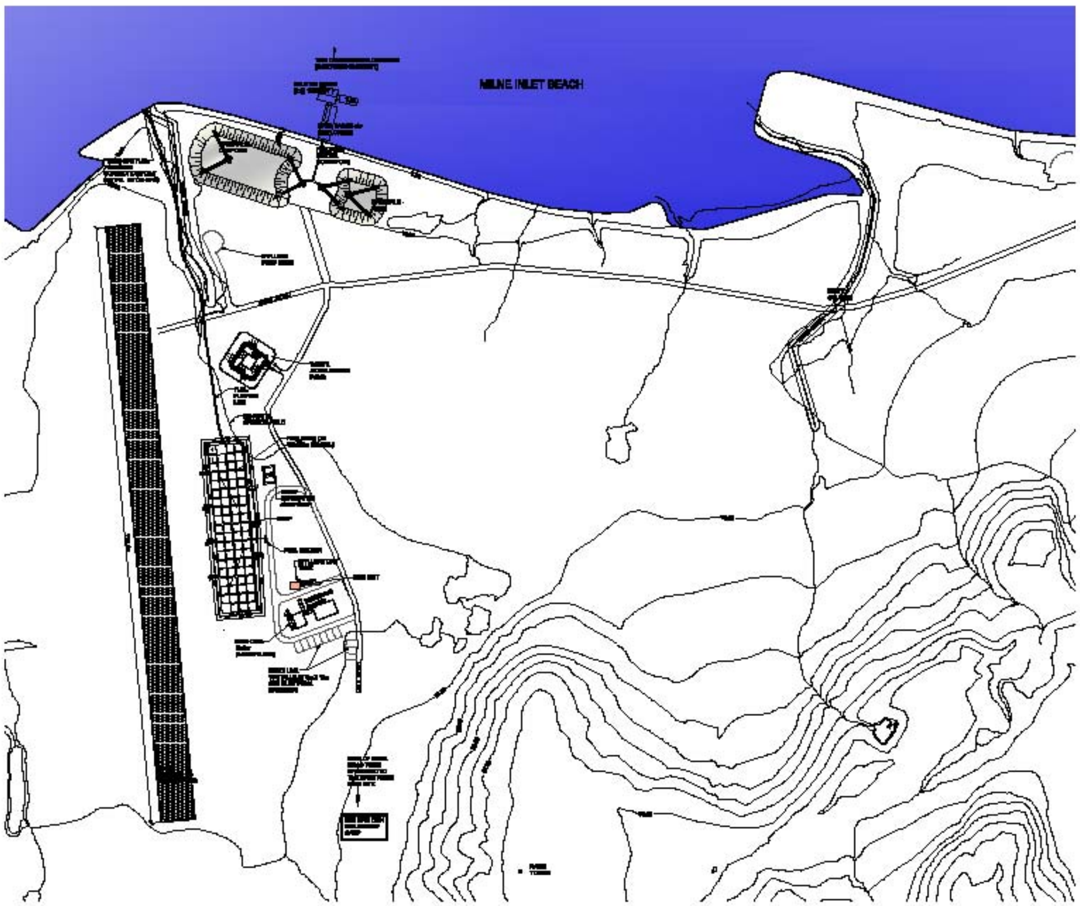

AREAS:
STOCKPILE
FUEL FARM & GENERATOR
CAMP & COMPONENTS
AIRSTRIP FUEL STATION 0.1ha
AIRSTRIP

Project
MARY RIVER PROJECT
BAFFINLAND IRON
MINES CORP.

Drawing
OVERALL SITE PLAN
MILNE INLET

FIG. A2

Appendix C

Spill Kits and Contents

VERSATECH SPILL KITS AT BAFFINLAND'S MARY RIVER PROJECT SITE:

Kit #4 six (6) kits
Kit #5 four (4) kits
Kit #6 four (4) kits
Kit #7 eighteen (18) kits
Kit #8 eight (8) kits

Kit No./Details	Contents	Quantity
4 **20 GALLON LAB PACK** Absorbs up to 18 Gallons Lab Pack Container	Sorbent Pads (19" x 17" x 3/8") Sorbent Socks (3" x 4ft.) Sorbent Pillows Nitrile Gloves (pair) Disposal Bag Epoxy Putty	20 5 4 2 3 1
5 **PORTABLE RESPONSE KIT** Absorbs up to 65 Gallons Durable Yellow Rollout Container 2 convenient sizes - 64 Gallon 96 Gallon	Sorbent Pads (19" x 17" x 3/8") Sorbent Socks (3" x 4ft.) Xsorb (6 quart) Hand broom/dust pan Nitrile Gloves (pair) Disposal Bag Disposable Coveralls Drain cover Splash resistant goggles	150 6 1 1 2 4 2 2 2
6 **SPILL CHEST** Absorbs up to 170 Gallons Heavy duty plastic Yellow Container Can be moved with a Forklift	Sorbent Pads (19" x 17" x 3/8") Sorbent Socks (3" x 4 ft) Sorbent Booms (5" x 10 ft) Sorbent Pillows (15" x 9 ft) Sorbent Roll (38" x 144 ft) Nitrile Gloves (pair) Disposal Bag Epoxy Putty Barricade tape (Roll)	100 8 4 16 1 2 4 1 1
7 **HEAVY DUTY DRUM KIT** Absorbs up to 75 Gallons Heavy duty plastic Yellow Container Drum sizes include 65 & 95 US gallons or an economy 45 gallon steel drum	Sorbent Pads (19" x 17" x 3/8") Sorbent Booms (5" x 10ft) Xsorb (6 quart) Nitrile Gloves (pair) Disposal Bag Disposable Coveralls Drain cover Splash resistant goggles	100 4 1 2 4 2 1 2

8 **EXTRA LARGE DRUM KIT** Absorbs up to 120 Gallons Heavy duty plastic Yellow Container	Sorbent Pads (19" x 17" x 3/8") Sorbent Socks (4ft) Sorbent Socks (8ft) Sorbent Pillows (large) Sorbent Pillows (small) Plug Putty Drain Cover Disposal Bags (roll) Disposable Coveralls Barrier Tape (roll) Granular Absorbant (12.5 kg)	300 8 8 12 8 2 7 1 2 1 1

SPILL RESPONSE EQUIPMENT TO BE STORED IN 2 SEA CONTAINERS AT MILNE INLET FOR BAFFINLAND'S MARY RIVER PROJECT:

Description
Oil containment boom, anchors and towing bridles (300m)
Multizorb granular absorbent (500 bags)
Custom pump skid for emergency fuel transfers from one tank to another
2" x 25' transfer hose for emergency transfer pump (8 sections)
18" x 18" x 6" Arctic mini berm for under fittings (12 units)
36" x 36" x 6" Arctic mini berm for under fittings (12 units)
Insta berm 10' x 10' x 15" Arctic (2 units)
Oil sheets for replenishing spill kits (300 bags)

Appendix D

MSDS of hazardous materials used on site

- Aviation Fuel (6p.)
- Calcium Chloride Flake (8p.)
- Cast Booster (3p.)
- CP-43 Diesel (6p.)
- Detonating Cord (3p.)
- DR-133 POLYMER (4p.)
- Electric Detonators (4p.)
- EZ-MUD (6p.)
- Gasoline (6p.)
- Jet A (7p.)
- Lubtac Rod Grease (4p.)
- Non-Electric Detonators (5p.)
- Packaged Emulsion Explosives (3p.)
- Packaged Dynamites and Explosive Gelatins (3p.)
- Potassium Chloride (Potash) (4p.)
- Shock Tube (3p.)
- Tellus T32 O (11p.)
- W-OB POLYMER (4p.)

Shell Canada Limited

Material Safety Data Sheet

Effective Date: 2002-08-14
Supersedes: 2001-03-09

Class B2 Flammable Liquid

Class D2B Other Toxic Effects - Skin Irritant

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT:	**SHELL AVGAS 100 LL**
SYNONYMS:	AVIATION GASOLINE
PRODUCT USE:	Fuel
MSDS Number:	101-200

MANUFACTURER
Shell Canada Limited
P.O. Box 100, Station M
400-4th Ave. S.W.
Calgary, AB Canada
T2P 2H5

TELEPHONE NUMBERS	
Shell Emergency Number	1-800-661-7378
CANUTEC 24 HOUR EMERGENCY NUMBER	613-996-6666
For general information:	1-800-661-1600
For MSDS information:	403-691-3982
(From 7:30 to 4:30 Mountain Time)	403-691-2220

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.

*An asterisk in the product name designates a trade-mark(s) of Shell Canada Limited, used under license by Shell Canada Products.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	% Range	WHMIS Controlled
Naphtha (Petroleum), Light Alkylate	64741-66-8	70 - 90	Yes
Toluene	108-88-3	10 - 30	Yes

See Section 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

Physical Description: Liquid Blue Colour Clear Typical Gasoline Odour

Routes of Exposure: Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.

Hazards:

B1-1

Flammable Liquid.
Irritating to skin.
Vapours are moderately irritating to the eyes.
Vapours are moderately irritating to the respiratory passages. The liquid when accidently aspirated into the lungs can cause a severe inflammation of the lung.

Handling: Eliminate all ignition sources.
Wear suitable gloves and eye protection.
Bond and ground transfer containers and equipment to avoid static accumulation.
Avoid prolonged exposure to vapours.
Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.

For further information on health effects, see Section 11.

4. FIRST AID

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wash contaminated skin with mild soap and water for 15 minutes. If irritation occurs and persists, obtain medical attention.

Ingestion: Do not induce vomiting. Guard against aspiration into lungs by having the individual turn on to their left side. If vomiting occurs spontaneously keep head below hips to prevent aspiration of liquid into the lungs. Do not give anything by mouth to an unconscious person. Obtain medical attention immediately.

Inhalation: Remove victim from further exposure and restore breathing, if required. Obtain medical attention.

Notes to Physician: The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis. If more than 2.0 mL/kg has been ingested, vomiting should be induced with supervision. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before vomiting, gastric lavage with a cuffed endotracheal tube should be considered.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry Chemical
Carbon Dioxide
Foam
Water Fog

Firefighting Instructions: Extremely flammable. Vapour forms a flammable/explosive mixture with air between upper and lower flammable limits. Vapours may travel along ground and flashback along vapour trail may occur. Product will float and can be reignited on surface of water. Do not use water except as a fog. Use water to cool fire exposed containers. Containers exposed to intense heat from fires should be cooled with water to prevent vapour pressure buildup which could result in container rupture. Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Always stay away from ends of containers due to explosive potential. Fight fire from maximum distance. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus. Flashback may occur along vapour trail.

Hazardous Combustion Products:	Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

6. ACCIDENTAL RELEASE MEASURES

Issue warning "Flammable". Eliminate all ignition sources. Isolate hazard area and restrict access. Handling equipment must be grounded. Try to work upwind of spill. Avoid direct contact with material. Saturated clothing should be immediately removed to avoid flammability hazard. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Dike and contain land spills; contain water spills by booming. Use water fog to knock down vapours; contain runoff. Absorb residue or small spills with absorbent material and remove to non-leaking containers for disposal. Recommended materials: Clay or Sand Spill area must be cleaned and restored to original condition or to the satisfaction of authorities. Dispose of recovered material as noted under Disposal Considerations. Explosion and fire is the most immediate problem. Notify appropriate environmental agency(ies).

7. HANDLING AND STORAGE

Handling:	Extremely flammable. Avoid excessive heat, sparks, open flames and all other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Vapours are heavier than air and will settle and collect in low areas and pits, displacing breathing air. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapours are gone. Vapours may accumulate and travel to distant ignition sources and flashback. Do not cut, drill, grind, weld or perform similar operations on or near containers. Empty containers are hazardous, may contain flammable/explosive dusts, residues or vapours. Never siphon by mouth. Do not use as a cleaning solvent. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Launder contaminated clothing prior to reuse. Use good personal hygiene.
Storage:	Use explosion-proof ventilation to prevent vapour accumulation. Keep container tightly closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING INFORMATION, WHILE APPROPRIATE FOR THIS PRODUCT, IS GENERAL IN NATURE. THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT WILL VARY DEPENDING ON THE CONDITIONS OF USE.

OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):

Gasoline: 300 ppm (STEL: 500 ppm)
Toluene (skin): 50 ppm
Skin Notation: The occupational exposure limit is based on the fact that skin and/or eye is a major route of exposure through absorption.

Mechanical Ventilation: Use explosion-proof ventilation as required to control vapour concentrations. Concentrations in air should be maintained below lower explosive limit at all times or below the recommended threshold limit value if unprotected personnel are involved. Make up air should always be supplied to balance air exhausted (either generally or locally). For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes. Provide an eyewash station in the area.

Skin Protection: Impervious gloves (viton, polyvinyl alcohol) should be worn at all times when handling this product. In confined spaces or where the risk of skin exposure is much higher, impervious clothing should be worn. Safety showers should be available for emergency use.

Respiratory Protection: If exposure exceeds occupational exposure limits, use an appropriate NIOSH-approved respirator. Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges or use a NIOSH-approved supplied-air respirator. For high airborne concentrations, use a NIOSH-approved supplied-air respirator, either self-contained or airline breathing apparatus, operated in positive pressure mode.

9. PHYSICAL DATA

Physical State:	Liquid
Appearance:	Blue Colour Clear
Odour:	Typical Gasoline Odour
Odour Threshold:	Not available
Freezing/Pour Point:	Freeze Point = -58 degrees C
Boiling Point:	75 - 170 degrees C
Density:	Not available
Vapour Density (Air = 1):	Not available
Vapour Pressure (absolute):	>285 mm Hg @ 38 degrees C
pH:	Not applicable
Flash Point:	Method Tag Closed Cup <1 degrees C
Lower Explosion Limit:	1.4 % (vol.)
Upper Explosion Limit:	7.6 % (vol.)
Autoignition Temperature:	Not available
Viscosity:	Not available
Evaporation Rate (n-BuAc = 1):	Not available
Partition Coefficient (K_{OW}):	Not available
Water Solubility:	Insoluble
Other Solvents:	Hydrocarbon Solvents

10. STABILITY AND REACTIVITY

Chemically Stable:	Yes
Hazardous Polymerization:	No
Sensitive to Mechanical Impact:	No
Sensitive to Static Discharge:	Yes
Incompatible Materials:	Avoid strong oxidizing agents.

Conditions of Reactivity: Avoid excessive heat, open flames and all ignition sources.

11. TOXICOLOGICAL INFORMATION

Ingredient (or Product if not specified)	Toxicological Data
Naphtha (Petroleum), Light Alkylate	LC50 Inhalation Rat >11000 mg/m3 for 4hours LD50 Dermal Rat >4000 mg/kg LD50 Oral Rat >8000 mg/kg
Toluene	LD50 Oral Rat = 5000 mg/kg LC50 Inhalation Rat = 8000 ppm for 4 hours LD50 Dermal Rabbit = 14000 mg/kg

Routes of Exposure: Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.

Formulation: This product contains n-hexane.

Irritancy: This product is expected to be irritating to skin but is not predicted to be a skin sensitizer.

Chronic Effects: Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Prolonged or repeated exposure to high vapour concentration or ingestion can cause headache, nausea, dizziness, and central nervous system depression, and in rare cases may sensitize heart muscles causing heart arrythmia. Peripheral neurotoxicity has been reported in connection with over exposure to n-hexane. This product contains low levels of lead. Chronic, low grade exposure to lead compounds could lead to insomnia, anorexia, nausea and vomiting, diarrhea, anemia, sensory loss and muscular weakness.

Pre-existing Conditions: Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.

12. ECOLOGICAL INFORMATION

Environmental Effects: Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities. May be harmful to aquatic life. Fish Toxicity: 5 to 40 ppm | 96 hr TLm | Rainbow Trout | Freshwater

Biodegradability: Not available. Rapid volatilization.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery (cement kilns, thermal power generation), 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site. Incinerate at a licenced waste disposal site with approval of environmental authority.

14. TRANSPORTATION INFORMATION

Canadian Road and Rail Shipping Classification:

UN Number	UN1203
Proper Shipping Name	GASOLINE
Hazard Class	Class 3 Flammable Liquids
Packing Group	PG II
Additional Information	Marine Pollutant
Shipping Description	GASOLINE Class 3 UN1203 PG II Marine Pollutant

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Class:	Class B2 Flammable Liquid Class D2B Other Toxic Effects - Skin Irritant
DSL/NDSL Status:	This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act.
Other Regulatory Status:	No Canadian federal standards.

16. ADDITIONAL INFORMATION

LABEL STATEMENTS

Hazard Statement :	Flammable Liquid. Irritating to skin.
Handling Statement:	Eliminate all ignition sources. Wear suitable gloves and eye protection. Bond and ground transfer containers and equipment to avoid static accumulation. Avoid prolonged exposure to vapours. Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.
First Aid Statement :	Wash contaminated skin with soap and water. Flush eyes with water. If overcome by vapours remove to fresh air. Do not induce vomiting. Obtain medical attention.
Revisions:	This MSDS has been reviewed and updated. Changes have been made to: Section 14

B1-6

General Chemical

Material Safety Data Sheet

CALCIUM CHLORIDE, FLAKE

A. GENERAL INFORMATION

TRADE NAME (COMMON NAME): FLAKE CALCIUM CHLORIDE		**CAS NUMBER:** 10043-52-4 (anhydrous)	
CHEMICAL NAME AND/OR SYNONYM: Calcium Chloride, Dihydrate			
FORMULA: $CaCl_2 \cdot 2H_2O$		**MOLECULAR WEIGHT:** 147.02	
MANUFACTURER/ADDRESS: GENERAL CHEMICAL CORPORATION 90 East Halsey Road Parsippany, NJ 07054			
CONTACT: Manager, Product Safety	**PHONE NUMBER:** (973) 515-1840	**LAST ISSUE DATE:** September, 1994	**CURRENT ISSUE DATE:** May, 2001

B. FIRST AID MEASURES

EMERGENCY PHONE NUMBER:
(800) 631-8050

EYES:	Flush promptly with plenty of water, continuing for at least 15 minutes. Get medical attention.
SKIN:	Wash with plenty of water.
INHALATION:	Remove to fresh air.
INGESTION:	If conscious, immediately give 2 to 4 glasses of water, and induce vomiting by touching finger to back of throat. Get medical attention for irritation, ingestion, or discomfort from inhalation.

C. HAZARDS INFORMATION

INHALATION:
Dust or mist inhalation may irritate nose, throat, and lungs.

INGESTION:
Low in toxicity. LD_{50} (rat): 1.4 g/kg.* - Reference (e)
May irritate gastrointestinal tract. *anhydrous basis.

SKIN:
May cause skin irritation. Under conditions of prolonged contact or when moisture is present, superficial burns may result. Contact with abraded skin or cuts can cause severe necrosis.

EYES:
May irritate or burn eyes.

PERMISSIBLE CONCENTRATION: AIR **(SEE SECTION J)** Also, no TLV established by ACGIH.	**BIOLOGICAL** None

UNUSUAL CHRONIC TOXICITY:
None.

B2-1

C. HAZARDS (Cont.)

FLASH POINT: Not flammable OPEN CUP ☐ CLOSED CUP ☐	AUTO IGNITION TEMPERATURE NA	FLAMMABLE LIMITS IN AIR (% BY VOL.) LOWER - NA UPPER - NA
UNUSUAL FIRE AND EXPLOSION HAZARDS See hazard of contact with zinc as in galvanized iron: Section G.		

D. PRECAUTIONS/PROCEDURES

FIRE EXTINGUISHING AGENTS RECOMMENDED:
NA

FIRE EXTINGUISHING AGENTS TO AVOID:
NA

SPECIAL FIREFIGHTING PRECAUTIONS:
None.

VENTILATION:
Local exhaust: In packaging and uploading areas, over open processing equipment, and any other places where dusty or misty condition prevails.
Natural ventilation: Adequate for other areas.

NORMAL HANDLING:
Avoid contact with eyes, skin or clothing. Avoid breathing mist. Use good personal hygiene and housekeeping.

STORAGE:
Store in a cool, dry area. Prolonged storage may cause product to cake and become wet from atmospheric moisture.

SPILL OR LEAK (ALWAYS WEAR PERSONAL PROTECTIVE QUIPMENT – SECTION E)
Shovel up dry chemical and place in metal drum with a cover. Cautiously spray residue with plenty of water.

SPECIAL: PRECAUTIONS/PROCEDURES/LABEL INSTRUCTIONS:	SIGNAL WORD WARNING!

E. PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION:
For dusty or misty condition, wear NIOSH-approved mist respirator.

EYES AND FACE:
For dusty or misty condition, or when handling solution where there is reasonable probability of eye contact, wear chemical safety goggles and hat. Under these conditions, do not wear contact lenses.

HANDS, ARMS, AND BODY:
As a minimum, wear long-sleeve shirt and trousers, boots, and gloves for routine product use.
Cotton gloves permitted for dry product, impervious gloves when using solutions.

OTHER CLOTHING AND EQUIPMENT:
Eye-wash facility.

F. PHYSICAL DATA

MATERIAL IS AT NORMAL CONDITIONS:	APPEARANCE AND COLOR:
LIQUID ☐ SOLID ☒ GAS ☐ ☐ _____	Small white flakes; odorless.

BOILING POINT: Unknown °C MELTING POINT: 176 °C	SPECIFIC GRAVITY: (H_2O = 1) 0.835 - Reference (b)	VAPOR DENSITY: (AIR =1) NA: water vapor only.
SOLUBILITY IN WATER: (% BY WEIGHT) 42 (anhydrous) @ 20°C	pH: Neutral or slightly alkaline - Reference (c).	VAPOR PRESSURE: (mm Hg @ 20°C) ☐ (PSIG) ☐ NA
EVAPORATION RATE: (Butyl acetate=1) ☐ (Ether = 1.0) ☐ NA	% VOLATILES BY VOLUME: (AT 20°C) NA	

G. REACTIVITY DATA

STABILITY: UNSTABLE ☐ STABLE ☒	CONDITIONS TO AVOID: NA

INCOMPATIBILITY (MATERIALS TO AVOID):
Sulfuric acid: yields hydrogen chloride gas, which is corrosive, irritating, and reactive. Water-reactive materials, such as sodium: cause an exothermic reaction. Methyl vinyl ether: starts runaway polymerization reaction – Reference (d). Zinc as in galvanized iron: yields hydrogen gas with solutions, which may explode under these conditions. – Reference (d).

HAZARDOUS DECOMPOSITION PRODUCTS:

None.

HAZARDOUS POLYMERIZATION: MAY OCCUR ☐ WILL NOT OCCUR ☒	CONDITIONS TO AVOID: NA

H. HAZARDOUS INGREDIENTS (MIXTURES ONLY)

MATERIAL OR COMPONENT/C.A.S. #	WT.%	HAZARD DATA (See Sect. J)
NA		

B2-3

I. ENVIRONMENTAL

DEGRADABILITY/AQUATIC TOXICITY:	OCTANOL/WATER PARTITION COEFFICIENT
	NA

Aquatic Toxicity: TLm96: over 1000 ppm (anhydrous) – Reference (a).

EPA HAZARDOUS SUBSTANCE? (CLEAN WATER ACT SECT. 311) YES ☐ NO ☒ IF SO, REPORTABLE QUANTITY:	40 CFR 116-117

WASTE DISPOSAL METHODS (DISPOSER MUST COMPLY WITH FEDERAL, STATE AND LOCAL DISPOSAL OR DISCHARGE LAWS):

Treatment or disposal of waste generated by use of this product should be reviewed in terms of applicable federal, state and local laws and regulations. Users are advised to consult with appropriate regulatory agencies before discharge, treatment or disposal.

RCRA STATUS OF UNUSED MATERIAL IF DISCARDERD:	HAZARDOUS WASTE NUMBER: (IF APPLICABLE)	40 CFR 261
Not a "hazardous waste".	--	

J. REFERENCES

PERMISSIBLE CONCENTRATIONS REFERENCES:

None.

REGULATORY STANDARDS	DOT CLASSIFICATION:	49 CFR 173
	Not regulated	

None.

GENERAL:

(a) NIOSH, Registry of Toxic Effects of Chemical Substances, 1979, Accession No. EV 98 00 000.
(b) Weast, R.C. editor, CRC Handbook of Chemistry and Physics, 60th Edition, 1979-80, CRC Press, Inc., Boca Raton 33431.
(c) Hawley, G.N., editor, Condensed Chemical Dictionary, 9th Edition, 1977, Van Nostrand Reinhold, NYC.
(d) Brethwick, L., Handbook of Reactive Chemical Hazards, 2nd Edition, 1979, Butterworths, Boston.
(e) General Chemical Corporation tests, unpublished. (A solution of 25 g/100 ml water was used).

K. ADDITIONAL INFORMATION

None.

GC-1002

General Chemical

Material Safety Data Sheet

CALCIUM CHLORIDE, FLAKE

A. GENERAL INFORMATION

TRADE NAME (COMMON NAME): FLAKE CALCIUM CHLORIDE		**CAS NUMBER:** 10043-52-4 (anhydrous)	
CHEMICAL NAME AND/OR SYNONYM: Calcium Chloride, Dihydrate			
FORMULA: $CaCl_2 \cdot 2H_2O$		**MOLECULAR WEIGHT:** 147.02	
MANUFACTURER/ADDRESS: GENERAL CHEMICAL INDUSTRAL PRODUCTS 90 East Halsey Road Parsippany, NJ 07054			
CONTACT: Manager, Product Safety	**PHONE NUMBER:** (973) 515-1840	**LAST ISSUE DATE:** September, 1994	**CURRENT ISSUE DATE:** March, 2004

B. FIRST AID MEASURES

EMERGENCY PHONE NUMBER:
(800) 631-8050

EYES:	Flush promptly with plenty of water, continuing for at least 15 minutes. Get medical attention.
SKIN:	Wash with plenty of water.
INHALATION:	Remove to fresh air.
INGESTION:	If conscious, immediately give 2 to 4 glasses of water, and induce vomiting by touching finger to back of throat. Get medical attention for irritation, ingestion, or discomfort from inhalation.

C. HAZARDS INFORMATION

INHALATION:
Dust or mist inhalation may irritate nose, throat, and lungs.

INGESTION:
Low in toxicity. LD_{50} (rat): 1.4 g/kg.* - Reference (e)
May irritate gastrointestinal tract. *anhydrous basis.

SKIN:
May cause skin irritation. Under conditions of prolonged contact or when moisture is present, superficial burns may result. Contact with abraded skin or cuts can cause severe necrosis.

EYES:
May irritate or burn eyes.

PERMISSIBLE CONCENTRATION: AIR **(SEE SECTION J)** Also, no TLV established by ACGIH.	**BIOLOGICAL** None

UNUSUAL CHRONIC TOXICITY:
None.

B2-5

C. HAZARDS (Cont.)

FLASH POINT: Not flammable OPEN CUP ☐ CLOSED CUP ☐	AUTO IGNITION TEMPERATURE NA	FLAMMABLE LIMITS IN AIR (% BY VOL.) LOWER - NA UPPER - NA
UNUSUAL FIRE AND EXPLOSION HAZARDS See hazard of contact with zinc as in galvanized iron: Section G.		

D. PRECAUTIONS/PROCEDURES

FIRE EXTINGUISHING AGENTS RECOMMENDED:
NA

FIRE EXTINGUISHING AGENTS TO AVOID:
NA

SPECIAL FIREFIGHTING PRECAUTIONS:
None.

VENTILATION:
Local exhaust: In packaging and uploading areas, over open processing equipment, and any other places where dusty or misty condition prevails.
Natural ventilation: Adequate for other areas.

NORMAL HANDLING:
Avoid contact with eyes, skin or clothing. Avoid breathing mist. Use good personal hygiene and housekeeping.

STORAGE:
Store in a cool, dry area. Prolonged storage may cause product to cake and become wet from atmospheric moisture.

SPILL OR LEAK (ALWAYS WEAR PERSONAL PROTECTIVE QUIPMENT – SECTION E)
Shovel up dry chemical and place in metal drum with a cover. Cautiously spray residue with plenty of water.

SPECIAL: PRECAUTIONS/PROCEDURES/LABEL INSTRUCTIONS:

SIGNAL WORD
WARNING!

E. PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION:
For dusty or misty condition, wear NIOSH-approved mist respirator.

EYES AND FACE:
For dusty or misty condition, or when handling solution where there is reasonable probability of eye contact, wear chemical safety goggles and hat. Under these conditions, do not wear contact lenses.

HANDS, ARMS, AND BODY:
As a minimum, wear long-sleeve shirt and trousers, boots, and gloves for routine product use.
Cotton gloves permitted for dry product, impervious gloves when using solutions.

OTHER CLOTHING AND EQUIPMENT:
Eye-wash facility.

B2-b

F. PHYSICAL DATA

MATERIAL IS AT NORMAL CONDITIONS: LIQUID ☐ SOLID ☒ GAS ☐ ☐ _____		APPEARANCE AND COLOR: Small white flakes; odorless.
BOILING POINT: Unknown °C MELTING POINT: 176 °C	SPECIFIC GRAVITY: (H_2O = 1) 0.835 - Reference (b)	VAPOR DENSITY: (AIR =1) NA: water vapor only.
SOLUBILITY IN WATER: (% BY WEIGHT) 42 (anhydrous) @ 20°C	pH: Neutral or slightly alkaline - Reference (c).	VAPOR PRESSURE: (mm Hg @ 20°C) ☐ (PSIG) ☐ NA
EVAPORATION RATE: (Butyl acetate=1) ☐ (Ether = 1.0) ☐ NA	% VOLATILES BY VOLUME: (AT 20°C) NA	

G. REACTIVITY DATA

STABILITY: UNSTABLE ☐ STABLE ☒	CONDITIONS TO AVOID: NA
INCOMPATIBILITY (MATERIALS TO AVOID): Sulfuric acid: yields hydrogen chloride gas, which is corrosive, irritating, and reactive. Water-reactive materials, such as sodium: cause an exothermic reaction. Methyl vinyl ether: starts runaway polymerization reaction – Reference (d). Zinc as in galvanized iron: yields hydrogen gas with solutions, which may explode under these conditions. – Reference (d).	
HAZARDOUS DECOMPOSITION PRODUCTS: None.	
HAZARDOUS POLYMERIZATION: MAY OCCUR ☐ WILL NOT OCCUR ☒	CONDITIONS TO AVOID: NA

H. HAZARDOUS INGREDIENTS (MIXTURES ONLY)

MATERIAL OR COMPONENT/C.A.S. #	WT.%	HAZARD DATA (See Sect. J)
NA		

B2-7

I. ENVIRONMENTAL

DEGRADABILITY/AQUATIC TOXICITY:	OCTANOL/WATER PARTITION COEFFICIENT NA
Aquatic Toxicity: TLm96: over 1000 ppm (anhydrous) – Reference (a).	

EPA HAZARDOUS SUBSTANCE? (CLEAN WATER ACT SECT. 311) YES ☐ NO ☒ IF SO, REPORTABLE QUANTITY:	40 CFR 116-117

WASTE DISPOSAL METHODS (DISPOSER MUST COMPLY WITH FEDERAL, STATE AND LOCAL DISPOSAL OR DISCHARGE LAWS):

Treatment or disposal of waste generated by use of this product should be reviewed in terms of applicable federal, state and local laws and regulations. Users are advised to consult with appropriate regulatory agencies before discharge, treatment or disposal.

RCRA STATUS OF UNUSED MATERIAL IF DISCARDERD: Not a "hazardous waste".	HAZARDOUS WASTE NUMBER: (IF APPLICABLE) --	40 CFR 261

J. REFERENCES

PERMISSIBLE CONCENTRATIONS REFERENCES:

None.

REGULATORY STANDARDS	DOT CLASSIFICATION: Not regulated	49 CFR 173

None.

GENERAL:

(a) NIOSH, Registry of Toxic Effects of Chemical Substances, 1979, Accession No. EV 98 00 000.
(b) Weast, R.C. editor, CRC Handbook of Chemistry and Physics, 60th Edition, 1979-80, CRC Press, Inc., Boca Raton 33431.
(c) Hawley, G.N., editor, Condensed Chemical Dictionary, 9th Edition, 1977, Van Nostrand Reinhold, NYC.
(d) Brethwick, L., Handbook of Reactive Chemical Hazards, 2nd Edition, 1979, Butterworths, Boston.
(e) General Chemical Industrial Products tests, unpublished. (A solution of 25 g/100 ml water was used).

K. ADDITIONAL INFORMATION

None.

GC-1002

Material Safety Data Sheet

Dyno Nobel Inc.
2650 Decker Lake Boulevard, Suite 300
Salt Lake City, Utah 84119
Phone: 801-364-4800 Fax: 801-321-6703
E-Mail: dnna.hse@am.dynonobel.com
FOR 24 HOUR EMERGENCY, CALL CHEMTREC (USA) 800-424-9300
CANUTEC (CANADA) 613-996-6666

MSDS # 1108
Date 01/23/06

Supercedes
MSDS # 1108 01/24/05

SECTION I - PRODUCT IDENTIFICATION

Trade Name(s):
DYNO® Cast BOOSTERS - D10, D15, D25, D35, D45, D65, D90, D135
DYNO® Cast BOOSTERS – C30, C35, C40, C45, C90
DYNO® SLIDER BOOSTERS - DS35, DS45, DS90
DYNO® CORD SENSITIVE BOOSTERS - CS35, CS45, CS90, CS135
SEIS X®
DYNO® STINGER
TROJAN® SPARTAN®
TROJAN® SPARTAN® Slider
TROJAN® Stinger
TROJAN® NB
TROJAN® Twinplex
TROJAN® OPTIPRIME®

Product Class: Cast Booster

Product Appearance & Odor: Tan to brown solid with no odor. May also be silvery gray. Packaged in paper or plastic tube.

DOT Hazard Shipping Description: Booster 1.1D UN0042 II

NFPA Hazard Classification: Not Available (See Section IV - Special Fire Fighting Procedures)

SECTION II - HAZARDOUS INGREDIENTS

			Occupational Exposure Limits	
Ingredients:	**CAS#**	**% (Range)**	**ACGIH TLV-TWA**	**OSHA PEL-TWA**
Pentaerythritol Tetranitrate (PETN)	78-11-5	30-70	None Established	None Established
Trinitrotoluene	118-96-7	30-60	0.1 mg/m^3 (skin)	1.5 mg/m^3 (skin)
RDX	121-82-4	0-30	0.5 mg/m^3 (skin)	1.5 mg/m^3 (skin)
HMX	2691-41-0	0-10	None Established	None Established
Aluminum	7429-90-5	0-15	10 mg/m^3 (dust)	15 mg/m^3 (total)

Ingredients, other than those mentioned above, as used in this product are not hazardous as defined under current Department of Labor regulations, or are present in deminimus concentrations (less than 0.1% for carcinogens, less than 1.0% for other hazardous materials).

Material Safety Data Sheet

SECTION III - PHYSICAL DATA

Melting Point: 176° F (80° C) (TNT)
Vapor Density: Not applicable
Percent Volatile by Volume: Not applicable
Evaporation Rate (Butyl Acetate = 1): Not applicable

Vapor Pressure: 0.042mm Hg at 80° C (TNT)
Density: 1.55 - 1.65 g/cc
Solubility in Water: < 0.01%

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: Not applicable
Flammable Limits: Not applicable
Extinguishing Media: (See Special Fire Fighting Procedures section).
Special Fire Fighting Procedures: Do not attempt to fight fires involving explosive materials. Evacuate all personnel to a predetermined safe location, no less than 2,500 feet in all directions.
Unusual Fire and Explosion Hazards: Can explode or detonate under fire conditions. Burning material may produce toxic vapors.

SECTION V - HEALTH HAZARD DATA

Effects of Overexposure

Eyes: Particulates in the eye may cause irritation, redness, and tearing. Prolonged or repeated contact may cause cataracts, optic neuritis, blurred vision or amblyopia.
Skin: Prolonged contact may cause irritation, severe eczema and sensitization dermatitis. TNT may be absorbed through the skin, which may be indicated by orange staining on exposed skin. See systemic effects below.
Ingestion: Harmful if swallowed. See systemic effects below.
Inhalation: Inhalation of dusts may cause irritation, sneezing or coughing. See systemic effects below.
Systemic or Other Effects: TNT is an irritant, neurotoxin, hepatotoxin, nephrotoxin and bone marrow depressant. Although exposure is unlikely, acute or chronic exposure may cause sensitization dermatitis, headache, dizziness, jaundice, lethargy, or problems with the liver or blood such as toxic nephritis, aplastic anemia, hemolytic anemia or methemoglobin formation. **PETN** is a known coronary vasodilator, and ingestion or inhalation may result in a lowering of blood pressure, headache or faintness, and a decreased tolerance for grain alcohol. Repeated over-exposure may result in chest pains in the absence of exposure.

Emergency and First Aid Procedures

Eyes: Irrigate with running water for at least fifteen minutes. If irritation persists, seek medical attention.
Skin: Remove contaminated clothing. Wash skin thoroughly with soap and water.
Ingestion: Seek medical attention.
Inhalation: In case of irritation, remove to fresh air. Seek medical attention if chronic symptoms occur.
Special Considerations: None.

SECTION VI - REACTIVITY DATA

Stability: Stable under normal conditions, may explode when subjected to fire, supersonic shock or high-energy projectile impact, especially when confined or in large quantities.
Conditions to Avoid: Keep away from heat, flame, friction, impact, ignition sources and strong shock.
Materials to Avoid (Incompatibility): Corrosives (strong acids and bases or alkalis).
Hazardous Decomposition Products: Nitrogen Oxides (NO_X), Carbon Monoxide (CO)
Hazardous Polymerization: Will not occur.

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in Case Material is Released or Spilled: Protect from all ignition sources. In case of fire evacuate area not less than 2,500 feet in all directions. Notify authorities in accordance with emergency response procedures. Only personnel trained in emergency response should respond. If no fire danger is present, and product is undamaged and/or uncontaminated, repackage product in original packaging or other clean DOT approved container. Ensure that a complete account of product has been made and is verified. Follow applicable Federal, State and local spill reporting requirements.
Waste Disposal Method: Disposal must comply with Federal, State and local regulations. If product becomes a waste, it is potentially regulated as a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR, part 261. Review disposal requirements with a person knowledgeable with applicable environmental law (RCRA) before disposing of any explosive material.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation: Not required for normal handling.
Respiratory Protection: None normally required.
Protective Clothing: Non-permeable gloves and work clothing that reduce skin contact are recommended.
Eye Protection: Safety glasses are recommended.
Other Precautions Required: None.

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage: Store in cool, dry location. Store in compliance with all Federal, State and local regulations. Keep away from heat, flame, ignition sources or strong shock.
Precautions to be taken during use: Avoid breathing the fumes or gases from detonation of explosives. Use accepted safe industry practices when using explosive materials. Unintended detonation of explosives or explosive devices can cause serious injury or death.
Other Precautions: It is recommended that users of explosives material be familiar with the Institute of Makers of Explosives Safety Library publications.

SECTION X - SPECIAL INFORMATION

This product contains the following substances that are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Chemical Name	CAS Number	% By Weight
None Applicable		

Disclaimer

Shell Canada Limited

Material Safety Data Sheet

Effective Date: 2002-11-06
Supersedes: 2002-08-14

Class B3 Combustible Liquid

Class D2B Other Toxic Effects - Skin Irritant

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT:	**LOW SUL. DIESEL FUEL MARKED CP -43 - GEN. ELECTRICITY**
SYNONYMS:	Diesel Automotive Gas Oil
PRODUCT USE:	Fuel Solvent
MSDS Number:	329-143

MANUFACTURER	**TELEPHONE NUMBERS**	
Shell Canada Limited	**Shell Emergency Number**	1-800-661-7378
P.O. Box 100, Station M	**CANUTEC 24 HOUR EMERGENCY NUMBER**	613-996-6666
400-4th Ave. S.W.		
Calgary, AB Canada	For general information:	1-800-661-1600
T2P 2H5	For MSDS information:	403-691-3982
	(From 7:30 to 4:30 Mountain Time)	403-691-2220

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.

*An asterisk in the product name designates a trade-mark(s) of Shell Canada Limited, used under license by Shell Canada Products.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	% Range	WHMIS Controlled
Fuels, Diesel, No. 2	68476-34-6	>99	Yes

See Section 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

Physical Description: Liquid Red Colour Hydrocarbon Odour

Routes of Exposure: Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.

Hazards:

B4-1

Combustible Liquid.
Irritating to skin.
Vapours are moderately irritating to the eyes.
Vapours are moderately irritating to the respiratory passages. The liquid when accidently aspirated into the lungs can cause a severe inflammation of the lung.

Handling: Eliminate all ignition sources.
Avoid prolonged exposure to vapours.
Wear suitable gloves and eye protection.
Bond and ground transfer containers and equipment to avoid static accumulation.
Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.

For further information on health effects, see Section 11.

4. FIRST AID

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wash contaminated skin with mild soap and water for 15 minutes. If irritation occurs and persists, obtain medical attention.

Ingestion: DO NOT INDUCE VOMITING! OBTAIN MEDICAL ATTENTION IMMEDIATELY. Guard against aspiration into lungs by having the individual turn on to their left side. If vomiting occurs spontaneously keep head below hips to prevent aspiration of liquid into the lungs. Do not give anything by mouth to an unconscious person.

Inhalation: Remove victim from further exposure and restore breathing, if required. Obtain medical attention.

Notes to Physician: The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis. If more than 2.0 mL/kg has been ingested, vomiting should be induced with supervision. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before vomiting, gastric lavage with a cuffed endotracheal tube should be considered.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry Chemical
Carbon Dioxide
Foam
Water Fog

Firefighting Instructions: Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Caution - Combustible. Vapour forms a flammable/explosive mixture with air between upper and lower flammable limits. Vapours may travel along ground and flashback along vapour trail may occur. Do not use water except as a fog. Product will float and can be reignited on surface of water. Containers exposed to intense heat from fires should be cooled with water to prevent vapour pressure buildup which could result in container rupture. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.

Hazardous Combustion Products: A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes pyrolysis or combustion. Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

6. ACCIDENTAL RELEASE MEASURES

Issue warning "Combustible". Eliminate all ignition sources. Isolate hazard area and restrict access. Handling equipment must be grounded. Try to work upwind of spill. Avoid direct contact with material. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Dike and contain land spills; contain water spills by booming. Use water fog to knock down vapours; contain runoff. Absorb residue or small spills with absorbent material and remove to non-leaking containers for disposal. Recommended materials: Clay or Sand Flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations. Notify appropriate environmental agency(ies).

7. HANDLING AND STORAGE

Handling: Combustible. Avoid excessive heat, sparks, open flames and all other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Vapours are heavier than air and will settle and collect in low areas and pits, displacing breathing air. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapours are gone. Vapours may accumulate and travel to distant ignition sources and flashback. Do not cut, drill, grind, weld or perform similar operations on or near containers. Empty containers are hazardous, may contain flammable/explosive dusts, residues or vapours. Do not pressurize drum containers to empty them. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Launder contaminated clothing prior to reuse. Use good personal hygiene.

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Keep container tightly closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING INFORMATION, WHILE APPROPRIATE FOR THIS PRODUCT, IS GENERAL IN NATURE. THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT WILL VARY DEPENDING ON THE CONDITIONS OF USE.

OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):

North American exposure limits have not been established for the product. Consult local authorities for acceptable provincial values.
Diesel fuel, as total hydrocarbons: 100 mg/m3

Mechanical Ventilation: Concentrations in air should be maintained below lower explosive limit at all times or below the recommended threshold limit value if unprotected personnel are involved. Make up air should always be supplied to balance air exhausted (either generally or locally). For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection:	Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes. Provide an eyewash station in the area.
Skin Protection:	Impervious gloves (viton, nitrile) should be worn at all times when handling this material. In confined spaces or where the risk of skin exposure is much higher, impervious clothing should be worn. Safety showers should be available for emergency use.
Respiratory Protection:	If exposure exceeds occupational exposure limits, use an appropriate NIOSH-approved respirator. Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges or use a NIOSH-approved supplied-air respirator. For high airborne concentrations, use a NIOSH-approved supplied-air respirator, either self-contained or airline breathing apparatus, operated in positive pressure mode.

9. PHYSICAL DATA

Physical State:	Liquid
Appearance:	Red Colour
Odour:	Hydrocarbon Odour
Odour Threshold:	Not available
Freezing/Pour Point:	Varies with region and season
Boiling Point:	150 - 380 degrees C
Density:	<876 kg/m3 @ 15 degrees C
Vapour Density (Air = 1):	Not available
Vapour Pressure (absolute):	Not available
pH:	Not available
Flash Point:	Method Pensky-Martens CC >40 degrees C
Lower Explosion Limit:	1 % (vol.)
Upper Explosion Limit:	6 % (vol.)
Autoignition Temperature:	250 degrees C
Viscosity:	1.4 - 4.1 cSt @ 40 degrees C
Evaporation Rate (n-BuAc = 1):	Not available
Partition Coefficient (K_{OW}):	Not available
Water Solubility:	Insoluble

10. STABILITY AND REACTIVITY

Chemically Stable:	Yes
Hazardous Polymerization:	No
Sensitive to Mechanical Impact:	No
Sensitive to Static Discharge:	Yes
Hazardous Decomposition Products:	Thermal decomposition products are highly dependent on combustion conditions.
Incompatible Materials:	Avoid strong oxidizing agents.
Conditions of Reactivity:	Avoid excessive heat, open flames and all ignition sources.

11. TOXICOLOGICAL INFORMATION

Ingredient (or Product if not specified) **Toxicological Data**

Fuels, Diesel, No. 2	LD50 Oral Rat >5000 mg/kg LD50 Dermal Rabbit >2000 mg/kg

Routes of Exposure:	Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.
Irritancy:	This product is expected to be irritating to skin but is not predicted to be a skin sensitizer.
Chronic Effects:	Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Prolonged exposure to high vapour concentration can cause headache, dizziness, nausea, blurred vision and central nervous system depression.
Pre-existing Conditions:	Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.
Carcinogenicity and Mutagenicity:	The International Agency for Research on Cancer (IARC) considers that this product is not classifiable as to its carcinogenicity to humans. Middle distillates have caused skin cancers in laboratory animals when applied repeatedly and left in place between applications. This effect is believed to be caused by the continuous irritation of the skin. Good personal hygiene should be maintained to avoid this risk. The American Conference of Governmental Industrial Hygienists (ACGIH) has classified this product as A3 - confirmed animal carcinogen with unknown relevance to humans.

12. ECOLOGICAL INFORMATION

Environmental Effects:	Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities. May cause physical fouling of aquatic organisms.
Biodegradability:	Not readily biodegradable. Potential for bioaccumulation.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery (cement kilns, thermal power generation), 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site. Incinerate at a licenced waste disposal site with approval of environmental authority.

14. TRANSPORTATION INFORMATION

Canadian Road and Rail Shipping Classification:

UN Number	UN1202
Proper Shipping Name	DIESEL FUEL
Hazard Class	Class 3 Flammable Liquids
Packing Group	PG III
Shipping Description	DIESEL FUEL Class 3 UN1202 PG III

B4-5

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Class:	Class B3 Combustible Liquid Class D2B Other Toxic Effects - Skin Irritant
DSL/NDSL Status:	This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.
Other Regulatory Status:	No Canadian federal standards.

16. ADDITIONAL INFORMATION

LABEL STATEMENTS

Hazard Statement :	Combustible Liquid. Irritating to skin.
Handling Statement:	Eliminate all ignition sources. Avoid prolonged exposure to vapours. Wear suitable gloves and eye protection. Bond and ground transfer containers and equipment to avoid static accumulation. Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.
First Aid Statement :	Wash contaminated skin with soap and water. Flush eyes with water. If overcome by vapours remove to fresh air. Do not induce vomiting. Obtain medical attention.
Revisions:	This MSDS has been reviewed and updated. Changes have been made to: Section 8 Section 14 Section 11

B4-6

Material Safety Data Sheet

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FOR 24 HOUR EMERGENCY, CALL CHEMTREC (USA) 800-424-9300
CANUTEC (CANADA) 613-996-6666

MSDS # 1126
Date 01/24/05

Supercedes
MSDS # 1126 10/20/03

SECTION I - PRODUCT IDENTIFICATION

Trade Name(s): PRIMALINE®
PRIMACORD®
PRIMASHEAR™
OPTICORD®
GEOSEIS®
LOW FLEX™
FIRELINE CORD

Product Class: Detonating Cord

Product Appearance & Odor: Flexible cord of woven textile with a protected explosive core of PETN (white crystalline powder) and covered by a white or colored plastic or textile jacket. May have a waxed finish. No odor.

DOT Hazard Shipping Description: Cord, Detonating 1.1D UN0065 II

NFPA Hazard Classification: Not Applicable (See Section IV - Special Fire Fighting Procedures)

SECTION II - HAZARDOUS INGREDIENTS

			Occupational Exposure Limits	
Ingredients	**CAS#**	**%**	**OSHA PEL-TWA**	**ACGIH TLV-TWA**
Pentaerythritol tetranitrate (PETN)	78-11-5	-----*	None[1]	None[2]

[1] Use limit for particulates not otherwise regulated (PNOR): Total dust, 15 mg/m^3 ; respirable fraction, 5 mg/m^3.
[2] Use limit for particulates not otherwise classified (PNOC): Inhalable particulate, 10 mg/m^3 ; respirable part., 3 mg/m^3.
Ingredients, other than those mentioned above, as used in this product are not hazardous as defined under current Department of Labor regulations, or are present in deminimus concentrations (less than 0.1% for carcinogens, less than 1.0% for other hazardous materials).
* Core powder is 100% PETN. The approximate amount of PETN in a given grade of cord is expressed as that number of grams of PETN per linear meter of cord. Range is from 1 to 280 gram/meter. Example: PRIMALINE® 5 contains approximately 5 grams PETN per meter of cord. (1 gram/meter = 4.7 grains/foot)

SECTION III - PHYSICAL DATA

Boiling Point: Not Applicable (PETN decomposes at melting point, about 141°C)
Vapor Pressure: Not Applicable
Vapor Density: (Air = 1) Not Applicable
Percent Volatile by Volume: Not Applicable
Solubility in Water: Insoluble.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Extinguishing Media: (See Special Fire Fighting Procedures section.)
Special Fire Fighting Procedures: Do not attempt to fight fires involving explosive materials. Evacuate all personnel to a predetermined safe, distant location. Allow fire to burn unless it can be fought remotely or with fixed extinguishing systems (sprinklers). For transportation fires involving large quantities of detonating cord, such as a trailer load, evacuate no less than 2,500 feet in all directions.
Unusual Fire and Explosion Hazards: Can explode or detonate under fire conditions. Burning or detonating material may produce toxic vapors.

SECTION V - HEALTH HAZARD DATA

Effects of Overexposure

This is a packaged product that will not result in exposure to the explosive core material under normal conditions of use.

Eyes: May cause irritation, redness and tearing.
Skin: PETN is not known as a skin irritant or sensitizer.
Ingestion: PETN is moderately toxic if ingested. See systemic effects below.
Inhalation: See systemic effects below.
Systemic or Other Effects: PETN is a known coronary vasodilator, and ingestion or inhalation may result in a lowering of blood pressure, headache or faintness, and a decreased tolerance for grain alcohol. Repeated over-exposure may result in chest pains in the absence of exposure. Systemic effects by ingestion include dermatitis.
Carcinogenicity: No constituents are listed by NTP, IARC or OSHA.

Emergency and First Aid Procedures

Eye: Irrigate with running water for at least fifteen minutes. If irritation persists, seek medical attention.
Skin: Wash with soap and water.
Ingestion: Seek medical attention.
Inhalation: Remove to fresh air. If symptoms persist, seek medical attention.
Special Considerations: None.

SECTION VI - REACTIVITY DATA

Stability: Stable under normal conditions, may explode when subjected to fire, supersonic shock or high-energy projectile impact, especially when confined or in large quantities.
Conditions to Avoid: Keep away from heat, flame, ignition sources, impact, friction, electrostatic discharge and strong shock.
Materials to Avoid (Incompatibility): Corrosives (strong acids and strong bases or alkalis).
Hazardous Decomposition Products: Nitrogen Oxides (NO_X), Carbon Monoxide (CO)
Hazardous Polymerization: Will not occur.

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in Case Material is Released or Spilled: Protect from all ignition sources. In case of fire evacuate all personnel to a safe distant area and allow to burn or fight fire remotely. Notify authorities in accordance with emergency response procedures. Only personnel trained in emergency response should respond. If explosive powder is spilled from damaged detonating cord, remove all other explosives from the spill area. Wet down and clean spilled powder using a damp sponge or rag, avoid applying friction or pressure to the explosive, and place in a (Velostat) electrically conductive bag. Contamination of this material with sand, grit or dirt will render the material more sensitive to detonation. If no fire danger is present, and product is undamaged and/or uncontaminated, repackage product in original packaging or other

clean DOT approved container. Ensure that a complete account of product has been made and is verified. Follow applicable Federal, State, and local spill reporting requirements.
Waste Disposal Method: Disposal must comply with Federal, State and local regulations. If product becomes a waste, it is potentially regulated as a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR, part 261. Review disposal requirements with a person knowledgeable with applicable environmental law (RCRA) before disposing of any explosive material.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation: Not required for normal handling.
Respiratory Protection: None normally required.
Protective Clothing: Work gloves and work clothing that reduce the possibility of skin abrasion and that would prevent contact with spilled explosive powder is suggested.
Eye Protection: Safety glasses or goggles are recommended.
Other Precautions Required: None.

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage: Store in cool, dry, well-ventilated location. Store in compliance with Federal, State and local regulations. Only properly qualified and authorized personnel should handle and use explosives. Keep away from heat, flame, ignition sources, impact, friction, electrostatic discharge and strong shock.
Precautions to be taken during use: Use accepted safe industry practices when using explosive materials. Unintended detonation of explosives or explosive devices can cause serious injury or death. Avoid breathing the fumes or gases from detonation of explosives. Detonation in confined or unventilated areas may result in exposure to hazardous fumes or oxygen deficiency.
Other Precautions: It is recommended that users of explosive materials be familiar with the Institute of Makers of Explosives Safety Library Publications.

SECTION X - SPECIAL INFORMATION

This product contains the following substances that are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Chemical Name	CAS Number	% By Weight
None		

Disclaimer

MATERIAL SAFETY DATA SHEET

SECTION I: IDENTIFICATION OF PRODUCT

COMPANY:	**Diversity Technologies Corp.**	DATE:	Jan. 3, 2006
	8750 – 53rd Ave.	PHONE:	604-940-6050
	Edmonton, AB T6E 5G2	FAX:	604-940-6080
PRODUCT NAME:	**DR-133 POLYMER**		
PRODUCT USE:	Drilling mud additive.		
CHEMICAL FAMILY:	Anionic polyacrylamides in oil-water emulsion	CAS#:	Mixture

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION:	B3; D2B
WORKPLACE HAZARD:	Combustible liquid; skin and eye irritant

TRANSPORTATION OF DANGEROUS GOODS (TDG)

PROPER SHIPPING NAME:	Not regulated under TDG
TDG CLASSIFICATION:	Not applicable
UN NUMBER (PIN):	Not applicable
PACKING GROUP:	Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	% (v/v)	CAS NUMBER	LD_{50} Oral-Rat	LC_{50} Inhal-Rat	ACGIH-TLV
Mineral spirits	30-60	64742-47-8	>5000 mg/kg	Not available	Not established
Alkylphenol ethoxylate	3-7	68412-54-4	3000 mg/kg	Not available	Not established
Ethoxylated C_{12-15} alcohol	0.5-1.5	68131-39-5	>3200 mg/kg	Not available	Not established

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY:	[XX]EYE CONTACT [XX]SKIN [ ]INHALATION [XX]INGESTION
EYE CONTACT:	Severe irritant. Can cause redness, tissue destruction, and irritation.
SKIN CONTACT:	Irritant. Low acute dermal toxicity. Can cause redness, inflammation and irritation on prolonged contact.
INGESTION:	Low acute oral toxicity. May cause nausea, diarrhea and abdominal cramps.
INHALATION:	Not a likely source of exposure.

CARCINOGENICITY:	No information available.
TERATOGENICITY:	No information available.
REPRODUCTIVE TOXICITY:	No information available.
MUTAGENICITY:	No information available.
SYNERGISTIC PRODUCTS:	No information available.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT:	Wash thoroughly with soap and water. If irritation develops or persists, obtain medical attention. Wash contaminated clothing prior to re-use.
EYE CONTACT:	Flush with gently flowing warm water for 15 minutes or until irritation subsides. Obtain medical attention when flushing period is complete.
INGESTION:	Do not induce vomiting. Give 1-2 glasses of water. Obtain immediate medical attention. Do not give anything by mouth if patient is unconscious, rapidly losing consciousness or convulsing.
INHALATION:	Move to fresh air. Apply oxygen or artificial respiration as required. If breathing difficulties or distress continues obtain medical attention.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR:	Liquid emulsion; petroleum odour	
SPECIFIC GRAVITY:	Not available	
BOILING POINT (°C):	Not available	
MELTING POINT (°C):	Not available	
SOLUBILITY IN WATER:	Forms gel	pH: 7-9 (@ 0.6%)
PERCENT VOLATILE BY VOLUME:	Not available	
EVAPORATION RATE:	Not available	
VAPOUR PRESSURE (mmHg):	Not available	
VAPOUR DENSITY (air = 1):	Not available	
BULK DENSITY:	Not applicable	

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	65°C (TCC)
FLAMMABLE LIMITS:	Not applicable
EXTINGUISHING MEDIA:	Carbon dioxide, dry chemical, foam, in preference to a water spray.
SPECIAL FIRE FIGHTING PROCEDURES:	Self contained breathing apparatus required for fire fighting personnel. Move containers from fire area, or cool with water spray, if possible.