: Ceiling Limit (concentration not to be exceeded in a work environment). PEL: Permissible Exposure Limit. NIOSH: National Institute of Occupational Safety and Health; REL: Recommended Exposure Limit; IDLH: Immediately Dangerous to Life and Health Concentrations. Note: In July 1992, a court ruling vacated the more protective PELs set by OSHA in 1989. Because OSHA may enforce the more protective levels under the "general duty clause", both the current and vacated levels are presented in this document. ppm: Parts per Million. mg/m3: Milligrams per cubic meter, mppcf: Millions of Particles per Cubic Foot. BEI: Biological Exposure Limit. EL: Exposure Limit (United Kingdom). Federal Republic of Germany (DFG) Maximum Concentration Values in the Workplace (MAKs) SECTION 9: pH: Scale (0 to 14) used to rate the acidity or alkalinity of aqueous solutions. For example, a pH value of 0 indicates a strongly acidic solution, pH of 7 indicates a neutral solution, and a pH value of 14 indicates an extremely basic solution. FLASH POINT: Temperature at which a liquid generates enough flammable vapors so that ignition may occur. AUTOIGNITION TEMPERATURE: Temperature at which spontaneous ignition occurs. LOWER EXPLOSIVE LIMIT (LEL): The minimal concentration of flammable vapors in air which will sustain ignition. UPPER EXPLOSIVE LIMIT (UEL): The maximum concentration of flammable vapors in air which will sustain ignition._: Approximately symbol. SECTION 11: CARCINOGENICITY STATUS: NTP: National Toxicology Program. IARC: International Agency for Research on Cancer. REPRODUCTIVE TOXICITY INFORMATION: Mutagen: Substance capable of causing chromosomal damage to cells. Embryo-toxin: Substance capable of damaging the developing embryo in an overexposed female. Teratogen: Substance capable of damaging the developing fetus in an overexposed female. Reproductive toxin: Substance capable of adversely affecting male or female reproductive organs or functions. TOXICOLOGY DATA: LDxxor LCxx: The Lethal Dose or Lethal Concentration of a substance which will be fatal to a given percentage (xx) of exposed test animals by the designate route of administration. This value is used to access the toxicity of chemical substances to humans. TDxxor TCxx: The Toxic Dose or Toxic Concentration of a substance which will cause an adverse effect to a given percentage (xx) of exposed test animals by the designate route of administration. NOAEL: No Observable Effect Level. SECTION 13: RCRA: Resource Conservation and Recovery Act. The regulations promulgated under this act under Act are found in 40 CFR, Sections 260 ff, and define the requirements of hazardous waste generation, transport, treatment, storage, and disposal. EPA RCRA Waste Codes: Defined in 40 CFR Section 261. SECTION 15: CERCLA: Comprehensive Environmental Response Compensation and Liability Act (a.k.a. "Superfund") and SARA: (Superfund Amendment and Reauthorization Act). The regulations promulgated under this Act are located under 40 CFR 300 ff. and provide "community right-to-know" requirements. DSL/NDSL: Canadian Domestic Substances and Non-Domestic Substances Lists.

Conforms to REGULATIONS FOR HAZARDOUS CHEMICAL AGENTS, 2021, Government Gazette 44348

SAFETY DATA SHEET



SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name Product code SDS # **Product type**

Castrol Brake Fluid DOT 4 466630-X101 466630 Liquid.

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

	Identified uses			
General use of lubricants and greases in vehicles or machinery-Industrial General use of lubricants and greases in vehicles or machinery-Professional				
Use of the substance/ mixture	Brake fluids. For specific application advice see appropriate Technical Data Sheet or consult our company representative.			
1.3 Details of the supplier o	f the safety data sheet			
Supplier	BP Southern Africa (Pty)Ltd 199 Oxford Road Oxford Parks Dunkeld, 2196 South Africa			
E-mail address	Product Technical Helpdesk: 0800 111 551 MSDSadvice@bp.com			

1.4 Emergency telephone number

EMERGENCY	Tygerberg Poison Centre: 0861 555 777
TELEPHONE NUMBER	Carechem: +27 21 300 2732 (24/7)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture **Product definition**

Mixture

Repr. 2, H361fd

See Section 16 for the full text of the H statements declared above.

See sections 11 and 12 for more detailed information on health effects and symptoms and environmental hazards.

2.2 Label elements

Hazard pictograms



Signal word Warning **Hazard statements** ₩361fd - Suspected of damaging fertility. Suspected of damaging the unborn child. **Precautionary statements** General P102 - Keep out of reach of children. P101 - If medical advice is needed, have product container or label at hand. Prevention 201 - Obtain special instructions before use. P280 - Wear protective gloves, protective clothing, eye protection, face protection, or hearing protection. Response P308 + P313 - IF exposed or concerned: Get medical attention. Storage P405 - Store locked up. Disposal P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Product name Castrol Brake Fluid DOT 4		Product code 466630-	X101	Page: 1/14		
Version 3	Date of issue	9 7 July 2023	Format	South Africa	Language	ENGLISH
Date of previo	ous issue	27 September 2021.		(South Africa)		

SECTION 2: Hazards identification

Hazardous ingredients Supplemental label elements rís[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate Not applicable.

2.3 Other hazards

Other hazards which do not result in classification

Defatting to the skin.

Experimental data on one or more of the components has been used to determine all or part of the hazard classification of this product.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Product definition Mixture

polyethylene glycol Proprietary performance additives.

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Туре
fs[2-[2-(2-methoxyethoxy) ethoxy]ethyl] orthoborate	REACH #: 01-2119462824-33 EC: 250-418-4 CAS: 30989-05-0	≥25 - ≤50	Repr. 2, H361fd	-	[1]
Reaction mass of 2-(2- (2-butoxyethoxy)ethoxy) ethanol and 3,6,9,12-tetraoxahexadecan- 1-ol	REACH #: 01-2119475115-41 01-2119531322-53 EC: 907-996-4 CAS: -	≥10 - ≤25	Eye Dam. 1, H318	Eye Dam. 1, H318: C ≥ 30% Eye Irrit. 2, H319: 20% ≤ C < 30%	[1]
2,2' -oxybisethanol	REACH #: 01-2119457857-21 EC: 203-872-2 CAS: 111-46-6 Index: 603-140-00-6	≤10	Acute Tox. 4, H302	ATE [Oral] = 500 mg/ kg	[1]
Di-isopropanolamine	REACH #: 01-2119475444-34 EC: 203-820-9 CAS: 110-97-4 Index: 603-083-00-7	≤3	Eye Irrit. 2, H319	-	[1]

See Section 16 for the full text of the H statements declared above.

Substance classified with a health or environmental hazard

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid m	easures
Eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.
Skin contact	Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if irritation develops.
Inhalation	If inhaled, remove to fresh air. Get medical attention. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Ingestion	Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Get medical attention.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

Potential acute health effects	
Inhalation	Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	Diethylene glycol: Ingestion of diethylene glycol can cause metabolic acidosis, kidney damage, central nervous system depression, and convulsions. The estimated human lethal dose is approximately 100 ml (3.4 ounces for an adult).
Skin contact	Defatting to the skin. May cause skin dryness and irritation.

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SECTION 4: First aid measures

Eye contact	Not classified as an eye irritant. Based on data available for this or related materials.		
Delayed and immediate e	ffects as well as chronic effects from short and long-term exposure		
Inhalation	Overexposure to the inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract.		
Ingestion	Ingestion of large quantities may cause nausea and diarrhoea.		
Skin contact	Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.		
Eye contact	Potential risk of transient stinging or redness if accidental eye contact occurs.		

4.3 Indication of any immediate medical attention and special treatment needed

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Notes to physicianTreatment should in general be symptomatic and directed to relieving any effects.<br/>In case of inhalation of decomposition products in a fire, symptoms may be delayed.<br/>The exposed person may need to be kept under medical surveillance for 48 hours.
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SECTION 5: Firefighting measures

5.1 Extinguishing media			
Suitable extinguishing media	In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray.		
Unsuitable extinguishing media	Do not use water jet. The use of a water jet may cause the fire to spread by splashing the burning product.		
5.2 Special hazards arising fro	om the substance or mixture		
Hazards from the substance or mixture	In a fire or if heated, a pressure increase will occur and the container may burst.		
Hazardous combustion products	Combustion products may include the following: carbon oxides (CO, CO ₂) (carbon monoxide, carbon dioxide) nitrogen oxides (NO, NO ₂ etc.)		
5.3 Advice for firefighters			
Special precautions for fire-fighters	No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire.		
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.		

SECTION 6: Accidental release measures

6.1 Personal precautions, prote	ective equipment and emergency procedures
For non-emergency personnel	Contact emergency personnel. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Floors may be slippery; use care to avoid falling. Avoid breathing vapour or mist. Provide adequate ventilation. Put on appropriate personal protective equipment.
For emergency responders	Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained breathing apparatus. Wear a suitable chemical protective suit. Chemical resistant boots. See also the information in "For non-emergency personnel".
6.2 Environmental precautions	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
6.3 Methods and material for co	ontainment and cleaning up
Small spill	Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large spill	Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Contaminated absorbent material may pose the same hazard as the spilt product. Dispose of via a licensed waste disposal contractor.

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SECTION 6: Accidental release measures

6.4 Reference to other	See Section 1 for emergency contact information.
sections	See Section 5 for firefighting measures.
	See Section 8 for information on appropriate personal protective equipment.
	See Section 12 for environmental precautions.
	See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures	Put on appropriate personal protective equipment. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse container. Empty containers retain product residue and can be hazardous.
Advice on general occupational hygiene	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
7.2 Conditions for safe storage, including any incompatibilities	Store in accordance with local regulations. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Keep away from heat and direct sunlight. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Store and use only in equipment/containers designed for use with this product. Do not store in unlabelled containers.
Not suitable	Prolonged exposure to elevated temperature
7.3 Specific end use(s)	
Recommendations	See section 1.2 and Exposure scenarios in annex, if applicable.

SECTION 8: Exposure controls/personal protection

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The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Whilst specific OELs for certain components may be shown in this section, other components may be present in any mist, vapour or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

Recommended monitoring procedures

Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Biological exposure indices

Product/ingredient name

Exposure indices

No exposure indices known. **Derived No Effect Level**

No DNELs/DMELs available.

Predicted No Effect Concentration

No PNECs available

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8.2 Exposure controls Appropriate engineering controls	Provide exhaust ventilation or other concentrations below their respectiv	enginee	ring controls to ational exposur	keep the relevant air e limits.	borne
All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be con after other forms of control measures (e.g. engineering controls) have been suitably eva Personal protective equipment should conform to appropriate standards, be suitable for kent in good condition and properly maintained		nsure be considered bly evaluated. able for use, be			
	Your supplier of personal protective	equipme	ent should be c	onsulted for advice or	n selection and
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appropriate standards. For further information contact your national organisation for standards. The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Individual protection measure	ensure that all items of personal protective equipment are compatible.
Hygiene measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.
Eye/face protection	Safety glasses with side shields.
Skin protection Hand protection	General Information:
	Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. The correct choice of protective gloves depends upon the chemicals being handled, and the conditions of work and use. Most gloves provide protection for only a limited time before they must be discarded and replaced (even the best chemically resistant gloves will break down after repeated chemical exposures).
	Gloves should be chosen in consultation with the supplier / manufacturer and taking account of a full assessment of the working conditions.
	Recommended: Butyl gloves. Neoprene gloves. Breakthrough time:
	Breakthrough time data are generated by glove manufacturers under laboratory test conditions and represent how long a glove can be expected to provide effective permeation resistance. It is important when following breakthrough time recommendations that actual workplace conditions are taken into account. Always consult with your glove supplier for up-to-date technical information on breakthrough times for the recommended glove type. Our recommendations on the selection of gloves are as follows:
	Continuous contact:
	Gloves with a minimum breakthrough time of 240 minutes, or >480 minutes if suitable gloves can be obtained. If suitable gloves are not available to offer that level of protection, gloves with shorter breakthrough times may be acceptable as long as appropriate glove maintenance and replacement regimes are determined and adhered to.
	Short-term / splash protection:
	Recommended breakthrough times as above. It is recognised that for short-term, transient exposures, gloves with shorter breakthrough times may commonly be used. Therefore, appropriate maintenance and replacement regimes must be determined and rigorously followed.
	Glove Thickness:
	For general applications, we recommend gloves with a thickness typically greater than 0.35 mm.
	It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times. Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.
	Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:
	• Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
	• Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential.
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Skin and body	Use of protective clothing is good industrial practice. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.
<u>Refer to standards:</u>	Respiratory protection: EN 529 Gloves: EN 420, EN 374 Eye protection: EN 166 Filtering half-mask: EN 149 Filtering half-mask with valve: EN 405 Half-mask: EN 140 plus filter Full-face mask: EN 136 plus filter Particulate filters: EN 143 Gas/combined filters: EN 14387
Environmental exposure controls	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance					
Physical state	Liquid.				
Colour	Yellow.				
Odour	Characteristic.				
Odour threshold	Not available.				
рН	7.5 to 9 [Conc. (% w/w): 100%	o]			
Melting point/freezing point	<-70°C (<-94°F)				
Initial boiling point and boiling range	>260°C (>500°F)				
Flash point	Closed cup: >125°C (>257°F)	[Pensky-M	lartens]		
Evaporation rate	Not available.				
Flammability (solid, gas)	Not available.				
Lower and upper explosion limit	Lower: 1.5%				
Vapour pressure	<0.13 kPa (<1 mm Hg) [20°C ((68°F)]			
Relative vapour density	Not available.				
Relative density	Not available.				
Density	>1000 kg/m³ (>1 g/cm³) at 20°	С			
Solubility(ies)					
Media	Result				
water	Miscible in water.				
Miscible with water	Ves.				
Partition coefficient: n-octanol/ water	Not applicable.				
Auto-ignition temperature	Ingredient name	°C	°F	Method	
	ethanol, 2-methoxy-, manufacture of, by-products from	, 210	410		
	2-[2-(2-butoxyethoxy)ethoxy]ethanol	202	395.6	DIN 51794	
	2,2' -oxybisethanol	229	444.2	DIN EN 14522-S	
	2-(2-(2-methoxyethoxy)ethoxy) ethanol	210	410		
	2,2'-(ethylenedioxy)diethanol	347	656.6		
Decomposition temperature	Not available.				
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SECTION 9: Physical and chemical properties Viscosity Kinematic: 16 mm²/s (16 cSt) at 20°C Explosive properties Not available. Oxidising properties Not available. Particle characteristics Not available. Median particle size Mot applicable. 9.2 Other information No additional information. SECTION 10: Stability and reactivity

10.1 Reactivity	No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.
10.2 Chemical stability	The product is stable.
10.3 Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerisation will not occur.
10.4 Conditions to avoid	Avoid all possible sources of ignition (spark or flame).
10.5 Incompatible materials	Reactive or incompatible with the following materials: oxidising materials.
10.6 Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity estimates

Acute toxicity estimates							
Product/ingred	ient name	Oral (mg/ kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalati (dusts and mis (mg/l	on ₅ sts))
Sastrol Brake Fluid DOT 4 2,2' -oxybisethanol Di-isopropanolamine		5555.6 500 N/A	N/A N/A 16000	N/A N/A N/A	N/A N/A N/A	N/A N/A N/A	
Information on likely	Routes of entry antici	pated: Derm	al, Inhalation	, Eyes.			
routes of exposure		•	,				
Potential acute health effects							
Inhalation	Exposure to decompo delayed following exp	osition produces	cts may caus	se a health ha	azard. Seriou	s effects	may be
Ingestion	Diethylene glycol: Ing central nervous syste approximately 100 ml	Diethylene glycol: Ingestion of diethylene glycol can cause metabolic acidosis, kidney damage central nervous system depression, and convulsions. The estimated human lethal dose is approximately 100 ml (3.4 ounces for an adult).					
Skin contact	Defatting to the skin.	May cause s	skin dryness	and irritation.			
Eye contact	Not classified as an eye irritant. Based on data available for this or related materials.						
Symptoms related to the physical	sical, chemical and tox	<u>kicological c</u>	haracterist	ics			
Inhalation	May be harmful by inhalation if exposure to vapour, mists or fumes resulting from thermal decomposition products occurs.						
Ingestion	No specific data.						
Skin contact	Adverse symptoms may include the following: irritation dryness cracking						
Eye contact	No specific data.						
Delayed and immediate effect	ts as well as chronic e	ffects from	short and lo	ong-term exp	<u>osure</u>		
Inhalation	Overexposure to the respiratory tract.	inhalation of	airborne dro	plets or aeros	sols may caus	se irritatio	n of the
Ingestion	Ingestion of large quantities may cause nausea and diarrhoea						
Skin contact	Prolonged or repeate	d contact car	n defat the s	kin and lead t	o irritation an	d/or derm	natitis.
Eve contact	Potential risk of transient stinging or redness if accidental eve contact occurs						
Potential chronic health effect	ts			······································	,		
General	May cause damage to	o organs thro	ough prolona	ed or repeate	d exposure. ((kidney)	
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SECTION 11: Toxicological information

Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Developmental effects	Suspected of damaging the unborn child. Birth defects and decreased fetal weight have been observed in laboratory animals fed diethylene glycol in large amounts repeatedly during pregnancy.
Fertility effects	Suspected of damaging fertility.

11.2 Information on other hazards

11.2.2 Other information

Not available.

SECTION 12: Ecological information

12.1 Toxicity

Environmental hazards Not classified as dangerous

12.2 Persistence and degradability

Expected to be biodegradable.

12.3 Bioaccumulative potential

This product is not expected to bioaccumulate through food chains in the environment.

12.4 Mobility in soil	
Soil/water partition coefficient (K _{oc})	Not available.
Mobility	Spillages may penetrate the soil causing ground water contamination.

12.5 Results of PBT and vPvB assessment

Product does not meet the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII.

Other ecological information	Miscible in water.
12.7 Other adverse effects	No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment method	ds
Product	
Methods of disposal	Where possible, arrange for product to be recycled. Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations.
Hazardous waste	Yes.
Packaging	
Methods of disposal	Where possible, arrange for product to be recycled. Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations.
Special precautions	This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Empty containers represent a fire hazard as they may contain flammable product residues and vapour. Never weld, solder or braze empty containers. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.
References	Commission 2014/955/EU Directive 2008/98/EC

SECTION 14: Transport information

	•			
	ADR/RID	ADN	IMDG	IATA
14.1 UN number or ID number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
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SECTION 14: Transport information				
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.
Additional information	-	-	-	-

14.6 Special precautions for Not available. **user**

14.7 Maritime transport in bulk according to IMO instruments

SECTION 15: Regulatory information

Not available.

15.1 Safety, health and enviror	nmental regulations/legislation specific for the substance or mixture
Other regulations	
REACH Status	For the REACH status of this product please consult your company contact, as identified in Section 1.
United States inventory (TSCA 8b)	All components are active or exempted.
Australia inventory (AIIC)	All components are listed or exempted.
Canada inventory	At least one component is not listed in DSL but all such components are listed in NDSL.
China inventory (IECSC)	All components are listed or exempted.
Japan inventory (CSCL)	All components are listed or exempted.
Korea inventory (KECI)	At least one component is not listed.
Philippines inventory (PICCS)	All components are listed or exempted.
Taiwan Chemical Substances Inventory (TCSI)	All components are listed or exempted.

15.2 Chemical safety	A Chemical Safety Assessment has been carried out for one or more of the substances within
assessment	this mixture. A Chemical Safety Assessment has not been carried out for the mixture itself.

SECTION 16: Other information

Abbreviations and acronyms	ADN = European Provisions concerning the International Carriage of Dangerous Goods by			
	ADR = The European Agreement concernin	g the International Carriage of Dangerous Goods by		
	K080 ATE - Acuto Toxicity Ectimate			
	RCE = Ricconcentration Eactor			
	CAS = Chemical Abstracts Service			
	CLP = Classification Labelling and Packagi	ng Regulation [Regulation (EC) No. 1272/2008]		
	CSA = Chemical Safety Assessment			
	CSR = Chemical Safety Report			
	DMEL = Derived Minimal Effect Level			
	DNEL = Derived No Effect Level			
	EINECS = European Inventory of Existing C	Commercial chemical Substances		
	ES = Exposure Scenario			
	EUH statement = CLP-specific Hazard statement EWC = European Waste Catalogue			
	GHS = Globally Harmonized System of Classification and Labelling of Chemicals			
	IATA = International Air Transport Association	on		
	IBC = Intermediate Bulk Container	No o do		
	IMDG = International Maritime Dangerous Goods			
	LogPow = logarithm of the octanol/water part	Drevention of Dollution From Shine, 1072 oc		
	madified by the Protocol of 1978 ("Marpol"	= marine pollution)		
	OECD = Organisation for Economic Co-one	ration and Development		
	PBT = Persistent Bioaccumulative and Toxi			
	PNEC = Predicted No Effect Concentration			
	REACH = Registration, Evaluation, Authoris	ation and Restriction of Chemicals Regulation		
	[Regulation (EC) No. 1907/2006]			
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SECTION 16: Other information

	RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
	RRN = REACH Registration Number
	SADT = Self-Accelerating Decomposition Temperature
	SVHC = Substances of Very High Concern
	STOT-RE = Specific Target Organ Toxicity - Repeated Exposure
	STOT-SE = Specific Target Organ Toxicity - Single Exposure
	TWA = Time weighted average
	UN = United Nations
	UVCB = Complex hydrocarbon substance
	VOC = Volatile Organic Compound
	vPvB = Very Persistent and Very Bioaccumulative
	Varies = may contain one or more of the following 64741-88-4 / RRN 01-2119488706-23,
	64741-89-5 / RRN 01-2119487067-30, 64741-95-3 / RRN 01-2119487081-40, 64741-96-4/ RRN
	01-2119483621-38, 64742-01-4 / RRN 01-2119488707-21, 64742-44-5 / RRN
	01-2119985177-24, 64742-45-6, 64742-52-5 / RRN 01-2119467170-45, 64742-53-6 / RRN
	01-2119480375-34, 64742-54-7 / RRN 01-2119484627-25, 64742-55-8 / RRN
	01-2119487077-29, 64742-56-9 / RRN 01-2119480132-48, 64742-57-0 / RRN
	01-2119489287-22, 64742-58-1, 64742-62-7 / RRN 01-2119480472-38, 64742-63-8,
	64742-65-0 / RRN 01-2119471299-27, 64742-70-7 / RRN 01-2119487080-42, 72623-85-9 /
	RRN 01-2119555262-43, 72623-86-0 / RRN 01-2119474878-16, 72623-87-1 / RRN
	01-2119474889-13
<u>History</u>	
Date of issue/ Date of	07/07/2023.

revision	
Date of previous issue	27/09/2021.
Prepared by	Product Stewardship

✓ Indicates information that has changed from previously issued version.

Notice to reader

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.

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Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Industrial

	Product definition	Mixture
	Code	466630-X101
	Product name	Castrol Brake Fluid DOT 4
	Section 1: Title	
	Short title of the exposure scenario	General use of lubricants and greases in vehicles or machinery - Industrial
	List of use descriptors	Identified use name: General use of lubricants and greases in vehicles or machinery-Industrial
		Process Category: PROC01, PROC02, PROC08b, PROC09 Sector of end use: SU03
		Subsequent service life relevant for that use: No.
		Environmental Release Category: ERC04, ERC07
-		Specific Environmental Release Category: ATIEL-ATC SPERC 4.Biv1
	Processes and activities covered by the exposure scenario	Covers general use of lubricants and greases in vehicles or machinery in closed systems. Includes filling and draining of containers and operation of enclosed machinery (including engines) and associated maintenance and storage activitie

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure	
Product characteristics:	
Physical state:	Liquid, vapour pressure < 0.5 kPa
Concentration of substance in product:	Covers use of substance/product up to 100 % (unless stated differently)
Frequency and duration of use:	Covers daily exposures up to 8 hours
Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature. Assumes a good basic standard of occupational hygiene is implemented
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Contributing scenarios: Operational conditions and risk management measures

General measures (Reproductive toxin):

Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance. Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenarios; clear up spills immediately and dispose of wastes safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.

General measures applicable to all activities:

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Avoid direct eye contact with product also via contamination on hands.

General exposures (closed systems): No other specific measures identified.

Initial factory fill of equipment Use in contained systems: No other specific measures identified.

Initial factory fill of equipment Open systems: Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Avoid carrying out operation for more than 4 hours.

Operation of equipment containing engine oils and similar Use in contained systems:

Castrol Brake Fluid DOT 4

General use of lubricants and greases in vehicles or machinery - Industrial No other specific measures identified.

Equipment cleaning and maintenance:

Drain down system prior to equipment break-in or maintenance. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Equipment cleaning and maintenance Operation is carried out at elevated temperature (> 20°C above ambient temperature):

Drain down and flush system prior to equipment break-in or maintenance. Provide extract ventilation to emission points when contact with warm (>50°C) lubricant is likely. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Storage:

Store substance within a closed system.

Section 2.2: Control of environmental exposure No exposure scenario is presented because the product is not classified for the Environment

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment		
Exposure assessment (environment):	No exposure scenario is presented because the product is not classified for the Environment	
Exposure estimation and reference to its so	urce - Workers	

Section 4: Guidance to check compliance with the exposure scenario

Environment	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SPERC factsheet. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For further information see www.ATIEL.org/REACH_GES
Health	Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.