APPENDIX I
MSDS SHEETS

PETRO-CANADA

Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing	TDG (pictograms)
	**Not controlled**		

Section 1. Chemical Product and Company Identification

Product Name	**DURON 15W-40 HEAVY DUTY ENGINE OIL**	**Code**	420-053, DUR15
Synonym	Not available	**Validated on**	**5/9/2006.**
Manufacturer	PETRO-CANADA P.O. Box 2844 Calgary, Alberta T2P 3E3	**In case of Emergency**	Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).
Material Uses	DURON* 15W-40 engine oil may be used in a wide range of compression and spark ignition engines in mobile and stationary equipment where this viscosity grade is recommended. The product may also be used in many types of wet clutch transmissions and hydraulic systems.		

Section 2. Composition and Information on Ingredients

			Exposure Limits (ACGIH)		
Name	**CAS #**	**% (W/W)**	**TLV-TWA(8 h)**	**STEL**	**CEILING**
Mixture of severely hydrotreated and hydrocracked and/or solvent-refined base oil (petroleum) and other proprietary, non-hazardous additives.	Mixture	100	5 mg/m³ (oil mist)	10 mg/m³ (oil mist)	Not established

Manufacturer Recommendation	Not applicable
Other Exposure Limits	Consult local, state, provincial or territory authorities for acceptable exposure limits.

Section 3. Hazards Identification.

Potential Health Effects	Prolonged or repeated contact may cause skin irritation, defatting, drying and dermatitis. Not expected to cause more than slight skin or eye irritation. With its relatively low vapour pressure, this product is not expected be inhaled in any appreciable quantity at ambient conditions. If heated to high temperatures or subjected to mechanical actions which produce vapours or mists, inhalation may cause respiratory tract irritation. Ingestion may produce a laxative effect. For more information refer to Section 11 of this MSDS.

Section 4. First Aid Measures

Eye Contact	No effects expected.If irritation does occur, flush contaminated eye(s) with lukewarm, gently flowing water for 5 minutes or until the chemical is removed. If irritation persists, obtain medical advice.
Skin Contact	Quickly and gently, blot or brush away excess chemical.Wash gently and thoroughly with water and non-abrasive soap for 5 minutes or until chemical is removed. Remove contaminated clothing, shoes and leather goods (e.g., watchbands, belts, etc.). If irritation persists, repeat flushing.Obtain medical attention immediately. Completely decontaminate clothing, shoes and leather goods before reuse or discard.
Inhalation	Remove source of contamination or move victim to fresh air. If irritation persists, obtain medical advice.
Ingestion	NEVER give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. DO NOT INDUCE VOMITING.Have victim drink 240 to 300 mL (8 to 10 oz) of water to dilute material in stomach. If vomiting occurs naturally, rinse mouth and repeat administration of water.Obtain medical attention.
Note to Physician	Not available

Section 5. Fire-fighting Measures

Flammability	May be combustible at high temperature.	**Flammable Limits**	Not available
Flash Points	Open cup: 227°C (440.6°F) [Cleveland.]	**Auto-Ignition Temperature**	Fire Point: 247ºC (476.6ºF)

Continued on Next Page

Fire Hazards in Presence of Various Substances	Low fire hazard. This material must be heated before ignition will occur.	**Explosion Hazards in Presence of Various Substances**	Do not cut, weld, heat, drill or pressurize empty container. Containers may explode in heat of fire.
Products of Combustion	Carbon oxides (CO, CO2), sulphur oxides (SOx), calcium oxides (CaOx), smoke and irritating vapours as products of incomplete combustion.		
Fire Fighting Media and Instructions	NAERG2004, GUIDE 171, Substances (low to moderate hazard). If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (0.5 mile) in all directions; also, consider initial evacuation for 800 meters (0.5 mile) in all directions. Shut off fuel to fire if it is possible to do so without hazard. If this is impossible, withdraw from area and let fire burn out under controlled conditions. Withdraw immediately in case of rising sound from venting safety device or any discolouration of tank due to fire. Cool containing vessels with water spray in order to prevent pressure build-up, autoignition or explosion. SMALL FIRE: use DRY chemicals, foam, water spray or CO2. LARGE FIRE: use water spray, fog or foam. For small outdoor fires, portable fire extinguishers may be used, and self contained breathing apparatus (SCBA) may not be required. For all indoor fires and any significant outdoor fires, SCBA is required. Respiratory and eye protection are required for fire fighting personnel.		

Section 6. Accidental Release Measures

Material Release or Spill	Consult current National Emergency Response Guide Book (NAERG) for appropriate spill measures if necessary. Ensure clean-up personnel wear appropriate personal protective equipment. Extinguish all ignition sources. Stop leak if safe to do so. Dike spilled material. Use appropriate inert absorbent material to absorb spilled product. Collect used absorbent for later disposal. Avoid contact with spilled material. Avoid contaminating sewers, streams, rivers and other water courses with spilled material. Notify appropriate authorities immediately.

Section 7. Handling and Storage

Handling	Avoid contact with any sources of ignition, flames, heat, and sparks. Avoid skin contact. Avoid eye contact. Avoid inhalation of product vapours or mists. Wear proper personal protective equipment (See Section 8). Empty containers may contain product residue. Do not pressurize, cut, heat, or weld empty containers. Do not reuse containers without commercial cleaning and/or reconditioning. Personnel who handle this material should practice good personal hygiene during and after handling to help prevent accidental ingestion of this product. Properly dispose of contaminated leather articles including shoes that cannot be decontaminated.
Storage	Store away from incompatible and reactive materials (See section 5 and 10). Keep container tightly closed. Store in dry, cool, well-ventilated area.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	For normal application, special ventilation is not necessary. If user's operations generate vapours or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Make-up air should always be supplied to balance air removed by exhaust ventilation. Ensure that eyewash station and safety shower are close to work-station.
Personal Protection	- ***The selection of personal protective equipment varies, depending upon conditions of use.***
Eyes	As a minimum, safety glasses with side shields should be worn when handling this material.
Body	If this material may come in contact with the body during handling and use, we recommend wearing appropriate protective clothing to prevent contact with the skin. (Contact your PPE provider for more information.)
Respiratory	A minimum of NIOSH-approved air-purifying respirator with an organic vapour cartridge or canister with a dust, fume of mist filter (R, or P series) may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. A NIOSH-approved positive-pressure, air-supplied respirator or self-contained breathing apparatus may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits.
Hands	If this material may come in contact with the hands during handling and use, we recommend wearing gloves of the following material(s): Neoprene, Nitrile, Polyvinyl alcohol (PVA), Fluoro-elastomer. Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any material regardless of their imperviousness, will get permeated by chemicals. Therefore, protective gloves should be regularly checked for wear and tear. At the first signs of hardening and cracks, they should be changed.
Feet	Wear appropriate footwear to prevent product from coming in contact with feet and skin.

Section 9. Physical and Chemical Properties

Physical State and Appearance	Viscous liquid.	**Viscosity**	117 cSt @ 40ºC (104ºF), 15.4 cSt @ 100ºC (212ºF), VI=139
Colour	Light amber.	**Pour Point**	-45ºC (-49ºF)
Odour	Mild petroleum oil like.	**Softening Point**	Not applicable
Odour Threshold	Not available	**Dropping Point**	Not applicable
Boiling Point	Not available.	**Penetration**	Not applicable
Density	0.8756 kg/L @ 15°C (59°F)	**Oil / Water Dist. Coefficient**	Not available
Vapour Density	Not available	**Ionicity (in water)**	Not available
Vapour Pressure	Negligible at ambient temperature and pressure.	**Dispersion Properties**	Not available
Volatility	Not available	**Solubility**	Insoluble in water.

Section 10. Stability and Reactivity

Corrosivity	Copper corrosion, 3h, 100°C (ASTM D0130): 1a		
Stability	The product is stable under normal handling and storage conditions.	**Hazardous Polymerization**	Will not occur under normal working conditions.
Incompatible Substances / Conditions to Avoid	Reactive with oxidizing agents, acids, halogens and halogen compounds.	**Decomposition Products**	May release COx, SOx, NOx, SiOx, H2S, aldehydes, alkyl mercaptans, sulfides, methacrylate monomers, smoke and irritating vapours when heated to decomposition.

Section 11. Toxicological Information

Routes of Entry	Skin contact, eye contact, inhalation and ingestion.
Acute Lethality	Acute toxicity information is not available for the product as a whole, therefore, data for the base oils are provided below: Acute Oral toxicity (LD50): >5000 mg/kg (rat) Acute Dermal toxicity (LD50): >2000 mg/kg (rabbit) Acute Inhalation toxicity (LC50): >2500 mg/m³/4h (rat)

Chronic or Other Toxic Effects

Dermal Route:	Prolonged or repeated contact may defat and dry skin, and cause dermatitis. Short-term exposure is expected to cause only slight irritation, if any.
Inhalation Route:	With its relatively low vapour pressure, this product is not expected be inhaled in any appreciable quantity at ambient conditions. If heated to high temperatures or subjected to mechanical actions which produce vapours or mists, inhalation may cause respiratory tract irritation.
Oral Route:	Ingestion of this product may lead to aspiration of the liquid, especially if vomiting occurs. This may result in chemical pneumonitis (inflammation of the lungs) and/or pulmonary edema (an accumulation of fluid in the lungs). May produce a laxative effect.
Eye Irritation/Inflammation:	Short-term exposure is expected to cause only slight irritation, if any.
Immunotoxicity:	Not available
Skin Sensitization:	Contact with this product is not expected to cause skin sensitization, based upon the available data and the known hazards of the components.
Respiratory Tract Sensitization:	Contact with this product is not expected to cause respiratory tract sensitization, based upon the available data and the known hazards of the components.
Mutagenic:	This product is not known to contain any components at >= 0.1% that have been shown to cause mutagenicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a mutagen.
Reproductive Toxicity:	This product is not known to contain any components at >= 0.1% that have been shown to cause reproductive toxicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a reproductive toxin.
Teratogenicity/Embryotoxicity:	This product is not known to contain any components at >= 0.1% that have been shown to cause teratogenicity and/or embryotoxicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a teratogen/embryotoxin.
Carcinogenicity (ACGIH):	This product is not known to contain any chemicals at reportable quantities that are listed as Group A1 or A2 carcinogens by ACGIH.
Carcinogenicity (IARC):	This product is not known to contain any chemicals at reportable quantities that are listed as Group 1, 2A, or 2B carcinogens by IARC.

Carcinogenicity (NTP):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by NTP.
Carcinogenicity (IRIS):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by IRIS.
Carcinogenicity (OSHA):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by OSHA.
Other Considerations	No additional remark.

Section 12. Ecological Information

Environmental Fate	Not available	**Persistance/ Bioaccumulation Potential**	Not available
BOD5 and COD	Not available	**Products of Biodegradation**	Not available
Additional Remarks	No additional remark.		

Section 13. Disposal Considerations

Waste Disposal	Spent/ used/ waste product may meet the requirements of a hazardous waste. Consult your local or regional authorities. Ensure that waste management processes are in compliance with government requirements and local disposal regulations.

Section 14. Transport Information

TDG Classification	Not a hazardous material for transport according to the TDG Regulations. (Canada)	**Special Provisions for Transport**	Not applicable.

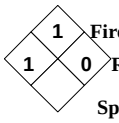
Section 15. Regulatory Information

Other Regulations	This product is acceptable for use under the provisions of WHMIS-CPR. All components of this formulation are listed on the CEPA-DSL (Domestic Substances List). All components of this formulation are listed on the US EPA-TSCA Inventory. All components of this product are on the European Inventory of Existing Commercial Chemical Substances (EINECS) or the European List of Notified Chemical Substances (ELINCS). This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR. Please contact Product Safety for more information.		
DSD/DPD (Europe)	Not classified under the Dangerous Substances or Dangerous Preparations Directives.	**HCS (U.S.A.)**	Does not meet the definitions of a health or physical hazard according to the OSHA - Hazard Communication Standard. (United States)
ADR (Europe) (Pictograms)	NOT EVALUATED FOR EUROPEAN TRANSPORT NON ÉVALUÉ POUR LE TRANSPORT EUROPÉEN.	**DOT (U.S.A) (Pictograms)**	Not evaluated for transport Non évalué pour le transport

HMIS (U.S.A.)

Health Hazard	1
Fire Hazard	1
Reactivity	0
Personal Protection	B

NFPA (U.S.A.)



Rating
0 Insignificant
1 Slight
2 Moderate
3 High
4 Extreme

Section 16. Other Information

References Available upon request.
* Marque de commerce de Petro-Canada - Trademark

Glossary

ACGIH - American Conference of Governmental Industrial Hygienists
ADR - Agreement on Dangerous goods by Road (Europe)
ASTM - American Society for Testing and Materials
BOD5 - Biological Oxygen Demand in 5 days
CAS - Chemical Abstract Services
CEPA - Canadian Environmental Protection Act
CERCLA - Comprehensive Environmental Response, Compensation and Liability Act
CFR - Code of Federal Regulations
CHIP - Chemical Hazard Information and Packaging Approved Supply List
COD - Chemical Oxygen Demand
CPR - Controlled Products Regulations
DOT - Department of Transportation (U.S.A.)
DSCL - Dangerous Substances Classification and Labeling (Europe)
DSD/DPD - Dangerous Substance or Dangerous Preparations Directives (Europe)
DSL - Domestic Substance List (Canada)
EEC/EU - European Economic Community/European Union
EINECS - European Inventory of Existing Commercial Chemical Substances
EPCRA - Emergency Planning And Community Right-To-Know Act
FDA - Food and Drug Administration
FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act
HCS - Hazardous Communication System
HMIS - Hazardous Material Information System
IARC - International Agency for Research on Cancer
IRIS - Integrated Risk Information System
LD50/LC50 - Lethal Dose/Concentration kill 50%
LDLo/LCLo - Lowest Published Lethal Dose/Concentration
NFPA - National Fire Prevention Association
NIOSH - National Institute for Occupational Safety & Health
NPRI - National Pollutant Release Inventory
NSNR - New Substances Notification Regulations (Canada)
NTP - National Toxicology Program
OSHA - Occupational Safety & Health Administration
PEL - Permissible Exposure Limit
RCRA - Resource Conservation and Recovery Act
SARA - Superfund Amendments and Reorganization Act
STEL - Short Term Exposure Limit (15 minutes)
TDG - Transportation Dangerous Goods (Canada)
TDLo/TCLo - Lowest Published Toxic Dose/Concentration
TLV-TWA - Threshold Limit Value-Time Weighted Average
TLm - Median Tolerance Limit
TSCA - Toxic Substances Control Act
USEPA - United States Environmental Protection Agency
USP - United States Pharmacopoeia
WHMIS - Workplace Hazardous Material Information System

For Copy of MSDS

The Canadian Controlled Products Regulations (CPR) (Under the Hazardous Products Act, part of the WHMIS legislation) only apply to WHMIS Controlled (i.e., hazardous) products. Therefore, the CPR and the 3-year update rule specified therein do not apply to WHMIS Non-Controlled products. Although this is true, customarily Petro-Canada reviews and updates Non-Controlled product MSDS if a customer requests such an update. These Non-Controlled product updates are given a lower priority than Controlled products but are handled as soon as practicable. If you would like to verify if the MSDS you have is the most current, or you require any further information, please contact:

Internet: www.petro-canada.ca/msds

Lubricants:
Western Canada, telephone: (001) 1-800-661-1199; fax: (001) (780) 464-9564
Ontario & Central Canada, telephone: (001) 1-800-268-5850 and (001) (905) 822-4222; fax: (001) 1-800-201-6285
Quebec & Eastern Canada, telephone: (001) 1-800-576-1686; fax: (001) 1-800-201-6285

For Product Safety Information: (905) 804-4752

Prepared by Product Safety - JDW on 5/9/2006.

Data entry by Product Safety - DSR.

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:	**550X POLYMER**		
PRODUCT USE:	Drilling mud additive.		
CHEMICAL FAMILY:	Anionic water soluble polymer	CAS#:	Not available

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION:	Not a controlled product under WHMIS
WORKPLACE HAZARD:	Treat as a nuisance dust.

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	PERCENT	CAS NUMBER	LD_{50} Oral-Rat	LC_{50} Inhal-Rat	ACGIH-TLV

Contains no WHMIS controlled ingredients.

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY:	[ ]EYE CONTACT [ ]SKIN [ ]INHALATION [ ]INGESTION
EYE CONTACT:	May cause slight irritation and/or redness.
SKIN CONTACT:	May cause slight irritation some cases.
INGESTION:	No effects expected.
INHALATION:	May cause irritation of the respiratory tract, including sneezing and coughing.
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 reuse.
EYE CONTACT:	Flush with gently flowing warm water until irritation subsides. If irritation persists, obtain medical attention.
INGESTION:	This product is not considered toxic based on studies on lab animals. Do not induce vomiting. Give 2-3 glasses of water. If symptoms occur, obtain medical attention.
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:	White granular powder; no odour	
SPECIFIC GRAVITY:	Not available	
BOILING POINT (°C):	Not available	
MELTING POINT (°C):	Not available	
SOLUBILITY IN WATER:	Soluble	pH: 4-9 (@ 5 g/L)
PERCENT VOLATILE BY VOLUME:	Not available	
EVAPORATION RATE:	Not available	
VAPOUR PRESSURE (mmHg):	Not available	
VAPOUR DENSITY (air = 1):	Not available	
BULK DENSITY:	Not available	

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not applicable
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 if possible.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	As with most organic powders, flammable dust clouds may be formed in air. Avoid creating dust. Avoid sources of ignition. Product is extremely slippery when wet.

SECTION VII: REACTIVITY DATA

STABILITY:	STABLE [XX] UNSTABLE [ ]
INCOMPATIBILITY (CONDITIONS TO AVOID):	Avoid contact with strong oxidizers. Avoid wet, damp or humid conditions, extremes of temperature, and ignition sources.
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxides of carbon and nitrogen, various hydrocarbons, and/or ammonia upon combustion
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR [XX] MAY OCCUR [ ]

SECTION VIII: PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Use approved dust mask in absence of adequate ventilation. Use approved respirators with dust cartridges if TLV is exceeded.
VENTILATION:	Use in well-ventilated area, or use local exhaust ventilation, process enclosure or other engineering controls to maintain dust level below TLV.
PROTECTIVE GLOVES:	Use gloves, if needed, to avoid prolonged or repeated skin contact.
EYE PROTECTION:	Use safety glasses or goggles.
OTHER PROTECTIVE EQUIPMENT (Specify):	As necessary to prevent contact. Ensure eyewash station and emergency shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid prolonged or repeated breathing of dust and contact with skin. Remove contaminated clothing; launder or dry-clean before reuse. Cleanse skin thoroughly after contact, before breaks and meals and at end of work period. Product is readily removed from skin by washing thoroughly with soap and water. Store in a cool, dry location away from incompatibles. Store in original container.

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Use appropriate safety equipment. Sweep up dry material and flush spill area with water. Collect uncontaminated material for repackaging. Collect contaminated material in approved containers for disposal. Scrub spill area with dry absorbent and then flush residue with water to eliminate slip hazard. Absorb spills of dilute solutions with inert absorbent. Collect in approved containers for disposal. The product or its solutions should not be allowed to enter waterways without treatment. Spilled solutions can create a hazard because of their slippery nature.

WASTE DISPOSAL METHOD

Dispose in accordance with federal, provincial and local regulations. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal. It may be possible to dispose of spills of non-hazardous materials in a landfill; check with local operator.

SECTION IX: PREPARATION

THE INFORMATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH,
BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

DATE ISSUED:	January 3, 2006	BY:	Product safety committee
SUPERSEDES:	January 2005	PHONE:	780-440-4923

Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing	TDG (pictograms)
	**D-2A, D-2B**		

Section 1. Chemical Product and Company Identification

Product Name	**PETRO-CANADA ANTIFREEZE**	**Code**	W269
		Validated on	**5/11/2005.**
Synonym	Universal Antifreeze, Radiator Antifreeze, Diesel Antifreeze, Petro-Canada Antifreeze-Coolant, Petro-Canada Heavy Duty Antifreeze-Coolant, Pre-Mix Antifreeze, Petro-Canada Premium Radiator Antifreeze, Diesel Engine Coolant, Pre-Mixed Radiator Antifreeze/Coolant Petro-Canada.		
Manufacturer	PETRO-CANADA P.O. Box 2844 Calgary, Alberta T2P 3E3	**In case of Emergency**	Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).
Material Uses	Used as an engine antifreeze coolant.		

Section 2. Composition and Information on Ingredients

			Exposure Limits (ACGIH)		
Name	**CAS #**	**% (W/W)**	**TLV-TWA(8 h)**	**STEL**	**CEILING**
Ethylene glycol	107-21-1	≥45	Not established	Not established	100 mg/m³ (aerosol)
Sodium tetraborate pentahydrate (Diesel Engine Coolant only)	12179-04-3	≤5	1 mg/m³	Not established	Not established

Manufacturer Recommendation	Not applicable
Other Exposure Limits	Consult local, state, provincial or territory authorities for acceptable exposure limits.

Section 3. Hazards Identification.

Potential Health Effects	Contact with this product may cause eye irritation. Not expected to cause more than slight skin irritation. Inhalation of this product may cause respiratory tract irritation. Ingestion may be extremely hazardous.May cause teratogenicity/embryotoxicity. May cause damage to reproductive organs. For more information refer to Section 11 of this MSDS.

Section 4. First Aid Measures

Eye Contact	IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention.
Skin Contact	Remove contaminated clothing - launder before reuse. Wash gently and thoroughly the contaminated skin with running water and non-abrasive soap. Seek medical attention.
Inhalation	Evacuate the victim to a safe area as soon as possible. If the victim is not breathing, perform artificial respiration. Allow the victim to rest in a well ventilated area. Seek medical attention.
Ingestion	DO NOT induce vomiting because of danger of aspirating liquid into lungs. Seek medical attention.
Note to Physician	Not available

Section 5. Fire-fighting Measures

Flammability	May be combustible at high temperature.	**Flammable Limits**	Lower: 3.2%, Upper: 15.3%
Flash Points	Closed Cup: 116ºC (241ºF) (Tagliabue) Open Cup: 116ºC (241ºF) (Cleveland)	**Auto-Ignition Temperature**	413ºC (775ºF)
Fire Hazards in Presence of Various Substances	Low fire hazard. This material must be heated before ignition will occur.	**Explosion Hazards in Presence of Various Substances**	Do not cut, weld, heat, drill or pressurize empty container.

Products of Combustion	Carbon oxides (CO, CO2), smoke and irritating vapours as products of incomplete combustion.
Fire Fighting Media and Instructions	NAERG2004, GUIDE 171, Substances (low to moderate hazard). If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (0.5 mile) in all directions; also, consider initial evacuation for 800 meters (0.5 mile) in all directions. Shut off fuel to fire if it is possible to do so without hazard. If this is impossible, withdraw from area and let fire burn out under controlled conditions. Withdraw immediately in case of rising sound from venting safety device or any discolouration of tank due to fire. Cool containing vessels with water spray in order to prevent pressure build-up, autoignition or explosion. SMALL FIRE: use DRY chemicals, foam, water spray or CO2. LARGE FIRE: use water spray, fog or foam. For small outdoor fires, portable fire extinguishers may be used, and self contained breathing apparatus (SCBA) may not be required. For all indoor fires and any significant outdoor fires, SCBA is required. Respiratory and eye protection are required for fire fighting personnel.

Section 6. Accidental Release Measures

Material Release or Spill	IN THE EVENT OF A LARGE SPILL CONSIDER THE FOLLOWING CONTROL MEASURES: Consult current National Emergency Response Guide Book (NAERG) for appropriate spill measures if necessary. Extinguish all ignition sources. Stop leak if safe to do so. Dike spilled material. Use appropriate inert absorbent material to absorb spilled product. Collect used absorbent for later disposal. Ventilate area. Ensure clean-up personnel wear appropriate personal protective equipment. Avoid breathing vapours or mists of material. Avoid contact with spilled material. Avoid contaminating sewers, streams, rivers and other water courses with spilled material. Notify appropriate authorities immediately.

Section 7. Handling and Storage

Handling	Avoid contact with any sources of ignition, flames, heat, and sparks. Avoid confined spaces and areas with poor ventilation. Avoid skin contact. Avoid eye contact. Avoid inhalation of product vapours or mists. Do not ingest this product. Wear proper personal protective equipment (See Section 8). Empty containers may contain product residue. Do not pressurize, cut, heat, or weld empty containers. Do not reuse containers without commercial cleaning and/or reconditioning. Personnel who handle this material should practice good personal hygiene during and after handling to help prevent accidental ingestion of this product. Properly dispose of contaminated leather articles including shoes that cannot be decontaminated.
Storage	Store in dry, cool, well-ventilated area. Store away from heat and sources of ignition. Keep container tightly closed. Store away from incompatible and reactive materials (See section 5 and 10).

Section 8. Exposure Controls/Personal Protection

Engineering Controls	For normal application, special ventilation is not necessary. If user's operations generate vapours or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Make-up air should always be supplied to balance air removed by exhaust ventilation. Ensure that eyewash station and safety shower are close to work-station.
Personal Protection - ***The selection of personal protective equipment varies, depending upon conditions of use.***	
Eyes	Chemical splash goggles should be worn when handling this material.
Body	If this material may come into contact with the body during handling and use, we recommend wearing appropriate protective clothing to prevent contact with the skin. (Contact your PPE provider for more information).
Respiratory	A minimum of NIOSH-approved air-purifying respirator with a organic vapour cartridge or canister may be permissible under 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 circumstances where air-purifying respirators may not provide adequate protection.
Hands	If this material may come in contact with the hands during handling and use, we recommend wearing gloves of the following material(s): Neoprene, Polyvinyl chloride (PVC). Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns.
Feet	Wear appropriate footwear to prevent product from coming in contact with feet and skin.

Section 9. Physical and Chemical Properties

Physical State and Appearance	Clear viscous liquid.	**Viscosity**	Not available
Colour	Green.	**Pour Point**	Not available
Odour	Odourless.	**Softening Point**	Not applicable.
Odour Threshold	Not available	**Dropping Point**	Not applicable.
Boiling Point	129 to 197°C (264 to 387°F)	**Penetration**	Not applicable.
Density	1.07 to 1.145 (Water = 1)	**Oil / Water Dist. Coefficient**	Not available

Vapour Density	2.1 (Air=1).	**Ionicity (in water)**	Not available
Vapour Pressure	0.06 mmHg @ 20°C (68ºF).	**Dispersion Properties**	Not available
Volatility	0% (w/w)	**Solubility**	Soluble in water, methanol and diethyl ether.

Section 10. Stability and Reactivity

Corrosivity	Not available		
Stability	The product is stable.	**Hazardous Polymerization**	Will not occur under normal working conditions.
Incompatible Substances / Conditions to Avoid	Reactive with oxidizing agents, acids, alkalis, perchloric acid, phosphorus and silvered copper wires carrying DC current.	**Decomposition Products**	May release COx, acrid smoke and irritating vapours when heated to decomposition.

Section 11. Toxicological Information

Routes of Entry	Skin contact, eye contact, inhalation and ingestion.
Acute Lethality	Ethylene glycol (107-21-1): LD50: 4700 mg/kg (oral/rat). LD50: 9530 mg/kg (dermal/rabbit). Sodium tetraborate pentahydrate (12179-04-3): LD50: 3200-3500 mg/kg (oral/rat) (Boric acid). [Sodium tetraborate pentahydrate]
Chronic or Other Toxic Effects	
Dermal Route:	Short-term exposure is expected to cause only slight irritation, if any.
Inhalation Route:	Inhalation of this product may cause respiratory tract irritation.
Oral Route:	Extremely dangerous in case of ingestion.
Eye Irritation/Inflammation:	This product contains a component (at >= 1%) that can cause eye irritation. Therefore, this product is considered to be an eye irritant.
Immunotoxicity:	Not available
Skin Sensitization:	Contact with this product is not expected to cause skin sensitization, based upon the available data and the known hazards of the components.
Respiratory Tract Sensitization:	Contact with this product is not expected to cause respiratory tract sensitization, based upon the available data and the known hazards of the components.
Mutagenic:	This product is not known to contain any components at >= 0.1% that have been shown to cause mutagenicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a mutagen.
Reproductive Toxicity:	Borates are possible reproductive toxins based upon available animal ingestion studies in several species. These studies usually involved high doses, over prolonged periods of time. A human study following occupational exposure to borate by inhalation concluded that, no adverse effects to reproduction were found in this population, under the conditions of this study.
Teratogenicity/Embryotoxicity:	This product contains a component(s) at >= 0.1% that has been shown to cause teratogenicity and/or embryotoxicity in laboratory tests. Therefore, this product is considered to be a teratogen/embryotoxin (Ethylene glycol).
Carcinogenicity (ACGIH):	ACGIH A4: not classifiable as a human carcinogen (Ethylene glycol). This product is not known to contain any chemicals at reportable quantities that are listed as Group A1, A2, or A3 carcinogens by ACGIH.
Carcinogenicity (IARC):	This product is not known to contain any chemicals at reportable quantities that are listed as Group 1, 2A, or 2B carcinogens by IARC.
Carcinogenicity (NTP):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by NTP.
Carcinogenicity (IRIS):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by IRIS.
Carcinogenicity (OSHA):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by OSHA.
Other Considerations	The substance may be toxic to kidneys and liver. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 12. Ecological Information

Environmental Fate	Not available	**Persistance/ Bioaccumulation Potential**	Not available
BOD5 and COD	Not available	**Products of Biodegradation**	Not available
Additional Remarks	No additional remark.		

Section 13. Disposal Considerations

Waste Disposal Spent/ used/ waste product may meet the requirements of a hazardous waste. Consult your local or regional authorities. Ensure that waste management processes are in compliance with government requirements and local disposal regulations.

Section 14. Transport Information

TDG Classification	Not a hazardous material for transport according to the TDG Regulations. (Canada)	**Special Provisions for Transport**	Not applicable.

Section 15. Regulatory Information

Other Regulations All of the components of this product are on the Domestic Substances List (DSL), are considered to be on the DSL, or are exempt from the New Substance Notification (NSN) requirements.

All components of this formulation are listed on the US EPA-TSCA Inventory.

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

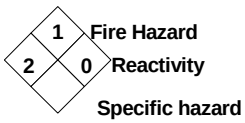
Please contact Product Safety for more information.

DSD/DPD (Europe)	Not evaluated.	**HCS (U.S.A.)**	CLASS: Target organ effects. CLASS: Irritating substance.
ADR (Europe) (Pictograms)	**NOT EVALUATED FOR EUROPEAN TRANSPORT** **NON ÉVALUÉ POUR LE TRANSPORT EUROPÉEN.**	**DOT (U.S.A) (Pictograms)**	

HMIS (U.S.A.)

Health Hazard	2*
Fire Hazard	1
Reactivity	0
Personal Protection	H

NFPA (U.S.A.)



Rating
0 Insignificant
1 Slight
2 Moderate
3 High
4 Extreme

Section 16. Other Information

References Available upon request.
* Marque de commerce de Petro-Canada - Trademark

Glossary

ACGIH - American Conference of Governmental Industrial Hygienists
ADR - Agreement on Dangerous goods by Road (Europe)
ASTM - American Society for Testing and Materials
BOD5 - Biological Oxygen Demand in 5 days
CAN/CGA B149.2 Propane Installation Code
CAS - Chemical Abstract Services
CEPA - Canadian Environmental Protection Act
CERCLA - Comprehensive Environmental Response, Compensation and Liability Act
CFR - Code of Federal Regulations
CHIP - Chemicals Hazard Information and Packaging Approved Supply List
CNS - Central Nervous System
COD5 - Chemical Oxygen Demand in 5 days
CPR - Controlled Products Regulations
DOT - Department of Transport
DSCL - Dangerous Substances Classification and Labeling (Europe)
DSD/DPD - Dangerous Substances or Dangerous Preparations Directives (Europe)
DSL - Domestic Substance List
EEC/EU - European Economic Community/European Union
EINECS - European Inventory of Existing Commercial Chemical Substances
IRIS - Integrated Risk Information System
LD50/LC50 - Lethal Dose/Concentration kill 50%
LDLo/LCLo - Lowest Published Lethal Dose/Concentration
NAERG'96 - North American Emergency Response Guide Book (1996)
NFPA - National Fire Prevention Association
NIOSH - National Institute for Occupational Safety & Health
NPRI - National Pollutant Release Inventory
NSNR - New Substances Notification Regulations (Canada)
NTP - National Toxicology Program
OSHA - Occupational Safety & Health Administration
PEL - Permissible Exposure Limit
RCRA - Resource Conservation and Recovery Act
RTECS - Registry of Toxic Effects of Chemical Substances
SARA - Superfund Amendments and Reorganization Act
SD - Single Dose
STEL - Short Term Exposure Limit (15 minutes)
TDG - Transportation Dangerous Goods (Canada)
TDLo/TCLo - Lowest Published Toxic Dose/Concentration
TLm - Median Tolerance Limit
TLV-TWA - Threshold Limit Value-Time Weighted Average
TSCA - Toxic Substances Control Act
USEPA - United States Environmental Protection Agency
USP - United States Pharmacopoeia

EPA - Environmental Protection Agency
EPCRA - Emergency Planning and Community Right to Know Act
FDA - Food and Drug Administration
FIFRA - Federal Insecticide, Fungicide and Rodenticide Act
HCS - Hazard Communication Standard
HMIS - Hazardous Material Information System
IARC - International Agency for Research on Cancer
WHMIS - Workplace Hazardous Material Information System

For Copy of MSDS
Internet: www.petro-canada.ca/msds

Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228

For Product Safety Information: (905) 804-4752

Prepared by Product Safety - JDW on 5/11/2005.

Data entry by Product Safety - RS.

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Material Safety Data Sheet

HYDREX* AW 22, 32, 46, 68, 80, 100

1 . Product and company identification

Common name : HYDREX* AW 22, 32, 46, 68, 80, 100

Code : 490-138, HDXAW22;
490-139, HDXAW32;
490-140, HDXAW46;
490-141, HDXAW68;
490-142, HDXAW80;
490-137, HDXAW10.

Material uses : These products are designed for use as heavy duty hydraulic power transmission fluids and for lubrication where good anti-wear and anti-oxidation properties are required. They would typically be used in high-pressure hydraulic systems, machine tools, presses, compressors, pumps, gear sets, and centralized bearing lubrication systems.

Manufacturer : PETRO-CANADA
P.O. Box 2844
150 – 6th Avenue South-West
Calgary, Alberta
T2P 3E3

In case of emergency : **Petro-Canada: 403-296-3000**
Canutec Transportation:
613-996-6666
Poison Control Centre: Consult local telephone directory for emergency number(s).

2 . Hazards identification

Physical state : Viscous liquid.

Odour : Mild petroleum oil like.

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency overview : No specific hazard.

Routes of entry : Dermal contact. Inhalation. Ingestion.

Potential acute health effects

Eyes : Slightly irritating to the eyes.

Skin : Slightly irritating to the skin.

Inhalation : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure : Repeated skin exposure can produce local skin destruction or dermatitis. Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation.

See toxicological information (section 11)

3 . Composition/information on ingredients

Name	CAS number	%
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	Mixture	-

The base oil may be a mixture of the following CAS#s: 8042-47-5, 64742-46-7, 64742-52-5, 64742-54-7, 72623-84-8, 72623-85-9, 72623-86-0, 72623-87-1, 178603-64-0, 178603-65-1, 178603-66-2, 445411-73-4

4 . First-aid measures

Eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin contact : Wash skin thoroughly with soap and water or use recognised skin cleanser. Get medical attention if irritation occurs. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Inhalation : If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

Ingestion : Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If potentially dangerous quantities of this material have been swallowed, call a physician immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

5 . Fire-fighting measures

Flammability of the product : May be combustible at high temperature.

Products of combustion : Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), phosphorus compounds (POx) , calcium oxides (CaOx) , zinc oxides (ZnOx) , aldehydes , ketones , hydrocarbons , smoke and irritating vapours as products of incomplete combustion.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : No specific hazard.

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.

Special remarks on fire hazards : Low fire hazard. This material must be heated before ignition will occur.

Special remarks on explosion hazards : Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

6 . Accidental release measures

Personal precautions : 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. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

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).

Methods for cleaning up : 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. Wash spillages into an effluent treatment plant or proceed as follows. 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 (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

Handling : Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk. Evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/vapour/spray . If ingested, seek medical advice immediately and show the container or the label.

Storage : Keep container tightly closed. Store away from incompatible materials (see section 10). Keep container in a cool, well-ventilated area.

8 . Exposure controls/personal protection

Product name	Exposure limits
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	**ACGIH TLV (United States). Notes: (oil mist)** TWA: 5 mg/m³ 8 hour(s). STEL: 10 mg/m³ 15 minute(s).

Consult local authorities for acceptable exposure limits.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Personal protection

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Skin : 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.

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Recommended: organic vapour filter

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Recommended: neoprene , nitrile polyvinyl alcohol (PVA) , Viton .

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. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9 . Physical and chemical properties

Physical state : Viscous liquid.

Flash point : Open cup: ≥207°C (>404.6°F) [Cleveland.]

Auto-ignition temperature : Not available.

Flammable limits : Not available.

Colour : Pale, straw-yellow.

Odour : Mild petroleum oil like.

pH : Not available.

Boiling/condensation point : Not available.

Pour Point : 22: -45ºC (-49ºF)
32: -39ºC (-38ºF)
46: -33ºC (-27ºF)
68: -33ºC (-27ºF)
80: -24ºC (-11ºF)
100: -30ºC (-22ºF)

Melting/freezing point : Not available.

Relative density : 0.8587 to 0.8728 kg/L @ 15ºC (59ºF)

Vapour pressure : Not available.

Vapour density : Not available.

Volatility : Not available.

Odour threshold : Not available.

Evaporation rate : Not available.

9 . Physical and chemical properties

Viscosity : **22:** 21.59 cSt @ 40°C, 4.26 cSt @ 100°C, VI=101; **32:** 34.5 cSt @ 40°C, 5.68 cSt @ 100°C, VI=103; **46:** 46.6 cSt @ 40°C, 6.94 cSt @ 100°C, VI=105; **68:** 65.7 cSt @ 40°C, 9.4 cSt @ 100°C, VI=115; **80:** 80.0 cSt @ 40°C, 9.71 cSt @ 100°C, VI=99; **100:** 100.0 cSt @ 40°C, 11.32 cSt @ 100°C, VI=99

Solubility : Insoluble in water.

$LogK_{ow}$: Not available.

Softening Point : Not available.

Dropping Point : Not available.

Penetration : Not available.

Physical/chemical properties comments : Not available.

10 . Stability and reactivity

Stability and reactivity : The product is stable.

Conditions of instability : Not available.

Incompatibility with various substances : Reactive with oxidizing materials and acids .

Hazardous decomposition products : May release COx, H2S, methacrylate monomers, aldehydes, alkyl mercaptans, hydrocarbons, sulfides, smoke and irritating vapours when heated to decomposition.

Hazardous polymerisation : Will not occur.

11 . Toxicological information

Toxicity data

Product/ingredient name	Test	Result	Route	Species
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	LD50	>5000 mg/kg	Oral	Rat
	LD50	>2000 mg/kg	Dermal	Rabbit
	LC50	>2500 mg/m^3/hour(s)	Inhalation	Rat

Specific effects

Carcinogenic effects : Not listed as carcinogenic by OSHA, NTP or IARC.

Mutagenic effects : No known significant effects or critical hazards.

Teratogenicity / Reproductive toxicity : No known significant effects or critical hazards.

Sensitisation

Ingestion : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Eyes : Slightly irritating to the eyes.

Skin : Slightly irritating to the skin.

Synergistic products : Not available.

12 . Ecological information

Ecotoxicity data

Product/ingredient name	Species	Period	Result

Environmental precautions : No known significant effects or critical hazards.

Bioconcentration factor Not available.

BOD and COD Not available.

Biodegradable/OECD Not available.

Mobility Not available.

12 . Ecological information

Special remarks on the products of biodegradation Not available.

13 . Disposal considerations

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.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Waste disposal : The generation of waste should be avoided or minimised wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Class	PG*	Label	Additional information
TDG Classification	Not regulated.	-	-	-		-
DOT Classification	Not available.	Not available.	Not available.	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Not regulated.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

EU regulations

Risk phrases : This product is not classified according to EU legislation.

International regulations

International lists

Canada inventory status : Listed

EC INVENTORY (EINECS/ELINCS) : Listed

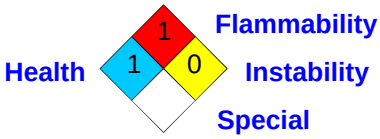
TSCA 8(b) inventory : Listed

16 . Other information

Hazardous Material Information System (U.S.A.) :

Health	1
Fire hazard	1
Reactivity	0
Personal protection	B

National Fire Protection Association (U.S.A.) :



References : Available upon request.
* Marque de commerce de Petro-Canada - Trademark

Date of printing : **12/27/2006.**

Date of issue : **12/27/2006.**

Date of previous issue : **No previous validation.**

Responsible name : **Product Safety - DSR**

Version : **1**

For Copy of (M)SDS : The Canadian Controlled Products Regulations (CPR) (Under the Hazardous Products Act, part of the WHMIS legislation) only apply to WHMIS Controlled (i.e., hazardous) products. Therefore, the CPR and the 3-year update rule specified therein do not apply to WHMIS Non-Controlled products. Although this is true, customarily Petro-Canada reviews and updates Non-Controlled product MSDS if a customer requests such an update. These Non-Controlled product updates are given a lower priority than Controlled products but are handled as soon as practicable. If you would like to verify if the MSDS you have is the most current, or you require any further information, please contact:

Internet: www.petro-canada.ca/msds

Lubricants:
Western Canada, telephone: 1-800-661-1199; fax: (780) 464-9564
Ontario & Central Canada, telephone: 1-800-268-5850 and (905) 822-4222; fax: 1-800-201-6285
Quebec & Eastern Canada, telephone: 1-800-576-1686; fax: 1-800-201-6285

For Product Safety Information: (905) 804-4752

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

MATERIAL SAFETY DATA SHEET

SECTION I: IDENTIFICATION OF PRODUCT

COMPANY:	**Diversity Technologies Corp.**	DATE:	Dec. 19, 2005
	8750 – 53rd Ave.	PHONE:	604-940-6050
	Edmonton, AB T6E 5G2	FAX:	604-940-6080

PRODUCT NAME: **BIG BEAR ROD GREASE**

PRODUCT USE: Anti-seize compound
CHEMICAL FAMILY: Mixture CAS #: Mixture

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION: Not WHMIS regulated.
WORKPLACE HAZARD: Not hazardous under normal conditions of use.

TRANSPORTATION OF DANGEROUS GOODS (TDG)

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

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	% (w/w)	CAS NUMBER	LD_{50} Oral-Rat	LC_{50} Inhal-Rat	ACGIH-TLV
Mineral oil	70-80	64742-52-5	Not available	Not available	Not available
Barium soap	20-30	68201-19-4	Not available	Not available	Not available

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY: [XX] EYE CONTACT [XX] SKIN [ ] INHALATION [XX] INGESTION
EYE CONTACT: May cause slight transient irritation.
SKIN CONTACT: May cause slight transient irritation.
INGESTION: No effects known.
INHALATION: Not a likely source of contact during normal use.
CARCINOGENICITY: None of the ingredients in the compound are listed by NTP, IARC or OSHA as being carcinogenic.
TERATOGENICITY: No information available.

REPRODUCTIVE TOXICITY:	No information available.
MUTAGENICITY:	No ingredients listed as mutagenic.
SYNERGISTIC PRODUCTS:	No information available.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT:	Remove by wiping, or with a waterless hand cleaner. Wash with soap and water. Remove and launder contaminated clothing before re-use.
EYE CONTACT:	Immediately flush with gently flowing warm water until all residual material is removed. Remove contact lenses if present. Hold eyelids open to ensure thorough flushing. If irritation persists, obtain medical attention.
INGESTION:	Do not induce vomiting. Rinse mouth. Obtain immediate medical attention. Never give anything by mouth to an unconscious or convulsing victim.
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:	Brown paste; bland odour	
SPECIFIC GRAVITY:	0.90 @ 16°C	
BOILING POINT (°C):	371	
MELTING POINT (°C):	204	
SOLUBILITY IN WATER:	Insoluble	pH: Not available
PERCENT VOLATILE BY VOLUME:	Not available	
EVAPORATION RATE:	Not available	
VAPOUR PRESSURE :	Not available	
VAPOUR DENSITY (air = 1):	Not available	
BULK DENSITY:	Not applicable	

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	188°C
FLAMMABLE LIMITS:	Not available
EXTINGIUSHING MEDIA:	Dry chemical, CO_2, foam or water spray.
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained breathing apparatus required for fire fighting personnel. Remove containers from fire area, or cool with water spray, if possible.

UNUSUAL FIRE AND EXPLOSION HAZARDS:	This product may burn under fire conditions.

SECTION VII: REACTIVITY DATA

STABILITY:	STABLE [XX] UNSTABLE [ ]
INCOMPATIBILITY (CONDITIONS TO AVOID):	Strong oxidizers. Avoid heat, sparks and open flames.
CONDITIONS OF REACTIVITY:	Contact with incompatibles or ignition sources.
HAZARDOUS DECOMPOSITION PRODUCTS:	May release CO_x, smoke and irritating vapours when heated to decomposition.
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR [XX] MAY OCCUR [ ]

SECTION VIII: PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Not required under normal conditions of use.
VENTILATION:	Not required under normal conditions of use.
PROTECTIVE GLOVES:	Suggest neoprene or viton.
EYE PROTECTION:	Safety glasses with side-shields if required.
OTHER PROTECTIVE EQUIPMENT (Specify):	Protective clothing as required to prevent contact. Ensure eyewash station and emergency shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid contact with skin and eyes. Avoid ingestion. Wash thoroughly before eating, drinking or smoking. Store in cool, dry area away from incompatibles and sources of ignition. Use caution when opening unvented containers. Use in well ventilated area. Store unused material in original container.

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Use appropriate safety equipment. Eliminate ignition sources. Scoop up excess, then wipe down the affected area and pick up residual with diatomaceous earth to prevent slipping hazard. Place contaminated material and clean up materials in approved containers for disposal.

WASTE DISPOSAL METHOD

Dispose/incinerate in accordance with federal, provincial and local regulations. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal. Dispose of, or recycle, empty containers in accordance with local regulations.

SECTION IX: PREPARATION

THE INFORMATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH,
BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

DATE ISSUED:	December 20, 2005	BY:	Product safety committee
SUPERSEDES:	March 31, 2003	PHONE:	780-440-4923

Form Approved
OMB No. 1218-0072
Occupational Safety and Health Administration
(Non-Mandatory Form)

ADM Oils & Fats

U. S. Department of Labor

MATERIAL SAFETY DATA SHEET

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

Identity (As Used on Label and List)
CAS#120962-03-0
CANOLA OIL

Section I – Manufacturer's Information

Manufacturer's Name
ARCHER DANIELS MIDLAND COMPANY

Address (Number, St, City, St & Zip)

4666 FARIES PARKWAY
DECATUR, IL 62525

Emergency Telephone Number
217/424-5200

Telephone Number for Information
217/424-5200

Date Prepared
JANUARY 2009

Section II – Hazard Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s)): CANOLA OIL

OSHA PEL
15mg/m^3 (Total particulate); 5 mg/m^3 (Respirable particulate) (pertains to mist only)

Other Limits Recommended % (optional)
N/A

NFPA Rating: HEALTH – 0; FLAMMABILITY – 1; REACTIVITY – 0

Section III – Physical/Chemical Characteristics

Boiling Point	N/A	**Specific Gravity (H_20=1)**	0.914 - 0.920
Vapor Pressure (mm Hg.)	N/A	**Melting Point**	NIL
Vapor Density (AIR=1)	N/A	**Evaporation Rate (Butyl Acetate=1)**	NIL
Solubility in Water:	INSOLUBLE	**Appearance and Odor:**	LIGHT YELLOW - BLAND

Section IV – Fire and Explosion Hazard Data

Flash Point (method used)	**Flammable Limits**	**LEL**	**UEL**
610°F (CLOSED CUP)	N/A	N/A	N/A

Extinguishing Media: DRY CHEMICAL OR FOAM

Special Fire Fighting Procedures: NONE

Unusual Fire and Explosion Hazards: NONE

Section V – Reactivity Data

Stability	Unstable	Conditions to avoid	Stable
N/A	N/A	N/A	X

Incompatibility (Materials to avoid): OXIDIZING AGENTS

Hazardous Decomposition or Byproducts

Hazardous polymerization - N/A **May occur –** N/A **Conditions to avoid** – N/A **Will not occur** – N/A

Section VI – Health Hazard Data

Route(s) of entry:	Inhalation?	Skin?	Ingestion?
	YES	YES	YES

Health Hazards (Acute and Chronic)
INGESTION: NONE, MATERIAL IS A FOOD. INHALATION: UNDER MUST CONDITIONS, NO SHORT TERM INHALATION LIMITS. SKIN/EYE: FLUSH AND RINSE, PARTICULARLY FOR EYE CONTACT. NO SIGNIFICANT SKIN REACTION EXPECTED.

Carcinogenicity:	NTP?	IARC Monographs?	OSHA regulated?
NO	N/A	N/A	N/A

Signs and Symptoms of Exposure	Medical conditions generally aggravated by exposure
N/A	N/A

Emergency and first aid procedures:
EYES: FLUSH WITH WATER FOR AT LEAST 15 MINUTES

Section VII – Precautions for Safe Handling and Use

Steps to be taken in case material is released or spilled
CONTAIN SPILLS AND PICK UP – USE SAND OR ABSORBENT MATERIALS; AVOID LOSSES TO WATERWAYS.

Waste Disposal Method
REVIEW LOCAL REGULATIONS BEFORE CLEANED UP MATERIALS ARE INTRODUCED INTO SEWER SYSTEMS OR WASTE TREATMENT SYSTEMS.

Precautions to be taken in handling and storing
AVOID EXCESSIVE HEAT IN STORAGE TO MAINTAIN PRODUCT QUALITY.

Other Precautions
SOILED RAGS OR ABSORBENT MATERIALS SHOULD NOT BE KEPT UNDER HIGH TEMPERATURE, CLOSED CONDITIONS IN THE PRESENCE OF OXYGEN.

Section VIII – Control Measures

Respiratory Protection (Specify Type)	Ventilation	Local Exhaust
NONE	N/A	NOT REQUIRED

Special	Mechanical (General)	Other	Protective Gloves	Eye Protection
N/A	N/A	N/A	N/A	SAFETY GLASSES

Other protective clothing or equipment	Work/Hygienic Practices
NONE	N/A

Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing	TDG (pictograms)
	**B-3, D-2B**		

Section 1. Chemical Product and Company Identification

Product Name	**DIESEL FUEL**	**Code**	W104, W293; SAP: 120, 121, 122, 287
Synonym	Seasonal Diesel, #1 Diesel, #2 Heating Oil, #1 Heating Oil, D50, P50, 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	**Validated on**	**2/5/2007.**
Manufacturer	PETRO-CANADA P.O. Box 2844 150 – 6th Avenue South-West Calgary, Alberta T2P 3E3	**In case of Emergency**	Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).
Material Uses	Diesel fuels are distillate fuels suitable for use in high and medium speed internal combustion engines of the compression ignition type. Mining Diesel has a higher flash point requirement, for safe use in underground mines.		

Section 2. Composition and Information on Ingredients

			Exposure Limits (ACGIH)		
Name	**CAS #**	**% (V/V)**	**TLV-TWA(8 h)**	**STEL**	**CEILING**
Distillates (petroleum), hydrodesulfurized middle	64742-80-9	100	Not established	Not established	Not established
Kerosine (petroleum), hydrodesulfurized	64742-81-0		200 mg/m³	Not established	Not established
Fuels, diesel	68334-30-5		100 mg/m³	Not established	Not established
Fuel oil no. 2	68476-30-2		100 mg/m³	Not established	Not established

Manufacturer Recommendation	Avoid prolonged or repeated skin contact to diesel fuels which can lead to dermal irritation and may be associated with an increased risk of skin cancer.
Other Exposure Limits	Consult local, state, provincial or territory authorities for acceptable exposure limits.

Section 3. Hazards Identification.

Potential Health Effects	Combustible liquid. Exercise caution when handling this material. Contact with this product may cause skin and eye irritation. Prolonged or repeated contact may cause skin irritation, defatting, drying and dermatitis. Inhalation of this product may cause respiratory tract irritation and Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure; coma and death. Ingestion of this product may cause gastro-intestinal irritation. Aspiration of this product may result in severe irritation or burns to the respiratory tract. For more information refer to Section 11 of this MSDS.

Section 4. First Aid Measures

Eye Contact	Avoid direct contact. Quickly and gently blot or brush away chemical. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 15-20 minutes or until the chemical is removed, while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face. Obtain medical attention immediately.
Skin Contact	Avoid direct contact. Wear chemical resistant protective clothing if necessary. Quickly and gently, blot or brush away excess chemical. Wash gently and thoroughly with warm water and non-abrasive soap for 15-20 minutes or until chemical is removed. Under running water, remove contaminated clothing, shoes and leather goods (e.g., watch bands, belts, etc.). Obtain medical attention immediately. Completely decontaminate clothing, shoes and leather goods before reuse or discard.
Inhalation	Take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment). If breathing has stopped, trained personnel should begin artificial respiration (AR) or, if the heart has stopped, cardiopulmonary resuscitation (CPR) immediately. Immediately transport victim to an emergency care facility.

Continued on Next Page

Ingestion	NEVER give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 240 to 300 mL (8 to 10 oz) of water to dilute material in stomach. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Repeat administration of water. If breathing has stopped, trained personnel should begin artificial respiration (AR) or, if the heart has stopped, cardiopulmonary resuscitation (CPR) immediately. Quickly transport victim to an emergency care facility.
Note to Physician	Not available.

Section 5. Fire-fighting Measures

Flammability	Combustible liquid.	**Flammable Limits**	Lower: 0.7% Upper: 6%
Flash Points	Diesel Fuel: Closed Cup: ≥45ºC (113ºF) Marine Diesel Fuel: Closed Cup: ≥64ºC (147ºF) Mining Diesel: Closed Cup: ≥52ºC (126ºF)	**Auto-Ignition Temperature**	225°C (437°F)
Fire Hazards in Presence of Various Substances	Flammable in presence of open flames, sparks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. This product can accumulate static charge and ignite.	**Explosion Hazards in Presence of Various Substances**	Containers may explode in heat of fire. Do not cut, weld, heat, drill or pressurize empty container. Runoff to sewer may create fire or explosion hazard.
Products of Combustion	Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), sulphur compounds (H2S), smoke and irritating vapours as products of incomplete combustion. See Section 11 (Other Considerations) for information regarding the toxicity of the combustion products.		
Fire Fighting Media and Instructions	NAERG2004, GUIDE 128, Flammable liquids (Non-polar/Water-immiscible). CAUTION: This product has a moderate flash point above 40ºC: Use of water spray when fighting fire may be inefficient. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. SMALL FIRES: Dry chemical, CO2, water spray or regular foam. LARGE FIRES: Water spray, fog or regular foam. Do not use straight streams. Move containers from fire area if you can do it without risk. Fires Involving Tanks or Car/Trailer Loads: 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. Withdraw immediately in case of rising sound from venting devices or any discolouration of tank. ALWAYS stay away from the ends of tanks. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible withdraw from area and let fire burn. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.		

Section 6. Accidental Release Measures

Material Release or Spill	Consult current National Emergency Response Guide Book (NAERG) for appropriate spill measures if necessary. IN THE EVENT OF A LARGE SPILL CONSIDER THE FOLLOWING CONTROL MEASURES: Extinguish all ignition sources. Evacuate non-essential personnel. Ventilate area. Stop leak if safe to do so. Dike spilled material. Use appropriate inert absorbent material to absorb spilled product. Collect used absorbent for later disposal. Ground and bond all equipment used to clean up the spilled material, as it may be a static accumulator. Avoid contact with spilled material. Avoid breathing vapours or mists of material. Avoid contaminating sewers, streams, rivers and other water courses with spilled material. Notify appropriate authorities immediately. Ensure clean-up personnel wear appropriate personal protective equipment.

Section 7. Handling and Storage

Handling	COMBUSTIBLE MATERIAL. Handle with care. Avoid contact with any sources of ignition, flames, heat, and sparks. Ensure all equipment is grounded/bonded. Avoid skin contact. Avoid eye contact. Avoid inhalation of product vapours or mists. Wear proper personal protective equipment (See Section 8). Avoid confined spaces and areas with poor ventilation. Empty containers may contain product residue. Do not pressurize, cut, heat, or weld empty containers. Do not reuse containers without commercial cleaning and/or reconditioning. Personnel who handle this material should practice good personal hygiene during and after handling to help prevent accidental ingestion of this product. Properly dispose of contaminated leather articles including shoes that cannot be decontaminated.
Storage	Store away from heat and sources of ignition. Store in dry, cool, well-ventilated area. Store away from incompatible and reactive materials (See section 5 and 10). Ensure the storage containers are grounded/bonded.

Section 8. Exposure Controls/Personal Protection

Engineering Controls For normal application, special ventilation is not necessary. If user's operations generate vapours or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Make-up air should always be supplied to balance air removed by exhaust ventilation. Ensure that eyewash station and safety shower are close to work-station.

Personal Protection - ***The selection of personal protective equipment varies, depending upon conditions of use.***

Eyes As a minimum, safety glasses with side shields should be worn when handling this material. If product is used in an application where splashing may occur, the use of safety goggles and/or a face shield should be considered.

Body If this material may come in contact with the body during handling and use, we recommend wearing appropriate protective clothing to prevent contact with the skin. (Contact your PPE provider for more information.)

Respiratory A NIOSH-approved air-purifying respirator with an organic vapour cartridge or canister may be permissible under 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 circumstances where air-purifying respirators may not provide adequate protection.

Hands If this material may come in contact with the hands during handling and use, we recommend wearing gloves of the following material(s): nitrile, neoprene, polyvinyl alcohol (PVA), fluoro-elastomer. Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any material regardless of their imperviousness, will get permeated by chemicals. Therefore, protective gloves should be regularly checked for wear and tear. At the first signs of hardening and cracks, they should be changed.

Feet Wear appropriate footwear to prevent product from coming in contact with feet and skin.

Section 9. Physical and Chemical Properties

Physical State and Appearance	Bright oily liquid.	**Viscosity**	1.3 - 4.4 cSt @ 40ºC (104ºF)
Colour	Clear to yellow / brown (may be dyed for taxation purposes).	**Pour Point**	Not available.
Odour	Mild petroleum oil like.	**Softening Point**	Not available.
Odour Threshold	Not available.	**Dropping Point**	Not available.
Boiling Point	150 to 371°C (302 to 699.8°F)	**Penetration**	Not available.
Density	0.8 to 0.88 kg/L @ 15ºC (59ºF)	**Oil / Water Dist. Coefficient**	Not available.
Vapour Density	4.5 [Air = 1]	**Ionicity (in water)**	Not available.
Vapour Pressure	1 kPa (7.5 mm Hg) @ 20ºC (68ºF)	**Dispersion Properties**	Not available.
Volatility	Semivolatile to volatile.	**Solubility**	Insoluble in cold water, soluble in non-polar hydrocarbon solvents.

Section 10. Stability and Reactivity

Corrosivity	Not available.		
Stability	The product is stable under normal handling and storage conditions.	**Hazardous Polymerization**	Will not occur under normal working conditions.
Incompatible Substances / Conditions to Avoid	Reactive with oxidizing agents and acids.	**Decomposition Products**	May release COx, NOx, SOx, H2S, smoke and irritating vapours when heated to decomposition.

Section 11. Toxicological Information

Routes of Entry Skin contact, eye contact, inhalation and ingestion.

Acute Lethality Acute toxicity information is not available for the product as a whole, therefore, data for some of the ingredients is provided below:

Distillates (petroleum), hydrodesulfurized middle (64742-80-9):
Acute Inhalation toxicity (LC50): 4600 mg/m³/4h (rat)

Kerosine (petroleum), hydrosulfurized (64742-81-0):
Acute Oral toxicity (LD50): >5000 mg/kg (rat)
Acute Dermal toxicity (LD50): >2000 mg/kg (rabbit)
Acute Inhalation toxicity (LC50): >5000 mg/m³/4h (rat)

Fuels, diesel (68334-30-5):
Acute Oral toxicity (LD50): 7500 mg/kg (rat)
Acute Dermal toxicity (LD50): 24500 mg/kg (mouse)

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	Fuel oil no. 2 (68476-30-2): Acute Oral toxicity (LD50): 12000 mg/kg (rat)
Chronic or Other Toxic Effects	
Dermal Route:	This product contains a component (at >= 1%) that can cause skin irritation. Therefore, this product is considered to be a skin irritant. Prolonged or repeated contact may defat and dry skin, and cause dermatitis. (See Other Considerations)
Inhalation Route:	Inhalation of this product may cause respiratory tract irritation. Inhalation of this product may cause Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure; coma and death.
Oral Route:	Ingestion of this product may cause gastro-intestinal irritation. Aspiration of this product may result in severe irritation or burns to the respiratory tract. Ingestion of this product may cause Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure; coma and death.
Eye Irritation/Inflammation:	Short-term exposure is expected to cause only slight irritation, if any.
Immunotoxicity:	Not available.
Skin Sensitization:	Contact with this product is not expected to cause skin sensitization, based upon the available data and the known hazards of the components.
Respiratory Tract Sensitization:	Contact with this product is not expected to cause respiratory tract sensitization, based upon the available data and the known hazards of the components.
Mutagenic:	This product is not known to contain any components at >= 0.1% that have been shown to cause mutagenicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a mutagen.
Reproductive Toxicity:	This product is not known to contain any components at >= 0.1% that have been shown to cause reproductive toxicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a reproductive toxin.
Teratogenicity/Embryotoxicity:	This product is not known to contain any components at >= 0.1% that have been shown to cause teratogenicity and/or embryotoxicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a teratogen/embryotoxin.
Carcinogenicity (ACGIH):	Considered to be A3 by the ACGIH (Kerosine (petroleum), hydrodesulfurized; Fuels, diesel; Fuel oil no. 2) (See Other Considerations)
Carcinogenicity (IARC):	This product is not known to contain any chemicals at reportable quantities that are listed as group 1, 2A or 2B carcinogens by IARC.
Carcinogenicity (NTP):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by NTP.
Carcinogenicity (IRIS):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by IRIS.
Carcinogenicity (OSHA):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by OSHA.
Other Considerations	Avoid prolonged or repeated skin contact to diesel fuels which can lead to dermal irritation and may be associated with an increased risk of skin cancer. Diesel engine exhaust particulate is probably carcinogenic to humans (IARC Group 2A).

Section 12. Ecological Information

Environmental Fate	Not available.	**Persistance/ Bioaccumulation Potential**	Not available.
BOD5 and COD	Not available.	**Products of Biodegradation**	Not available.
Additional Remarks	No additional remark.		

Section 13. Disposal Considerations

Waste Disposal Spent/ used/ waste product may meet the requirements of a hazardous waste. Consult your local or regional authorities. Ensure that waste management processes are in compliance with government requirements and local disposal regulations.

Section 14. Transport Information

TDG Classification	DIESEL FUEL, 3, UN1202, PGIII (CL-TDG)	**Special Provisions for Transport**	See Transportation of Dangerous Goods Regulations.

Section 15. Regulatory Information

Other Regulations

This product is acceptable for use under the provisions of WHMIS-CPR. All components of this formulation are listed on the CEPA-DSL (Domestic Substances List).

All components of this formulation are listed on the US EPA-TSCA Inventory.

All components of this product are on the European Inventory of Existing Commercial Chemical Substances (EINECS).

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

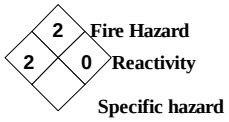
Please contact Product Safety for more information.

DSD/DPD (Europe)	Not evaluated.	**HCS (U.S.A.)**	CLASS: Irritating substance. CLASS: Target organ effects. CLASS: Combustible liquid having a flash point between 37.8°C (100°F) and 93.3°C (200°F).
ADR (Europe) (Pictograms)	NOT EVALUATED FOR EUROPEAN TRANSPORT NON ÉVALUÉ POUR LE TRANSPORT EUROPÉEN.	**DOT (U.S.A) (Pictograms)**	Not evaluated for transport Non évalué pour le transport

HMIS (U.S.A.)

Health Hazard	2*
Fire Hazard	2
Reactivity	0
Personal Protection	H

NFPA (U.S.A.)



Rating
0 Insignificant
1 Slight
2 Moderate
3 High
4 Extreme

Section 16. Other Information

References Available upon request.
* Marque de commerce de Petro-Canada - Trademark

Glossary

ACGIH - American Conference of Governmental Industrial Hygienists
ADR - Agreement on Dangerous goods by Road (Europe)
ASTM - American Society for Testing and Materials
BOD5 - Biological Oxygen Demand in 5 days
CAS - Chemical Abstract Services
CEPA - Canadian Environmental Protection Act
CERCLA - Comprehensive Environmental Response, Compensation and Liability Act
CFR - Code of Federal Regulations
CHIP - Chemical Hazard Information and Packaging Approved Supply List
COD - Chemical Oxygen Demand
CPR - Controlled Products Regulations
DOT - Department of Transportation (U.S.A.)
DSCL - Dangerous Substances Classification and Labeling (Europe)
DSD/DPD - Dangerous Substance or Dangerous Preparations Directives (Europe)
DSL - Domestic Substance List (Canada)
EEC/EU - European Economic Community/European Union
EINECS - European Inventory of Existing Commercial Chemical Substances
EPCRA - Emergency Planning And Community Right-To-Know Act
FDA - Food and Drug Administration
FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act
HCS - Hazardous Communication System
HMIS - Hazardous Material Information System
IARC - International Agency for Research on Cancer
IRIS - Integrated Risk Information System
LD50/LC50 - Lethal Dose/Concentration kill 50%
LDLo/LCLo - Lowest Published Lethal Dose/Concentration
NFPA - National Fire Prevention Association
NIOSH - National Institute for Occupational Safety & Health
NPRI - National Pollutant Release Inventory
NSNR - New Substances Notification Regulations (Canada)
NTP - National Toxicology Program
OSHA - Occupational Safety & Health Administration
PEL - Permissible Exposure Limit
RCRA - Resource Conservation and Recovery Act
SARA - Superfund Amendments and Reorganization Act
STEL - Short Term Exposure Limit (15 minutes)
TDG - Transportation Dangerous Goods (Canada)
TDLo/TCLo - Lowest Published Toxic Dose/Concentration
TLV-TWA - Threshold Limit Value-Time Weighted Average
TLm - Median Tolerance Limit
TSCA - Toxic Substances Control Act
USEPA - United States Environmental Protection Agency
USP - United States Pharmacopoeia
WHMIS - Workplace Hazardous Material Information System

For Copy of MSDS

Prepared by Product Safety - JDW on 2/5/2007.

Internet: www.petro-canada.ca/msds

Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228

For Product Safety Information: (905) 804-4752

Data entry by Product Safety - JDW.

Material Safety Data Sheet

PRECISION GENERAL PURPOSE EP1, EP2

1 . Product and company identification

Common name : PRECISION GENERAL PURPOSE EP1, EP2

Code : PGP1, 650-123; PGP2, 650-124

Material uses : These products are multi-purpose, extreme pressure greases and are designed for use in a wide variety of severe automotive and industrial applications.

Manufacturer : PETRO-CANADA
P.O. Box 2844
150 – 6th Avenue South-West
Calgary, Alberta
T2P 3E3

In case of emergency : **Petro-Canada: 403-296-3000**
Canutec Transportation:
613-996-6666
Poison Control Centre: Consult local telephone directory for emergency number(s).

2 . Hazards identification

Physical state : Stringy smooth paste.

Odour : Mild grease like.

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency overview : No specific hazard.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eyes : Slightly irritating to the eyes.

Skin : Slightly irritating to the skin.

Inhalation : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure : Repeated skin exposure can produce local skin destruction or dermatitis. Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation.

See toxicological information (section 11)

3 . Composition/information on ingredients

Name	CAS number	%
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	Mixture	-

The base oil may be a mixture of the following CAS#s: 8042-47-5, 64741-95-3, 64742-01-4, 64742-46-7, 64742-52-5, 64742-54-7, 64742-62-7, 72623-83-7, 72623-84-8, 72623-85-9, 72623-86-0, 72623-87-1, 178603-64-0, 178603-65-1, 178603-66-2, 445411-73-4

4 . First-aid measures

Eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin contact : Wash skin thoroughly with soap and water or use recognised skin cleanser. Get medical attention if irritation occurs. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Inhalation : If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

4 . First-aid measures

Ingestion : Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If potentially dangerous quantities of this material have been swallowed, call a physician immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

5 . Fire-fighting measures

Flammability of the product : May be combustible at high temperature.

Products of combustion : Carbon oxides (CO, CO2), sulphur oxides (SOx), sulphur compounds (H2S), hydrocarbons, acrolein, aldehydes, nitrogen oxides (NOx), lithium compounds, smoke and irritating vapours as products of incomplete combustion.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : No specific hazard.

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.

Special remarks on fire hazards : Low fire hazard. This material must be heated before ignition will occur.

Special remarks on explosion hazards : Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

6 . Accidental release measures

Personal precautions : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up : If emergency personnel are unavailable, contain spilt material. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. For large spills, dyke spilt material or otherwise contain material to ensure runoff does not reach a waterway. Place spilt material in an appropriate container for disposal.

7 . Handling and storage

Handling : Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk. Evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/vapour/spray. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidising agents, acids.

Storage : Keep container tightly closed. Store away from incompatible materials (see section 10). Keep container in a cool, well-ventilated area.

8 . Exposure controls/personal protection

Product name	Exposure limits
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	**ACGIH TLV (United States). Notes: (oil mist)** TWA: 5 mg/m^3 8 hour(s). STEL: 10 mg/m^3 15 minute(s).

Consult local authorities for acceptable exposure limits.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Personal protection

8 . Exposure controls/personal protection

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Skin : 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.

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Recommended: organic vapour filter

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Recommended: neoprene, nitrile, polyvinyl alcohol (PVA), Viton.

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. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9 . Physical and chemical properties

Physical state : Stringy smooth paste.

Flash point : Mineral Oil Blend:
Open cup: 272°C (521.6°F) (Cleveland.)

Auto-ignition temperature : Mineral Oil Blend:
Fire Point:
310°C (590°F)

Flammable limits : Not available.

Colour : Brown.

Odour : Mild grease like.

pH : Not applicable.

Boiling/condensation point : Not available.

Pour Point : Mineral Oil Blend:
-15°C (5°F)

Melting/freezing point : Not available.

Relative density : Mineral Oil Blend:
0.8813 kg/L @ 15ºC (59ºF)

Vapour pressure : Not available.

Vapour density : Not available.

Volatility : Not available

Odour threshold : Not available.

Evaporation rate : Not available.

Viscosity : Mineral Oil Blend:
159.0 cSt @ 40ºC (104ºF), 10.85-16.30 cSt @ 100ºC (212ºF), VI=93

Solubility : Insoluble in water.

LogK_{ow} : Not available.

Softening Point : Not available.

Dropping Point : ≥177ºC (351ºF)

Penetration : **EP1:** 310 (60 strokes); **EP2:** 265 (60 strokes)

Physical/chemical properties comments : Not available.

10 . Stability and reactivity

Stability and reactivity : The product is stable.

Conditions of instability : Not available.

Incompatibility with various substances : Reactive with oxidising agents, acids, alkalis, phosphorus and maleic anhydride.

Hazardous decomposition products : May release COx, NOx, SOx, diphenylamine, alkenes, hydrocarbons, acrolein, aldehydes, ammonia, lithium compounds, smoke and irritating vapours when heated to decomposition.

Hazardous polymerisation : Will not occur.

11 . Toxicological information

Toxicity data

Product/ingredient name	Test	Result	Route	Species
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	LD50 LD50 LC50	>5000 mg/kg >2000 mg/kg >2500 mg/m^3 (4 hour(s))	Oral Dermal Inhalation	Rat Rabbit Rat

Specific effects

Carcinogenic effects : Not listed as carcinogenic by OSHA, NTP or IARC.

Mutagenic effects : No known significant effects or critical hazards.

Teratogenicity / Reproductive toxicity : No known significant effects or critical hazards.

Sensitisation

Ingestion : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Eyes : Slightly irritating to the eyes.

Skin : Slightly irritating to the skin.

Synergistic products : Not available.

12 . Ecological information

Ecotoxicity data

Product/ingredient name	Species	Period	Result

Environmental precautions : No known significant effects or critical hazards.

Bioconcentration factor Not available.

BOD and COD Not available.

Biodegradable/OECD Not available.

Mobility Not available.

Special remarks on the products of biodegradation Not available.

13 . Disposal considerations

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.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimised wherever possible. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Class	PG*	Label	Additional information
TDG Classification	Not regulated.	-	-	-		-
DOT Classification	Not available.	Not available.	Not available.	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Not regulated.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

EU regulations

Risk phrases : This product is not classified according to EU legislation.

International regulations

International lists

Canada inventory status : Listed

EC INVENTORY (EINECS/ELINCS) : Listed

TSCA 8(b) inventory : Listed

16 . Other information

Hazardous Material Information System (U.S.A.) :

Health	1
Fire hazard	1
Reactivity	0
Personal protection	B

National Fire Protection Association (U.S.A.) :

References : Available upon request.
* Marque de commerce de Petro-Canada - Trademark

Date of printing : **2/14/2008.**

Date of issue : **7/19/2006.**

Date of previous issue : **No previous validation.**

Responsible name : **Product Safety - JDW**

Version : **4**

16 . Other information

For Copy of (M)SDS : The Canadian Controlled Products Regulations (CPR) (Under the Hazardous Products Act, part of the WHMIS legislation) only apply to WHMIS Controlled (i.e., hazardous) products. Therefore, the CPR and the 3-year update rule specified therein do not apply to WHMIS Non-Controlled products. Although this is true, customarily Petro-Canada reviews and updates Non-Controlled product MSDS if a customer requests such an update. These Non-Controlled product updates are given a lower priority than Controlled products but are handled as soon as practicable. If you would like to verify if the MSDS you have is the most current, or you require any further information, please contact:

Internet: www.petro-canada.ca/msds

Lubricants:
Western Canada, telephone: 1-800-661-1199; fax: (780) 464-9564
Ontario & Central Canada, telephone: 1-800-268-5850 and (905) 822-4222; fax: 1-800-201-6285
Quebec & Eastern Canada, telephone: 1-800-576-1686; fax: 1-800-201-6285

For Product Safety Information: (905) 804-4752

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

MATERIAL SAFETY DATA SHEET

SECTION I: IDENTIFICATION OF PRODUCT

COMPANY: **Diversity Technologies Corp.**
8750 – 53rd Ave.
Edmonton, AB T6E 5G2

DATE: June 27, 2007
PHONE: 780-468-4064
FAX: 780-469-1899

PRODUCT NAME: **Extra High Yield Bentonite**

PRODUCT USE: Drilling fluid & cement additive
CHEMICAL FAMILY: Bentonite clay CAS#: 1302-78-9

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION: D2A
WORKPLACE HAZARD: Potential carcinogen; contains crystalline silica

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	% (w/w)	CAS NUMBER	LD_{50} Oral-Rat	LC_{50} Inhal-Rat	ACGIH-TLV
Crystalline silica; quartz	2 – 6	14808-60-7	Not available	Not available	TWA=0.05 mg/m^3

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY: [ ] EYE CONTACT [ ] SKIN [XX] INHALATION [ ] INGESTION
EYE CONTACT: May cause mechanical irritation.
SKIN CONTACT: Possible drying resulting in dermatitis.
INGESTION: No adverse effects expected.
INHALATION: Inhalation may cause irritation of the nose, throat and respiratory passages. Long-term inhalation may cause silicosis, a progressive, disabling and, sometimes, fatal lung disease. Chronic inhalation exposure to crystalline silica quartz has been observed to cause lymph node effects, kidney effects and auto-immune disease.

CARCINOGENICITY:	Bentonite is not listed as a carcinogen. Crystalline silica when inhaled in the form of quartz or crystobalite from occupational sources is carcinogenic to humans: The IARC has concluded that this chemical is carcinogenic to humans (Group 1). The ACGIH has designated this chemical as a suspected human carcinogen (A2). The US NTP has listed this chemical as a known human carcinogen.
TERATOGENICITY:	No information available.
REPRODUCTIVE TOXICITY:	No information available.
MUTAGENICITY:	Crystalline silica has been shown to cause mutagenic effects in human cells in-vitro.
SYNERGISTIC PRODUCTS:	No information available.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT:	If irritation occurs or when shift ends, wash with soap and water until clean.
EYE CONTACT:	Flush with water until irritation ceases. If irritation persists, contact a physician.
INGESTION:	No first aid required; material is non-toxic.
INHALATION:	Move to area free from dust. Apply oxygen or artificial respiration if required. If breathing difficulties, or distress. continue obtain medical attention.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR:	Pale grey to buff powder, granule or tablet; no odour
SPECIFIC GRAVITY:	2.45 – 2.55
BOILING POINT (°C):	Not applicable
MELTING POINT (°C):	1450°C (approx)
SOLUBILITY IN WATER:	Insoluble pH:
PERCENT VOLATILE BY VOLUME:	8-10 (5% aqueous suspension)
EVAPORATION RATE:	Not applicable
VAPOUR PRESSURE (mmHg):	Not applicable
VAPOUR DENSITY (air = 1):	Not applicable
BULK DENSITY:	See applicable Product Data Sheet

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not applicable
FLAMMABLE LIMITS:	Not applicable

EXTINGUISHING MEDIA:	Use media suitable for and packaging and surrounding fire. Product becomes very slippery when wet, avoid using water as fire fighting agent.
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained breathing apparatus required for fire fighting personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None known.

SECTION VII: REACTIVITY DATA

STABILITY:	STABLE [XX]	UNSTABLE [ ]
INCOMPATIBILITY (CONDITIONS TO AVOID):	None known.	
CONDITIONS OF REACTIVITY:	Not available	
HAZARDOUS DECOMPOSITION PRODUCTS:	None known	
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR [XX]	MAY OCCUR [ ]

SECTION VIII: PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	NIOSH/MESA approved respirators for silica bearing dust.
VENTILATION:	Use local ventilation, process enclosure or other engineering controls to maintain airborne concentration of dust below TLV.
PROTECTIVE GLOVES:	Generally not necessary; personal preference.
EYE PROTECTION:	Suggest goggles.
OTHER PROTECTIVE EQUIPMENT (Specify):	Ensure emergency eye wash station and safety shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid breathing dust; wear approved respiratory protection. Practice reasonable caution and personal cleanliness. Avoid eye contact. Store in cool, dry area. Empty packages contain residual hazardous material and should be handled as if full.

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Avoid breathing dust; wear an approved respirator. Vacuum to avoid generating airborne dust. Avoid using water. Product slippery when wet. Collect uncontaminated material for repackaging. Collect contaminated material in an approved container for disposal.

WASTE DISPOSAL METHOD

Dispose in accordance with federal, provincial and local regulations. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal. Empty packaging must be disposed of in accordance with local regulations.

SECTION IX: PREPARATION

THE INFORMATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH,
BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

DATE ISSUED:	June 27, 2007	BY:	Product safety committee
SUPERSEDES:	September 4, 2004	PHONE:	780-440-4923

Diversity Technologies Corp. is the parent company of Canamara-United Supply, Hollimex Products, The Drilling Depot and Westcoast Drilling Supplies.

MATERIAL SAFETY DATA SHEET

EXTREME PRODUCTS & DRILLING SUPPLIES INC.

15640 Mountainview Dr., Surrey, BC, Canada V3S 0C6 • Toll Free **1-866-535-6699**
Tel: **604-535-6699** Fax: 604-535-5493 *e-mail: extreme.ron@telus.net*

EXTREME EXTRA HIGH YIELD GEL

EMERGENCY PHONE NO. (604) 535-6699

WHMIS HAZARD INDEX:

DEGREE OF HAZARD:		HAZARD RATING:	
HEALTH	1	0	LEAST
FIRE	0	1	SLIGHT
REACTIVITY	1	2	MODERATE
OTHER:	B (GLASSES & GLOVES)	3	HIGH
		4	EXTREME

SECTION 1 — **PRODUCT IDENTIFICATION**

PRODUCT NAME:	EXTREME EXTRA HIGH YIELD GEL
CHEMICAL IDENTIFICATION:	Sodium Montmorillonite
MATERIAL USE:	Drilling Mud Additive
WHMIS CLASSIFICATION:	D-2(A)
WORK PLACE HAZARD:	Low concentrations of free silica in airborne dust. Limited evidence as a Carcinogen from inhaled crystalline silica.

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION:	Not Dangerous Goods
PACKAGE GROUP:	Not Applicable
CAS NUMBER:	1302-78-9
MSDS CODE:	Not Applicable

SECTION 2 — **HAZARDOUS INGREDIENTS**

INGREDIENT:	Crystalline Silica (SiO_2)	Crystobalite	Tridymite	Bentonite Dust
PERCENTAGE:	See Below	See Below	See Below	See Below
CAS NUMBER:	14808-60-7	14469-46-1	15468-32-3	1302-78-9
LD (50):	Not Determined	Not Determined	N/D	N/D
LC (50):	Not Determined	Not Determined	N/D	N/D
OSHA PEL:	.1 mg/M^3	.05 mg/M^3	.05 mg/M^3	5 mg/M^3
ACGIH TVL:	.1 mg/M^3	.05 mg/M^3	.05 mg/M^3	N/D

EXTREME EXTRA HIGH YIELD GEL

MATERIAL SAFETY DATA SHEET

SECTION 3 PHYSICAL DATA

APPEARANCE AND ODOUR:	Bluegray to green as moist solid, light tan to gray as dry powder. No odour.
DENSITY (SPECIFIC GRAVITY):	2.4 - 2.55
BOILING POINT:	Not Applicable
MELTING POINT:	Approx. 1450°C
SOLUBILITY:	Insoluble, forms colloidal suspension.
EVAPORATION RATE: (EE=1):	N/A
VAPOUR PRESSURE: (MM HG):	N/A
VAPOUR DENSITY: (AIR = 1):	N/A

SECTION 4 FIRE AND EXPLOSION

FLASHPOINT:	N/A
FLAMMABLE LIMIT:	N/A
AUTO IGNITION TEMP:	N/A
EXTINGUISHING MEDIA:	None for product. Any media for packaging.
SPECIAL FIRE FIGHTING PROCEDURES:	None
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None. Product becomes slippery when wet.

SECTION 5 REACTIVITY DATA

STABILITY (THERMAL, LIGHT, ETC.):	Stable
INCOMPATIBILITY (CONDITIONS TO AVOID):	None
HAZARDOUS POLYMERIZATION:	None
HAZARDOUS DECOMPOSITION PRODUCTS:	None

EXTREME EXTRA HIGH YIELD GEL

MATERIAL SAFETY DATA SHEET

SECTION 6 **HEALTH HAZARDS**

ROUTE OF ENTRY:
(X) SKIN (X) EYE CONTACT (X) INHALATION (X) INGESTION

SKIN CONTACT:	Possible drying resulting in dermatitis.
EYE CONTACT:	Mechanical Irritant
INHALATION:	Acute (short term): Dust levels exceeding PEL may cause irritation of upper respiratory tract. Chronic (long term): Exposure to dust levels higher than TLV may lead to silicosis or other respiratory problems.
INGESTION:	No adverse effects.

SECTION 7 **PREVENTATIVE MEASURES**

SKIN PROTECTION:	Generally not necessary.
EYE PROTECTION:	Goggles may be preferred if dusty conditions develop.
VENTILATION:	Mechanical, general room ventilation. Use local ventilation to maintain REL's/TLV's.
RESPIRATORY PROTECTION:	Use respirators approved by NIOSH/MSHA for silica dust.
LEAK & SPILL PROCEDURE:	Avoid breathing dust. Wear silica approved respirator. Vacuum up to avoid generating dust. Avoid using water, product becomes slippery.
WASTE DISPOSAL:	Dispose of in compliance with local and government regulations.
STORAGE REQUIREMENTS:	Store in dry area. Product becomes slippery when wet.

EXTREME EXTRA HIGH YIELD GEL

MATERIAL SAFETY DATA SHEET

SECTION 8 — FIRST AID MEASURES

SKIN:	Wash with soap and water until clean.
EYE:	Flush with water until irritation ceases.
INHALATION:	Move to dust free area. Inhalation may aggravate existing respiratory illness. Seek medical attention if symptoms persist.
INGESTION:	No adverse effects from small quantities.

SECTION 9 — PREPARATION DATE

DATE ISSUED:	AUGUST 20, 1996
BY:	PRODUCT SAFETY COMMITTEE

THE DATA REPRESENTED HEREIN IS BELIEVED ACCURATE AND REFLECTS OUR BEST PROFESSIONAL JUDGMENT. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY USE, OR ANY OTHER WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF SUCH DATA, THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, OR THAT ANY SUCH USE DOES NOT INFRINGE ANY PATENT. SINCE THE INFORMATION CONTAINED HEREIN MAY BE APPLIED UNDER CONDITIONS OF USE BEYOND OUR CONTROL AND WITH WHICH WE MAY BE UNFAMILIAR, WE DO NOT ASSUME ANY RESPONSIBILITY FOR THE RESULTS OF SUCH APPLICATION. THIS INFORMATION IS FURNISHED UPON THE CONDITION THAT THE PERSON RECEIVING IT SHALL MAKE HIS OWN DETERMINATION OF THE SUITABILITY OF THE MATERIAL FOR HIS PARTICULAR PURPOSE.

DATE REVISED: APR 10 2007

Material Safety Data Sheet

Reference MSDS-US-CAC-8/06

Calcium Aluminate Cement

Updated 8/24/2006

1 Product and company identification

- **Product Name**

  Calcium Aluminate Cement

- **Trade Names**

  Ciment Fondu®, Secar® 41, Secar® 51, Secar® 60, Secar® 71 and Secar® 80

- **Supplier**

  Kerneos Inc.
  1316 Priority Lane
  Chesapeake, VA 23324
  Phone: 757-284-3200
  Fax: 757-284-3300

2 Composition / Information on ingredients

- **Chemical Nature**

  Substance obtained from the milling of a calcium aluminate clinker. The major elements appearing in the clinker are oxides based on Al, Ca, Si and Fe. The cement particles are polyphasic and as such the following mineralogical phases can be found depending on the grade of clinker.

$CaO•Al_2O_3$	12042-68-1
$CaO•2Al_2O_3$	12004-88-5
$12CaO•7Al_2O_3$	12005-57-1
$2CaO•Al_2O_3•SiO_2$	12068-46-1
$4CaO•Al_2O_3•Fe_2O_3$	12068-35-8
Al_2O_3 (α, β)	1344-28-1

The generic CAS number for the polyphasic aluminate cement is:

Calcium aluminate cement 65997-16-2

Calcium aluminate cement does not contain free lime or crystalline silica (such as quartz, tridymite or cristobalite) in measurable amounts.

- **CAS number**

Ciment Fondu®, Secar® 41, Secar® 51, Secar® 60, Secar 71	**65997-16-2**	100%
Secar® 80	**65997-16-2**	40-80%
	1344-28-1	20-60%

3 Hazards Identification

- **HMIS Rating (NPCA)**

Health	0	Flammability	0
Reactivity	0	Personal Protection	0

- **NFPA Rating**

Health	0	Flammability	0
Reactivity	0	Special	0

Calcium Aluminate Cement

- **WHMIS Classification**

Class D, division 2B toxic material

skin or eye irritant

Class E, corrosive material

forms alkaline solution with water

- **Most important hazards**

In contact with water, an alkaline solution will be formed (pH 11 – 11.5). In spite of the pH level, the alkaline reserve is limited and the product has not been classified as irritant according to the criteria defined in the EEC directives (93/21/EEC)

A dust problem may occur in confined areas. It is regarded as nuisance dust without any known specific effects to health.

- **Specific hazards**

Calcium aluminates react chemically and harden when mixed with water. The reaction is exothermic resulting in a temperature rise. If large quantities of cement are exposed to sufficient quantities of water, steam can be formed and the temperature may increase enough to cause a risk of burns during the reaction.

- **Carcinogen listed in:**

Calcium aluminate cement is not a listed carcinogen with NTP, OSHA or IARC monograph.

4 First aid measures

- **Inhalation**

Remove person to fresh air. If symptoms persist, seek medical attention

- **Skin contact**

Remove contaminated clothing and wash affected area with soap and water.

- **Eye contact**

Flush eyes with plenty of clean water. If symptoms persist, seek medical attention.

- **Ingestion**

Do not induce vomiting. Wash mouth with water and give plenty of water to drink.

5 Fire-fighting measures

Calcium aluminate cement is not flammable and will not support a flame. It does not promote combustion with other materials.

6 Accidental release measures

- **Personal precautions**

See section 7 and 8

- **Environmental precautions**

Kerneos Inc.
1316 Priority Lane Chesapeake, VA 23324
Phone: (757) 284-3200 - FAX: (757) 284-3300

Calcium Aluminate Cement

Avoid emission of dust

- **Methods of cleaning up**

  For large amounts, preferable use dry methods while avoiding dust exposure.

  Do not empty material into drains, sewers or water basins as the material hardens in contact with water.

7 Handling and storage

- **Technical measures and precautions**

  Use common procedures for handling and storage of industrial powder products with particular attention to suppression of dust and spillage, to avoid unnecessary exposure.

  Store in dry conditions, preferably above ground protected by shrink wrap or in bulk silo.

- **Safe handling advise**

  No particular precautions.

- **Incompatible products**

  Contact with water or water vapor during storage will hydrate the product which will cause lumps and affect the performance.

- **Packaging materials**

  No special restrictions with respect to safety.

8 Exposure control / personal protection

- **Engineering measures**

  Mechanical ventilation is recommended wherever feasible for evacuation of dust during handling operations (discharging, mixing, conveying, packing, etc.).

- **Control parameters**

  The following occupational exposure limits defined for non specified nuisance dust are applicable.

	OSHA PEL	ACGIH PEL
Total dust	15 mg/m^3	10 mg/m^3
Respirable dust	5 mg/m^3	5 mg/m^3

- **Personal protective equipment**

  ANSI approved glasses or goggles should be worn whenever there is a risk of powder or wet mixture entering the eyes.

  Protective clothing is recommended, including waterproof gloves and boots.

  NIOSH approved respiratory protection should be worn when the conditions are such that the personal exposure is estimated to approach or exceed the stated limits.

9 Physical and chemical properties

Physical State:	Dry powder
Color:	Fondu – dark brown
	Secar 41 – brown
	Secar 51 – grey
	Secar 60 – buff
	Secar 71 – white

Calcium Aluminate Cement

	Secar 80 – white
Odor:	none
Specific gravity:	2.9 – 3.3
Vapor density:	n/a
Vapor pressure:	n/a
Evaporation rate:	n/a
Boiling point:	n/a
Freezing point:	n/a
pH:	11 – 11.5 when wet
Water solubility:	negligible

10 Stability and reactivity

- **Stability**

  In a dry environment the product is chemically stable.

  When mixed with water it reacts chemically and hardens, forming stable calcium aluminate hydrates. The reaction is exothermic and continues for up to 24h. Total heat released is < 500 kJ/kg.

- **Hazardous decomposition products**

  None.

11 Toxicological information

- **Acute toxicity**

  None.

- **Local effects**

  May cause local irritation to eye, throat or skin, but in not classified as irritant according to EEC legislation

- **Sensitization and chronic toxicity**

  Does not contain measurable amounts of soluble Chromium (VI)

12 Ecological information

- **Possible environmental effects**

  After hydration (a few hours or days in moist conditions) the product is stable in soil and in water, with a negligible mobility of its constituents.

13 Disposal considerations

Bags of unused material or empty contaminated packaging, as well as hardened residue may be disposed by landfill, if in accordance with local or national disposal regulations.

The conditions or methods for handling, stocking, using or eliminating this product are beyond the control of Kerneos. Kerneos shall therefore not be held liable in case of loss, damage or any expense incurred related to the handling, the stocking, the use or the elimination of this product howsoever.

Kerneos Inc.
1316 Priority Lane Chesapeake, VA 23324
Phone: (757) 284-3200 - FAX: (757) 284-3300

Calcium Aluminate Cement

14 Transport information

This product is not classified as a hazardous material under U.S. DOT or Canadian TDG regulations.

15 Regulatory information

- **CERCLA/Superfund**

  This product is not listed as a CERCLA hazardous substance.

- **Inventory listings**

  This substance is listed on:

  - U.S. TSCA inventory Section 8 (b)
  - Canadian Inventory, the DSL

16 Other information

This MSDS follows:

- OSHA CFR 1910.1200 on hazard communication
- It has been prepared by the technical department of Kerneos Inc., Chesapeake, VA.
- This version applies to Kerneos products distributed in North America. For users outside this area please consult your local office for a current MSDS.
- An electronic version of this MSDS is available at: www.Kerneosinc.com under the products section
- This document applies to this product only. When this product is mixed with other materials, the information contained in this document may not be applicable.

Kerneos Inc., believes the information contained herein is accurate: however, Kerneos makes no guarantees with respect to such accuracy and assumes no liability in connection with the use of the information contained herein which is not intended to be and should not be construed as legal advice or as insuring compliance with any federal, state or local laws or regulations. Any party using this product should review all such laws, rules or regulations prior to use, including but not limited to US and Canada Federal, Provincial and State regulations.

Kerneos Inc.
1316 Priority Lane Chesapeake, VA 23324
Phone: (757) 284-3200 - FAX: (757) 284-3300

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:	**G-STOP**		
PRODUCT USE:	Drilling mud additive.		
CHEMICAL FAMILY:	Polyacrylamide	CAS#:	Not available

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION:	Not a controlled product under WHMIS
WORKPLACE HAZARD:	Treat as a nuisance dust.

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	PERCENT	CAS NUMBER	LD_{50} Oral-Rat	LC_{50} Inhal-Rat	ACGIH-TLV

Contains no WHMIS controlled ingredients.

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY:	[ ]EYE CONTACT [ ]SKIN [ ]INHALATION [ ]INGESTION
EYE CONTACT:	May cause slight irritation and/or redness.
SKIN CONTACT:	May cause slight irritation some cases.
INGESTION:	Low acute oral toxicity. May cause nausea and vomiting.
INHALATION:	May cause irritation of the respiratory tract, including sneezing and coughing.
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 until irritation subsides. If irritation persists, obtain medical attention.
INGESTION:	Do not induce vomiting. Give 2-3 glasses of water. If symptoms occur, obtain medical attention. Never 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:	White granular powder; no odour	
SPECIFIC GRAVITY:	0.8	
BOILING POINT (°C):	Not available	
MELTING POINT (°C):	Not available	
SOLUBILITY IN WATER:	Insoluble	pH: Not applicable
PERCENT VOLATILE BY VOLUME:	Not available	
EVAPORATION RATE:	Not available	
VAPOUR PRESSURE (mmHg):	Not available	
VAPOUR DENSITY (air = 1):	Not available	
BULK DENSITY:	Not available	

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not applicable
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 if possible.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	As with most organic powders, flammable dust clouds may be formed in air. Avoid creating dust. Avoid sources of ignition.

SECTION VII: REACTIVITY DATA

STABILITY:	STABLE [XX] UNSTABLE [ ]
INCOMPATIBILITY (CONDITIONS TO AVOID):	Avoid contact with strong oxidizers. Avoid wet, damp or humid conditions, extremes of temperature, and ignition sources.
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxides of carbon and nitrogen, various hydrocarbons, and/or hydrogen cyanide upon combustion
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR [XX] MAY OCCUR [ ]

SECTION VIII: PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Use approved dust mask in absence of adequate ventilation. Use approved respirators with dust cartridges if TLV is exceeded.
VENTILATION:	Use in well-ventilated area, or use local exhaust ventilation, process enclosure or other engineering controls to maintain dust level below TLV.
PROTECTIVE GLOVES:	Use gloves, if needed, to avoid prolonged or repeated skin contact.
EYE PROTECTION:	Use safety glasses or goggles.
OTHER PROTECTIVE EQUIPMENT (Specify):	As necessary to prevent contact. Ensure eyewash station and emergency shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid prolonged or repeated breathing of dust and contact with skin. Remove contaminated clothing; launder or dry-clean before reuse. Cleanse skin thoroughly after contact, before breaks and meals and at end of work period. Product is readily removed from skin by washing thoroughly with soap and water. Store in a cool, dry location away from incompatibles. Store in original container.

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Use appropriate safety equipment. Avoid creating dust clouds. Remove ignition sources. Sweep up or vacuum dry material and flush spill area with water. Collect uncontaminated material for repackaging. Collect contaminated material in approved containers for disposal. This product or its solutions should not be allowed to enter waterways without treatment.

WASTE DISPOSAL METHOD

Dispose in accordance with federal, provincial and local regulations. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal. It may be possible to dispose of spills of non-hazardous materials in a landfill; check with local operator.

SECTION IX: PREPARATION

THE INFORMATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH,
BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

DATE ISSUED:	January 3, 2006	BY:	Product safety committee
SUPERSEDES:	March 31, 2003	PHONE:	780-440-4923

Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing	TDG (pictograms)
	**B-2, D-2A, D-2B**		

Section 1. Chemical Product and Company Identification

Product Name	**GASOLINE, UNLEADED**	**Code**	W102E, SAP: 102 to 117
Synonym	Regular, Unleaded Gasoline (US Grade), Mid-Grade, Plus, Super, WinterGas, SummerGas, Supreme, SuperClean WinterGas, RegularClean, PlusClean, Premium, marked or dyed gasoline, Super Premium (94 RO), TQRUL, transitional quality regular unleaded, BOB, Blendstock for Oxygenate Blending	**Validated on**	**5/14/2008.**
Manufacturer	PETRO-CANADA P.O. Box 2844 150 – 6th Avenue South-West Calgary, Alberta T2P 3E3	**In case of Emergency**	Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).
Material Uses	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 recreational vehicles.		

Section 2. Composition and Information on Ingredients

			Exposure Limits (ACGIH)		
Name	**CAS #**	**% (W/W)**	**TLV-TWA(8 h)**	**STEL**	**CEILING**
Gasoline	86290-81-5	85-100	300 ppm	500 ppm	Not established
Benzene	71-43-2	<1.5	0.5 ppm	2.5 ppm	Not established

Manufacturer Recommendation	Not applicable
Other Exposure Limits	Consult local, state, provincial or territory authorities for acceptable exposure limits.

Section 3. Hazards Identification.

Potential Health Effects	Flammable liquid. Exercise caution when handling this material. May cause cancer. May cause heritable genetic effects (mutagenicity). This product contains an ingredient or ingredients, which have been shown to cause chronic toxic effects. Contact with this product may cause skin irritation. Inhalation of this product may cause respiratory tract irritation and Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure; coma and death. Ingestion of this product may cause gastro-intestinal irritation. Aspiration of this product may result in severe irritation or burns to the respiratory tract. For more information refer to Section 11 of this MSDS.

Section 4. First Aid Measures

Eye Contact	Avoid direct contact. Quickly and gently blot or brush chemical off the face. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes, while holding the eyelid(s) open. Obtain medical advice.
Skin Contact	Avoid direct contact. Wear chemical protective clothing if necessary. As quickly as possible, remove contaminated clothing, shoes and leather goods (e.g., watchbands, belts, etc.). Quickly and gently, blot or brush away excess chemical. Immediately wash with lukewarm, gently flowing water and non-abrasive soap for 15-20 minutes. Immediately obtain medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.
Inhalation	Take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment). If breathing has stopped, trained personnel should begin artificial respiration (AR) or, if the heart has stopped, immediately start cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED). Quickly transport victim to an emergency care facility.
Ingestion	NEVER give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 60 to 240 mL (2 to 8 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. If breathing has stopped, trained personnel should begin artificial respiration (AR) or, if the heart has stopped, immediately start cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED). Quickly transport victim to an emergency care facility.

Continued on Next Page

Note to Physician	Not available

Section 5. Fire-fighting Measures

Flammability	Flammable liquid (NFPA).	**Flammable Limits**	Lower: 1.3%; Upper: 7.6% (NFPA).
Flash Points	Closed cup: -50 to -38°C (-58 to -36.4°F) [Tagliabue]	**Auto-Ignition Temperature**	257°C (495°F) (NFPA).
Fire Hazards in Presence of Various Substances	Extremely flammable in presence of open flames, sparks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. Rapid escape of vapour may generate static charge causing ignition. May accumulate in confined spaces.	**Explosion Hazards in Presence of Various Substances**	Do not cut, weld, heat, drill or pressurize empty container. Containers may explode in heat of fire. Vapours may form explosive mixtures with air.
Products of Combustion	Carbon oxides (CO, CO2), nitrogen oxides (NOx), polynuclear aromatic hydrocarbons, phenols, smoke and irritating vapours as products of incomplete combustion. See Section 11 (Other Considerations) for information regarding the toxicity of the combustion products.		
Fire Fighting Media and Instructions	NAERG2004 GUIDE 128, Flammable liquids (Non-polar/Water-immiscible). CAUTION: This product has a very low flash point: Use of water spray when fighting fire may be inefficient. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. SMALL FIRES: Dry chemical, CO2, water spray or regular foam. LARGE FIRES: Water spray, fog or regular foam. Do not use straight streams. Move containers from fire area if you can do it without risk. Fires Involving Tanks or Car/Trailer Loads: 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. Withdraw immediately in case of rising sound from venting devices or any discolouration of tank. ALWAYS stay away from the ends of tanks. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible withdraw from area and let fire burn. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.		

Section 6. Accidental Release Measures

Material Release or Spill	IN THE EVENT OF A LARGE SPILL CONSIDER THE FOLLOWING CONTROL MEASURES: Consult current National Emergency Response Guide Book (NAERG) for appropriate spill measures if necessary. Extinguish all ignition sources. Stop leak if safe to do so. Evacuate non-essential personnel. Ventilate area. Dike spilled material. Use appropriate inert absorbent material to absorb spilled product. Collect used absorbent for later disposal. Ensure clean-up personnel wear appropriate personal protective equipment. Avoid contact with spilled material. Avoid contaminating sewers, streams, rivers and other water courses with spilled material. Avoid breathing vapours or mists of material. Ground and bond all equipment used to clean up the spilled material, as it may be a static accumulator. Notify appropriate authorities immediately.

Section 7. Handling and Storage

Handling	FLAMMABLE MATERIAL. Handle with care. Avoid contact with any sources of ignition, flames, heat, and sparks. Avoid skin contact. Avoid eye contact. Avoid inhalation of product vapours or mists. Wear proper personal protective equipment (See Section 8). Empty containers may contain product residue. Do not pressurize, cut, heat, or weld empty containers. Do not reuse containers without commercial cleaning and/or reconditioning. Personnel who handle this material should practice good personal hygiene during and after handling to help prevent accidental ingestion of this product. Ensure all equipment is grounded/bonded. Avoid confined spaces and areas with poor ventilation. Do not ingest this product.
Storage	Store as flammable material. Store away from incompatible and reactive materials (See section 5 and 10). Store away from heat and sources of ignition. Store in dry, cool, well-ventilated area. Keep container tightly closed. Ensure the storage containers are grounded/bonded. Avoid direct sunlight.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	For normal application, special ventilation is not necessary. If user's operations generate vapours or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Make-up air should always be supplied to balance air removed by exhaust ventilation. Ensure that eyewash station and safety shower are close to work-station.
Personal Protection - ***The selection of personal protective equipment varies, depending upon conditions of use.***	
Eyes	As a minimum, safety glasses with side shields should be worn when handling this material.
Body	If this material may come in contact with the body during handling and use, we recommend wearing appropriate protective clothing to prevent contact with the skin. (Contact your PPE provider for more information.)
Respiratory	A NIOSH-approved air-purifying respirator with an organic vapour cartridge or canister may be permissible under 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 circumstances where air-purifying respirators may not provide adequate protection.

Hands	If this material may come in contact with the hands during handling and use, we recommend wearing gloves of the following material(s): polyvinyl alcohol (PVA), fluoro-elastomer. Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns.
Feet	Wear appropriate footwear to prevent product from coming in contact with feet and skin.

Section 9. Physical and Chemical Properties

Physical State and Appearance	Clear liquid.	**Viscosity**	Not available.
Colour	Clear to slightly yellow or green, undyed liquid. May be dyed red for taxation purposes.	**Pour Point**	Not applicable.
Odour	Gasoline	**Softening Point**	Not applicable.
Odour Threshold	Less than 1 ppm.	**Dropping Point**	Not applicable.
Boiling Point	25 to 220°C (77 to 428°F) (ASTM D86)	**Penetration**	Not applicable.
Density	0.685 - 0.80 kg/L @ 15°C (59°F).	**Oil / Water Dist. Coefficient**	Not available
Vapour Density	3 to 4 (Air = 1) (NFPA).	**Ionicity (in water)**	Not available
Vapour Pressure	<107 kPa @ 37.8ºC (100ºF)	**Dispersion Properties**	Not available
Volatility	Volatile.	**Solubility**	Hydrocarbon components virtually insoluble in water. Soluble in alcohol, ether, chloroform, and benzene. Dissolves fats, oils and natural resins.

Section 10. Stability and Reactivity

Corrosivity	Non corrosive.		
Stability	The product is stable under normal handling and storage conditions.	**Hazardous Polymerization**	Will not occur under normal working conditions.
Incompatible Substances / Conditions to Avoid	Reactive with oxidizing agents and acids.	**Decomposition Products**	May release COx, NOx, phenols, polynuclear aromatic hydrocarbons, smoke and irritating vapours when heated to decomposition.

Section 11. Toxicological Information

Routes of Entry	Skin contact, eye contact, inhalation, and ingestion.
Acute Lethality	Gasoline (8006-61-9): Acute Oral toxicity (LD50): 13600 mg/kg (rat) Acute Dermal toxicity (LD50): >5000 mg/kg (rabbit) Benzene (71-43-2): Acute Oral toxicity (LD50): 930 mg/kg (rat) Acute Dermal toxicity (LD50): >9400 mg/kg (rabbit) Acute Inhalation toxicity (LC50): 13229 ppm/4h (rat)

Chronic or Other Toxic Effects

Dermal Route:	Contact may cause skin irritation. Prolonged or repeated contact may defat and dry skin, and cause dermatitis.
Inhalation Route:	Inhalation of this product may cause respiratory tract irritation. Inhalation of this product may cause Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure; coma and death.
Oral Route:	Ingestion of this product may cause gastro-intestinal irritation. Aspiration of this product may result in severe irritation or burns to the respiratory tract. Ingestion of this product may cause Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure; coma and death.
Eye Irritation/Inflammation:	Short-term exposure is expected to cause only slight irritation, if any.
Immunotoxicity:	Not available
Skin Sensitization:	Contact with this product is not expected to cause skin sensitization, based upon the available data and the known hazards of the components.
Respiratory Tract Sensitization:	Contact with this product is not expected to cause respiratory tract sensitization, based upon the available data and the known hazards of the components.
Mutagenic:	This product contains a component(s) at >= 0.1% that has been shown to cause mutagenicity in laboratory tests. Therefore, this product is considered to be a mutagen. (Benzene)

Reproductive Toxicity:	This product is not known to contain any components at >= 0.1% that have been shown to cause reproductive toxicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a reproductive toxin.
Teratogenicity/Embryotoxicity:	This product is not known to contain any components at >= 0.1% that have been shown to cause teratogenicity and/or embryotoxicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a teratogen/embryotoxin.
Carcinogenicity (ACGIH):	This product contains the following chemical(s) at >=0.1% that are listed as carcinogenic compounds. Therefore this product is considered to be carcinogenic. [Considered to be A1 by the ACGIH. Benzene (71-43-2)] [Considered to be A3 by the ACGIH. Gasoline (8006-61-9)]
Carcinogenicity (IARC):	This product contains the following chemical(s) at >=0.1% that are listed as carcinogenic compounds. Therefore this product is considered to be carcinogenic. [Considered to be carcinogenic to humans (group 1) by IARC. Benzene (71-43-2)] [Considered to be carcinogenic to humans (group 2B) by IARC. Gasoline (8006-61-9)]
Carcinogenicity (NTP):	This product contains the following chemical(s) at >=0.1% that are listed as carcinogenic compounds. Therefore this product is considered to be carcinogenic. [Known to be a human carcinogen according to NTP. Benzene (71-43-2)]
Carcinogenicity (IRIS):	This product contains the following chemical(s) at >=0.1% that are listed as carcinogenic compounds. Therefore this product is considered to be carcinogenic. [Considered to be carcinogenic by IRIS. Benzene (71-43-2)]
Carcinogenicity (OSHA):	This product contains the following chemical(s) at >=0.1% that are listed as carcinogenic compounds. Therefore this product is considered to be carcinogenic. [Considered to be carcinogenic by OSHA. Benzene (71-43-2)]
Other Considerations	Gasoline engine exhaust is possibly carcinogenic to humans (IARC Group 2B).

Section 12. Ecological Information

Environmental Fate	Not available	**Persistance/ Bioaccumulation Potential**	Not available
BOD5 and COD	Not available	**Products of Biodegradation**	Not available
Additional Remarks	No additional remark.		

Section 13. Disposal Considerations

Waste Disposal	Spent/ used/ waste product may meet the requirements of a hazardous waste. Consult your local or regional authorities. Ensure that waste management processes are in compliance with government requirements and local disposal regulations.

Section 14. Transport Information

TDG Classification	GASOLINE, 3, UN1203, PGII (CL-TDG)	**Special Provisions for Transport**	See Transportation of Dangerous Goods Regulations.

Section 15. Regulatory Information

Other Regulations

This product is acceptable for use under the provisions of WHMIS-CPR. All components of this formulation are listed on the CEPA-DSL (Domestic Substances List).

All components of this formulation are listed on the US EPA-TSCA Inventory.

All components of this product are on the European Inventory of Existing Commercial Chemical Substances (EINECS).

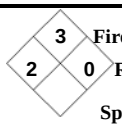
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

Please contact Product Safety for more information.

DSD/DPD (Europe)	Not evaluated.	**HCS (U.S.A.)**	CLASS: Contains material which may cause cancer. CLASS: Flammable liquid having a flash point lower than 37.8°C (100°F). CLASS: Irritating substance. CLASS: Target organ effects.
ADR (Europe) (Pictograms)	NOT EVALUATED FOR EUROPEAN TRANSPORT NON ÉVALUÉ POUR LE TRANSPORT EUROPÉEN.	**DOT (U.S.A) (Pictograms)**	Not evaluated for transport Non évalué pour le transport

HMIS (U.S.A.)		
	Health Hazard	2*
	Fire Hazard	3
	Reactivity	0
	Personal Protection	H

NFPA (U.S.A.)



Rating
0 Insignificant
1 Slight
2 Moderate
3 High
4 Extreme

Section 16. Other Information

References Available upon request.

TM/MC Marque de commerce de Petro-Canada - Trademark

Glossary

ACGIH - American Conference of Governmental Industrial Hygienists
ADR - Agreement on Dangerous goods by Road (Europe)
ASTM - American Society for Testing and Materials
BOD5 - Biological Oxygen Demand in 5 days
CAS - Chemical Abstract Services
CEPA - Canadian Environmental Protection Act
CERCLA - Comprehensive Environmental Response, Compensation and Liability Act
CFR - Code of Federal Regulations
CHIP - Chemical Hazard Information and Packaging Approved Supply List
COD - Chemical Oxygen Demand
CPR - Controlled Products Regulations
DOT - Department of Transportation (U.S.A.)
DSCL - Dangerous Substances Classification and Labeling (Europe)
DSD/DPD - Dangerous Substance or Dangerous Preparations Directives (Europe)
DSL - Domestic Substance List (Canada)
EEC/EU - European Economic Community/European Union
EINECS - European Inventory of Existing Commercial Chemical Substances
EPCRA - Emergency Planning And Community Right-To-Know Act
FDA - Food and Drug Administration
FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act
HCS - Hazardous Communication System
HMIS - Hazardous Material Information System
IARC - International Agency for Research on Cancer
IRIS - Integrated Risk Information System
LD50/LC50 - Lethal Dose/Concentration kill 50%
LDLo/LCLo - Lowest Published Lethal Dose/Concentration
NFPA - National Fire Prevention Association
NIOSH - National Institute for Occupational Safety & Health
NPRI - National Pollutant Release Inventory
NSNR - New Substances Notification Regulations (Canada)
NTP - National Toxicology Program
OSHA - Occupational Safety & Health Administration
PEL - Permissible Exposure Limit
RCRA - Resource Conservation and Recovery Act
SARA - Superfund Amendments and Reorganization Act
STEL - Short Term Exposure Limit (15 minutes)
TDG - Transportation Dangerous Goods (Canada)
TDLo/TCLo - Lowest Published Toxic Dose/Concentration
TLV-TWA - Threshold Limit Value-Time Weighted Average
TLm - Median Tolerance Limit
TSCA - Toxic Substances Control Act
USEPA - United States Environmental Protection Agency
USP - United States Pharmacopoeia
WHMIS - Workplace Hazardous Material Information System

For Copy of MSDS
Internet: www.petro-canada.ca/msds

Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228

For Product Safety Information: (905) 804-4752

Prepared by Product Safety - JDW on 5/14/2008.

Data entry by Product Safety - JDW.

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **HOLEPLUG® 3/8**

Revision Date: 03-Jan-2008

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Statement of Hazardous Nature Hazardous according to criteria of WorkSafe

Manufacturer/Supplier

Halliburton/Baroid Australia Pty. Ltd.
53-55 Bannister Road
Canning Vale
WA 6155
Australia

ACN Number: 009 000 775
Telephone Number: 61 (08) 9455 8300
Fax Number: 61 (08) 9455 5300

Product Emergency Telephone
Australia: 08-64244950
Papua New Guinea: 05 1 281 575 5000
New Zealand: 06-7559274

Fire, Police & Ambulance - Emergency Telephone
Australia: 000
Papua New Guinea: 000
New Zealand: 111

Identification of Substances or Preparation

Product Trade Name:	HOLEPLUG® 3/8
Synonyms:	None
Chemical Family:	Mineral
UN Number:	None
Dangerous Goods Class:	None
Subsidiary Risk:	None
Hazchem Code:	None
Poisons Schedule:	None
Application:	Fluid Loss Additive

Prepared By

Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	Australia NOHSC	ACGIH TLV-TWA
Crystalline silica, cristobalite	14464-46-1	0 - 1%	0.1 mg/m^3	0.025 mg/m^3

2. COMPOSITION/INFORMATION ON INGREDIENTS

Crystalline silica, tridymite	15468-32-3	0 - 1%	0.1 mg/m^3	0.05 mg/m^3
Crystalline silica, quartz	14808-60-7	0 - 5%	0.1 mg/m^3	0.025 mg/m^3
Bentonite	1302-78-9	60 - 100%	Not applicable	Not applicable

Total to 100%

3. HAZARDS IDENTIFICATION

Hazard Overview

CAUTION! - ACUTE HEALTH HAZARD
May cause eye and respiratory irritation.

DANGER! - CHRONIC HEALTH HAZARD
Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposures below recommended exposure limits. Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product. Review the Material Safety Data Sheet (MSDS) for this product, which has been provided to your employer.

Hazard Ratings

Flammability:	0
Toxicity:	0
Body Contact:	0
Reactivity:	0
Chronic:	4

Scale: Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4

4. FIRST AID MEASURES

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Skin Wash with soap and water. Get medical attention if irritation persists.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

Notes to Physician Treat symptomatically.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media All standard fire fighting media

Unsuitable Extinguishing Media None known.

Special Exposure Hazards Not applicable.

Special Protective Equipment for Fire-Fighters Not applicable.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust.

Environmental Precautionary Measures None known.

Procedure for Cleaning / Absorption Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

7. HANDLING AND STORAGE

Handling Precautions This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard En 149, or equivalent respirator when using this product. Material is slippery when wet.

Storage Information Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container. Product has a shelf life of 12 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits listed in Section 2.

Respiratory Protection Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product.

Hand Protection Normal work gloves.

Skin Protection Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.

Eye Protection Wear safety glasses or goggles to protect against exposure.

Other Precautions None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Color:	Various
Odor:	Odorless
pH:	7.5
Specific Gravity @ 20 C (Water=1):	2.12
Density @ 20 C (kg/l):	Not Determined
Bulk Density @ 20 C (kg/m^3):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (C):	Not Determined
Pour Point/Range (C):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (g/m^3):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (g/m^3):	Not Determined

9. PHYSICAL AND CHEMICAL PROPERTIES

Flammability Limits in Air - Upper (%):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Insoluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (g/l):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistrokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined
Decomposition Temperature (C):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Hydrofluoric acid.
Hazardous Decomposition Products	Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A). Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).
Skin Contact	May cause mechanical skin irritation.
Eye Contact	May cause eye irritation.
Ingestion	None known
Aggravated Medical Conditions	Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to quartz dust.

Chronic Effects/Carcinogenicity

Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney disease.

Other Information

For further information consult "Adverse Effects of Crystalline Silica Exposure" published by the American Thoracic Society Medical Section of the American Lung Association, American Journal of Respiratory and Critical Care Medicine, Volume 155, pages 761-768 (1997).

Toxicity Tests

Oral Toxicity:	Not determined
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997).
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air) Not determined

Persistence/Degradability Not determined

Bio-accumulation Not Determined

Ecotoxicological Information

Acute Fish Toxicity: Not determined
Acute Crustaceans Toxicity: Not determined

Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined
Other Information	Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

EPG:	Not determined
IERG:	Not determined
Labels:	None

15. REGULATORY INFORMATION

Chemical Inventories

Australian AICS Inventory	Not Determined
US TSCA Inventory	All components listed on inventory.
EINECS Inventory	This product, and all its components, complies with EINECS
Classification	Crystalline silica is not classified as a carcinogen in EU Council Directives 67/548/EEC and 88/379/EEC.
Risk Phrases	None
Safety Phrases	None

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS
Not applicable

Contact

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

New Zealand Poisons Information System
Deunedin: -(03) 479 1200 (Normal Hours)
-(03) 474 0999 (Emergency)

Additional Information

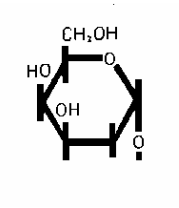
For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

*****END OF MSDS*****



Poly-Drill Drilling Systems
1824 - 104 Avenue, S.W.
Calgary, Alberta, Canada T2W-OA8
(403) 259-5112 FAX (403) 255-7185
email: polydril@telus.net
www.poly-drill.com

poly-drill.com

MATERIAL SAFETY DATA SHEET/FICHE SIGNALETIQUE

1. PRODUCT IDENTIFICATION

PRODUCT TRADE NAME: Poly Drill K-ION
CHEMICAL DESCRIPTION: Potassium Acetate Solution in water, copolymer of acrylamide with diallyldimethylammonium chloride
UPDATED: January 17, 2007

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component CAS Reg Number WHMIS
Hazard Percentage:
Copolymer of acrylamide with diallyldimethylammonium chloride is a suspected carcinogen. 26590-05-6 N
Acrylamide 79-06-1 Y <0.10. This product has a quality assurance of less than 0.1% of the acrylamide monomer.

INGREDIENT	% W/W	TLV	CAS NO
POTASSIUM ACETATE	30-60	N/E	127-08-2

Note: *Recommended
N/E – Not established, N/A-Not applicable

3. PHYSICAL DATA

Boiling Point: >100°C (212 °F) at 760 MMHG
Specific Gravity (@ 25 Deg.C.): 1.09
Solubility in Water: Soluble
pH: 7.0 to 9.0 (1.0% solution)
Vapor Pressure: <23.5 MMHG at 25°C (77°F)
Specific Gravity: 1.27 @ 20°C (68°F)
Freezing Point: -20°C
Physical State: Viscous liquid
Appearance and Odor: Red. Characteristic slight odor.

4. FIRE AND EXPLOSION DATA

Flash Point: >93.3°C (200°F)
Method used: Pensky-Martens Closed Cup
Conditions of flammability: Will burn after drying
Hazardous combustion products: Oxides of carbon and nitrogen.
Upper and Lower flammable limits: No Data
Extinguishing media: (Small fires): dry chemical, carbon dioxide. Recommended
(large fire): alcohol foam, universal foam, water spray.

NOT recommended: water jet (frothing possible).

Product will normally not burn unless under severe fire conditions. However, dehydrated residue will burn.

Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.

5. REACTIVITY

Chemical stability: This product is stable under normal handling and storage conditions.
Hazardous Polymerization: Cannot occur.
Incompatible substances: Avoid strong oxidizing and mineral acids.
Hazardous decomposition products: Not applicable.

6. HEALTH HAZARD DATA

These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. While developing safe handling procedures, do not overlook the need to clean equipment.

TOXICITY RATING: Practically non-harmful.
Routes of Exposure and Effects:

SKIN: Slight irritant: prolonged contact may cause skin irritation or dermatitis in some individuals
EYE: Causes moderate irritation, redness, tearing, and swelling.
INHALATION: May cause discomfort or irritation to nasal and respiratory passages.
INGESTION: May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

OTHER: This product contains potassium salts. Ingestion of large amounts (25 or more grams) of potassium salts usually causes a person to vomit. If the person is not suffering from a preexisting kidney and or cardiac conditions, the absorbed potassium salt is excreted in the urine.

This product is slightly irritating to the eyes and could cause prolonged impairment of vision. The degree of injury will depend on the amount of material that gets into the eye and the speed of eye flushing.

Exposure limits: Contains trace acrylamide (SKIN). Exposure limit, TWAEV=0.03 mg/m(ONT. Reg. 654/86). Contains traces of isopropanol. Exposure limit, TWAEV=400ppm, STEV=500ppm(ONT. Reg. 654/86).

Carcinogenicity: This product contains traces of acrylamide. Acrylamide is listed by IARC(Group 2B) and ACGIH(Group A2) as a possible human carcinogen.
Teratongenicity: Not available.
Mutagenicity: Not available.

7. EMERGENCY AND FIRST AID PROCEDURES

SKIN: Wash exposed area with soap and water. Remove contaminated clothing. Launder contaminated clothing before re-use. If irritation or abnormalities persist, call a physician.

EYE: Immediately flush eyes with water for 15 minutes, lifting upper and lower lids occasionally. Get medical attention.

INHALATION: Remove to fresh air. If breathing becomes difficult, give oxygen and call a physician.

INGESTION: Do not induce vomiting: Call a physician immediately or poison control center. Never give anything by mouth to an unconscious person. Seek medical advice.

8. INDUSTRIAL HYGIENE CONTROL MEASURES

Respiratory Protection: If overexposure has been determined or documented, a NIOSH/MSHA jointly approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators under specified conditions. Engineering or administrative controls should be implemented to reduce exposure.

Ventilation: If mist and/or vapors are present, use air purifying respirator of self-contained breathing apparatus, but this is rarely required.

Eye Protection: Safety glasses, if personally preferred
Gloves: Generally not necessary. Personal preference.

9. HANDLING AND USE PRECTIONS

Storage requirements: keep container closed when no in use. Store in a cool dry location away from oxidizing and reducing agents.
Waste Disposal: product should be disposed of in accordance with applicable local, Provincial and Federal regulations.
Steps must be taken if product is released or spilled: clean spill areas thoroughly to avoid hazardous slippery conditions.

10. TOXICOLOGICAL PROPERTIES

The Microtox bioassay has been established as the reference test for mud additive toxicity testing.

Test Method: Luminescent Bacteria, IC50@ 15 min
Reference: Appendix 1: Microtox Bioassay Procedure, Drilling Waste Management, Guide G50. 1993. Alberta Energy and Utilities Board, Calgary, AB, Canada.
Treatment: pH adjusted to 6.3
Preparation: Sample was diluted to 2 g/L. The sample was then centrifuged for 1 hour.
IC50 Microtox Analysis prepared by HydroQual Laboratories, Calgary, AB--97/07/23 Test#971127, Sample#97556-2

Test Description	IC20	IC50	Pass/Fail
MTX	29 (26 - 32)	>91	PASS

HUMAN HAZARD CHARACTERIZATION:
Based on our Hazard Characterization, the potential human hazard is: LOW

11. DEPARTMENT OF TRANSPORTATION INFORMATION

Shipping Name: Liquid Drilling Fluid
Hazard Class: Not hazardous
Hazardous Substances: None

Cautionary Labeling: None required

12. REGULATORY INFORMATION

Inventory Status:

UNITED STATES (TSCA) Y
CANADA (DSL) Y
EUROPE (EINECS/ELINCS) P
AUSTRALIA (AICS) Y
JAPAN (MITI) N
SOUTH KOREA (KECL) Y

Y = All ingredients are on the inventory.
E = All ingredients are on the inventory or exempt from listing.
P = One or more ingredients fall under the polymer exemption or are on the no longer polymer list. All other ingredients are on the inventory or exempt from listing.
N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing.

Inventory Issues: All functional components of this product are listed on the TSCA inventory.

WHMIS Classification: NOT CONTROLLED

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

13. OTHER INFORMATION

National Fire Protection Association Hazard Ratings – NFPA (R):

0 Health Hazard Rating – Minimal
1 Flammability Rating – Slight
0 Instability Rating – Minimal

National Paint & Coating Hazardous Materials Identification System – HMIS (R):

0 Health Hazard Rating – Minimal
1 Flammability Rating – Slight
0 Reactivity Rating – Minimal

Key Legend Information:
ACGIH – American Conference of Governmental Industrial Hygientists
OSHA – Occupational Safety and Health Administration
TLV – Threshold Limit Value
PEL – Permissible Exposure Limit
MTX – Microtox Bioassay Test
TWA – Time Weighted Average
STEL – Short Term Exposure Limit
NTP – National Toxicology Program
IARC – International Agency for Research on Cancer

The information herein is given in good faith but no warranty, expressed or implied, is made.

MATERIAL SAFETY DATA SHEET

SECTION I: IDENTIFICATION OF PRODUCT

COMPANY:	**Diversity Technologies Corp.**	DATE:	Dec. 19, 2005
	8750 – 53rd Ave.	PHONE:	604-940-6050
	Edmonton, AB T6E 5G2	FAX:	604-940-6080

PRODUCT NAME: **LINSEED SOAP**

PRODUCT USE: Lubricant.
CHEMICAL FAMILY: Mixture CAS#: Mixture

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION: Not WHMIS controlled.
WORKPLACE HAZARD: Not applicable

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	PERCENT	CAS NUMBER	LD_{50} Oral-Rat	LC_{50} Inhal-Mouse	ACGIH-TLV

Contains no WHMIS controlled ingredients.

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY: [XX] EYE CONTACT [ ] SKIN [ ] INHALATION [ ] INGESTION
EYE CONTACT: May cause slight irritation.
SKIN CONTACT: May cause slight irritation.
INGESTION: Not considered toxic.
INHALATION: Not a likely source of contact during normal use.
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:	Wipe away excess. Wash thoroughly with soap and water. Launder contaminated clothing before re-use. If irritation persists, obtain medical attention.
EYE CONTACT:	Immediately flush with gently flowing warm water until material is removed and irritation ceases. If irritation persists, obtain medical attention.
INGESTION:	If conscious give 1 to 2 glasses of water and induce vomiting; keep head below hips to prevent aspiration of vomitus. Obtain medical attention. Never give anything by mouth to an unconscious or convulsing victim.
INHALATION:	Move to fresh air. Apply oxygen or artificial respiration if required. If breathing difficulties, or distress, continue obtain medical attention.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR:	Brown paste; slight odour	
SPECIFIC GRAVITY:	Not applicable	
BOILING POINT (°C):	100	
MELTING POINT (°C):	0	
SOLUBILITY IN WATER:	Soluble	pH: 9.5 – 11.0
PERCENT VOLATILE BY VOLUME:	Not applicable	
EVAPORATION RATE:	Not applicable	
VAPOUR PRESSURE (mmHg):	Not applicable	
VAPOUR DENSITY (air = 1):	Not applicable	
BULK DENSITY	Not applicable	

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not flammable
FLAMMABLE LIMITS:	Not applicable
EXTINGUISHING MEDIA:	Use media suitable for packaging and surrounding materials.
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained breathing apparatus required for fire fighting personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None known.

SECTION VII: REACTIVITY DATA

STABILITY:	STABLE [XX]	UNSTABLE [ ]
INCOMPATIBILITY (CONDITIONS TO AVOID):	None known.	
CONDITIONS OF REACTIVITY:	None known.	
HAZARDOUS DECOMPOSITION PRODUCTS:	Not determined.	
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR [XX]	MAY OCCUR [ ]

SECTION VIII: PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Not applicable.
VENTILATION:	Not applicable.
PROTECTIVE GLOVES:	Personal preference.
EYE PROTECTION:	Safety glasses with side-shields recommended.
OTHER PROTECTIVE EQUIPMENT (Specify):	Wear clothing adequate to protect against exposure. Ensure eye-wash station and emergency shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Wash thoroughly after handling. Avoid contact with eyes, skin or clothing. No specific storage requirements.

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Use appropriate safety equipment. Scoop up excess material. Collect uncontaminated material for repackaging. Collect contaminated material in approved containers for disposal. Wipe up remaining spill with absorbent compound to prevent slipping hazard.

WASTE DISPOSAL METHOD

Dispose in accordance with federal, provincial and local regulations. This material can be land filled in most areas; check with local operator. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal.

SECTION IX: PREPARATION

THE INFORMATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH,
BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

DATE ISSUED:	December 19, 2005	BY:	Product safety committee
SUPERSEDES:	March 31, 2003	PHONE:	780-440-4923

Material Safety Data / Fiche signalétique

WESTCOAST DRILLING SUPPLIES LTD.
8069 River Way, Delta, British Columbia,
Canada V4G 1L3
Ph. (604) 940-6050 Fax (604) 940-6080

EMERGENCY 1-800-665-6645

SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME: **GSX 20**

PRODUCT USE:	Drilling fluid additive
CHEMICAL FAMILY:	Surfactant solution
WHMIS CLASSIFICATION:	D-2A, D-2B, B-3
WORK PLACE HAZARD:	Teratogen, Skin and eye irritant, ingestion hazard

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

TDG CLASSIFICATION:	Flammable liquid N.O.S. (contains isobutyl alcohol)
PACKAGE GROUP:	3.3
PRODUCT IDENTIFICATION NUMBER	UN 1993

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD_{50} (oral rat)	LD_{50} (dermal rabbit)
Ethylene Glycol	10-30	107-21—1	4700 mg/kg	9530 mg/kg
Isobutyl Alcohol	3-7	78-83-1	2460 mg/kg	3400 mg/kg
Ethoxylated N-tallowalkyl trimethylene diamines	3-7	61790-85-0	not determine	not determined

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY: [XXX] Eye Contact [XXX] Inhalation [XXX] Ingestion

Threshold Limit Value:	OSHA PEL:	CL 50 ppm (ethylene glycol)
	ACGIH TLV:	CL 50 ppm (ethylene glycol)
	OSHA PEL:	TWA 50 ppm (isobutyl alcohol)
	ACGIH TLV:	TWA 50 ppm (isobutyl alcohol)

EFFECTS OF EXPOSURE:

INHALATION: May cause irritation of the nose and throat with headache, particularly from mist.
High vapour concentrations caused for example by heating the material in an enclosed and poorly ventilated workplace may produce nausea, vomiting, headache, dizziness, loss of consciousness and irregular eye movements.

SKIN CONTACT: Skin contact can cause severe irritation.

INGESTION: May cause abdominal discomfort or pain, nausea, vomiting, dizziness, drowsiness, malaise, blurring of vision, irritability, lumbar pain, oliguria, uremia and central nervous system effects including irregular eye movements, convulsions and coma.
Cardiac failure and pulmonary oedema may develop.
Severe kidney damage follows the swallowing of large volumes of ethylene glycol.
May be fatal.

EYE CONTACT: Liquid ,vapour or mist causes irritation, experienced as stinging, excess blinking and tear production, with excess redness of the conjunctiva.
Direct eye contact may cause severe irritation.
May cause corneal injury.

Material Safety Data / Fiche signalétique

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EMERGENCY 1-800-665-6645

GSX 20

SECTION IV: FIRST AID MEASURES

SKIN CONTACT:	Remove contaminated clothing. Blot off excess material with a clean cloth. Rinse with water. Soap and water wash, if signs of irritation are present seek immediate medical attention
EYE CONTACT:	Flush with copious quantities of water for 15 minutes. Do not allow victim to rub eyes. Obtain immediate medical attention.
INHALATION:	Evacuate to fresh air. Obtain medical attention if symptoms persist.
INGESTION:	If ingested, and patient is conscious, give two glass of water and induce vomiting. Obtain medical attention without delay If medical advice is delayed and if the person has swallowed a moderate volume of product, give three to four ounces of hard liquor such as whiskey. For children give proportionately less liquor according to weight.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR	: Amber or blue liquid, faint odor.
SPECIFIC GRAVITY	: 1.02
BOILING POINT (^{0}C)	: not determined
MELTING POINT (^{0}C)	: not determined
SOLUBILITY IN WATER	: Soluble
pH	: 7-8
PERCENT VOLATILE BY VOLUME	: not determined
EVAPORATION RATE	: not determined
VAPOR PRESSURE (mm Hg)	: not determined
VAPOR DENSITY (Air = 1)	: not determined

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	: 59 ^{0}C (TCC)
AUTOIGNITION TEMPERATURE	: not determined
FLAMMABLE LIMITS	: not determined
EXTINGUISHING MEDIA	: CO2; Foam; Dry Chemical; Water Fog
SPECIAL FIRE FIGHTING PROCED.	: Use full protective equipment and self contained breathing apparatus.
USUSUAL FIRE AND EXPLOSION HAZARDS	: None known. Although this product is not flammable, loss of sufficient solvent may render it combustible.

Material Safety Data / Fiche signalétique

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EMERGENCY 1-800-665-6645

GSX 20

SECTION VII: REACTIVITY DATA

STABILITY:	[XXX] Stable	[ ] Unstable
INCOMPATIBILITY (Conditions to avoid):	Strong Oxidizers	
HAZARDOUS DECOMPOSITION PRODUCTS:	CO_X, NO_X	
HAZARDOUS POLYMERIZATION:	[XXX] Will not occur	[ ] May occur

SECTION VII: PREVENTIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION	: Use of chemical cartridge respirators when PEL and TLV limits will be exceeded.
VENTILATION	: General mechanical;
PROTECTIVE GLOVES	: Suggest chemical gloves.
EYE PROTECTION	: Suggest goggles
OTHER PROTECTIVE EQUIPMENT (Specify)	: Suggest rubber apron

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid ingestion.
Practice reasonable caution and personal cleanliness.
Avoid skin and eye contact. \
Store in a cool well ventilated area.

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

(Use appropriate safety equipment.)
Small spills, soak up with absorbent material.
Large spills, dike to contain spill to prevent water pollution.
Recover diked material, return recovered material to plant.

WASTE DISPOSAL METHOD

Absorb spilled material with absorbent compound, incinerate/dispose to conform with local disposal regulations.

SECTION IX: PREPARATION

The information contained herein is given in good faith, but no warranty, expressed or implied, is made.

DATE ISSUED: December 16, 1988
SUPERSEDES: July 1995
BY: Product Safety Committee

DATE REVISED: April 1, 2000
DATE REVISED: January , 2002

Review date: March 31/03

AUTHORIZED

Material Safety Data / Fiche signalétique

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EMERGENCY 1-800-665-6645

SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME:	**WDS-120L**
PRODUCT USE:	Drilling Mud Additives
CHEMICAL FAMILY:	Copolymer of acrylamide with sodium acrylate
WHMIS CLASSIFICATION:	B3, D2B
WORK PLACE HAZARD:	Combustible liquid, skin and eye irritant

TRANSPORTATION OF DANGEROUS GOODS

SHIPPING NAME:	not regulated
CLASSIFICATION:	not applicable
PACKAGE GROUP:	not applicable
PRODUCT IDENTIFICATION NUMBER (Pin):	not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT %	CAS NUMBER	LD_{50} (oral rat)	LD_{50}(dermal rabbit))	LC_{50} (inhalator rat)
Mineral Spirits	30-60	64742-47-8	>5 g/kg	>3 g/kg	not determined
Alkyl Phenol Ethoxylate	3-7	68412-54-4	3000 mg/kg	2830 mg/kg	not determined

SECTION III: TOXICOLIGICAL INFORMATION

CARINOGENICITY	not determined
REPRODUCTIVE TOXICITY	not determined
TERATOGENICITY	not determined
MUTAGENICITY	not determined
DEVELOPMENTAL TOXICITY	not determined

SECTION IV: HEALTH HAZARDS

ROUTE OF ENTRY: [XXX] Skin [XXX] Eye Contact [XXX] Inhalation [XXX] Ingestion

THRESHOLD LIMIT VALUE	: not determined
SKIN CONTACT	: Contact may cause irritation, redness, swelling or dermatitis
EYE CONTACT	: Will casue painful burning or stinging of eyes and lids, watering of eyes and inflammation of conjunctiva.
INGESTION	: May cause nausea and vomiting.
INHALATON	: Inhalation not likely.

Material Safety Data / Fiche signalétique

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EMERGENCY 1-800-665-6645

WDS-120L

SECTION V: FIRST AID MEASURES

SKIN CONTACT	: Wash exposed area with soap and water. If irritation or abnormalities persist, call a physician.
EYE CONTACT	: Immediately flush eyes with water for 15 minutes and call a physician.
INGESTION	: Do not induce vomiting. If conscious, dilute by giving two glasses of water. Call a physician immediately.
INHALATION	: Remove to fresh air. If conscious, dilute by giving two glasses of water. Call a physician immediately.

SECTION VI: PHYSICAL DATA

APPEARANCE	Off white liquid
ODOUR	Mineral oil smell
SPECIFIC GRAVITY	1.07
BOILING POINT (0C)	not determined
MELTING POINT (0C)	not determined
SOLUBILITY IN WATER	Soluble
PERCENT VOLATILE BY VOLUME	not determined
EVAPORATION RATE	not determined
VAPOR PRESSURE (mm Hg)	not determined
VAPOR DENSITY (Air = 1)	not determined
pH	6 - 9 (0.6% in water)

SECTION VII: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	65^{0}C (TCC)
FLAMMABLE LIMITS	not determined
EXTINGUISHING MEDIA	Water spray, foam, dry chemical, carbon dioxide
SPECIAL FIRE FIGHTING PROCEDURES	Self-contained respirators required for fire fighting personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS	Water will cause extreme slipperiness. Sensitivity to static charge.

Material Safety Data / Fiche signalétique

WESTCOAST DRILLING SUPPLIES LTD.
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Canada V4G 1L3
Ph. (604) 940-6050 Fax (604) 940-6080

EMERGENCY 1-800-665-6645

WDS-120L

SECTION VIII: REACTIVITY DATA

STABILITY:	[XXX] Stable	[ ] Unstable
INCOMPATIBILITY (Conditions to Avoid)	Strong oxidizing and reducing agents.	
CONDITIONS OF REACTIVITY	Not known	
HAZARDOUS DECOMPOSITION PRODUCTS	CO_X, smoke on combustion	
HAZARDOUS POLYMERIZATION	[XXX] Will not occur	[ ] Will occur

SECTION IX: PREVENTIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION	In the absence of proper ventilation a NIOSH approved organic vapour respirator is recommended
VENTILATION	General mechanical, 10 changes per hour
PROTECTIVE GLOVES	Chemically resistant
EYE PROTECTION	Safety glasses
OTHER PROTECTIVE EQUIPMENT (Specify)	None known

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

(Use appropriate safety equipment.) Small spills, soak up with absorbent material
Large spills, dike to contain spill to prevent water pollution.
Recover diked material, return recovered material to plant.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid ingestion.
Practice reasonable caution and personal cleanliness.
Avoid skin and eye contact.
Store in a cool well ventilated area.

WASTE DISPOSAL METHOD

Absorb spilled material with absorbent compound, incinerate/dispose to conform with local disposal regulations.

SECTION X: PREPARATION

The information contained herein is given in good faith, but no warranty, expressed or implied is made.

DATE ISSUED: July 2001
SUPERSEDES: January 1995
BY: Product Safety Committee

DATE REVISED: April 1, 2000
DATE REVISED: January 2002

Review date: March 31/03

Authorized by: Alan Leland

Material Safety Data / Fiche signalétique

WESTCOAST DRILLING SUPPLIES LTD.
8069 River Way, Delta, British Columbia,
Canada V4G 1L3
Ph. (604) 940-6050 Fax (604) 940-6080

EMERGENCY 1-800-665-6645

SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME:	**W-OB POLYMER**
PRODUCT USE:	Drilling Mud Additive
CHEMICAL FAMILY:	Polysaccharide Polymer
WHMIS CLASSIFICATION:	Class B-3 & D-2(B)
WORK PLACE HAZARD:	Combustible and Skin and Eye Irritant

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION:	Not Dangerous Goods
PACKAGE GROUP:	Not applicable
PRODUCT IDENTIFICATION NUMBER (PIN):	Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD50	LC50
Light mineral distillate	10 - 20%	64742-47-8	Not determined	

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:
[XXX] Skin, [XXX] Eye Contact, [XXX] Inhalation, [XXX] Ingestion

THRESHOLD LIMIT VALUE:	5 mg/cu.M/8 hrs.
EFFECTS OF OVEREXPOSURE:	No significant signs or symptoms indicative of any adverse health effects are expected to occur upon short-term exposures.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT: Remove by wiping; then wash thoroughly with plenty of soap and water.
EYE CONTACT: Flush eyes with clean, low pressure water for at least fifteen (15) minutes, occasionally lifting the eyelids. If pain or redness persists after flushing, obtain medical attention.
INHALATION: Immediately remove personnel from contaminated area to fresh air. Obtain medical attention if there are signs of breathing difficulties.
INGESTION: Do not induce vomiting, since aspiration into the lungs could cause lipoid pneumonia. This material is not toxic and no significant signs or symptoms indicative of any adverse health effects are expected.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR:	Opaque, blue liquid; Odorless.
DENSITY (SPECIFIC GRAVITY):	1.03
BOILING POINT:	200° C
MELTING POINT:	Not applicable
WATER SOLUBILITY:	Soluble
% VOLATILE BY VOLUME:	Negligible
EVAPORATION RATE:	Nil
VAPOR PRESSURE: (mm Hg)	< 1.0
VAPOR DENSITY: (Air = 1)	> 10.0
pH:	6 - 8

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Toll Free: 1-800-665-8845

W-OB POLYMER

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	62° C
FLAMMABLE LIMIT:	Auto-ignition Temp. 227° C
EXTINGUISHING MEDIA:	Dry chemical, CO_2, foam and water are effective but may cause frothing.
SPECIAL FIRE FIGHTING PROCEDURES:	Cool tanks and containers exposed to fire with water.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	To protect against hazardous effects of combustion products respiratory protective equipment when in confined spaces or down wind of fire.

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE [ ]

INCOMPATIBILITY (CONDITIONS TO AVOID):	Extreme heat and open flame.
HAZARDOUS DECOMPOSITION PRODUCTS:	Carbon dioxide; carbon monoxide.
HAZARDOUS POLYMERIZATION:	Will not occur [XXX] May occur [ ]

SECTION VIII: PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION:	
RESPIRATORY PROTECTION:	None required under normal conditions.
VENTILATION:	Adequate ventilation to minimize oil mists below acceptable standards.
PROTECTIVE GLOVES:	None required.
EYE PROTECTION:	Normal safety glasses suggested.
OTHER PROTECTIVE EQUIPMENT:	None required.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Avoid ingestion. Practice reasonable caution and personal cleanliness. Avoid skin and eye contact.

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

(Use appropriate safety equipment). Small spills, soak up with absorbent material. Large spills, dike to contain spill to prevent water pollution. Water will cause extreme slipperiness. Recover diked material; return recovered material to plant.

WASTE DISPOSAL METHOD:

Absorb spilled material with absorbent compound, incinerate/dispose to conform with local disposal regulations.

SECTION IX: PREPARATION

The information contained herein is given in good faith, but no warranty, expressed or implied is made.

DATE ISSUED: October 29, 1993

DATE REVISED: April 1, 2000

BY: Product Safety Committee

Review date: January 31/03

Authorized by: Alan Colarusso

Material Safety Data Sheet / Fiche signalétique

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EMERGENCY 1-800-665-6645

SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME:	**SUPER SET**
CHEMICAL FAMILY:	
PRODUCT USE:	Cement Accelerator
WHMIS CLASSIFICATION:	Class D-2(B)
WORK PLACE HAZARD:	Skin and Eye Irritant

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION:	Not Dangerous Goods
PACKAGE GROUP:	Not applicable
PRODUCT IDENTIFICATION NUMBER (PIN):	Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD50	LC50
Calcium Chloride	30%	10043-52-4	1090 mg/kg	Not determined
Strontium Chloride	3%	10476-85-1	1090 mg/kg	Not determined

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:
[XXX] Skin, [XXX] Eye Contact, [ ] Inhalation, [XXX] Ingestion

SKIN CONTACT: This product is destructive to tissues contacted and produces severe burns. A latent period may exist between exposure and sense of irritation.
EYE CONTACT: This product is destructive to eye tissue on contact. It will cause severe burns that result in damage to the eyes and even blindness.
INHALATION: Not available.
INGESTION: This product, if swallowed, can cause severe burns and complete tissue perforation of the mucous membranes of the mouth, throat, esophagus and stomach.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT: Immediately wash contaminated areas with plenty of water for at least fifteen (15) minutes. Remove contaminated clothing and footwear; wash before reuse. Discard footwear which cannot be decontaminated. Treat chemical burns as thermal burns. ***Get immediate medical attention.***
EYE CONTACT: ***Flush material out immediately then get medical attention.*** Immediately flush eyes with large amounts of water for fifteen (15) minutes, holding lids apart to ensure flushing of the entire surface. Washing eyes within several seconds of contact is essential to achieve maximum effectiveness.
INHALATION: Not available.
INGESTION: If swallowed, ***do not induce vomiting***. Give large quantities of water. If available, give several glasses of milk. If vomiting occurs spontaneously, keep airway clear. ***Get immediate medical attention.*** Do not give anything by mouth to an unconscious or convulsing person.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR:	Light brown; Odorless
DENSITY (SPECIFIC GRAVITY):	1.8
BOILING POINT:	100° C

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SUPER SET

MELTING POINT:	Not determined
WATER SOLUBILITY:	60%
% VOLATILE BY VOLUME:	Not determined
EVAPORATION RATE:	Not applicable
VAPOR PRESSURE: (mm Hg)	Not applicable
VAPOR DENSITY: (Air = 1)	Not applicable
pH:	Not available

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not applicable
FLAMMABLE LIMIT:	Not applicable
EXTINGUISHING MEDIA:	Not a combustible material.
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained respirators required for fire fighting personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Not applicable.

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE [ ]	
INCOMPATIBILITY (CONDITIONS TO AVOID):	Polymers (Acrylamide and Acrylate)
HAZARDOUS DECOMPOSITION PRODUCTS:	None
HAZARDOUS POLYMERIZATION:	Will not occur [XXX] May occur [ ]

SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION:	Suggest NIOSH/MESA approved dust mask.
VENTILATION:	Ten (10) changes per hour suggested.
PROTECTIVE GLOVES:	Suggest plastic or rubber gloves.
EYE PROTECTION:	Suggest goggles.
OTHER PROTECTIVE EQUIPMENT:	Suggest rubber apron.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Store in a cool dry place.

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

Spread absorbing material on spill and then shovel up.

WASTE DISPOSAL METHOD:

Absorb spilled material with absorbent compound, incinerate/dispose to conform with local disposal regulations. Dispose of contaminated product and materials used in cleaning up spills or leaks in a manner approved for this material.

SECTION IX: PREPARATION

The information contained herein is given in good faith, but no warranty, expressed or implied is made.

DATE ISSUED: February 8, 1989

DATE REVISED: April 1, 2000

BY: Product Safety Committee

Review date: March 31/03

Authorized by: Alan Leblanc

Material Safety Data / Fiche signalétique

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EMERGENCY 1-800-665-6645

SECTION 1: IDENTIFICATION OF PRODUCT

PRODUCT NAME:	**CLAY STABILIZER**
PRODUCT USE:	Drilling Fluid Additive
CHEMICAL FAMILY:	Amine salts
WHMIS CLASSIFICATION:	D2B
WORK PLACE HAZARD:	Skin and Eye irritant

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION:	not applicable
PACKAGE GROUP:	not applicable
SHIPPING NAME:	not regulated
PRODUCT IDENTIFICATION NUMBER (Pin):	not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT (%)	CAS #	LD_{50} (oral rat)	LD_{50} (dermal rabbit	LC_{50} (inhalation rat)
1,6-Hexanediamine	30 – 60	124-09-4	750 mg/kg	1110 mg/kg	not determined
Formic Acid	10 – 30	64-18-6	1100 mg/kg	not determined	not determined

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY [XXX] Skin [XXX] Eye Contact [XXX] Inhalation [XXX] Ingestion

THRESHOLD LIMIT VALUE : not determined

SKIN CONTACT : not expected to be problem under normal conditions of use.
Liquid may cause irritation.
Due to the pH of the sample the corrosive properties of the individual components are not present.
LD_{50} (skin, rabbit) 3700 mg/kg based on components.

INGESTION : Due to the pH of the mixture, the corrosive properties of the individual components are not present in the mixture.
LD_{50} (oral rat) 2200 mg/kg based on components.

INHALATION : Not expected to be a problem under normal conditions of use.
Due to the pH of the mixture, individual components have rendered non-volatile.
4 hour LC_{50} (rat) > 3200 mg/m^3 based on components.

SECTION IV: TOXICOLIGICAL INFORMATION

CARINOGENICITY	not determined
REPRODUCTIVE TOXICITY	not determined
TERATOGENICITY	not determined
MUTAGENICITY	not determined
DEVELOPMENTAL TOXICITY	not determined

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EMERGENCY 1-800-665-6645

CLAY STABILIZER

SECTION V: FIRST AID MEASURES

SKIN CONTACT	: In case of skin contact, immediately flush contacted area for at least 15 minutes with water. Remove contaminated clothing immediately and launder before reuse. If irritation develops consult a doctor.
EYE CONTACT	: In case of contact with eyes, flush with water for at least 15 minutes. Seek immediate medical attention.
INGESTION	: If victim is conscious, give water. Do not induce vomiting. Seek immediate medical attention.
INHALATION	: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

SECTION VI: PHYSICAL DATA

APPEARANCE	: Clear liquid
ODOR	: Odourless
SPECIFIC GRAVITY	: 1.07
BOILING POINT (^{0}C)	: >100^0
MELTING POINT (^{0}C)	: <-35^{0}C
PERCENT VOLATILE BY VOLUME	: not determined
SOLUBILITY IN WATER	: Soluble
EVAPORATION RATE	: not determined
VAPOR PRESSURE (mm Hg)	: not determined
VAPOR DENSITY (Air = 1)	: not determined
pH	: 9 – 10

SECTION VII: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	: >100^{0}C (TCC)
FLAMMABLE LIMITS	: not applicable\
EXTINGUISHING MEDIA	: Water, dry chemical, foam
SPECIAL FIRE FIGHTING PROCEDURES	: Self-contained respirators required for fire-fighting personnel
UNUSUAL FIRE AND EXPLOSION HAZARDS	: none known

SECTION VIII: REACTIVITY DATA

STABILITY [XXX] Stable [ ] Unstable

INCOMPATIBILITY (Conditions to avoid)	: Strong Oxidizers
CONDITION OF REACTIVITY	: not known
HAZARDOUS DECOMPOSITION PRODUCTS	: CO_x, NO_x
HAZARDOUS POLYMERIZATION	: [XXX] Will not occur [ ] May occur

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EMERGENCY 1-800-665-6645

CLAY STABILIZER

SECTION IX: PREVENTIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION	Not expected to be a problem under normal use
VENTILATION	General mechanical, 10 changes per hour
PROTECTIVE GLOVES	Chemically resistant
EYE PROTECTION	Safety glasses
OTHER PROTECTIVE EQUIPMENT (Specify)	Suggest rubber apron

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Wear protective equipment.
For spills dike and pick up spilled material, dispose of in approved waste containers.
Keep out of sewers, storm drains, surface waters and soil.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Store in a cool, dry, well-ventilated place away from incompatible materials.
Wash thoroughly after handling.
Do not get in eyes, on skin, or on clothing.
Do not cut, grind, weld, or drill on or near this container.
Containers, even those that have been emptied, will retain product residue, always obey hazard warnings and handle empty containers as it they were full.

WASTE DISPOSAL METHOD

Dispose of contaminated product and material used in cleaning up spills or leaks in a manner approved for this material.
Consult appropriate federal, provincial and local regulatory agencies to ascertain proper disposal procedures.

SECTION X: PREPARATION

THE INFORMATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH, BUT NO WARRANTY, EXPRESSED OR IMPLIED IS MADE.

DATE ISSUED: May 2001
SUPERSEDES: March 1997

DATE REVISED: April 1, 2000
DATE REVISED: January 2002

BY: Product Safety Committee

Review date: April 31/03

Authorized by: Allan Lalonde

Material Safety Data Sheet / Fiche signalétique

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EMERGENCY 1-800-665-6645

SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME:	**CALCIUM CHLORIDE FLAKE**
CHEMICAL FAMILY:	Calcium Chloride (77%)
WHMIS CLASSIFICATION:	Class D-2(B)
WORK PLACE HAZARD:	Skin and Eye Irritant

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION:	Not Dangerous Goods
PACKAGE GROUP:	Not applicable
PRODUCT IDENTIFICATION NUMBER (PIN):	Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD50	LC50
Calcium Chloride	>90%	10043-52-4	1090 mg/kg	Not determined
Strontium Chloride	1%	10476-85-1		Not determined

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:
[XXX] Skin, [XXX] Eye Contact, [ ] Inhalation, [ ] Ingestion

SKIN CONTACT:	Prolonged or repeated contact with the dust may irritate the skin or cause burns especially if skin is moist or if material is confined to the skin.
EYE CONTACT:	Dusts may cause moderate to severe eye irritation with corneal injury that may be slow to heal.
INHALATION:	Breathing dust may irritate the nose and throat and cause coughing and chest discomfort.
INGESTION.	Swallowing solids may cause gastrointestinal irritation or ulceration.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT: Immediately wash skin with plenty of soap and water. Remove contaminated clothing and footwear; wash before reuse. Get medical attention if irritation persists after washing.
EYE CONTACT: Flush material out immediately then get medical attention. Immediately flush eyes with large amounts of water for fifteen (15) minutes, holding lids apart to ensure flushing of the entire surface.
INHALATION: Remove to fresh air. Give artificial respiration if not breathing. Get immediate medical attention.
INGESTION: In conscious, immediately induce vomiting. Get immediate medical attention. Do not give anything by mouth to an unconscious or convulsing person.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR:	White to off white pellets; odorless
DENSITY (SPECIFIC GRAVITY):	2.2
BOILING POINT:	204° C
MELTING POINT:	Not applicable
WATER SOLUBILITY:	Very
% VOLATILE BY VOLUME:	Not applicable
EVAPORATION RATE:	Not applicable

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Toll Free: 1-800-665-6646

CALCIUM CHLORIDE FLAKE

VAPOR PRESSURE (mm Hg):	Not applicable
VAPOR DENSITY (Air = 1):	Not applicable
pH:	Not determined

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not applicable
FLAMMABLE LIMIT:	Not applicable
EXTINGUISHING MEDIA:	Not a combustible material.
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained respirators required for fire fighting personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE [ ]

INCOMPATIBILITY (CONDITIONS TO AVOID):	Decomposes above 204° C
HAZARDOUS DECOMPOSITION PRODUCTS:	None
HAZARDOUS POLYMERIZATION:	Will not occur [XXX] May occur [ ]

SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION:	Approved dust respirator or mask.
VENTILATION:	Local mechanical exhaust.
PROTECTIVE GLOVES:	Rubber gloves.
EYE PROTECTION:	Chemical goggles.
OTHER PROTECTIVE EQUIPMENT:	An eyewash and safety shower should be nearby and ready for use.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Store in a cool, very dry place. Keep container tightly closed when not in use. Wash thoroughly after handling. Do not get in eyes, on skin or on clothing.

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

Wear protective equipment. For small spills, sweep up and dispose of in approved waste containers. For large spills, shove into approved waste containers.

WASTE DISPOSAL METHOD:

Dispose of contaminated product and material used in cleaning up spills or leaks in manner approved for this material. Consult appropriate regulatory agencies to ascertain proper disposal procedures.

SECTION IX: PREPARATION

The information contained herein is given in good faith, but no warranty, expressed or implied is made.

DATE ISSUED: November 24, 1988

DATE REVISED: April 1, 2000

BY: Product Safety Committee

Review date: March 31/03

Authorized by: Adam Lalonde

MATERIAL SAFETY DATA SHEET

SECTION I: IDENTIFICATION OF PRODUCT

COMPANY:	**Diversity Technologies Corp.**	DATE:	October 8, 2009
	8750 – 53rd Ave.	PHONE:	780-468-4064
	Edmonton, AB T6E 5G2	FAX:	780-469-1899

PRODUCT NAME: **K2**

PRODUCT USE: Oil well drilling fluid additive.
CHEMICAL FAMILY: Amine salts CAS # Mixture

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION: D2B
WORKPLACE HAZARD: 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	% (w/w)	CAS NUMBER	LD_{50} Oral-Rat	LC_{50} Inhal-Rat	ACGIH-TLV
1,6-Hexanediamine	30-60	124-09-4	750 mg/kg	Not available	2.3 mg/m^3
Formic acid	10-30	64-18-6	1100 mg/kg	Not available	5 ppm

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY: [XX] EYE CONTACT [XX] SKIN [XX] INHALATION [XX] INGESTION

EYE CONTACT: May cause irritation. Due to the pH of the product the corrosive properties of the individual components are not present.

SKIN CONTACT: Not expected to be a problem under normal conditions of use. Liquid may cause minor irritation, burning on prolonged contact with skin. Due to the pH of the product the corrosive properties of the individual components are not present.

INGESTION:	Not expected to be a problem. Ingestion of large quantities may cause gastrointestinal upset. Due to the pH of the product the corrosive properties of the individual components are not present.
INHALATION:	Not expected to be a problem under normal conditions of use. Due to the pH of the product the corrosive properties of the individual components are not present.
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:	Immediately flush thoroughly with water. If irritation develops or persists, obtain medical attention. Remove and launder contaminated clothing before reuse.
EYE CONTACT:	Immediately flush with gently flowing warm water for at least 15 minutes, or until irritation ceases. Obtain medical attention when flushing period is completed.
INGESTION:	If victim is conscious, give one to two glasses of water. Do not induce vomiting. Obtain immediate medical attention. Never give anything by mouth unless victim is fully conscious.
INHALATION:	Move victim to fresh air. Apply oxygen or artificial respiration if required. If breathing difficulties, or distress, continue obtain medical attention.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR:	Clear liquid; odourless
SPECIFIC GRAVITY:	[redacted]
BOILING POINT (°C):	>100
MELTING POINT (°C):	<-35
SOLUBILITY IN WATER:	Soluble [redacted]
PERCENT VOLATILE BY VOLUME:	Not determined.
EVAPORATION RATE:	Not determined.
VAPOUR PRESSURE (mmHg):	Not determined.
VAPOUR DENSITY (air = 1):	Not determined.
BULK DENSITY:	Not determined.

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	>100°C (TCC)
FLAMMABLE LIMITS:	Not applicable
EXTINGUISHING MEDIA:	Water, foam or dry chemical
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.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Product may burn under fire conditions giving off noxious fumes.

SECTION VII: REACTIVITY DATA

STABILITY:	STABLE [XX]	UNSTABLE [ ]
INCOMPATIBILITY (CONDITIONS TO AVOID):	Strong oxidizing agents.	
CONDITIONS OF REACTIVITY:	Not known.	
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxides of carbon and oxides of nitrogen.	
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR [XX]	MAY OCCUR [ ]

SECTION VIII: PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Not required under normal conditions of use.
VENTILATION:	No special ventilation requirements under normal conditions of use. Use appropriate ventilation if vapours, mists or sprays are generated during use.
PROTECTIVE GLOVES:	Suggest plastic or rubber.
EYE PROTECTION:	Chemical goggles and/or full-face shield recommended.
OTHER PROTECTIVE EQUIPMENT (Specify):	Suggest rubber apron. Ensure emergency eye wash station and safety shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation. Wash thoroughly after handling. Store in a cool, dry, well-ventilated place away from incompatible materials and ignition sources. Do not cut, grind, weld or drill on or near this container. Containers, even those that have been emptied, will retain product residue; always obey hazard warnings and handle empty containers as if they were full.

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Use appropriate protective equipment. Evacuate spill area of nonessential personnel. Eliminate ignition sources. Stop leak if possible to do so without risk. Soak up small spills with absorbent. Dike large spills to prevent water pollution. Collect spilled material and absorbents in approved containers for disposal. Wash spill area with water. Collect clean up water for disposal.

WASTE DISPOSAL METHOD

Dispose in accordance with federal, provincial and local regulations. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal. Empty containers that have not been cleaned and purged, contain residual hazardous material and must be disposed of, or recycled, in accordance with local regulations.

SECTION IX: PREPARATION

THE INFORMATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH,
BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

DATE ISSUED: [redacted] BY: Product safety committee
SUPERSEDES: PHONE: 780-440-4923

Diversity Technologies Corp. is the parent company of Canamara-United Supply, Hollimex Products, The Drilling Depot and Westcoast Drilling Supplies.

Material Safety Data Sheet / Fiche signalétique

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8069 River Way, Delta, British Columbia,
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Ph. (604) 940-6050 Fax (604) 940-6080

EMERGENCY 1-800-665-6645

SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME:	**SUPER POLY**
CHEMICAL FAMILY:	Cellulose Ether
PRODUCT USE:	Drilling Mud Additive.
WHMIS CLASSIFICATION:	Not a Controlled Product under WHMIS
WORK PLACE HAZARD:	Not applicable.

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION:	Not applicable.
PACKAGE GROUP:	Not applicable.
PRODUCT IDENTIFICATION NUMBER (PIN):	Not applicable.

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD50 LC50
No Hazardous Ingredients.			

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:
[ ] Skin, [ ] Eye Contact, [ ] Inhalation, [ ] Ingestion

SKIN CONTACT:	May produce slight irritation with prolonged contact with moistened product.
EYE CONTACT:	Dust may produce mechanical irritation.
INHALATION:	Non-irritating to mucous membranes, however, breathing high concentrations of the dust may cause mechanical irritation of the nose, throat and upper respiratory tract.
INGESTION:	Passes through relatively inert. May cause gastro intestinal upset. Oral LD50 > 25 g/kg (rats).

SECTION IV: FIRST AID MEASURES

SKIN CONTACT: Wash exposed area with soap and water. If irritation develops seek medical attention.
EYE CONTACT: Flush eyes with running water for at least fifteen (15) minutes. If illness or adverse symptoms develop, seek medical attention.
INHALATION: Remove from exposure. If illness or adverse symptoms develop, seek medical attention.
INGESTION: Give two (2) glasses of water and induce vomiting. If illness or adverse symptoms develop, seek medical attention.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR:	Light colored powder; Odorless.
DENSITY (SPECIFIC GRAVITY):	1.6
BOILING POINT:	Not applicable
MELTING POINT:	Not applicable
WATER SOLUBILITY:	Complete
% VOLATILE BY VOLUME:	Negligible
EVAPORATION RATE:	Not applicable
VAPOR PRESSURE: (mm Hg)	Not applicable
VAPOR DENSITY: (Air = 1)	Not applicable

WESTCOAST DRILLING SUPPLIES LTD.
8088 River Way, Delta, British Columbia, Canada V4G 1L3
Phone: (604) 940-8050 · Fax: (604) 940-8080
Toll Free: 1-800-665-8645

SUPER POLY

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not applicable
FLAMMABLE LIMIT:	Not determined
EXTINGUISHING MEDIA:	Water, water fog, chemical, carbon dioxide CO_2.
SPECIAL FIRE FIGHTING PROCEDURES:	Evacuate area of all necessary personnel. Use self-contained respirators for fire fighting personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	If in a finely divided and suspended state, treat as a flammable dust. Material becomes very slippery when contacted with water.

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE [ ]

INCOMPATIBILITY (CONDITIONS TO AVOID):	Strong oxidizing and caustic solutions.
HAZARDOUS DECOMPOSITION PRODUCTS:	Carbon Dioxide, Carbon Monoxide
HAZARDOUS POLYMERIZATION:	Will not occur [XXX] May occur [ ]

SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION:	Suggest dust mask. Nuisance dust.
VENTILATION:	No special requirements.
PROTECTIVE GLOVES:	None required.
EYE PROTECTION:	Suggest goggles, nuisance dust.
OTHER PROTECTIVE EQUIPMENT:	None required.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Avoid ingestion. Practice reasonable caution and personal cleanliness. Avoid skin and eye contact. Material become slippery when wet.

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

Vacuum or sweep-up if dry. If wet, pick up with dry material such as sand or dirt. Avoid flushing with water as material becomes slippery.

WASTE DISPOSAL METHOD:

Dispose of material in accordance with local ordinances. Landfill suggested.

SECTION IX: PREPARATION

The information contained herein is given in good faith, but no warranty, expressed or implied is made.

DATE ISSUED: February 20, 1989

DATE REVISED: April 1, 2000

BY: Product Safety Committee

Review date: March 31/03

Authorized by: Alan Lalonde

MATERIAL SAFETY DATA SHEET

SECTION I: IDENTIFICATION OF PRODUCT

COMPANY:	**Diversity Technologies Corp.**	DATE:	February 12, 2010
	8750 – 53rd Ave.	PHONE:	780-468-4064
	Edmonton, AB T6E 5G2	FAX:	780-469-1899

PRODUCT NAME: **SODA ASH**

PRODUCT USE: [redacted]
CHEMICAL FAMILY: Inorganic sodium salt CAS #: 497-19-8

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION: D2B, E
WORKPLACE HAZARD: Eye irritant; corrosive to aluminum

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	% (w/w)	CAS NUMBER	LD_{50} Oral-Rat	LC_{50} Inhal-Rat	ACGIH-TLV
Sodium carbonate	99.8	497-19-8	4090 mg/kg	2.3mg/L/2hr	Not established

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY: [XX] EYE CONTACT [XX] SKIN [XX] INHALATION [XX] INGESTION

EYE CONTACT: Dust and concentrated solutions may cause moderate to severe eye irritation.

SKIN CONTACT: Non-irritating to intact skin. Minor irritation may occur on abraded skin. Prolonged contact may cause irritation (red, dry, cracked skin).

INGESTION: Although low in toxicity, ingestion can be harmful. May cause nausea, vomiting, stomachache and diarrhea.

INHALATION: Excessive levels of airborne dust may irritate the mucous membranes and upper respiratory tract.

CARCINOGENICITY: Not listed by NTP, IARC, OSHA or ACGIH.

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:	Remove contaminated clothing and wash thoroughly with water and soap. If irritation occurs and persists, obtain medical attention.
EYE CONTACT:	Immediately flush eyes with gently flowing warm water for 15 minutes or until irritation ceases, lifting the upper and lower eyelids occasionally. When flushing period is complete, obtain medical attention.
INGESTION:	Do not induce vomiting. Rinse mouth with water. Give one to two glasses of water dilute. Obtain medical attention immediately. Never give anything by mouth if victim is unconscious, rapidly losing consciousness or convulsing.
INHALATION:	Move to fresh air. Apply oxygen or artificial respiration if required. If breathing difficulties or distress continues, obtain medical attention.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR:	White granular solid; odourless	
SPECIFIC GRAVITY:	2.509	
BOILING POINT (°C):	Decomposes	
MELTING POINT (°C):	851	
SOLUBILITY IN WATER:	33.2% maximum	pH: 11.4 (1% solution)
PERCENT VOLATILE BY VOLUME:	Not applicable	
EVAPORATION RATE:	Not applicable	
VAPOUR PRESSURE (mmHg):	Not applicable	
VAPOUR DENSITY (air = 1):	Not applicable	
BULK DENSITY:	0.86 – 1.12 g/mL	

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not combustible
FLAMMABLE LIMITS:	Not applicable
EXTINGUISHING MEDIA:	Use media appropriate for packaging and surrounding materials.
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained breathing apparatus required for fire fighting personnel.

UNUSUAL FIRE AND EXPLOSION HAZARDS:	None known.

SECTION VII: REACTIVITY DATA

STABILITY:	STABLE [XX] UNSTABLE [ ]
INCOMPATIBILITY (CONDITIONS TO AVOID):	Contact with acids will release carbon dioxide gas. Can react violently with red, hot aluminum metal; fluorine gas; lithium; and 2,4,6-trinitrotoluene. Sodium carbonate solutions (concentrations up to 35%) are corrosive to aluminum, lead, and zinc and zinc brasses at 21 deg C. Solid sodium carbonate is corrosive to aluminum at 100% relative humidity and normal temperatures.
CONDITIONS OF REACTIVITY:	Not available.
HAZARDOUS DECOMPOSITION PRODUCTS:	Heating to decomposition, it emits fumes of sodium oxide.
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR [XX] MAY OCCUR [ ]

SECTION VIII: PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	NIOSH/MESA approved dust mask recommended for low levels of dust. Use approved respirator with dust cartridges if dust concentration in air exceeds TLV.
VENTILATION:	Local exhaust recommended if concentration of dust exceeds TLV (nuisance dust = 15 mg/m^3).
PROTECTIVE GLOVES:	Suggest plastic or rubber.
EYE PROTECTION:	Safety glasses or goggles. Do not wear contact lenses when handling this material.
OTHER PROTECTIVE EQUIPMENT (Specify):	Protective clothing as required to prevent contact. Ensure eye was station and emergency shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid contact with eyes or prolonged skin contact. Avoid breathing dust. Use good personal hygiene and housekeeping. Launder contaminated clothing before reuse. Store in a cool, dry, well-ventilated place away from acids. Product is hygroscopic, prolonged storage may cause product to cake and become wet from atmospheric moisture. Obey hazard warnings and handle empty containers as if they were full.

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Wear appropriate safety gear including eye and respiratory protection. Clean spill by sweeping up and shoveling into containers. Collect uncontaminated material for repackaging. Collect contaminated material in an approved container for disposal. Cautiously spray residue with plenty of water. Collect wash water in an approved container for disposal.

WASTE DISPOSAL METHOD

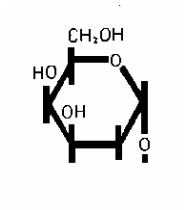
Dispose in accordance with federal, provincial and local regulations. If permitted by applicable disposal regulations, bury in a solid waste landfill or dissolve and neutralize as follows: Dissolve in water using caution as solution can get hot. Neutralize with acid and flush to sewer with plenty of water. Good ventilation is required during neutralization due to release of CO_2 gas. Neutralized wastes may have to be disposed of by an approved contractor. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal. Empty containers, which have not been cleaned and purged, contain residual hazardous material and must be disposed of, or recycled, in accordance with local regulations.

SECTION IX: PREPARATION

THE INFORMATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH,
BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

DATE ISSUED: [redacted] BY: Product safety committee
SUPERSEDES: PHONE: 780-440-4923

Diversity Technologies Corp. is the parent company of Canamara-United Supply, Hollimex Products, The Drilling Depot and Westcoast Drilling Supplies.



Poly-Drill Drilling Systems
1824 - 104 Avenue, S.W.
Calgary, Alberta, Canada T2W-OA8
(403) 259-5112 FAX (403) 255-7185
email: polydril@telus.net
www.poly-drill.com

poly-drill.com

MATERIAL SAFETY DATA SHEET/FICHE SIGNALETIQUE

1. PRODUCT IDENTIFICATION

PRODUCT TRADE NAME(S): Poly Drill PureVis
WHMIS CLASSIFICATION: Non-regulated
TDG Classification: Non dangerous goods
DATE: February 12, 2006

A liquid polymer containing guar gum, mineral oil, vegetable oil, acrylamide copolymer and a surfactant: Evaluation of the ingredient(s) has found no ingredient(s) hazardous as per WHMIS regulations.

2. PHYSICAL DATA

Boiling Point: Not available
Specific Gravity: 0.9 g/cm
Solubility in Water: disperses in water(forms viscous, slippery solution).
pH: 3.8 (1% concentration)
Density (g/ml): Not available
Physical State: Liquid
Appearance and Odor: Brown. Odor slight.

3. FIRE AND EXPLOSION DATA

Flash Point (method used): (PMCC) greater than 100 C.
Conditions of flammability: Very low risk.
Hazardous combustion products: None known.
Upper and Lower flammable limits: Not available.
Extinguishing media: Carbon dioxide, dry chemicals, foam, in preference to water spray

4. REACTIVITY

Chemical stability: Stable under normal conditions.
Hazardous Polymerization: Will not occur.
Incompatible substances: Avoid strong oxidants such as liquid chlorine, concentrated oxygen, sodium or calcium hypo chloride.
Hazardous decomposition products: None known

5. HEALTH HAZARD DATA

TOXICITY RATING: Practically non-harmful.
Routes of Exposure and Effects:
SKIN: Slight irritant: prolonged contact may cause skin irritation or dermatitis in some individuals
EYE: No effects of exposure expected with the exception of possible irritation.

INHALATION: Due to low volatility of mineral distillates a small inhalation hazard exists.
INGESTION: can cause nausea, vomiting, cramps, diarrhea

Chronic exposure limits: None
Sensitization of product: Not suspected to be a sensitizer.
Teratongenicity: Not available.
Mutagenicity: Not available.
Carcinogenicity: None of the components of this product are listed as carcinogens by IARC and ACGIH

6. EMERGENCY AND FIRST AID PROCEDURES

SKIN: Wash exposed area with soap and water. Remove contaminated clothing. Launder contaminated clothing before re-use. If irritation or abnormalities persist, call a physician.

EYE: Immediately flush eyes with water for 15 minutes, lifting upper and lower lids occasionally. Get medical attention.

INHALATION: Remove to fresh air. If breathing becomes difficult, give oxygen and call a physician.

INGESTION: Do not induce vomiting: Call a physician immediately or poison control center. Never give anything by mouth to an unconscious person. Seek medical advice.

7. INDUSTRIAL HYGIENE CONTROL MEASURES

Respiratory Protection: None normally required.
Ventilation: If mist and/or vapors are present, use air purifying respirator of self-contained breathing apparatus, but this is rarely required.
Eye Protection: Safety glasses, if personally preferred
Gloves: Generally not necessary. Personal preference.

8. HANDLING AND USE PRECTIONS

Storage requirements: keep container closed when no in use. Store in a cool dry location away from oxidizing and reducing agents.
Waste Disposal: product should be disposed of in accordance with applicable local, Provincial and Federal regulations.
Steps must be taken if product is released or spilled: clean spill areas thoroughly to avoid hazardous slippery conditions.

9. TOXICOLOGICAL PROPERTIES

G50 Microtox Analysis prepared by HydroQual Laboratories, Calgary, AB--97/6/26 Test#970978:

Test Description	EC20	EC50	Pass/Fail
MTX	>91	>91	PASS

10. DEPARTMENT OF TRANSPORTATION INFORMATION

PROPER SHIPPING NAME/HAZARD CLASS MAY VARY BY PACKAGING, PROPERTIES, AND MODE OF TRANSPORTATION. TYPICAL PROPER SHIPPING NAMES FOR THIS PRODUCT ARE:

ALL TRANSPORTATION MODES: PRODUCT IS NOT REGULATED DURING TRANSPORATION

Shipping Name: Liquid Drilling Additive
Hazard Class: Not hazardous
Hazardous Substances: None
Cautionary Labeling: None required

11. OTHER INFORMATION

This information contained herein is given in good faith, but no warranty, expressed or implied is made

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **QUIK-GEL®**

Revision Date: 03-Jan-2008

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: QUIK-GEL®
Synonyms: None
Chemical Family: Mineral
Application: Viscosifier

Manufacturer/Supplier
Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By
Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Bentonite	1302-78-9	60 - 100%	Not applicable	Not applicable
Crystalline silica, quartz	14808-60-7	1 - 5%	0.025 mg/m^3	$\frac{10 \text{ mg/m}^3}{\%SiO2 + 2}$
Crystalline silica, cristobalite	14464-46-1	0 - 1%	0.025 mg/m^3	1/2 x $\frac{10 \text{ mg/m}^3}{\%SiO2 + 2}$
Crystalline silica, tridymite	15468-32-3	0 - 1%	0.05 mg/m^3	1/2 x $\frac{10 \text{ mg/m}^3}{\%SiO2 + 2}$

More restrictive exposure limits may be enforced by some states, agencies, or other authorities.

3. HAZARDS IDENTIFICATION

Hazard Overview

CAUTION! - ACUTE HEALTH HAZARD
May cause eye and respiratory irritation.

DANGER! - CHRONIC HEALTH HAZARD
Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposures below recommended exposure limits. Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product. Review the Material Safety Data Sheet (MSDS) for this product, which has been provided to your employer.

4. FIRST AID MEASURES

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Skin Wash with soap and water. Get medical attention if irritation persists.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

Notes to Physician Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined

Fire Extinguishing Media All standard firefighting media.

Special Exposure Hazards Not applicable.

Special Protective Equipment for Fire-Fighters Not applicable.

NFPA Ratings: Health 0, Flammability 0, Reactivity 0
HMIS Ratings: Health 0*, Flammability 0, Physical Hazard 0 , PPE: E

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust.

Environmental Precautionary Measures None known.

Procedure for Cleaning / Absorption	Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

7. HANDLING AND STORAGE

Handling Precautions	This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard En 149, or equivalent respirator when using this product. Material is slippery when wet.
Storage Information	Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Keep from excessive heat. Do not reuse empty container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits listed in Section 2.
Respiratory Protection	Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product.
Hand Protection	Normal work gloves.
Skin Protection	Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Powder
Color:	Various
Odor:	Mild earthy
pH:	8-10
Specific Gravity @ 20 C (Water=1):	2.6
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft3):	47.6-72.1
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Slightly soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistrokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined

9. PHYSICAL AND CHEMICAL PROPERTIES

Molecular Weight (g/mole): Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Hydrofluoric acid.
Hazardous Decomposition Products	Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A). Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).
Skin Contact	May cause mechanical skin irritation.
Eye Contact	May cause eye irritation.
Ingestion	None known
Aggravated Medical Conditions	Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to quartz dust.

Chronic Effects/Carcinogenicity

Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney disease.

Other Information

For further information consult "Adverse Effects of Crystalline Silica Exposure" published by the American Thoracic Society Medical Section of the American Lung Association, American Journal of Respiratory and Critical Care Medicine, Volume 155, pages 761-768 (1997).

Toxicity Tests

Oral Toxicity:	Not determined
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997).
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air) Not determined

Persistence/Degradability Not determined

Bio-accumulation Not Determined

Ecotoxicological Information

Acute Fish Toxicity: TLM96: 10000 ppm (Oncorhynchus mykiss)
Acute Crustaceans Toxicity: Not determined

Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined
Other Information	Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TDG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels:	None

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	Acute Health Hazard Chronic Health Hazard
EPA SARA (313) Chemicals	This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).
EPA CERCLA/Superfund Reportable Spill Quantity	Not applicable.
EPA RCRA Hazardous Waste Classification	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
California Proposition 65	The California Proposition 65 regulations apply to this product.

MA Right-to-Know Law	One or more components listed.
NJ Right-to-Know Law	One or more components listed.
PA Right-to-Know Law	One or more components listed.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	D2A Very Toxic Materials Crystalline silica

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS
Not applicable

Additional Information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

*****END OF MSDS*****

Royal Purple, Ltd.

Material Safety Data Sheet

Date Issued/Revised: October 12, 2005

I. Product Name: **Max-Gear®**
Chemical Family: Synthetic based lubricating oil
Use: Lubricant and corrosion inhibitor
Manufacturer: Royal Purple, Ltd.
Address: 1 Royal Purple Lane, Porter, Texas 77365 USA
Phone: 281-354-8600 Emergency Phone: 281-354-8600 Fax: 281-354-7600

II. Components:
- Base Oil (synthetic) — Synthetic additives with iso-paraffinic diluents.
- The precise composition of this oil is proprietary. A more complete disclosure will be provided to a physician or nurse in the event of a medical emergency.
- All components of this product are listed on the U.S. TSCA inventory.
- This product contains no hazardous substances within the definition of OSHA Regulation 29 CFR 1910.1200.
- Royal Purple certifies that this product has been evaluated for RCRA characteristics and does not meet the criteria of a hazardous waste if discarded in its purchased form.

III. Main Hazards / Health Effects:
Eyes: May cause irritation.
Inhalation: Oil mist may line breathing passages with oil making breathing difficult.
Ingestion: May cause diarrhea.
Skin: May irritate the skin after prolonged periods of contact.

IV. First Aid:
Eyes: Flush with water until all residual material is gone. If irritation persists, seek medical help.
Inhalation: Clear air passage. If respiratory difficulty continues, seek medical help.
Ingestion: Wash out mouth immediately. Do not induce vomiting. Consult physician.
Skin: Wash thoroughly with hand cleanser, followed by soap and water. Contaminated clothing should be dry cleaned before reuse.

V. Extinguishing Media:
Suitable: Foam, dry powder, Halon®, carbon dioxide, sand, earth and water mist.
Unsuitable: Water jet.
Protective Equipment for Fire Fighting: Self-contained breathing apparatus.

VI. Accidental Release Measures:
Personal Precautions: Wear gloves and protective overalls.
Environmental Precautions: Do not allow it to enter drains.
Spillage: Contain spill and keep from entering waterways. Absorb on porous material. Large quantities can be pumped.

VII. Handling and Storage:
Handling: No special handling precautions necessary.
Storage: Do not store at elevated temperatures.

VIII. Exposure Control / Personal Protection:
Respiratory Protection: Hydrocarbon absorbing respirator if misting.
Hand Protection: Oil-proof gloves for hypersensitive persons.
Eye Protection: Glasses, if applied to parts in motion.
Body Protection: Overalls.

IX. Physical and Chemical Properties:

Physical State: Liquid	Evaporation Rate (Butyl Acetate = 1): Negligible
Color: Purple	Vapor Pressure (kPa): <0.1
Odor: Lube Oil	Percent Volatiles: None
pH: Neutral	Density (g/cm^3): >0.89
Boiling Range / Point °F (°C): 650-800 (343-427)	Flammability: Not flammable at ambient temp.
Pour Point °F (°C): <-15 (<-26)	OAR Value: UN
Flash Point (COC) °F (°C): >345 (>174)	Oxidizing Properties: None
Autoignition Temperature °F (°C): >600 (>315)	Water Solubility: Insoluble
	Vapor Density: Greater than air

X. Stability and Reactivity:

Stability: Chemically stable under normal conditions. No photoreactive agents.
Conditions to Avoid: Powerful sources of ignition and extreme temperatures.
Materials to Avoid: Strong inorganic and organic acids, oxidizing agents.
Hazardous Decomposition Products: Burning generates smoke, airborne soot, hydrocarbons and oxides of carbon, sulfur and nitrogen. Residue mainly comprised of soot and mineral oxides.

XI. Toxicological Information:

Acute Toxicity: Not known
Irritancy-Skin: Very mild
Skin Sensitization: Not known
Subacute / Sub-chronic Toxicity: Not known
Genotoxicity: None known
Chronic Toxicity: None known

California Prop 65: N/A
Carcinogen: NTP: No
IARC: No
OSHA: No
EC Classification (67 / 548 / EEC): No
LC-50: >2000mg/l - extrapolated from component data
LD-50: Not applicable

XII. Ecological Information:

Possible Effects: When released into the environment, adsorption to sediment and soil will be the predominant behavior.
Behavior: Relatively well behaved. Bioaccumulation potential nil.
Environmental Fate: Due to its fluid nature and specific gravity, this product will float or spread across water making it a nuisance contaminant. It is not thought to be toxic to marine or land organisms.

XIII. Waste and Container Disposal:

Waste Disposal: Consider recycling. This product, as sold, does not meet the RCRA characteristics of a hazardous waste. Under RCRA, it is the responsibility of the user, at the time of disposal, to determine whether the product meets the RCRA criteria for hazardous waste. Contact a waste disposal company or local authority for advice.
Container Disposal: See waste disposal section listed above.

XIV. Transport Information:

DOT: Nonhazardous
UN No.: N/A
DOT: Nonhazardous

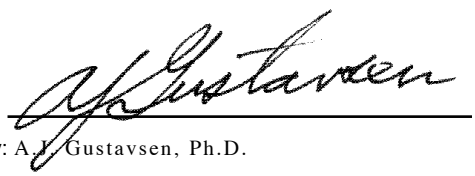
Air Transport (ICAO, IATA): Bulk Nonhazardous
Sea Transport (IMO, IMDG): Bulk Nonhazardous
Road and Rail Transport (ADR / RID): Bulk Nonhazardous

XV. Regulatory Information:

Labeling Information: None needed
EC Annex 1 Class.: N/A
R Phrases: N/A
SARA 311 / 312: None
S Phrases: S-3 keep cool, S-16 keep away from ignition sources
Ozone Depleting Chemicals: N/A

CERCLA: Nonhazardous
TSCA: All components are listed
WHMIS (Canada): Not regulated
Canadian DSL: All components are listed
40 CFR Part 372 (SARA Section 313): N/A
RCRA Hazard Class: Nonhazardous
TSCA 12B Components: None

XVI. Other Information:

Signature: 

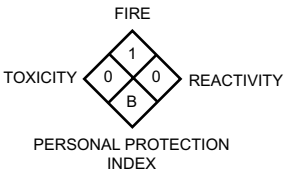
Prepared By: A.J. Gustavsen, Ph.D.

Date Issued/Revised: October 12, 2005

LEGEND

I.	Identification of the Substance / Preparation and Company
II.	Composition Information on Ingredients
III.	Hazards Identification
IV.	First Aid Measures
V.	Fire Fighting Measures
VI.	Accidental Release Measures
VII.	Handling and Storage
VIII.	Exposure Control / Personal Protection
IX.	Physical and Chemical Properties
X.	Stability and Reactivity
XI.	Toxicological Information
XII.	Ecological Information
XIII.	Waste Disposal
XIV.	Transport Information
XV.	Regulatory Information
XVI.	Other Information

NFPA SYMBOL



HMIS SYMBOL

HEALTH	0
FLAMMABILITY	1
REACTIVITY	0
PPI	B

Royal Purple, Ltd.

Material Safety Data Sheet

Date Issued/Revised: June 14, 2002

I.

Product Name: **Ultra Peformance® Grease**
Chemical Family: Synthetic based lubricating grease
Use: Equipment lubrication
Manufacturer: Royal Purple, Ltd.
Address: 1 Royal Purple Lane, Porter, Texas 77365 USA
Phone: 281-354-8600 Emergency Phone: 281-354-8600 Fax: 281-354-7600

II. Components:

- Base Oil (synthetic) — Synthetic additives with iso-paraffinic diluents and aluminum complex thickener.
- The precise composition of this oil is proprietary. A more complete disclosure will be provided to a physician or nurse in the event of a medical emergency.
- All components of this product are listed on the U.S. TSCA inventory.
- This product contains no hazardous substances within the definition of OSHA Regulation 29 CFR 1910.1200.
- Royal Purple certifies that this product has been evaluated for RCRA characteristics and does not meet the criteria of a hazardous waste if discarded in its purchased form.

III. Main Hazards / Health Effects:
Eyes: May cause irritation.
Inhalation: Viscous nature may block breathing passages if inhaled.
Ingestion: May cause diarrhea.
Skin: May irritate the skin after prolonged periods of contact.

IV. First Aid:
Eyes: Flush with water until all residual material is gone. If irritation persists, seek medical help.
Inhalation: Clear air passage. If respiratory difficulty continues, seek medical help.
Ingestion: Consult physician.
Skin: Wash thoroughly with hand cleanser, followed by soap and water. Contaminated clothing should be dry cleaned before reuse.

V. Extinguishing Media:
Suitable: Foam, dry powder, Halon®, carbon dioxide, sand, earth and water mist.
Unsuitable: Water jet.
Protective Equipment for Fire Fighting: Self-contained breathing apparatus.

VI. Accidental Release Measures:
Personal Precautions: Wear gloves and protective overalls.
Environmental Precautions: Avoid disposal into drains.
Spillage: Scrape up bulk, wipe up remainder with cloth and pick up remaining residue with diatomaceous earth.

VII. Handling and Storage:
Handling: No special handling precautions necessary.
Storage: Do not store at elevated temperatures.

VIII. Exposure Control / Personal Protection:
Respiratory Protection: None needed.
Hand Protection: Protective gloves for hypersensitive persons.
Eye Protection: Glasses, if applied to parts in motion.
Body Protection: Overalls.

IX. Physical and Chemical Properties:
Physical State: Semi-solid (paste)
Color: Translucent purple
Odor: Sweet
pH: Neutral
Boiling Range / Point °F (°C): <600 (<316)
Pour Point °F (°C): 500 (260)
Flash Point (COC) °F (°C): >430 (>221)
Autoignition Temperature °F (°C): >500 (>260)
Explosive Properties LEL: 0.9 percent UEL: 7 percent

Evaporation Rate (Butyl Acetate): <0.01
Partition Coefficient (Loq Pow): N/A
Vapor Pressure (kPa): <0.01
Percent Volatiles: None
Density (g/cm^3): 0.91
Flammability: Not flammable at ambient temp.
OAR Value: N/A (no volatiles)
Oxidizing Properties: None
Water Solubility: Insoluble
Vapor Density: >5

X. Stability and Reactivity:

Stability: Chemically stable under normal conditions. No photoreactive agents.
Conditions to Avoid: Powerful sources of ignition and extreme temperatures.
Materials to Avoid: Strong inorganic and organic acids, oxidizing agents.
Hazardous Decomposition Products: Burning generates smoke, airborne soot, hydrocarbons and oxides of carbon. Residue mainly comprised of soot and mineral oxides.

XI. Toxicological Information:

Acute Toxicity: Not known
Irritancy-Skin: Very mild
Skin Sensitization: Not known
Subacute / Sub-chronic Toxicity: Not known
Genotoxicity: None known
Chronic Toxicity: None known

California Prop 65: None
Carcinogen: NTP: No
IARC: No
OSHA: No
EC Classification (67 / 548 / EEC): No
LC-50: >4000mg/kg - extrapolated from component data
LD-50: N/A

XII. Ecological Information:

Possible Effects: None
Behavior: Relatively well behaved. Bioaccumulation potential nil.
Environmental Fate: Highly unlikely to cause contamination. Nontoxic to marine or land organisms.

XIII. Waste and Container Disposal:

Waste Disposal: Contact a waste disposal company or local authority for advice.
Container Disposal: Pails without liner see "Waste Disposal" above. Pails with a plastic liner can only be disposed via standard waste disposal services, recycled or reused.
Liner: See "Waste Disposal" above.

XIV. Transport Information:

DOT: Nonhazardous
UN No.: N/A
DOT: Nonhazardous

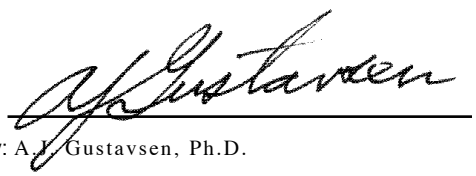
Air Transport (ICAO, IATA): N/A
Sea Transport (IMO, IMDG): N/A
Road and Rail Transport (ADR / RID): N/A

XV. Regulatory Information:

Labeling Information: None needed
EC Annex 1 Class.: N/A
R Phrases: R22 harmul if swallowed (could block passages)
SARA 311 / 312: None
S Phrases: None applicable, as known.
Ozone Depleting Chemicals: N/A

CERCLA: Nonhazardous
TSCA: All components are listed
WHMIS (Canada): Not regulated
Canadian DSL: All components are listed
40 CFR Part 372 (SARA Section 313): N/A
RCRA Hazard Class: Nonhazardous
TSCA 12B Components: None

XVI. Other Information:

Signature: 

Prepared By: A.J. Gustavsen, Ph.D.

Date Issued/Revised: June 14, 2002

LEGEND

I. Identification of the Substance / Preparation and Company
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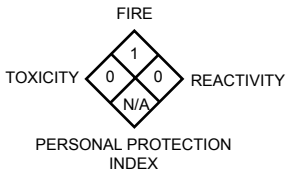
VIII. Exposure Control / Personal Protection
IX. Physical and Chemical Properties
X. Stability and Reactivity
XI. Toxicological Information
XII. Ecological Information
XIII. Waste Disposal
XIV. Transport Information
XV. Regulatory Information
XVI. Other Information

NFPA SYMBOL



HMIS SYMBOL

HEALTH	0
FLAMMABILITY	1
REACTIVITY	0
PPI	N/A

MATERIAL SAFETY DATA SHEET

TORQUELESS

Product Identification

MANUFACTURER'S NAME:	Control Chemical (1989) Corporation
MANUFACTURER'S ADDRESS:	7016, 30th Street S.E. Calgary, Alberta, Canada T2C 1N9
EMERGENCY PHONE NUMBER:	(403) 720-7044
SUPPLIER IDENTIFIER:	
SUPPLIER'S ADDRESS:	
SUPPLIER'S EMERGENCY PHONE NUMBER:	
PRODUCT IDENTIFIER:	TORQUELESS
PRODUCT USE:	Drilling Lubricant (Vegetable oil base)

Hazardous Ingredients of Materials

Chemical Identity	Concentration	CAS#/NA#/UN#	LD (50)	LC (50)

This is not a hazardous or controlled product.

Physical Data for Product

PHYSICAL STATE:	Liquid
ODOUR AND APPEARANCE:	Dark brown, distinctive
ODOUR THRESHOLD:	
SPECIFIC GRAVITY:	0.887
VAPOR PRESSURE:	Not established
VAPOR DENSITY (Air = 1):	Not established
EVAPORATION RATE:	Not established
BOILING POINT:	>300 degrees C
FREEZING POINT:	-18 degrees C
pH:	7.0 – 7.2
DENSITY (g/ml):	
COEFFICIENT OF WATER / OIL DISTRIBUTION:	Not available

Fire and Explosion Hazard of Product

CONDITIONS OF FLAMMABILITY:	
MEANS OF EXTINCTION:	Foam, $C0_2$, Dry Chemical, water spray
FLASHPOINT AND METHOD OF DETERMINATION:	290 degrees C C.C.
UPPER EXPLOSION LIMIT (% by Vol):	Not available
LOWER EXPLOSION LIMIT (% by Vol):	Not available
AUTO-IGNITION TEMPERATURE:	Not available
FLAMMABILITY CLASSIFICATION:	
HAZARDOUS COMBUSTION PRODUCTS:	Not available
EXPLOSION DATA:	Not available
SENSITIVITY TO STATIC DISCHARGE:	None

Reactivity Data

CHEMICAL STABILITY:	Stable
INCOMPATIBLE MATERIALS:	None
CONDITIONS OF REACTIVITY:	None
HAZARDOUS DECOMPOSITION PRODUCTS:	If burnt, oxides of sulphur

MATERIAL SAFETY DATA SHEET

TORQUELESS

Toxicological Properties of Product

ROUTES OF ENTRY:	
SKIN CONTACT:	Wash with soap and water
SKIN ABSORBTION:	None
EYE:	Flush with water for 15 minutes
INHALATION:	No hazard during normal use
INDIGESTION:	Do not induce vomiting, contact physician. Not toxic
ACUTE OVER EXPOSURE EFFECTS:	Inhalation: Not hazardous unless burning toxic fumes possible. Ingestion: Greater than 5000 mg/kg in rats. Eyes: Eye irritation not expected. Skin: No skin irritation or allergic reaction expected
CHRONIC OVER EXPOSURE EFFECTS:	Inhalation: Not hazardous unless burning toxic fumes possible. Ingestion: Greater than 5000 mg/kg in rats. Eyes: Eye irritation not expected. Skin: No skin irritation or allergic reaction expected
EXPOSURE LIMITS:	Not available
IRRITANCY OF PRODUCT:	Not an irritant
SENSITIZATION TO MATERIAL:	None
CARCINOGENICITY, REPRODUCTIVE EFFECTS:	Not available
TERATOGENICITY, MUTAGENICITY:	Not available
TOXICOLOGICALLY SYNERGISTIC PRODUCTS:	Not available

Preventive Measures

PERSONAL PROTECTIVE EQUIPMENT:	Not necessary
SPECIFIC ENGINEERING CONTROLS:	
LEAK AND SPILL PROCEDURES:	Although product is environmentally safe, spills should be contained and wiped up
WASTE DISPOSAL:	Although product is environmentally safe, spills should be contained and wiped up. Dispose according to Federal, Provincial or Municipal Laws
HANDLING PROCEDURES AND EQUIPMENT:	None
STORAGE REQUIREMENTS:	None
SPECIAL SHIPPING INFORMATION:	Not Regulated.

First Aid Measures

SPECIFIC FIRST AID PROCEDURES:	Eyes: Flush with water for 15 minutes Ingestion: Do not induce vomiting, contact physician. Not toxic. Skin: Wash with soap and water.

Preparation Date of Material Safety Data Sheet

PREPARED BY:	Safety Committee
PHONE NUMBER OF PREPARER:	(403) 720-7044
DATE PREPARED:	January 02, 2008

MATERIAL SAFETY DATA SHEET

SECTION I: IDENTIFICATION OF PRODUCT

COMPANY:	**Diversity Technologies Corp.**	DATE:	Nov. 30, 2006
	8750 – 53rd Ave.	PHONE:	780-468-4064
	Edmonton, AB T6E 5G2	FAX:	780-469-1899

PRODUCT NAME: **Z-50**

PRODUCT USE: Tool joint compound
CHEMICAL FAMILY: Mixture CAS #: Mixture

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION: Not WHMIS regulated.
WORKPLACE HAZARD: Not hazardous under normal conditions of use.

TRANSPORTATION OF DANGEROUS GOODS (TDG)

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

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	% (w/w)	CAS NUMBER	LD_{50} Oral-Rat	LC_{50} Inhal-Rat	ACGIH-TLV
Mica	<10.0	12001-26-2	Not available	Not available	3 mg/m^3

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY: [XX] EYE CONTACT [XX] SKIN [ ] INHALATION [XX] INGESTION
EYE CONTACT: Non-irritating to slight transient irritation.
SKIN CONTACT: Non-irritating to slight transient irritation. Possible rash for persons with hypersensitivity. Long-term dermal application may cause irritation.
INGESTION: May cause diarrhea.
INHALATION: Not a likely source of contact during normal use. Elevated temperatures or mechanical action may form vapours or fumes. Inhalation of oil mists or vapours from hot oil may cause irritation of the upper respiratory tract.

CARCINOGENICITY:	Not listed by NTP, IARC or OSHA.
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:	Remove by wiping, or with a waterless hand cleaner. Wash with soap and water. Remove and launder contaminated clothing before re-use.
EYE CONTACT:	Immediately flush with gently flowing warm water until all residual material is removed. Remove contact lenses if present. Hold eyelids open to ensure thorough flushing. If irritation persists, obtain medical attention.
INGESTION:	Do not induce vomiting. Rinse mouth. Obtain immediate medical attention. Never 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:	Paste; light petroleum odour
SPECIFIC GRAVITY:	1.59
BOILING POINT (°C):	>316
MELTING POINT (°C):	196
SOLUBILITY IN WATER:	Insoluble pH: Neutral
PERCENT VOLATILE BY VOLUME:	Nil
EVAPORATION RATE:	<0.01 (Butyl acetate = 1.0)
VAPOUR PRESSURE :	<0.01 kPa
VAPOUR DENSITY (air = 1):	Not available
BULK DENSITY:	Not applicable

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	221°C (COC)
FLAMMABLE LIMITS:	LEL = 0.9% UEL = 7.0%
EXTINGIUSHING MEDIA:	Dry chemical, CO_2, foam or water spray.
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained breathing apparatus required for fire fighting personnel. Remove containers from fire area, or cool with water spray, if possible.

UNUSUAL FIRE AND EXPLOSION HAZARDS:	This product may burn under fire conditions.

SECTION VII: REACTIVITY DATA

STABILITY:	STABLE [XX] UNSTABLE [ ]
INCOMPATIBILITY (CONDITIONS TO AVOID):	Strong oxidizers and reactives. Avoid powerful ignition sources and extreme temperatures.
CONDITIONS OF REACTIVITY:	Contact with incompatibles or ignition sources.
HAZARDOUS DECOMPOSITION PRODUCTS:	May release CO_x, smoke and irritating vapours when heated to decomposition.
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR [XX] MAY OCCUR [ ]

SECTION VIII: PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Breathing apparatus in confined areas.
VENTILATION:	If ventilation is inadequate use local exhaust ventilation, process enclosure or other engineering controls to maintain PEL's/TLV's.
PROTECTIVE GLOVES:	Suggest protective gloves for hypersensitive persons.
EYE PROTECTION:	Safety glasses with side-shields if applied to moving parts.
OTHER PROTECTIVE EQUIPMENT (Specify):	Protective clothing as required to prevent contact. Ensure eyewash station and emergency shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid contact with skin and eyes. Avoid ingestion. Wash thoroughly before eating, drinking or smoking. Do not pressurize, cut, heat or weld empty containers. Store in cool, dry area away from incompatibles and sources of ignition. Use caution when opening unvented containers. Use in well ventilated area. Store unused material in original container.

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Use appropriate safety equipment. Eliminate ignition sources. Scoop up excess, then wipe down the affected area and pick up residual with absorbent material to prevent slipping hazard. Place contaminated material and clean up materials in approved containers for disposal.

WASTE DISPOSAL METHOD

Dispose/incinerate in accordance with federal, provincial and local regulations. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal. Dispose of, or recycle, empty containers in accordance with local regulations.

SECTION IX: PREPARATION

THE INFORMATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH,
BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

DATE ISSUED:	November 30, 2006	BY:	Product safety committee
SUPERSEDES:	None	PHONE:	780-440-4923

APPENDIX II
Spill Report Form

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR	REPORT TIME	☐ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER ____-_____
B	OCCURRENCE DATE: MONTH – DAY – YEAR	OCCURRENCE TIME		

C	LAND USE PERMIT NUMBER (IF APPLICABLE)	WATER LICENCE NUMBER (IF APPLICABLE)
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION	REGION ☐ NWT ☐ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN
E	LATITUDE DEGREES MINUTES SECONDS	LONGITUDE DEGREES MINUTES SECONDS

F	RESPONSIBLE PARTY OR VESSEL NAME	RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION	
G	ANY CONTRACTOR INVOLVED	CONTRACTOR ADDRESS OR OFFICE LOCATION	
H	PRODUCT SPILLED	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER
	SECOND PRODUCT SPILLED (IF APPLICABLE)	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER
I	SPILL SOURCE	SPILL CAUSE	AREA OF CONTAMINATION IN SQUARE METRES
J	FACTORS AFFECTING SPILL OR RECOVERY	DESCRIBE ANY ASSISTANCE REQUIRED	HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS		

L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM	TELEPHONE
M	ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE

REPORT LINE USE ONLY

N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

AGENCY	CONTACT NAME	CONTACT TIME	REMARKS
LEAD AGENCY			
FIRST SUPPORT AGENCY			
SECOND SUPPORT AGENCY			
THIRD SUPPORT AGENCY			

APPENDIX III
Guideline for Submitting Spill Report

Instructions for Completing the NT-NU Spill Report Form

This form can be filled out electronically and e-mailed as an attachment to spills@gov.nt.ca. Until further notice, please verify receipt of e-mail transmissions with a follow-up telephone call to the spill line. Forms can also be printed and faxed to the spill line at 867-873-6924. Spills can still be phoned in by calling collect at 867-920-8130.

A. Report Date/Time	The actual date and time that the spill was reported to the spill line. If the spill is phoned in, the Spill Line will fill this out. **Please do not fill in the Report Number**: the spill line will assign a number after the spill is reported.
B. Occurrence Date/Time	Indicate, to the best of your knowledge, the exact date and time that the spill occurred. Not to be confused with the report date and time (see above).
C. Land Use Permit Number /Water Licence Number	This only needs to be filled in if the activity has been licenced by the Nunavut Water Board and/or if a Land Use Permit has been issued. Applies primarily to mines and mineral exploration sites.
D. Geographic Place Name	In most cases, this will be the name of the city or town in which the spill occurred. For remote locations – outside of human habitations – identify the most prominent geographic feature, such as a lake or mountain and/or the distance and direction from the nearest population center. **You must include the geographic coordinates** (Refer to Section E).
E. Geographic Coordinates	This only needs to be filled out if the spill occurred outside of an established community such as a mine site. Please note that the location should be stated in degrees, minutes and seconds of Latitude and Longitude.
F. Responsible Party Or Vessel Name	This is the person who was in management/control/ownership of the substance at the time that it was spilled. In the case of a spill from a ship/vessel, include the name of the ship/vessel. Please include full address, telephone number and e-mail. Use box K if there is insufficient space. **Please note that, the owner of the spilled substance is ultimately responsible for any spills of that substance, regardless of who may have actually caused the spill.**
G. Contractor involved?	Were there any other parties/contractors involved? An example would be a construction company who is undertaking work on behalf of the owner of the spilled substance and who may have contributed to, or directly caused the spill and/or is responding to the spill.
H. Product Spilled	Identify the product spilled; most commonly, it is gasoline, diesel fuel or sewage. For other substances, avoid trade names. Wherever possible, use the chemical name of the substance and further, identify the product using the four digit UN number (eg: UN1203 for gasoline; UN1202 for diesel fuel; UN1863 for Jet A & B)
I. Spill Source	Identify the source of the spill: truck, ship, home heating fuel tank and, if known, the cause (eg: fuel tank overfill, leaking tank; ship ran aground; traffic accident, vandalism, storm, etc.). Provide an estimate of the extent of the contaminated/impacted area (eg: 10 m^2)
J. Factors Affecting Spill	Any factors which might make it difficult to clean up the spill: rough terrain, bad weather, remote location, lack of equipment. Do you require advice and/or assistance with the cleanup operation? Identify any hazards to persons, property or environment: for example, a gasoline spill beside a daycare centre would pose a safety hazard to children. Use box K if there is insufficient space.
K. Additional Information	Provide any additional, pertinent details about the spill, such as any peculiar/unique hazards associated with the spilled material. State what action is being taken towards cleaning up the spill; disposal of spilled material; notification of affected parties. If necessary, append additional sheets to the spill report. Number the pages in the same format found in the lower right hand corner of the spill form: eg. "Page 1 of 2", "Page 2 of 2" etc. **Please number the pages to ensure that recipients can be certain that they received all pertinent documents.** If only the spill report form was filled out, number the form as "Page 1 of 1".
L. Reported to Spill Line by	Include your full name, employer, contact number and the location from which you are reporting the spill. Use box K if there is insufficient space.
M. Alternate Contact	Identify any alternate contacts. This information assists regulatory agencies to obtain additional information if they cannot reach the individual who reported the spill.
N. Report Line Use Only	**Leave Blank**. This box is for the **Spill Line's use only**.