



*current*



## NL-165 Polymer

### Description

NL-165 anionic polymer acts as a hole stabilizer in water-based drilling fluids. NL-165 polymer is a white, free-flowing powder which readily disperses in water. It has a high molecular weight, and is a water soluble acrylamide co-polymer with intermediate anionic charge. Therefore NL-165 polymer effectively reduces unconsolidated soil dispersion in the presence of water by adhering to the solids and minimizing water intrusion. The material behaves as a hole stabilizer by interacting along the open-hole well bore. Solids can easily be removed at the surface by solids control equipment, since the integrity of the solids are maintained. In unconsolidated soils, it offers 100% core recovery.

NL-165 polymer is also an efficient viscosifier in all water-based fluids. The polymer disperses in water, and because of electrochemical inter-actions forms a network of polymer chains. These polymer chains serve to improve the fluid viscosity and reduce torque by as much as 30%, so NL-165 improves penetration rates.

NL-165 polymer, when used in very small amounts, acts as a bentonite extender/solids flocculant, which enhances the viscosity of bentonite clays and flocculates unwanted drilled cuttings.

NL-165 anionic polymer is synthetically prepared, will not support biological growth and is environmentally safe.

NL-165 is also an effective anionic polyacrylamide flocculant. It is used for raw water and waste clarification, including phosphates removal.

### Recommended Uses

- Hole stabilizer.
- Viscosifier.
- Bentonite extender.
- Solids flocculant.

### Major Advantages

- Easily dispersed.
- Low levels of usage.
- Tolerant of salt and cement contamination.
- Non-fermenting.
- No petroleum hydrocarbons.
- Environmentally safe.

### Mixing

- Best results when mixed using a high RPM submersible mixer.
- Can be mixed by slowly sprinkling into high pressure water jet.

### Packaging

- 20 litre poly pail with pour spout.

### Environmentally Acceptable

- Hazardous components: none.
- Potentially dangerous impurities: none.
- Physical properties: White solid at 20°C.
- In case of accidental leakage or spilling: Flush abundantly with water.
- Inflammability/danger of explosion: None.
- Poisonous properties: Non-toxic, slightly basic.
- First Aid Procedures: Wash with water.

**SECTION I: IDENTIFICATION OF PRODUCT**

Product Identifier	NL-165
Supplier	Baroid of Canada #1000, 333 - 5 AVE SW CALGARY, AB T2P 3B6 PHONE: 403 263-8740
Chemical Family / Formula	Anionic acrylate copolymer
Product Use	Drilling mud additive

**SECTION II: HAZARDOUS AND/OR INGREDIENT DISCLOSURE COMPONENTS**

Name	Percent (%)	CAS#	LD <sub>50</sub> (oral rat)	LD <sub>50</sub> (dermal rabbit)	LC <sub>50</sub> (inhalation rat)
No Hazardous Ingredients					

**SECTION III: HEALTH HAZARDS**


Routes of Entry	<input checked="" type="checkbox"/> SKIN <input checked="" type="checkbox"/> EYE CONTACT <input checked="" type="checkbox"/> INHALATION <input checked="" type="checkbox"/> INGESTION
Threshold Limit Value	Not determined
Skin Contact	No effects of exposure expected due to contact. Prolonged contact may cause slight skin irritation or dermatitis in some individuals.
Eye Contact	No effects of exposure expected with the exception of mechanical irritation
Ingestion	No adverse effects expected. Product may swell in throat causing choking.
Inhalation	May cause sneezing, slight irritation of nose and throat

**SECTION IV: FIRST AID MEASURES**

Skin Contact	Wash with soap and water as a precaution. In case of persistent skin irritation, consult a physician.
Eye Contact	Rinse thoroughly with plenty of water, also under the eyelid. In case of persistent eye irritation, consult a physician.
Ingestion	The product is not considered toxic based on studies on laboratory animals. Do not induce vomiting, give 2-3 glasses of water.
Inhalation	Move to fresh air. If not breathing give artificial respiration. Seek medical attention

**SECTION V: PHYSICAL DATA**

Appearance	White granular solid
Odor	None
Specific Gravity	0.8
Boiling Point (°C)	Not applicable
Melting Point (°C)	Not determined
Solubility in Water	Soluble
Percent Volatile by Volume	Not applicable
Evaporation Rate	Not applicable
Vapor Pressure (mm Hg)	Not applicable
Vapor Density (Air = 1)	Not applicable
pH	Not applicable

Protective Equipment	Transportation of Dangerous Goods	WHMIS
 Chemical resistant gloves, and safety glasses recommended	Shipping Name: Not Regulated Class: N/A UN Number (PIN): N/A Packing Group: N/A	Not WHMIS Regulated

**SECTION VI: FIRE AND EXPLOSION HAZARD DATA**

Flash Point	Not applicable
Flammable Limits	Not determined
Extinguishing Media	Dry chemical, carbon dioxide. Large fire, alcohol foam, universal foam, water spray. Water jet not recommended due to frothing.
Special Fire Fighting Procedures	Aqueous solutions or powders that become wet render surfaces extremely slippery
Unusual Fire and Explosion Hazards	No special equipment required.

**SECTION VII: REACTIVITY DATA**

Stability	<input checked="" type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE
Incompatibility (Conditions to Avoid)	Oxidizing agents
Conditions of Reactivity	Not known
Hazardous Decomposition Products	NO <sub>2</sub> , CO <sub>2</sub>
Hazardous Polymerization	<input checked="" type="checkbox"/> WILL NOT OCCUR <input type="checkbox"/> MAY OCCUR

**SECTION VIII: PREVENTIVE MEASURES**

Special Protection Information	
Respiratory Protection	Dust masks are recommended where concentration of total dust is more than 10 mg/m <sup>3</sup>
Ventilation	General mechanical
Protective Gloves	Chemically resistant
Eye Protection	Safety glasses with side shields
Other Protective Equipment (Specify)	Not known
Accidental Release Measures	
Steps to be taken in case the Material is Spilled or Released	Do not flush with water. Clean up promptly by sweeping or vacuum. Keep in suitable and closed containers for disposal. After cleaning, flush away traces with water.
Handling and Storage	
Precautions to be taken in Handling and Storing	Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Wash hands before breaks and at the end of the day. Keep in a cool dry place (0 - 30 °C)
Disposal	
Waste Disposal Method	Can be land filled or incinerated, when in compliance with local, provincial and federal regulations.

**SECTION IX: TOXICOLOGICAL INFORMATION**

Carcinogenicity	Not available
Reproductive Toxicity	Not available
Teratogenicity	Not available
Mutagenicity	Not available
Developmental Toxicity	Not available




**SECTION X: PREPARATION**

Date Issued	September 2001
Supersedes	July 1998
Prepared by	Product safety committee
Phone	403-279-8545

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



# 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	<b>API MODIFIED THREAD COMPOUND</b>	Code	850-775, THRED
Synonym	Not available	DSL	See Section 15
Manufacturer	PETRO-CANADA P.O. Box 2844 Calgary, Alberta T2P 3E3	TSCA	See Section 15
Material Uses	API Modified Thread Compound is used in drilling operations for the lubrication of casing, tubing, and line pipe, as protection for threads and as a sealant against drilling fluids.	In case of Emergency	Petro-Canada: 403-296-3000 Canutac Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).

## Section 2. Composition and Information on Ingredients

			Exposure Limits (ALGIH)		
Name	CAS #	% (W/W)	TLV-TWA(8 h)	STEL	CEILING
1) Natural Graphite	7782-42-5	≤30	2.0 mg/m <sup>3</sup>	Not established	Not established
2) Lead, elemental	7439-92-1	≤30	0.05 mg/m <sup>3</sup>	Not established	Not established
3) Lime	1305-78-8	≤10	2 mg/m <sup>3</sup>	Not established	Not established
4) Copper	7440-50-8	≤10	1 mg/m <sup>3</sup> (dust and mist as Cu)	Not established	Not established

## Section 3. Hazards Identification.

Potential Health Effects	Skin and eye contact may cause irritation. May have laxative effect via ingestion. This product has a low vapour pressure and is not expected to present an inhalation exposure at ambient conditions. Upon heating to high temperatures, or mechanical actions which may produce vapours or mists, inhalation of product may cause irritation of the breathing passages. This product contains a cancer causing agent. For more information, refer to Section 11. For more information, refer to Section 11.
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## 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. High pressure grease gun is capable of injecting grease through the skin. Grease gun injuries require immediate physician assessment. 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	Not flammable at ambient temperatures.	Flammable Limits	LOWER: 0.9% UPPER: 7%
Flash Points	Mineral Oil Blend: OPEN CUP: 250°C (482°F) (Cleveland)	Auto-Ignition Temperature	>260°C (500°F)
Fire Hazards in Presence of Various Substances	Not available	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, CO <sub>2</sub> ), nitrogen oxides (NO <sub>x</sub> ), sulphur oxides (SO <sub>x</sub> ), phosphorus compounds (PO <sub>x</sub> ), hydrocarbons, smoke and irritating vapours as products of incomplete combustion.		
Fire Fighting Media and Instructions	NAERG98, 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 CO <sub>2</sub> . 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.		

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**Section 6. Accidental Release Measures**

<b>Material Release or Spill</b>	NAERG98, GUIDE 171, Substances (low to moderate hazard). ELIMINATE ALL IGNITION SOURCES. Avoid contact. Stop leak if without risk. Contain spill. Absorb with inert absorbents, dry clay, or diatomaceous earth. Avoid inhaling dust of diatomaceous earth for it may contain silica in very fine particle size, making this a potential respiratory hazard. Place used absorbent in closed metal containers for later disposal or burn absorbent in a suitable combustion chamber. DO NOT FLUSH TO SEWERS, STREAMS OR OTHER BODIES OF WATER. Check with applicable jurisdiction for specific disposal requirements of spilled material and empty containers. Notify the appropriate authorities immediately.
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**Section 7. Handling and Storage**

<b>Handling</b>	Keep away from sources of ignition. DO NOT reuse empty containers without commercial cleaning or reconditioning. Practice good personal hygiene. Wash hands after handling and before eating. Launder work clothes frequently. Discard saturated leather goods.
<b>Storage</b>	Keep container closed when not in use. Store in tightly closed containers in cool, dry, isolated, well-ventilated area, and away from incompatibles.

**Section 8. Exposure Controls/Personal Protection**

<b>Engineering Controls</b>	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.
<b>Personal Protection</b> - <i>The selection of personal protective equipment varies, depending upon conditions of use.</i>	
<b>Eyes</b>	Eye protection (i.e., safety glasses, safety goggles and/or face shield) should be determined based on conditions of use. If product is used in an application where splashing may occur, the use of safety goggles and/or a face shield should be considered.
<b>Body</b>	Wear appropriate clothing to prevent skin contact. As a minimum long sleeves and trousers should be worn.
<b>Respiratory</b>	Where concentrations in air may exceed the occupational exposure limits given in Section 2 (and those applicable to your area) and where engineering, work practices or other means of exposure reduction are not adequate, NIOSH approved respirators may be necessary to prevent overexposure by inhalation.
<b>Hands</b>	Wear appropriate chemically protective gloves. When handling hot product ensure gloves are heat resistant and insulated.
<b>Feet</b>	Wear appropriate footwear to prevent product from coming in contact with feet and skin.
<b>Exposure Limits</b>	Consult local, state, provincial or territory authorities for acceptable exposure limits. This product is not expected to form a mist based on its properties and expected use.

**Section 9. Physical and Chemical Properties**

<b>Physical State and Appearance</b>	Paste.	<b>Viscosity</b>	Mineral Oil Blend: 103.3 cSt @ 40°C, 11.50 cSt @ 100°C, VI=98
<b>Colour</b>	Brown-Black.	<b>Pour Point</b>	Mineral Oil Blend: -15°C
<b>Odour</b>	Light petroleum odour.	<b>Softening Point</b>	Not available
<b>Odour Threshold</b>	Not available	<b>Dropping Point</b>	138°C
<b>Boiling Point</b>	>274°C (525.2°F)	<b>Penetration</b>	325 (60 strokes)
<b>Specific Gravity</b>	Mineral Oil Blend: 0.8741 kg/L @ 15°C (59°F).	<b>Oil / Water Dist. Coeff.</b>	Not available
<b>Vapor Density</b>	Not available	<b>Ioncity (in water)</b>	Not available
<b>Vapor Pressure</b>	Negligible at ambient temperature and pressure.	<b>Dispersion Properties</b>	Not available
<b>Volatility</b>	Non-volatile.	<b>Solubility</b>	Insoluble in water.

**Section 10. Stability and Reactivity**

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

**Section 11. Toxicological Information**

<b>Routes of Entry</b>	Skin contact, eye contact, inhalation and ingestion.
<b>Acute Lethality</b>	Not available
<b>Chronic or Other Toxic Effects</b>	
Dermal Route:	Prolonged or repeated contact may cause skin irritation.
Inhalation Route:	Negligible breathing hazard at normal temperatures (up to 38°C) or recommended blending temperatures. Elevated temperatures or mechanical action may form vapours, mists or fumes. Inhalation of oil mists or vapours from hot oil may cause irritation of the upper respiratory tract.
Oral Route:	Low toxicity; has laxative effect.
Eye Irritation/Inflammation:	Eye contact may cause irritation.
Immunotoxicity:	Not available
Skin Sensitization:	This product is not expected to be a skin sensitizer, based on the available data and the known hazards of the components.
Respiratory Tract Sensitization:	This product is not expected to be a respiratory tract sensitizer, based on the available data and the known hazards of the components.
Mutagenic:	Positive results in chromosomal aberrations. [Lead]
Reproductive Toxicity:	Causes reproductive effects. [Lead]
Teratogenicity/Embryotoxicity:	Known to be a teratogen / embryotoxin. [Lead acetate]
Carcinogenicity (ACGIH):	ACGIH A3: animal carcinogen. [Lead]
Carcinogenicity (IARC):	IARC Group 2B: possibly carcinogenic to humans. [Lead]
Carcinogenicity (NTP):	Reasonably anticipated to be a human carcinogen according to NTP. [Lead acetate]
Carcinogenicity (IRIS):	Lead is an IRIS B2 - probable human carcinogen.
Carcinogenicity (OSHA):	Reasonably anticipated to be a human carcinogen according to OSHA. [Lead acetate]
<b>Other Considerations</b>	No additional remark.

**Section 12. Ecological Information**

<b>Environmental Fate</b>	Not available	<b>Persistence/ Bioaccumulation Potential</b>	Not available
<b>BOD5 and COD</b>	Not available	<b>Products of Biodegradation</b>	Not available
<b>Additional Remarks</b>	No additional remark.		

**Section 13. Disposal Considerations**

<b>Waste Disposal</b>	Preferred waste management priorities are: (1) recycle or reprocess; (2) incineration with energy recovery; (3) disposal at licensed waste disposal facility. Ensure that disposal or reprocessing is in compliance with government requirements and local disposal regulations. Consult your local or regional authorities.
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**Section 14. Transport Information**

<b>TDG Classification</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper metal powder), 9, UN3077, PGIII (CL-TDG)	<b>Special Provisions for Transport</b>	See Transportation of Dangerous Goods Regulations.
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**Section 15. Regulatory Information**

<b>Other Regulations</b>	<p>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).</p> <p>All components of this formulation are listed on the US EPA-TSCA Inventory.</p> <p>All components of this product are on the European Inventory of Existing Commercial Chemical Substances (EINECS).</p> <p>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.</p> <p>Please contact Product Safety for more information.</p>
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DSD/DPD (Europe)	<p>R61 - May cause harm to the unborn child. R20/22 - Harmful by Inhalation and if swallowed. R33 - Danger of cumulative effects. R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R62 - Possible risk of impaired fertility.</p> <p>S53 - Avoid exposure - Obtain special instructions before use. S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S60 - This material and its container must be disposed of as hazardous waste. S61 - Avoid release to the environment. Refer to special instructions/safety data sheets.</p>														
DSD/DPD (Europe) (Pictograms)	<p>NOT EVALUATED FOR EUROPEAN TRANSPORT</p> <p>NON ÉVALUÉ POUR LE TRANSPORT EUROPÉEN.</p>	DOT (U.S.A) (Pictograms)													
HMIS (U.S.A.)	<table><tr><td>Health Hazard</td><td>(2)</td></tr><tr><td>Fire Hazard</td><td>(1)</td></tr><tr><td>Reactivity</td><td>(1)</td></tr><tr><td>Personal Protection</td><td>(H)</td></tr></table>	Health Hazard	(2)	Fire Hazard	(1)	Reactivity	(1)	Personal Protection	(H)	NFPA (U.S.A.)	<table><tr><td rowspan="3"></td><td>Fire Hazard</td></tr><tr><td>Reactivity</td></tr><tr><td>Specific hazard</td></tr></table>		Fire Hazard	Reactivity	Specific hazard
Health Hazard	(2)														
Fire Hazard	(1)														
Reactivity	(1)														
Personal Protection	(H)														
	Fire Hazard														
	Reactivity														
	Specific hazard														

## 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  
COD5 - Chemical Oxygen Demand in 5 days  
CPR - Controlled Products Regulations  
DOT - Department of Transport  
DSC - 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  
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  
NAERG'98 - North American Emergency Response Guide Book (1998)  
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  
SD - Single Dose  
STEL - Short Term Exposure Limit (15 minutes)  
TDG - Transportation Dangerous Goods (Canada)  
TDLo/TCLo - Lowest Published Toxic Dose/Concentration  
Tm - 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  
WHMIS - Workplace Hazardous Material Information System

Information Contact Internet: [www.petro-canada.ca](http://www.petro-canada.ca)

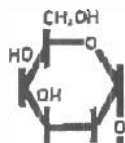
Lubricants:  
Western Canada, telephone: 1-800-661-1199;  
fax: (780) 464-9564  
Ontario & Central Canada, telephone:  
1-800-268-5850 and (905) 822-4222; fax:  
1-800-201-6285  
Quebec & Eastern Canada, telephone:  
1-800-376-1686; fax: 800-201-6285

For Product Safety Information: (905) 804-4752

Prepared by Product Safety - JDW on 12/30/2002.

Data entry by Product Safety - JDW.

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.



## Poly-Drill Drilling Systems

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Calgary, Alberta, Canada

T2W-0A8

(403) 259-5112 FAX (403) 255-7185 E-mail: [polydrill@nucleus.com](mailto:polydrill@nucleus.com) the web: [www.poly-drill.com](http://www.poly-drill.com)

## MATERIAL SAFETY DATA SHEET/FICHE SIGNALÉTIQUE

### Section 1—PRODUCT IDENTIFICATION

PRODUCT TRADE NAME(S): Poly Drill 1300  
APPLICATION AND USE: Viscosifying AgentPRODUCT DESCRIPTION: Polymer emulsion  
UPDATED: February 01, 2001

#### NFPA 704M/HMIS RATING

Health: 1/2 FLAMMABILITY: 1/1 REACTIVITY: 0/0 OTHER:  
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme

### SECTION 2—COMPOSITION/INFORMATION ON INGREDIENTS

Based on our hazard evaluation, none of the substances in this product are hazardous.

### SECTION 3—PHYSICAL DATA

Physical State: Liquid

Appearance and Odor: Off-white Opaque. Mild, Pungent.

Specific Gravity: 1.03 – 1.08  
Density: 1.03 – 1.08 g/cm<sup>3</sup>  
Solubility in water: Emulsifiable  
Viscosity: 400 cps @ 24°C  
Freezing Point: <-45.6°C  
Pour Point: -37.8°C

### SECTION 4—FIRE AND EXPLOSION DATA

Flash Point: (PMCC) &gt;93° C

LOWER EXPLOSION LIMIT: Not flammable

UPPER EXPLOSION LIMIT: Not flammable

#### EXTINGUISHING MEDIA:

Foam, Dry powder, Carbon dioxide, other extinguishing agent suitable for Class B fires

#### UNSUITABLE EXTINGUISHING MEDIA:

Do not use water unless flooding amounts are available.

#### FIRE AND EXPLOSION HAZARD:

May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions. Water in contact with the product will cause slippery floor conditions.



**SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING:**

In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

**SECTION 5—REACTIVITY**

Chemical stability: Stable under normal conditions.

Conditions to avoid instability: Protect from freezing.

Hazardous Polymerization: Will not occur.

Incompatible substances: Avoid strong oxidizing (chlorine, peroxides, chromates, nitric acid, perchlorates, concentrated oxygen, and permanganates.)

Hazardous decomposition: None.

**SECTION 6—HEALTH HAZARD DATA****"EMERGENCY OVERVIEW"****CAUTION**

May cause irritation with prolonged contact.

Do not get in eyes, on skin, on clothing. Do not take internally. Wear suitable protective clothing. Keep container tightly closed. Water in contact with the product will cause slippery floor conditions. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of soap and water. Protect product from freezing.

**SHAKE BEFORE USING.**

Wear suitable protective clothing and gloves.

May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions. Water in contact with the product will cause slippery floor conditions.

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**HUMAN HEALTH HAZARDS – ACUTE****SKIN:**

May cause irritation with prolonged contact

**EYE:**

May cause irritation with prolonged contact

**INGESTION:**

Not a likely route of exposure. No adverse effects expected.

**INHALATION:**

Not a likely route of exposure. Repeated or prolonged exposure may irritate the respiratory tract.

**SYSTEMS OF EXPOSURE:****Acute:**

A review of available data does not identify any symptoms from exposure not previously mentioned.

**Chronic:**

Frequent or prolonged contact with product may defat and dry the skin, leading to discomfort and dermatitis.

**AGGRAVATION OF EXISTING CONDITIONS:**

A review of available data does not identify any worsening of existing conditions.

**HUMAN HEALTH HAZARDS – CHRONIC**

No adverse effects expected other than those mentioned above

## **SECTION 7—EMERGENCY AND FIRST AID PROCEDURES**

**SKIN:** Wash exposed area with soap and water. If irritation or abnormalities persist, call a physician.

**EYE:** Immediately flush eyes with water for 15 minutes, if irritation or abnormalities persist, call a physician.

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

**INGESTION:** DO NOT induce vomiting. If individual is conscious, give milk or water to dilute stomach contents. Keep warm and quiet. Get prompt medical attention. DO NOT attempt to give anything by mouth to an unconscious person.

## **SECTION 8—ACCIDENTAL RELEASE MEASURES**

### **PERSONAL PRECAUTIONS:**

Notify appropriate government, occupational health and safety and environmental authorities. Do not touch spilled material. Stop or reduce any leaks if it is safe to do so. Use personal protective equipment recommended in Section 9 (Industrial Hygiene Control Measures).

### **METHODS FOR CLEANING UP:**

**SMALL SPILLS:** Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. **LARGE SPILLS:** Contain liquid using absorbent material by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Contact an approved waste hauler for disposal of contaminated recovered material.

## **SECTION 9—INDUSTRIAL HYGIENE CONTROL MEASURES**

### **OCCUPATIONAL EXPOSURE LIMITS:**

This product does not contain any substance that has an established exposure limit.

### **Respiratory Protection:**

Due to its low volatility and toxicity, the hazard potential associated with this material is relatively low. Respiratory protection is not normally required.

### **Ventilation & Engineering Measures:**

General ventilation is recommended

### **Eye Protection:**

Safety glasses, if personally preferred

### **Gloves:**

Generally not necessary. Personal preference. Use nitrile gloves, PVC gloves

### **HUMAN EXPOSURE CHARACTERIZATION:**

Based on our recommended product application and personal protective equipment, the potential human exposure is: Low.

## **SECTION 10—ECOLOGICAL INFORMATION**

### **ECOTOXICOLOGICAL EFFECTS**

### **ACUTE FISH RESULTS:**

Species	Exposure	LC50	Tested Substance
Rainbow Trout	96 hrs	8,800 mg/l	1% Aqueous Solution of Product
Sheepshead Minnow	96 hrs	> 1,000 mg/l	1% Aqueous Solution of a Similar Product

RATING: Essentially non-toxic

#### ACUTE INVERTIBRATE RESULTS:

Species	Exposure	LC50	Tested Substance
Daphnia magna	48 hrs	190 mg/l	1% Aqueous Solution of Product
Mysid Shrimp (A.bahia)	96 hrs	400 mg/l	1% Aqueous Solution of a Similar Product

RATING: Essentially non-toxic

#### PERSISTENCY AND DEGRADATION:

Total Organic Carbon (TOC): 64,810 mg/l

Chemical Oxygen Demand (COD): 97,310 mg/l

Biological Oxygen Demand (BOD):

Incubation Period	Value	Tested Substance
	32, 320 mg/l	Product

#### ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION

Based on our hazard characterization, the potential environmental hazard is: Moderate.

Based on our recommended product application and the product's characteristics, the potential environmental exposure is: Moderate.

### SECTION 11—DEPARTMENT OF TRANSPORTATION INFORMATION

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

PRODUCT IS NOT REGULATED DURING TRANSPORTATION

### SECTION 12—REGULATORY INFORMATION

NATIONAL REGULATIONS CANADA:

#### WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS):

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

#### WHMIS CLASSIFICATION

Not considered a WHMIS controlled product.

#### CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA):

All substances in this product are listed on the Domestic Substances List (DSL), are exempt, or have been reported in accordance with the New Substances Notification Regulations.

#### NATIONAL POLLUTANT RELEASE INVENTORY (NPRI):

This product does not contain any substances listed in Schedule I of the NPRI at a concentration of one percent or more by weight.

#### NATIONAL REGULATIONS, USA:

#### TOXIC SUBSTANCES CONTROL ACT (TSCA):

The chemical substances in this product are on the TSCA 8(b) Inventory (40 CFR 710)



# THIESSEN EQUIPMENT LTD.



## Quik-Gel®

*A finely ground, premium-grade western sodium bentonite, specially processed to promote ease of mixing and superior mud-making qualities in fresh water.*

### Recommended Uses

- In freshwater/freshwater-based drilling fluids.
- Improved hole-cleaning capabilities.
- Forms on permeable sections of the well bore a thin impermeable filter cake that can be removed easily by backflushing.
- Promotes hole stability in poorly consolidated and caving formations.
- Reduces water seepage in permeable formations.
- Avoids or overcomes loss of circulation in fresh water fluids.
- Makes an economical, single-sack, low-solids drilling fluid.
- Makes gel-foam for air drilling.

### Proximate amounts of Quik-Gel Viscosifier added to fresh water or freshwater drilling fluids

	lb/100gal	lb/bbl	kg/m <sup>3</sup>
Normal conditions:	15-25	6-11	15-30
In gravel and/or poorly consolidated formations:	25-40	12-18	35-50
Stop circulation loss:	35-45	15-20	40-55
For improved performance; better hole cleaning, thinner filter cake, increased hole stability:	5-10	2-5	6-14

Method of addition: Preferable, mix by adding slowly through a jet mixer or high-speed stirrer. If such mixing equipment is not available, sift Quik-Gel viscosifier slowly into the liquid close to the pump suction while circulating.

### Major Advantages

**Effectiveness.** Quik-Gel viscosifier makes more than twice as much mud of the same viscosity as an equal weight of API-standard bentonite. **Fast yield.** Quik-Gel viscosifier saves time and effort in making mud. **Convenience.** The sturdy 50 pound (22.7 kg) bag is easy to handle. **Environmental acceptability.** Quik-Gel viscosifier does not ferment, and passed the EPA's suggested protocol for Toxicity Characteristic Leaching Procedure (TCLP), Vol 51, No 114.

### Physical Characteristics

- Appearance: Beige to tan powder
- Specific Gravity: 2.5 to 2.6
- Moisture: < 10%
- Bulk Density: 72 lb/ft<sup>3</sup>, compacted  
47 lb/ft<sup>3</sup>, uncompacted

This product has been certified by National Sanitation Foundation to contribute no adverse health problem to ground water when used as the manufacturer recommends. In accordance with NSF certification requirements and good well development practices, as much product as practical should be flushed from the finished well, resulting from in a turbidity level below 1 ntu, before completing as a drinking water source.

### Mineralogical Analysis Chemical Composition (Typical) (%)

• Montmorillonite	85	• Al <sub>2</sub> O <sub>3</sub>	20.14
• Quartz	5	• Fe <sub>2</sub> O <sub>3</sub>	3.67
• Feldspars	5	• CaO	0.49
• Cristobalite	2	• MgO	0.49
• Illite	2	• Na <sub>2</sub> O	2.76
• Calcite&Gypsum	1	• K <sub>2</sub> O	0.60
		• Bound Water	5.50
		• Moisture @ 220°F	8.00
		Total	99.09

Quik-Gel contains a small amount of non-toxic organic polymer of the type approved by the U.S. Food and Drug Administration for use in packages for food and other consumer products.

### Packaging

Quik-Gel viscosifier is packaged in multi-wall, water resistant paper bags containing 50 lbs (22.7 kg). Contains 0.7 ft<sup>3</sup>.

