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*By Licensing Administrative Assistant at 10:21 am, Jul 29, 2011*

## **APPENDIX I MSDS SHEETS**



| WHMIS (Pictograms) | WHMIS (Classification) | Protective Clothing | TDG (pictograms) |
|--------------------|------------------------|---------------------|------------------|
|                    | Not controlled         |                     |                  |

**Section 1. Chemical Product and Company Identification**

|                      |                                                                                                                                                                                                                                                                            |                                 |                                                                                                                                                                     |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Name</b>  | <b>DURON 15W-40 HEAVY DUTY ENGINE OIL</b>                                                                                                                                                                                                                                  | <b>Code</b>                     | 420-053, DUR15                                                                                                                                                      |
| <b>Synonym</b>       | Not available                                                                                                                                                                                                                                                              | <b>Validated on</b>             | 5/9/2006.                                                                                                                                                           |
| <b>Manufacturer</b>  | PETRO-CANADA<br>P.O. Box 2844<br>Calgary, Alberta<br>T2P 3E3                                                                                                                                                                                                               | <b>In case of<br/>Emergency</b> | Petro-Canada: 403-296-3000<br>Canutec Transportation:<br>613-996-6666<br>Poison Control Centre:<br>Consult local telephone<br>directory for emergency<br>number(s). |
| <b>Material Uses</b> | 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/m <sup>3</sup> (oil mist) | 10 mg/m <sup>3</sup> (oil mist) | Not established |
| <b>Manufacturer Recommendation</b>                                                                                                            | Not applicable                                                                            |         |                                |                                 |                 |
| <b>Other Exposure Limits</b>                                                                                                                  | Consult local, state, provincial or territory authorities for acceptable exposure limits. |         |                                |                                 |                 |

**Section 3. Hazards Identification.**

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Potential Health Effects</b> | 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 to 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**

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye Contact</b>       | 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.                                                                                                                                                                                                               |
| <b>Skin Contact</b>      | 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. |
| <b>Inhalation</b>        | Remove source of contamination or move victim to fresh air. If irritation persists, obtain medical advice.                                                                                                                                                                                                                                                                                                                |
| <b>Ingestion</b>         | 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.                                                                                             |
| <b>Note to Physician</b> | Not available                                                                                                                                                                                                                                                                                                                                                                                                             |

**Section 5. Fire-fighting Measures**

|                     |                                         |                                  |                                |
|---------------------|-----------------------------------------|----------------------------------|--------------------------------|
| <b>Flammability</b> | May be combustible at high temperature. | <b>Flammable Limits</b>          | Not available                  |
| <b>Flash Points</b> | Open cup: 227°C (440.6°F) [Cleveland.]  | <b>Auto-Ignition Temperature</b> | Fire Point:<br>247°C (476.6°F) |
|                     |                                         |                                  |                                |

|                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                            |                                                                                                      |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>Fire Hazards in Presence of Various Substances</b> | Low fire hazard. This material must be heated before ignition will occur.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Explosion Hazards in Presence of Various Substances</b> | Do not cut, weld, heat, drill or pressurize empty container. Containers may explode in heat of fire. |
| <b>Products of Combustion</b>                         | Carbon oxides (CO, CO <sub>2</sub> ), sulphur oxides (SO <sub>x</sub> ), calcium oxides (CaO <sub>x</sub> ), smoke and irritating vapours as products of incomplete combustion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                            |                                                                                                      |
| <b>Fire Fighting Media and Instructions</b>           | 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 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. |                                                            |                                                                                                      |

### Section 6. Accidental Release Measures

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Material Release or Spill</b> | 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

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Handling</b> | 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. |
| <b>Storage</b>  | 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

|                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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 - <i>The selection of personal protective equipment varies, depending upon conditions of use.</i></b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Eyes</b>                                                                                                                  | As a minimum, safety glasses with side shields should be worn when handling this material.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Body</b>                                                                                                                  | 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.)                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Respiratory</b>                                                                                                           | A minimum of NIOSH-approved air-purifying respirator with an organic vapour cartridge or canister with a dust, fume or 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.                                          |
| <b>Hands</b>                                                                                                                 | 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. |
| <b>Feet</b>                                                                                                                  | Wear appropriate footwear to prevent product from coming in contact with feet and skin.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

**Section 9. Physical and Chemical Properties**

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

**Section 10. Stability and Reactivity**

|                                                      |                                                                        |                                 |                                                                                                                                                                |
|------------------------------------------------------|------------------------------------------------------------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Corrosivity</b>                                   | Copper corrosion, 3h, 100°C (ASTM D0130): 1a                           |                                 |                                                                                                                                                                |
| <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, acids, halogens and halogen compounds. | <b>Decomposition Products</b>   | 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**

|                                       |                                                                                                                                                                                                                                                                                                                            |  |  |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| <b>Routes of Entry</b>                | Skin contact, eye contact, inhalation and ingestion.                                                                                                                                                                                                                                                                       |  |  |
| <b>Acute Lethality</b>                | <p>Acute toxicity information is not available for the product as a whole, therefore, data for the base oils are provided below:</p> <p>Acute Oral toxicity (LD50): &gt;5000 mg/kg (rat)</p> <p>Acute Dermal toxicity (LD50): &gt;2000 mg/kg (rabbit)</p> <p>Acute Inhalation toxicity (LC50): &gt;2500 mg/m³/4h (rat)</p> |  |  |
| <b>Chronic or Other Toxic Effects</b> |                                                                                                                                                                                                                                                                                                                            |  |  |
| 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 to 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. |
| <b>Other Considerations</b> | No additional remark.                                                                                               |

**Section 12. Ecological Information**

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

**Section 13. Disposal Considerations**

|                       |                                                                                                                                                                                                                                              |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Waste Disposal</b> | 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**

|                           |                                                                                   |                                         |                 |
|---------------------------|-----------------------------------------------------------------------------------|-----------------------------------------|-----------------|
| <b>TDG Classification</b> | Not a hazardous material for transport according to the TDG Regulations. (Canada) | <b>Special Provisions for Transport</b> | Not applicable. |
|---------------------------|-----------------------------------------------------------------------------------|-----------------------------------------|-----------------|

**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) or the European List of Notified Chemical Substances (ELINCS).</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> |        |                                                                  |            |                                                                                                                                     |   |            |   |                     |   |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
| <b>DSD/DPD (Europe)</b>          |   | Not classified under the Dangerous Substances or Dangerous Preparations Directives.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        | <b>HCS (U.S.A.)</b>                                              |            | Does not meet the definitions of a health or physical hazard according to the OSHA - Hazard Communication Standard. (United States) |   |            |   |                     |   |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
| <b>ADR (Europe) (Pictograms)</b> |   | NOT EVALUATED FOR EUROPEAN TRANSPORT<br><br>NON ÉVALUÉ POUR LE TRANSPORT EUROPÉEN.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |        | <b>DOT (U.S.A) (Pictograms)</b>                                  |            | Not evaluated for transport<br><br>Non évalué pour le transport                                                                     |   |            |   |                     |   |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
| <b>HMIS (U.S.A.)</b>             |   | <table><tr><td>Health Hazard</td><td>1</td></tr><tr><td>Fire Hazard</td><td>1</td></tr><tr><td>Reactivity</td><td>0</td></tr><tr><td>Personal Protection</td><td>B</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |        | Health Hazard                                                    | 1          | Fire Hazard                                                                                                                         | 1 | Reactivity | 0 | Personal Protection | B | <b>NFPA (U.S.A.)</b> |  | <table><tr><td rowspan="2">Health</td><td>1</td><td>Fire Hazard</td><td rowspan="2">Rating</td><td rowspan="5">0 Insignificant<br/>1 Slight<br/>2 Moderate<br/>3 High<br/>4 Extreme</td></tr><tr><td>1</td><td>0</td><td>Reactivity</td></tr><tr><td colspan="3">Specific hazard</td></tr></table> |  | Health | 1 | Fire Hazard | Rating | 0 Insignificant<br>1 Slight<br>2 Moderate<br>3 High<br>4 Extreme | 1 | 0 | Reactivity | Specific hazard |  |  |
| Health Hazard                    | 1 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |                                                                  |            |                                                                                                                                     |   |            |   |                     |   |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
| Fire Hazard                      | 1 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |                                                                  |            |                                                                                                                                     |   |            |   |                     |   |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
| Reactivity                       | 0 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |                                                                  |            |                                                                                                                                     |   |            |   |                     |   |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
| Personal Protection              | B |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |                                                                  |            |                                                                                                                                     |   |            |   |                     |   |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
| Health                           | 1 | Fire Hazard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Rating | 0 Insignificant<br>1 Slight<br>2 Moderate<br>3 High<br>4 Extreme |            |                                                                                                                                     |   |            |   |                     |   |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
|                                  | 1 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        |                                                                  | Reactivity |                                                                                                                                     |   |            |   |                     |   |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
| Specific hazard                  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |                                                                  |            |                                                                                                                                     |   |            |   |                     |   |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |

**Section 16. Other Information**

|                   |                                                                             |
|-------------------|-----------------------------------------------------------------------------|
| <b>References</b> | Available upon request.<br>* Marque de commerce de Petro-Canada - Trademark |
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**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](http://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.

*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: Jan. 3, 2006  
**8750 – 53<sup>rd</sup> 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

| <u>INGREDIENT</u>                         | <u>PERCENT</u> | <u>CAS NUMBER</u> | <u>LD<sub>50</sub> Oral-Rat</u> | <u>LC<sub>50</sub> Inhal-Rat</u> | <u>ACGIH-TLV</u> |
|-------------------------------------------|----------------|-------------------|---------------------------------|----------------------------------|------------------|
| 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<br>(CONDITIONS TO AVOID): | Avoid contact with strong oxidizers. Avoid wet, damp or humid conditions, extremes of temperature, and ignition sources. |               |
| HAZARDOUS DECOMPOSITION<br>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<br>(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  
SUPERSEDES: January 2005

BY: Product safety committee  
PHONE: 780-440-4923



# Material Safety Data Sheet

| WHMIS (Pictograms)                                                                | WHMIS (Classification) | Protective Clothing                                                                | TDG (pictograms)                                                                    |
|-----------------------------------------------------------------------------------|------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  | <b>D-2A, D-2B</b>      |  |  |

## Section 1. Chemical Product and Company Identification

|                      |                                                                                                                                                                                                                                                                                     |                             |                                                                                                                                                               |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Name</b>  | <b>PETRO-CANADA ANTIFREEZE</b>                                                                                                                                                                                                                                                      | <b>Code</b>                 | W269                                                                                                                                                          |
| <b>Synonym</b>       | 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. | <b>Validated on</b>         | 5/11/2005.                                                                                                                                                    |
| <b>Manufacturer</b>  | PETRO-CANADA<br>P.O. Box 2844<br>Calgary, Alberta<br>T2P 3E3                                                                                                                                                                                                                        | <b>In case of Emergency</b> | Petro-Canada: 403-296-3000<br>Canutec Transportation:<br>613-996-6666<br>Poison Control Centre:<br>Consult local telephone directory for emergency number(s). |
| <b>Material Uses</b> | Used as an engine antifreeze coolant.                                                                                                                                                                                                                                               |                             |                                                                                                                                                               |

## Section 2. Composition and Information on Ingredients

|                                                              |                                                                                           |         | <i>Exposure Limits (ACGIH)</i> |                 |                                 |
|--------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------|--------------------------------|-----------------|---------------------------------|
| Name                                                         | CAS #                                                                                     | % (W/W) | TLV-TWA(8 h)                   | STEL            | CEILING                         |
| Ethylene glycol                                              | 107-21-1                                                                                  | ≥45     | Not established                | Not established | 100 mg/m <sup>3</sup> (aerosol) |
| Sodium tetraborate pentahydrate (Diesel Engine Coolant only) | 12179-04-3                                                                                | ≤5      | 1 mg/m <sup>3</sup>            | Not established | Not established                 |
| <b>Manufacturer Recommendation</b>                           | Not applicable                                                                            |         |                                |                 |                                 |
| <b>Other Exposure Limits</b>                                 | Consult local, state, provincial or territory authorities for acceptable exposure limits. |         |                                |                 |                                 |

## Section 3. Hazards Identification.

|                                 |                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Potential Health Effects</b> | 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

|                          |                                                                                                                                                                                                     |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye Contact</b>       | IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention.                                                                                    |
| <b>Skin Contact</b>      | Remove contaminated clothing - launder before reuse. Wash gently and thoroughly the contaminated skin with running water and non-abrasive soap. Seek medical attention.                             |
| <b>Inhalation</b>        | 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. |
| <b>Ingestion</b>         | DO NOT induce vomiting because of danger of aspirating liquid into lungs. Seek medical attention.                                                                                                   |
| <b>Note to Physician</b> | Not available                                                                                                                                                                                       |

## Section 5. Fire-fighting Measures

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

|                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Products of Combustion</b>               | Carbon oxides (CO, CO <sub>2</sub> ), smoke and irritating vapours as products of incomplete combustion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Fire Fighting Media and Instructions</b> | 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 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. |

### Section 6. Accidental Release Measures

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Material Release or Spill</b> | 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

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Handling</b> | 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. |
| <b>Storage</b>  | 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

|                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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 - The selection of personal protective equipment varies, depending upon conditions of use.</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Eyes</b>                                                                                                           | Chemical splash goggles should be worn when handling this material.                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Body</b>                                                                                                           | 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).                                                                                                                                                                                                                                                                                               |
| <b>Respiratory</b>                                                                                                    | 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. |
| <b>Hands</b>                                                                                                          | 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.                                                                                                                                                                                                                  |
| <b>Feet</b>                                                                                                           | Wear appropriate footwear to prevent product from coming in contact with feet and skin.                                                                                                                                                                                                                                                                                                                                                                                                                              |

### Section 9. Physical and Chemical Properties

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

|                         |                          |                       |                                               |
|-------------------------|--------------------------|-----------------------|-----------------------------------------------|
| PETRO-CANADA ANTIFREEZE |                          | Page Number: 3        |                                               |
| Vapour Density          | 2.1 (Air=1).             | Ionicity (in water)   | Not available                                 |
| Vapour Pressure         | 0.06 mmHg @ 20°C (68°F). | 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                       | <p><u>Ethylene glycol (107-21-1):</u><br/>LD50: 4700 mg/kg (oral/rat).<br/>LD50: 9530 mg/kg (dermal/rabbit).</p> <p><u>Sodium tetraborate pentahydrate (12179-04-3):</u><br/>LD50: 3200-3500 mg/kg (oral/rat) (Boric acid). [Sodium tetraborate pentahydrate]</p>                                                                                                                 |
| <b>Chronic or Other Toxic Effects</b> |                                                                                                                                                                                                                                                                                                                                                                                   |
| 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**

|                           |                       |                                              |               |
|---------------------------|-----------------------|----------------------------------------------|---------------|
| <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> | 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**

|                           |                                                                                   |                                         |                 |
|---------------------------|-----------------------------------------------------------------------------------|-----------------------------------------|-----------------|
| <b>TDG Classification</b> | Not a hazardous material for transport according to the TDG Regulations. (Canada) | <b>Special Provisions for Transport</b> | Not applicable. |
|---------------------------|-----------------------------------------------------------------------------------|-----------------------------------------|-----------------|

**Section 15. Regulatory Information**

|                                  |      |                                                                                                                                                                                               |        |                                                                  |            |                                                                                      |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
|----------------------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------------------------------------------------------------|------------|--------------------------------------------------------------------------------------|-----|------------|-----|---------------------|-----|----------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------|---|-------------|--------|------------------------------------------------------------------|---|---|------------|-----------------|--|--|
| <b>Other Regulations</b>         |      | 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.                                                                                                                                           |        |                                                                  |            |                                                                                      |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
| <b>DSD/DPD (Europe)</b>          |      | Not evaluated.                                                                                                                                                                                |        | <b>HCS (U.S.A.)</b>                                              |            | CLASS: Target organ effects.<br>CLASS: Irritating substance.                         |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
| <b>ADR (Europe) (Pictograms)</b> |      | NOT EVALUATED FOR EUROPEAN TRANSPORT<br><br>NON ÉVALUÉ POUR LE TRANSPORT EUROPÉEN.                                                                                                            |        | <b>DOT (U.S.A) (Pictograms)</b>                                  |            |  |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
| <b>HMIS (U.S.A.)</b>             |      | <table><tr><td>Health Hazard</td><td>(2*)</td></tr><tr><td>Fire Hazard</td><td>(1)</td></tr><tr><td>Reactivity</td><td>(0)</td></tr><tr><td>Personal Protection</td><td>(H)</td></tr></table> |        | Health Hazard                                                    | (2*)       | Fire Hazard                                                                          | (1) | Reactivity | (0) | Personal Protection | (H) | <b>NFPA (U.S.A.)</b> |  | <table><tr><td rowspan="2">Health</td><td>1</td><td>Fire Hazard</td><td rowspan="2">Rating</td><td rowspan="5">0 Insignificant<br/>1 Slight<br/>2 Moderate<br/>3 High<br/>4 Extreme</td></tr><tr><td>2</td><td>0</td><td>Reactivity</td></tr><tr><td colspan="3">Specific hazard</td></tr></table> |  | Health | 1 | Fire Hazard | Rating | 0 Insignificant<br>1 Slight<br>2 Moderate<br>3 High<br>4 Extreme | 2 | 0 | Reactivity | Specific hazard |  |  |
| Health Hazard                    | (2*) |                                                                                                                                                                                               |        |                                                                  |            |                                                                                      |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
| Fire Hazard                      | (1)  |                                                                                                                                                                                               |        |                                                                  |            |                                                                                      |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
| Reactivity                       | (0)  |                                                                                                                                                                                               |        |                                                                  |            |                                                                                      |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
| Personal Protection              | (H)  |                                                                                                                                                                                               |        |                                                                  |            |                                                                                      |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
| Health                           | 1    | Fire Hazard                                                                                                                                                                                   | Rating | 0 Insignificant<br>1 Slight<br>2 Moderate<br>3 High<br>4 Extreme |            |                                                                                      |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
|                                  | 2    | 0                                                                                                                                                                                             |        |                                                                  | Reactivity |                                                                                      |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |
| Specific hazard                  |      |                                                                                                                                                                                               |        |                                                                  |            |                                                                                      |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                    |  |        |   |             |        |                                                                  |   |   |            |                 |  |  |

**Section 16. Other Information**

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

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](http://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

| <u>Name</u>                                                             | <u>CAS number</u> | <u>%</u> |
|-------------------------------------------------------------------------|-------------------|----------|
| 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, CO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), sulphur oxides (SO<sub>x</sub>), phosphorus compounds (PO<sub>x</sub>), calcium oxides (CaO<sub>x</sub>), zinc oxides (ZnO<sub>x</sub>), 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

Mixture of severely hydrotreated and hydrocracked base oil (petroleum).

### Exposure limits

**ACGIH TLV (United States). Notes: (oil mist)**

TWA: 5 mg/m<sup>3</sup> 8 hour(s).

STEL: 10 mg/m<sup>3</sup> 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: -45°C (-49°F)
- 32: -39°C (-38°F)
- 46: -33°C (-27°F)
- 68: -33°C (-27°F)
- 80: -24°C (-11°F)
- 100: -30°C (-22°F)

### Melting/freezing point

- : Not available.

### Relative density

- : 0.8587 to 0.8728 kg/L @ 15°C (59°F)

### Vapour pressure

- : Not available.

### Vapour density

- : Not available.

### Volatility

- : Not available.

### Odour threshold

- : Not available.

### Evaporation rate

- : Not available.

## 9 . Physical and chemical properties

|                                              |                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Viscosity</b>                             | : <b>22:</b> 21.59 cSt @ 40°C, 4.26 cSt @ 100°C, VI=101; <b>32:</b> 34.5 cSt @ 40°C, 5.68 cSt @ 100°C, VI=103; <b>46:</b> 46.6 cSt @ 40°C, 6.94 cSt @ 100°C, VI=105; <b>68:</b> 65.7 cSt @ 40°C, 9.4 cSt @ 100°C, VI=115; <b>80:</b> 80.0 cSt @ 40°C, 9.71 cSt @ 100°C, VI=99; <b>100:</b> 100.0 cSt @ 40°C, 11.32 cSt @ 100°C, VI=99 |
| <b>Solubility</b>                            | : Insoluble in water.                                                                                                                                                                                                                                                                                                                 |
| <b>LogK<sub>ow</sub></b>                     | : Not available.                                                                                                                                                                                                                                                                                                                      |
| <b>Softening Point</b>                       | : Not available.                                                                                                                                                                                                                                                                                                                      |
| <b>Dropping Point</b>                        | : Not available.                                                                                                                                                                                                                                                                                                                      |
| <b>Penetration</b>                           | : Not available.                                                                                                                                                                                                                                                                                                                      |
| <b>Physical/chemical properties comments</b> | : Not available.                                                                                                                                                                                                                                                                                                                      |

## 10 . Stability and reactivity

|                                                |                                                                                                                                                                |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Stability and reactivity</b>                | : The product is stable.                                                                                                                                       |
| <b>Conditions of instability</b>               | : Not available.                                                                                                                                               |
| <b>Incompatibility with various substances</b> | : Reactive with oxidizing materials and acids .                                                                                                                |
| <b>Hazardous decomposition products</b>        | : May release COx, H2S, methacrylate monomers, aldehydes, alkyl mercaptans, hydrocarbons, sulfides, smoke and irritating vapours when heated to decomposition. |
| <b>Hazardous polymerisation</b>                | : Will not occur.                                                                                                                                              |

## 11 . Toxicological information

### Toxicity data

| <u>Product/ingredient name</u>                                          | <u>Test</u> | <u>Result</u>                    | <u>Route</u> | <u>Species</u> |
|-------------------------------------------------------------------------|-------------|----------------------------------|--------------|----------------|
| 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 <sup>3</sup> /hour(s) | Inhalation   | Rat            |

### Specific effects

|                                               |                                                     |
|-----------------------------------------------|-----------------------------------------------------|
| <b>Carcinogenic effects</b>                   | : Not listed as carcinogenic by OSHA, NTP or IARC.  |
| <b>Mutagenic effects</b>                      | : No known significant effects or critical hazards. |
| <b>Teratogenicity / Reproductive toxicity</b> | : No known significant effects or critical hazards. |

### Sensitisation

|                             |                                                     |
|-----------------------------|-----------------------------------------------------|
| <b>Ingestion</b>            | : No known significant effects or critical hazards. |
| <b>Inhalation</b>           | : No known significant effects or critical hazards. |
| <b>Eyes</b>                 | : Slightly irritating to the eyes.                  |
| <b>Skin</b>                 | : Slightly irritating to the skin.                  |
| <b>Synergistic products</b> | : Not available.                                    |

## 12 . Ecological information

### Ecotoxicity data

| <u>Product/ingredient name</u>   | <u>Species</u>                                      | <u>Period</u> | <u>Result</u> |
|----------------------------------|-----------------------------------------------------|---------------|---------------|
| <b>Environmental precautions</b> | : No known significant effects or critical hazards. |               |               |
| <b>Bioconcentration factor</b>   | Not available.                                      |               |               |
| <b>BOD and COD</b>               | Not available.                                      |               |               |
| <b>Biodegradable/OECD</b>        | Not available.                                      |               |               |
| <b>Mobility</b>                  | 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 |
|---------------------------|----------------|----------------------|----------------|-----|-------|------------------------|
| <b>TDG Classification</b> | Not regulated. | -                    | -              | -   |       | -                      |
| <b>DOT Classification</b> | 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

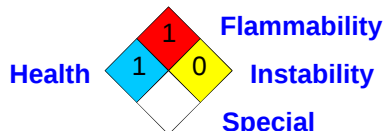
**TSCA 8(b) inventory** : Listed

## 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](http://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 – 53<sup>rd</sup> 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

| <u>INGREDIENT</u> | <u>% (w/w)</u> | <u>CAS NUMBER</u> | <u>LD<sub>50</sub> Oral-Rat</u> | <u>LC<sub>50</sub> Inhal-Rat</u> | <u>ACGIH-TLV</u> |
|-------------------|----------------|-------------------|---------------------------------|----------------------------------|------------------|
| 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                                                                                                                                     |
| EXTINGUISHING MEDIA:              | Dry chemical, CO <sub>2</sub> , 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<br>(CONDITIONS TO AVOID): | Strong oxidizers. Avoid heat, sparks and open flames.                                    |               |
| CONDITIONS OF REACTIVITY:                 | Contact with incompatibles or ignition sources.                                          |               |
| HAZARDOUS DECOMPOSITION<br>PRODUCTS:      | May release CO <sub>x</sub> , 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<br>(Specify): | Protective clothing as required to prevent contact.<br>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             |



## 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

### Emergency Telephone Number

217/424-5200

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

4666 FARIES PARKWAY  
DECATUR, IL 62525

### 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<sup>3</sup> (Total particulate); 5 mg/m<sup>3</sup> (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 <sub>2</sub> O=1) | 0.914 - 0.920        |
| Vapor Pressure (mm Hg.) | N/A       | Melting Point                         | NIL                  |
| Vapor Density (AIR=1)   | N/A       | Evaporation Rate<br>(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)

610°F (CLOSED CUP)

### Flammable Limits

N/A

### LEL

N/A

### UEL

N/A

**Extinguishing Media:** DRY CHEMICAL OR FOAM

### Special Fire Fighting Procedures:

NONE

### Unusual Fire and Explosion Hazards:

NONE

## Section V – Reactivity Data

|                         |                        |                                   |                    |
|-------------------------|------------------------|-----------------------------------|--------------------|
| <b>Stability</b><br>N/A | <b>Unstable</b><br>N/A | <b>Conditions to avoid</b><br>N/A | <b>Stable</b><br>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

|                           |                           |                     |                          |
|---------------------------|---------------------------|---------------------|--------------------------|
| <b>Route(s) of entry:</b> | <b>Inhalation?</b><br>YES | <b>Skin?</b><br>YES | <b>Ingestion?</b><br>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.

|                               |                    |                                |                               |
|-------------------------------|--------------------|--------------------------------|-------------------------------|
| <b>Carcinogenicity:</b><br>NO | <b>NTP?</b><br>N/A | <b>IARC Monographs?</b><br>N/A | <b>OSHA regulated?</b><br>N/A |
|-------------------------------|--------------------|--------------------------------|-------------------------------|

|                                              |                                                                   |
|----------------------------------------------|-------------------------------------------------------------------|
| <b>Signs and Symptoms of Exposure</b><br>N/A | <b>Medical conditions generally aggravated by exposure</b><br>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

|                                                       |                                    |                     |                                 |                                         |
|-------------------------------------------------------|------------------------------------|---------------------|---------------------------------|-----------------------------------------|
| <b>Respiratory Protection (Specify Type)</b><br>NONE  |                                    |                     | <b>Ventilation</b><br>N/A       | <b>Local Exhaust</b><br>NOT REQUIRED    |
| <b>Special</b><br>N/A                                 | <b>Mechanical (General)</b><br>N/A | <b>Other</b><br>N/A | <b>Protective Gloves</b><br>N/A | <b>Eye Protection</b><br>SAFETY GLASSES |
| <b>Other protective clothing or equipment</b><br>NONE |                                    |                     |                                 | <b>Work/Hygienic Practices</b><br>N/A   |



# Material Safety Data Sheet

| WHMIS (Pictograms)                                                                                                                                                  | WHMIS (Classification) | Protective Clothing                                                                                                                                                                                                                                                                                                                        | TDG (pictograms)                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|   | <b>B-3, D-2B</b>       |     |  |

## Section 1. Chemical Product and Company Identification

|                      |                                                                                                                                                                                                                                                        |                                 |                                                                                                                                                                     |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Name</b>  | <b>DIESEL FUEL</b>                                                                                                                                                                                                                                     | <b>Code</b>                     | W104, W293; SAP: 120, 121, 122, 287                                                                                                                                 |
| <b>Synonym</b>       | 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 | <b>Validated on</b>             | 2/5/2007.                                                                                                                                                           |
| <b>Manufacturer</b>  | PETRO-CANADA<br>P.O. Box 2844<br>150 – 6th Avenue South-West<br>Calgary, Alberta<br>T2P 3E3                                                                                                                                                            | <b>In case of<br/>Emergency</b> | Petro-Canada: 403-296-3000<br>Canutec Transportation:<br>613-996-6666<br>Poison Control Centre:<br>Consult local telephone<br>directory for emergency<br>number(s). |
| <b>Material Uses</b> | 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/m <sup>3</sup>   | Not established | Not established |
| Fuels, diesel                                     | 68334-30-5                                                                                                                                                |         | 100 mg/m <sup>3</sup>   | Not established | Not established |
| Fuel oil no. 2                                    | 68476-30-2                                                                                                                                                |         | 100 mg/m <sup>3</sup>   | Not established | Not established |
| <b>Manufacturer Recommendation</b>                | 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. |         |                         |                 |                 |
| <b>Other Exposure Limits</b>                      | Consult local, state, provincial or territory authorities for acceptable exposure limits.                                                                 |         |                         |                 |                 |

## Section 3. Hazards Identification.

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Potential Health Effects</b> | 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

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye Contact</b>  | 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.                                                                                                                             |
| <b>Skin Contact</b> | 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. |
| <b>Inhalation</b>   | 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.                                                                                                                                        |

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ingestion</b>         | 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. |
| <b>Note to Physician</b> | Not available.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

### Section 5. Fire-fighting Measures

|                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                            |                                                                                                                                                           |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Flammability</b>                                   | Combustible liquid.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Flammable Limits</b>                                    | Lower: 0.7%<br>Upper: 6%                                                                                                                                  |
| <b>Flash Points</b>                                   | Diesel Fuel: Closed Cup: $\geq 45^{\circ}\text{C}$ (113°F)<br>Marine Diesel Fuel: Closed Cup: $\geq 64^{\circ}\text{C}$ (147°F)<br>Mining Diesel: Closed Cup: $\geq 52^{\circ}\text{C}$ (126°F)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Auto-Ignition Temperature</b>                           | 225°C (437°F)                                                                                                                                             |
| <b>Fire Hazards in Presence of Various Substances</b> | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Explosion Hazards in Presence of Various Substances</b> | 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. |
| <b>Products of Combustion</b>                         | Carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO <sub>x</sub> ), sulphur oxides (SO <sub>x</sub> ), sulphur compounds (H <sub>2</sub> S), smoke and irritating vapours as products of incomplete combustion.<br>See Section 11 (Other Considerations) for information regarding the toxicity of the combustion products.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                            |                                                                                                                                                           |
| <b>Fire Fighting Media and Instructions</b>           | <p>NAERG2004, GUIDE 128, Flammable liquids (Non-polar/Water-immiscible).<br/>CAUTION: This product has a moderate flash point above 40°C: Use of water spray when fighting fire may be inefficient.</p> <p>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.</p> <p>SMALL FIRES: Dry chemical, CO<sub>2</sub>, water spray or regular foam.<br/>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.<br/>Fires Involving Tanks or Car/Trailer Loads: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.</p> <p>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.</p> |                                                            |                                                                                                                                                           |

### Section 6. Accidental Release Measures

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Material Release or Spill</b> | 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

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Handling</b> | 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. |
| <b>Storage</b>  | 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

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

### 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, H2S, 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> | <p>Acute toxicity information is not available for the product as a whole, therefore, data for some of the ingredients is provided below:</p> <p><b><u>Distillates (petroleum), hydrodesulfurized middle (64742-80-9):</u></b><br/>Acute Inhalation toxicity (LC50): 4600 mg/m<sup>3</sup>/4h (rat)</p> <p><b><u>Kerosine (petroleum), hydrosulfurized (64742-81-0):</u></b><br/>Acute Oral toxicity (LD50): &gt;5000 mg/kg (rat)<br/>Acute Dermal toxicity (LD50): &gt;2000 mg/kg (rabbit)<br/>Acute Inhalation toxicity (LC50): &gt;5000 mg/m<sup>3</sup>/4h (rat)</p> <p><b><u>Fuels, diesel (68334-30-5):</u></b><br/>Acute Oral toxicity (LD50): 7500 mg/kg (rat)<br/>Acute Dermal toxicity (LD50): 24500 mg/kg (mouse)</p> |

**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 $\geq 1\%$ ) 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 $\geq 0.1\%$ 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 $\geq 0.1\%$ 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 $\geq 0.1\%$ 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.                                                                                                                                                                                                                                                                               |
| <b>Other Considerations</b>      | 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.<br>Diesel engine exhaust particulate is probably carcinogenic to humans (IARC Group 2A).                                                                                                                                                |

**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> | 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**

|                           |                                        |                                         |                                                    |
|---------------------------|----------------------------------------|-----------------------------------------|----------------------------------------------------|
| <b>TDG Classification</b> | DIESEL FUEL, 3, UN1202, PGIII (CL-TDG) | <b>Special Provisions for Transport</b> | See Transportation of Dangerous Goods Regulations. |
|---------------------------|----------------------------------------|-----------------------------------------|----------------------------------------------------|

**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> |         |                                 |               |                                                                                                                                                           |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |
| <b>DSD/DPD (Europe)</b>          |            | Not evaluated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         | <b>HCS (U.S.A.)</b>             |               | CLASS: Irritating substance.<br>CLASS: Target organ effects.<br>CLASS: Combustible liquid having a flash point between 37.8°C (100°F) and 93.3°C (200°F). |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |
| <b>ADR (Europe) (Pictograms)</b> |            | NOT EVALUATED FOR EUROPEAN TRANSPORT<br><br>NON ÉVALUÉ POUR LE TRANSPORT EUROPÉEN.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |         | <b>DOT (U.S.A) (Pictograms)</b> |               | Not evaluated for transport<br><br>Non évalué pour le transport                                                                                           |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |
| <b>HMIS (U.S.A.)</b>             |            | <table><tr><td>Health Hazard</td><td>(2*)</td></tr><tr><td>Fire Hazard</td><td>(2)</td></tr><tr><td>Reactivity</td><td>(0)</td></tr><tr><td>Personal Protection</td><td>(H)</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                               |         | Health Hazard                   | (2*)          | Fire Hazard                                                                                                                                               | (2) | Reactivity | (0) | Personal Protection | (H) | <b>NFPA (U.S.A.)</b> |  | <table><tr><td rowspan="4">Health</td><td rowspan="4"></td><td rowspan="4">Fire Hazard</td><td rowspan="4">Rating</td><td>0</td><td>Insignificant</td></tr><tr><td>1</td><td>Slight</td></tr><tr><td>2</td><td>Moderate</td></tr><tr><td>3</td><td>High</td></tr><tr><td colspan="4"></td><td>4</td><td>Extreme</td></tr></table> |  | Health |  | Fire Hazard | Rating | 0 | Insignificant | 1 | Slight | 2 | Moderate | 3 | High |  |  |  |  | 4 | Extreme | <table><tr><td rowspan="4">Specific hazard</td><td rowspan="4">Reactivity</td><td rowspan="4"></td><td>0</td><td>Insignificant</td></tr><tr><td>1</td><td>Slight</td></tr><tr><td>2</td><td>Moderate</td></tr><tr><td>3</td><td>High</td></tr><tr><td colspan="2"></td><td>4</td><td>Extreme</td></tr></table> |  | Specific hazard | Reactivity |  | 0 | Insignificant | 1 | Slight | 2 | Moderate | 3 | High |  |  | 4 | Extreme |
| Health Hazard                    | (2*)       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                                 |               |                                                                                                                                                           |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |
| Fire Hazard                      | (2)        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                                 |               |                                                                                                                                                           |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |
| Reactivity                       | (0)        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                                 |               |                                                                                                                                                           |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |
| Personal Protection              | (H)        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                                 |               |                                                                                                                                                           |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |
| Health                           |            | Fire Hazard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Rating  | 0                               | Insignificant |                                                                                                                                                           |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |
|                                  |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         | 1                               | Slight        |                                                                                                                                                           |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |
|                                  |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         | 2                               | Moderate      |                                                                                                                                                           |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |
|                                  |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         | 3                               | High          |                                                                                                                                                           |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |
|                                  |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         | 4                               | Extreme       |                                                                                                                                                           |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |
| Specific hazard                  | Reactivity |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0       | Insignificant                   |               |                                                                                                                                                           |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |
|                                  |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1       | Slight                          |               |                                                                                                                                                           |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |
|                                  |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2       | Moderate                        |               |                                                                                                                                                           |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |
|                                  |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3       | High                            |               |                                                                                                                                                           |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |
|                                  |            | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Extreme |                                 |               |                                                                                                                                                           |     |            |     |                     |     |                      |  |                                                                                                                                                                                                                                                                                                                                   |  |        |  |             |        |   |               |   |        |   |          |   |      |  |  |  |  |   |         |                                                                                                                                                                                                                                                                                                                |  |                 |            |  |   |               |   |        |   |          |   |      |  |  |   |         |

**Section 16. Other Information**

|                   |                                                                             |
|-------------------|-----------------------------------------------------------------------------|
| <b>References</b> | Available upon request.<br>* 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](http://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.

*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

PRECISION GENERAL PURPOSE EP1, EP2



## 1. Product and company identification

|                                    |                                                                                                                                                                                          |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Common name</b>                 | : PRECISION GENERAL PURPOSE EP1, EP2                                                                                                                                                     |
| <b>Code</b>                        | : PGP1, 650-123; PGP2, 650-124                                                                                                                                                           |
| <b>Material uses</b>               | : These products are multi-purpose, extreme pressure greases and are designed for use in a wide variety of severe automotive and industrial applications.                                |
| <b>Manufacturer</b>                | : PETRO-CANADA<br>P.O. Box 2844<br>150 – 6th Avenue South-West<br>Calgary, Alberta<br>T2P 3E3                                                                                            |
| <b><u>In case of emergency</u></b> | : <b>Petro-Canada: 403-296-3000</b><br><b>Canutec Transportation:</b><br><b>613-996-6666</b><br><b>Poison Control Centre: Consult local telephone directory for emergency number(s).</b> |

## 2. Hazards identification

|                                                       |                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Physical state</b>                                 | : Stringy smooth paste.                                                                                                                                                                                                                                                                                        |
| <b>Odour</b>                                          | : Mild grease like.                                                                                                                                                                                                                                                                                            |
| <b>OSHA/HCS status</b>                                | : 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. |
| <b>Emergency overview</b>                             | : No specific hazard.                                                                                                                                                                                                                                                                                          |
| <b>Routes of entry</b>                                | : Dermal contact. Eye contact. Inhalation. Ingestion.                                                                                                                                                                                                                                                          |
| <b><u>Potential acute health effects</u></b>          |                                                                                                                                                                                                                                                                                                                |
| <b>Eyes</b>                                           | : Slightly irritating to the eyes.                                                                                                                                                                                                                                                                             |
| <b>Skin</b>                                           | : Slightly irritating to the skin.                                                                                                                                                                                                                                                                             |
| <b>Inhalation</b>                                     | : No known significant effects or critical hazards.                                                                                                                                                                                                                                                            |
| <b>Ingestion</b>                                      | : No known significant effects or critical hazards.                                                                                                                                                                                                                                                            |
| <b>Medical conditions aggravated by over-exposure</b> | : 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

| <b><u>Name</u></b>                                                                                                                                                                                                                                      | <b><u>CAS number</u></b> | <b><u>%</u></b> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------|
| 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

|                     |                                                                                                                                                                                                                                  |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye contact</b>  | : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.                                                                                           |
| <b>Skin contact</b> | : 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. |
| <b>Inhalation</b>   | : 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, CO<sub>2</sub>), sulphur oxides (SO<sub>x</sub>), sulphur compounds (H<sub>2</sub>S), hydrocarbons, acrolein, aldehydes, nitrogen oxides (NO<sub>x</sub>), 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

Mixture of severely hydrotreated and hydrocracked base oil (petroleum).

### Exposure limits

**ACGIH TLV (United States). Notes: (oil mist)**

TWA: 5 mg/m<sup>3</sup> 8 hour(s).

STEL: 10 mg/m<sup>3</sup> 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

|                         |                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eyes</b>             | : 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.                                                                                                                                                                                                   |
| <b>Skin</b>             | : 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.                                                                                                                                                                                         |
| <b>Respiratory</b>      | : 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.<br>Recommended: organic vapour filter                               |
| <b>Hands</b>            | : 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.<br>Recommended: neoprene, nitrile, polyvinyl alcohol (PVA), Viton.                                                                                                                          |
| <b>Hygiene measures</b> | : 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

|                                              |                                                                                          |
|----------------------------------------------|------------------------------------------------------------------------------------------|
| <b>Physical state</b>                        | : Stringy smooth paste.                                                                  |
| <b>Flash point</b>                           | : Mineral Oil Blend:<br>Open cup: 272°C (521.6°F) (Cleveland.)                           |
| <b>Auto-ignition temperature</b>             | : Mineral Oil Blend:<br>Fire Point:<br>310°C (590°F)                                     |
| <b>Flammable limits</b>                      | : Not available.                                                                         |
| <b>Colour</b>                                | : Brown.                                                                                 |
| <b>Odour</b>                                 | : Mild grease like.                                                                      |
| <b>pH</b>                                    | : Not applicable.                                                                        |
| <b>Boiling/condensation point</b>            | : Not available.                                                                         |
| <b>Pour Point</b>                            | : Mineral Oil Blend:<br>-15°C (5°F)                                                      |
| <b>Melting/freezing point</b>                | : Not available.                                                                         |
| <b>Relative density</b>                      | : Mineral Oil Blend:<br>0.8813 kg/L @ 15°C (59°F)                                        |
| <b>Vapour pressure</b>                       | : Not available.                                                                         |
| <b>Vapour density</b>                        | : Not available.                                                                         |
| <b>Volatility</b>                            | : Not available                                                                          |
| <b>Odour threshold</b>                       | : Not available.                                                                         |
| <b>Evaporation rate</b>                      | : Not available.                                                                         |
| <b>Viscosity</b>                             | : Mineral Oil Blend:<br>159.0 cSt @ 40°C (104°F), 10.85-16.30 cSt @ 100°C (212°F), VI=93 |
| <b>Solubility</b>                            | : Insoluble in water.                                                                    |
| <b>LogK<sub>ow</sub></b>                     | : Not available.                                                                         |
| <b>Softening Point</b>                       | : Not available.                                                                         |
| <b>Dropping Point</b>                        | : ≥177°C (351°F)                                                                         |
| <b>Penetration</b>                           | : <b>EP1:</b> 310 (60 strokes); <b>EP2:</b> 265 (60 strokes)                             |
| <b>Physical/chemical properties comments</b> | : Not available.                                                                         |

## 10 . Stability and reactivity

|                                                |                                                                                                                                                                                                                       |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Stability and reactivity</b>                | : The product is stable.                                                                                                                                                                                              |
| <b>Conditions of instability</b>               | : Not available.                                                                                                                                                                                                      |
| <b>Incompatibility with various substances</b> | : Reactive with oxidising agents, acids, alkalis, phosphorus and maleic anhydride.                                                                                                                                    |
| <b>Hazardous decomposition products</b>        | : May release CO <sub>x</sub> , NO <sub>x</sub> , SO <sub>x</sub> , diphenylamine, alkenes, hydrocarbons, acrolein, aldehydes, ammonia, lithium compounds, smoke and irritating vapours when heated to decomposition. |
| <b>Hazardous polymerisation</b>                | : Will not occur.                                                                                                                                                                                                     |

## 11 . Toxicological information

### Toxicity data

| <u>Product/ingredient name</u>                                          | <u>Test</u> | <u>Result</u>                       | <u>Route</u> | <u>Species</u> |
|-------------------------------------------------------------------------|-------------|-------------------------------------|--------------|----------------|
| 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 <sup>3</sup> (4 hour(s)) | Inhalation   | Rat            |

### Specific effects

|                                               |                                                     |
|-----------------------------------------------|-----------------------------------------------------|
| <b>Carcinogenic effects</b>                   | : Not listed as carcinogenic by OSHA, NTP or IARC.  |
| <b>Mutagenic effects</b>                      | : No known significant effects or critical hazards. |
| <b>Teratogenicity / Reproductive toxicity</b> | : No known significant effects or critical hazards. |

### Sensitisation

|                             |                                                     |
|-----------------------------|-----------------------------------------------------|
| <b>Ingestion</b>            | : No known significant effects or critical hazards. |
| <b>Inhalation</b>           | : No known significant effects or critical hazards. |
| <b>Eyes</b>                 | : Slightly irritating to the eyes.                  |
| <b>Skin</b>                 | : Slightly irritating to the skin.                  |
| <b>Synergistic products</b> | : Not available.                                    |

## 12 . Ecological information

### Ecotoxicity data

| <u>Product/ingredient name</u>                           | <u>Species</u>                                      | <u>Period</u> | <u>Result</u> |
|----------------------------------------------------------|-----------------------------------------------------|---------------|---------------|
| <b>Environmental precautions</b>                         | : No known significant effects or critical hazards. |               |               |
| <b>Bioconcentration factor</b>                           | Not available.                                      |               |               |
| <b>BOD and COD</b>                                       | Not available.                                      |               |               |
| <b>Biodegradable/OECD</b>                                | Not available.                                      |               |               |
| <b>Mobility</b>                                          | Not available.                                      |               |               |
| <b>Special remarks on the products of biodegradation</b> | 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 |
|---------------------------|----------------|----------------------|----------------|-----|-------|------------------------|
| <b>TDG Classification</b> | Not regulated. | -                    | -              | -   |       | -                      |
| <b>DOT Classification</b> | 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](http://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: **June 27, 2007**  
**8750 – 53<sup>rd</sup> Ave.** PHONE: 780-468-4064  
**Edmonton, AB T6E 5G2** 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

| <u>INGREDIENT</u>          | <u>% (w/w)</u> | <u>CAS NUMBER</u> | <u>LD<sub>50</sub> Oral-Rat</u> | <u>LC<sub>50</sub> Inhal-Rat</u> | <u>ACGIH-TLV</u>           |
|----------------------------|----------------|-------------------|---------------------------------|----------------------------------|----------------------------|
| Crystalline silica; quartz | 2 – 6          | 14808-60-7        | Not available                   | Not available                    | TWA=0.05 mg/m <sup>3</sup> |

## 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:       | <b>Bentonite is not listed as a carcinogen.</b> 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  
SUPERSEDES: September 4, 2004

BY: Product safety committee  
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



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](mailto:extreme.ron@telus.net)

## EXTREME EXTRA HIGH YIELD GEL

EMERGENCY PHONE NO. (604) 535-6699

PAGE 1 OF 4

### WHMIS HAZARD INDEX:

#### DEGREE OF HAZARD:

HEALTH 1  
FIRE 0  
REACTIVITY 1  
OTHER: B (GLASSES & GLOVES)

#### HAZARD RATING:

0 LEAST  
1 SLIGHT  
2 MODERATE  
3 HIGH  
4 EXTREME

### SECTION 1

### PRODUCT IDENTIFICATION

PRODUCT NAME:  
CHEMICAL IDENTIFICATION:  
MATERIAL USE:  
WHMIS CLASSIFICATION:  
WORK PLACE HAZARD:

EXTREME EXTRA HIGH YIELD GEL  
Sodium Montmorillonite  
Drilling Mud Additive  
D-2(A)  
Low concentrations of free silica in airborne dust.  
Limited evidence as a Carcinogen from inhaled  
crystalline silica.

### TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION:  
PACKAGE GROUP:  
CAS NUMBER:  
MSDS CODE:

Not Dangerous Goods  
Not Applicable  
1302-78-9  
Not Applicable

### SECTION 2

### HAZARDOUS INGREDIENTS

|             |                                        |                       |                       |                     |
|-------------|----------------------------------------|-----------------------|-----------------------|---------------------|
| INGREDIENT: | Crystalline Silica (SiO <sub>2</sub> ) | 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 <sup>3</sup>                   | .05 mg/M <sup>3</sup> | .05 mg/M <sup>3</sup> | 5 mg/M <sup>3</sup> |
| ACGIH TVL:  | .1 mg/M <sup>3</sup>                   | .05 mg/M <sup>3</sup> | .05 mg/M <sup>3</sup> | 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 6HEALTH HAZARDS

## ROUTE OF ENTRY:

(X) SKIN

(X) EYE CONTACT

(X) INHALATION

(X) INGESTION

## SKIN CONTACT:

## EYE CONTACT:

## INHALATION:

Possible drying resulting in dermatitis.

Mechanical Irritant

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 7PREVENTATIVE MEASURES

## SKIN PROTECTION:

## EYE PROTECTION:

## VENTILATION:

## RESPIRATORY PROTECTION:

## LEAK &amp; SPILL PROCEDURE:

## WASTE DISPOSAL:

## STORAGE REQUIREMENTS:

Generally not necessary.

Goggles may be preferred if dusty conditions develop.

Mechanical, general room ventilation. Use local ventilation to maintain REL's/TLV's.

Use respirators approved by NIOSH/MSHA for silica dust.

Avoid breathing dust. Wear silica approved respirator. Vacuum up to avoid generating dust.

Avoid using water, product becomes slippery.

Dispose of in compliance with local and government regulations.

Store in dry area. Product becomes slippery when wet.

## EXTREME EXTRA HIGH YIELD GEL

## MATERIAL SAFETY DATA SHEET

SECTION 8FIRST 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 9PREPARATION 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, OF 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<sup>®</sup>, Secar<sup>®</sup> 41, Secar<sup>®</sup> 51, Secar<sup>®</sup> 60, Secar<sup>®</sup> 71 and Secar<sup>®</sup> 80

- **Supplier**

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

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<sup>®</sup>, Secar<sup>®</sup> 41, Secar<sup>®</sup> 51, Secar<sup>®</sup> 60, Secar 71

**65997-16-2** 100%

Secar<sup>®</sup> 80 **65997-16-2** 40-80%  
**1344-28-1** 20-60%

### 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 <sub>2</sub> O <sub>3</sub>                                  | 12042-68-1 |
| CaO•2Al <sub>2</sub> O <sub>3</sub>                                 | 12004-88-5 |
| 12CaO•7Al <sub>2</sub> O <sub>3</sub>                               | 12005-57-1 |
| 2CaO•Al <sub>2</sub> O <sub>3</sub> •SiO <sub>2</sub>               | 12068-46-1 |
| 4CaO•Al <sub>2</sub> O <sub>3</sub> •Fe <sub>2</sub> O <sub>3</sub> | 12068-35-8 |
| Al <sub>2</sub> O <sub>3</sub> (α, β)                               | 1344-28-1  |

### 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**

# Material Safety Data Sheet

Reference MSDS-US-CAC-8/06

## 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 <sup>3</sup> | 10 mg/m <sup>3</sup> |
| Respirable dust | 5 mg/m <sup>3</sup>  | 5 mg/m <sup>3</sup>  |

- **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

# Material Safety Data Sheet

Reference MSDS-US-CAC-8/06

## Calcium Aluminate Cement

Secar 80 – white

|                          |                    |
|--------------------------|--------------------|
| <b>Odor:</b>             | none               |
| <b>Specific gravity:</b> | 2.9 – 3.3          |
| <b>Vapor density:</b>    | n/a                |
| <b>Vapor pressure:</b>   | n/a                |
| <b>Evaporation rate:</b> | n/a                |
| <b>Boiling point:</b>    | n/a                |
| <b>Freezing point:</b>   | n/a                |
| <b>pH:</b>               | 11 – 11.5 when wet |
| <b>Water solubility:</b> | negligible         |

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

- **Sensitization and chronic toxicity**

Does not contain measurable amounts of soluble Chromium (VI)

### 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**

### 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.

## Calcium Aluminate Cement

### 14 Transport information

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

- 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.

### 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

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.

### 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](http://www.Kerneosinc.com) under the products section

# MATERIAL SAFETY DATA SHEET

## SECTION I: IDENTIFICATION OF PRODUCT

COMPANY: **Diversity Technologies Corp.** DATE: Jan. 3, 2006  
**8750 – 53<sup>rd</sup> 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

| <u>INGREDIENT</u>                         | <u>PERCENT</u> | <u>CAS NUMBER</u> | <u>LD<sub>50</sub> Oral-Rat</u> | <u>LC<sub>50</sub> Inhal-Rat</u> | <u>ACGIH-TLV</u> |
|-------------------------------------------|----------------|-------------------|---------------------------------|----------------------------------|------------------|
| 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<br>(CONDITIONS TO AVOID): | Avoid contact with strong oxidizers. Avoid wet, damp or humid conditions, extremes of temperature, and ignition sources. |               |
| HAZARDOUS DECOMPOSITION<br>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<br>(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  
SUPERSEDES: March 31, 2003

BY: Product safety committee  
PHONE: 780-440-4923

| WHMIS (Pictograms)                                                                                                                                                  | WHMIS (Classification) | Protective Clothing                                                                                                                                                                                                                                    | TDG (pictograms)                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|   | <b>B-2, D-2A, D-2B</b> |    |  |

## Section 1. Chemical Product and Company Identification

|                      |                                                                                                                                                                                                                                                                                            |                                 |                                                                                                                                                                     |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Name</b>  | <b>GASOLINE, UNLEADED</b>                                                                                                                                                                                                                                                                  | <b>Code</b>                     | W102E, SAP: 102 to 117                                                                                                                                              |
| <b>Synonym</b>       | 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 | <b>Validated on</b>             | 5/14/2008.                                                                                                                                                          |
| <b>Manufacturer</b>  | PETRO-CANADA<br>P.O. Box 2844<br>150 – 6th Avenue South-West<br>Calgary, Alberta<br>T2P 3E3                                                                                                                                                                                                | <b>In case of<br/>Emergency</b> | Petro-Canada: 403-296-3000<br>Canutec Transportation:<br>613-996-6666<br>Poison Control Centre:<br>Consult local telephone<br>directory for emergency<br>number(s). |
| <b>Material Uses</b> | 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 |
| <b>Manufacturer Recommendation</b> | Not applicable                                                                            |         |                         |         |                 |
| <b>Other Exposure Limits</b>       | Consult local, state, provincial or territory authorities for acceptable exposure limits. |         |                         |         |                 |

## Section 3. Hazards Identification.

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Potential Health Effects</b> | 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

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye Contact</b>  | 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.                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Skin Contact</b> | 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.                                                                                                                                                                              |
| <b>Inhalation</b>   | 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.                                                                                                                                                                                                                                             |
| <b>Ingestion</b>    | 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. |

Note to Physician Not available

**Section 5. Fire-fighting Measures**

|                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                            |                                                                                                                                                    |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Flammability</b>                                   | Flammable liquid (NFPA).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Flammable Limits</b>                                    | Lower: 1.3%; Upper: 7.6% (NFPA).                                                                                                                   |
| <b>Flash Points</b>                                   | Closed cup: -50 to -38°C (-58 to -36.4°F) [Tagliabue]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Auto-Ignition Temperature</b>                           | 257°C (495°F) (NFPA).                                                                                                                              |
| <b>Fire Hazards in Presence of Various Substances</b> | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Explosion Hazards in Presence of Various Substances</b> | Do not cut, weld, heat, drill or pressurize empty container. Containers may explode in heat of fire. Vapours may form explosive mixtures with air. |
| <b>Products of Combustion</b>                         | Carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO <sub>x</sub> ), polynuclear aromatic hydrocarbons, phenols, smoke and irritating vapours as products of incomplete combustion.<br><br>See Section 11 (Other Considerations) for information regarding the toxicity of the combustion products.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                            |                                                                                                                                                    |
| <b>Fire Fighting Media and Instructions</b>           | 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, CO <sub>2</sub> , 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**

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Material Release or Spill</b> | 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**

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Handling</b> | 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. |
| <b>Storage</b>  | 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**

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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>  | - <b>The selection of personal protective equipment varies, depending upon conditions of use.</b>                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Eyes</b>                 | As a minimum, safety glasses with side shields should be worn when handling this material.                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Body</b>                 | 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.)                                                                                                                                                                                                                                                                                       |
| <b>Respiratory</b>          | 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

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

### Section 10. Stability and Reactivity

|                                                      |                                                                     |                                 |                                                                                                                              |
|------------------------------------------------------|---------------------------------------------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>Corrosivity</b>                                   | Non corrosive.                                                      |                                 |                                                                                                                              |
| <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, phenols, polynuclear aromatic 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>                | <u>Gasoline (8006-61-9):</u><br>Acute Oral toxicity (LD50): 13600 mg/kg (rat)<br>Acute Dermal toxicity (LD50): >5000 mg/kg (rabbit)<br><br><u>Benzene (71-43-2):</u><br>Acute Oral toxicity (LD50): 930 mg/kg (rat)<br>Acute Dermal toxicity (LD50): >9400 mg/kg (rabbit)<br>Acute Inhalation toxicity (LC50): 13229 ppm/4h (rat)                                                                 |
| <b>Chronic or Other Toxic Effects</b> |                                                                                                                                                                                                                                                                                                                                                                                                   |
| 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)                                                                                                                                                                                                                   |

| GASOLINE, UNLEADED             |                                                                                                                                                                                                                                                                                                                                             | Page Number: 4 |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Reproductive Toxicity:         | This product is not known to contain any components at $\geq 0.1\%$ 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 $\geq 0.1\%$ 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 $\geq 0.1\%$ that are listed as carcinogenic compounds. Therefore this product is considered to be carcinogenic.<br>[Considered to be A1 by the ACGIH. Benzene (71-43-2)]<br>[Considered to be A3 by the ACGIH. Gasoline (8006-61-9)]                                                    |                |
| Carcinogenicity (IARC):        | This product contains the following chemical(s) at $\geq 0.1\%$ that are listed as carcinogenic compounds. Therefore this product is considered to be carcinogenic.<br>[Considered to be carcinogenic to humans (group 1) by IARC. Benzene (71-43-2)]<br>[Considered to be carcinogenic to humans (group 2B) by IARC. Gasoline (8006-61-9)] |                |
| Carcinogenicity (NTP):         | This product contains the following chemical(s) at $\geq 0.1\%$ that are listed as carcinogenic compounds. Therefore this product is considered to be carcinogenic.<br>[Known to be a human carcinogen according to NTP. Benzene (71-43-2)]                                                                                                 |                |
| Carcinogenicity (IRIS):        | This product contains the following chemical(s) at $\geq 0.1\%$ that are listed as carcinogenic compounds. Therefore this product is considered to be carcinogenic.<br>[Considered to be carcinogenic by IRIS. Benzene (71-43-2)]                                                                                                           |                |
| Carcinogenicity (OSHA):        | This product contains the following chemical(s) at $\geq 0.1\%$ that are listed as carcinogenic compounds. Therefore this product is considered to be carcinogenic.<br>[Considered to be carcinogenic by OSHA. Benzene (71-43-2)]                                                                                                           |                |
| <b>Other Considerations</b>    | Gasoline engine exhaust is possibly carcinogenic to humans (IARC Group 2B).                                                                                                                                                                                                                                                                 |                |

| 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>               | 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 |                                    |                                         |                                                    |
|-----------------------------------|------------------------------------|-----------------------------------------|----------------------------------------------------|
| <b>TDG Classification</b>         | GASOLINE, 3, UN1203, PGII (CL-TDG) | <b>Special Provisions for Transport</b> | See Transportation of Dangerous Goods Regulations. |

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

| GASOLINE, UNLEADED |                     |      | Page Number: 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |        |                 |
|--------------------|---------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------------|
| HMIS (U.S.A.)      | Health Hazard       | (2*) | NFPA (U.S.A.)<br><br><div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 10px;">Health</div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto; position: relative;"> <span style="position: absolute; top: -5px; left: 50%; transform: translateX(-50%);">3</span> <span style="position: absolute; bottom: -5px; left: 50%; transform: translateX(-50%);">0</span> <span style="position: absolute; right: -5px; top: 50%; transform: translateY(-50%);">2</span> </div> </div> <div style="margin-left: 10px;">Fire Hazard</div> </div> | Rating | 0 Insignificant |
|                    | Fire Hazard         | (3)  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |        | 1 Slight        |
|                    | Reactivity          | (0)  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |        | 2 Moderate      |
|                    | Personal Protection | (H)  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |        | 3 High          |
|                    |                     |      | Specific hazard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |        | 4 Extreme       |

| Section 16. Other Information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| References                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Available upon request.<br>TM/MC Marque de commerce de Petro-Canada - Trademark |
| <b>Glossary</b><br>ACGIH - American Conference of Governmental Industrial Hygienists<br>ADR - Agreement on Dangerous goods by Road (Europe)<br>ASTM - American Society for Testing and Materials<br>BOD5 - Biological Oxygen Demand in 5 days<br>CAS - Chemical Abstract Services<br>CEPA - Canadian Environmental Protection Act<br>CERCLA - Comprehensive Environmental Response, Compensation and Liability Act<br>CFR - Code of Federal Regulations<br>CHIP - Chemical Hazard Information and Packaging Approved Supply List<br>COD - Chemical Oxygen Demand<br>CPR - Controlled Products Regulations<br>DOT - Department of Transportation (U.S.A.)<br>DSCL - Dangerous Substances Classification and Labeling (Europe)<br>DSD/DPD - Dangerous Substance or Dangerous Preparations Directives (Europe)<br>DSL - Domestic Substance List (Canada)<br>EEC/EU - European Economic Community/European Union<br>EINECS - European Inventory of Existing Commercial Chemical Substances<br>EPCRA - Emergency Planning And Community Right-To-Know Act<br>FDA - Food and Drug Administration<br>FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act<br>HCS - Hazardous Communication System<br>HMIS - Hazardous Material Information System<br>IARC - International Agency for Research on Cancer<br>IRIS - Integrated Risk Information System<br>LD50/LC50 - Lethal Dose/Concentration kill 50%<br>LDLo/LCLo - Lowest Published Lethal Dose/Concentration<br>NFPA - National Fire Prevention Association<br>NIOSH - National Institute for Occupational Safety & Health<br>NPRI - National Pollutant Release Inventory<br>NSNR - New Substances Notification Regulations (Canada)<br>NTP - National Toxicology Program<br>OSHA - Occupational Safety & Health Administration<br>PEL - Permissible Exposure Limit<br>RCRA - Resource Conservation and Recovery Act<br>SARA - Superfund Amendments and Reorganization Act<br>STEL - Short Term Exposure Limit (15 minutes)<br>TDG - Transportation Dangerous Goods (Canada)<br>TDLo/TCLo - Lowest Published Toxic Dose/Concentration<br>TLV-TWA - Threshold Limit Value-Time Weighted Average<br>Tlm - Median Tolerance Limit<br>TSCA - Toxic Substances Control Act<br>USEPA - United States Environmental Protection Agency<br>USP - United States Pharmacopoeia<br>WHMIS - Workplace Hazardous Material Information System |                                                                                 |
| For Copy of MSDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Prepared by Product Safety - JDW on 5/14/2008.                                  |
| Internet: <a href="http://www.petro-canada.ca/msds">www.petro-canada.ca/msds</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Data entry by Product Safety - JDW.                                             |
| Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                 |
| For Product Safety Information: (905) 804-4752                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                 |
| <i>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.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                 |

# 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 <sup>3</sup> | 0.025 mg/m <sup>3</sup> |

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

|                               |            |           |                       |                         |
|-------------------------------|------------|-----------|-----------------------|-------------------------|
| Crystalline silica, tridymite | 15468-32-3 | 0 - 1%    | 0.1 mg/m <sup>3</sup> | 0.05 mg/m <sup>3</sup>  |
| Crystalline silica, quartz    | 14808-60-7 | 0 - 5%    | 0.1 mg/m <sup>3</sup> | 0.025 mg/m <sup>3</sup> |
| 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

|                                                   |                |
|---------------------------------------------------|----------------|
| <b>Physical State:</b>                            | Solid          |
| <b>Color:</b>                                     | Various        |
| <b>Odor:</b>                                      | Odorless       |
| <b>pH:</b>                                        | 7.5            |
| <b>Specific Gravity @ 20 C (Water=1):</b>         | 2.12           |
| <b>Density @ 20 C (kg/l):</b>                     | Not Determined |
| <b>Bulk Density @ 20 C (kg/m³):</b>               | Not Determined |
| <b>Boiling Point/Range (C):</b>                   | Not Determined |
| <b>Freezing Point/Range (C):</b>                  | Not Determined |
| <b>Pour Point/Range (C):</b>                      | Not Determined |
| <b>Flash Point/Range (C):</b>                     | Not Determined |
| <b>Flash Point Method:</b>                        | Not Determined |
| <b>Autoignition Temperature (C):</b>              | Not Determined |
| <b>Flammability Limits in Air - Lower (g/m³):</b> | Not Determined |
| <b>Flammability Limits in Air - Lower (%):</b>    | Not Determined |
| <b>Flammability Limits in Air - Upper (g/m³):</b> | 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 (centistokes): | 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                    | <p>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).</p> <p>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).</p> |
| 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**

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

## **12. ECOLOGICAL INFORMATION**

|                                  |                |
|----------------------------------|----------------|
| <b>Mobility (Water/Soil/Air)</b> | Not determined |
| <b>Persistence/Degradability</b> | Not determined |
| <b>Bio-accumulation</b>          | Not Determined |

#### **Ecotoxicological Information**

|                                    |                |
|------------------------------------|----------------|
| <b>Acute Fish Toxicity:</b>        | Not determined |
| <b>Acute Crustaceans Toxicity:</b> | Not determined |

|                                  |                |
|----------------------------------|----------------|
| <b>Acute Algae Toxicity:</b>     | Not determined |
| <b>Chemical Fate Information</b> | Not determined |
| <b>Other Information</b>         | Not applicable |

### 13. DISPOSAL CONSIDERATIONS

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| <b>Disposal Method</b>        | Bury in a licensed landfill according to federal, state, and local regulations. |
| <b>Contaminated Packaging</b> | 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

|                |                |
|----------------|----------------|
| <b>EPG:</b>    | Not determined |
| <b>IERG:</b>   | Not determined |
| <b>Labels:</b> | None           |

### 15. REGULATORY INFORMATION

#### Chemical Inventories

|                                  |                                                            |
|----------------------------------|------------------------------------------------------------|
| <b>Australian AICS Inventory</b> | Not Determined                                             |
| <b>US TSCA Inventory</b>         | All components listed on inventory.                        |
| <b>EINECS Inventory</b>          | This product, and all its components, complies with EINECS |

|                       |                                                                                                          |
|-----------------------|----------------------------------------------------------------------------------------------------------|
| <b>Classification</b> | Crystalline silica is not classified as a carcinogen in EU Council Directives 67/548/EEC and 88/379/EEC. |
|-----------------------|----------------------------------------------------------------------------------------------------------|

|                     |      |
|---------------------|------|
| <b>Risk Phrases</b> | None |
|---------------------|------|

|                       |      |
|-----------------------|------|
| <b>Safety Phrases</b> | 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

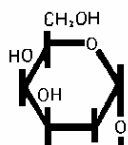
For additional information on the use of this product, contact your local Halliburton representative.

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](http://www.poly-drill.com)

**poly-drill.com**



# MATERIAL SAFETY DATA SHEET/FICHE SIGNALÉTIQUE

## 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<br>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.

Teratogenicity: 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 or 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 Hygienists

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 – 53<sup>rd</sup> 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

| <u>INGREDIENT</u>                         | <u>PERCENT</u> | <u>CAS NUMBER</u> | <u>LD<sub>50</sub> Oral-Rat</u> | <u>LC<sub>50</sub> Inhal-Mouse</u> | <u>ACGIH-TLV</u> |
|-------------------------------------------|----------------|-------------------|---------------------------------|------------------------------------|------------------|
| 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: No information available.  
TOXICITY:  
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<br>(CONDITIONS TO AVOID): | None known.         |               |
| CONDITIONS OF REACTIVITY:                 | None known.         |               |
| HAZARDOUS DECOMPOSITION                   | Not determined.     |               |
| PRODUCTS:                                 |                     |               |
| 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<br>(Specify): | Wear clothing adequate to protect against exposure.<br>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 <sub>50</sub> (oral rat) | LD <sub>50</sub> (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.

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**GSX 20**

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**SECTION IV: FIRST AID MEASURES**

|                      |                                                                                                                                                                                                                                                                                                                                                             |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SKIN CONTACT:</b> | Remove contaminated clothing.<br>Blot off excess material with a clean cloth.<br>Rinse with water.                                                                                                                                                                                                                                                          |
| <b>EYE CONTACT:</b>  | Soap and water wash, if signs of irritation are present seek immediate medical attention<br>Flush with copious quantities of water for 15 minutes.<br>Do not allow victim to rub eyes.<br>Obtain immediate medical attention.                                                                                                                               |
| <b>INHALATION:</b>   | Evacuate to fresh air.<br>Obtain medical attention if symptoms persist.                                                                                                                                                                                                                                                                                     |
| <b>INGESTION:</b>    | If ingested, and patient is conscious, give two glass of water and induce vomiting.<br>Obtain medical attention without delay<br>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.<br>For children give proportionately less liquor according to weight. |

**SECTION V: PHYSICAL DATA**

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

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

|                                           |                                                                                                             |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>FLASH POINT</b>                        | : 59 °C (TCC)                                                                                               |
| <b>AUTOIGNITION TEMPERATURE</b>           | : not determined                                                                                            |
| <b>FLAMMABLE LIMITS</b>                   | : not determined                                                                                            |
| <b>EXTINGUISHING MEDIA</b>                | : CO2; Foam; Dry Chemical; Water Fog                                                                        |
| <b>SPECIAL FIRE FIGHTING PROCED.</b>      | : Use full protective equipment and self contained breathing apparatus.                                     |
| <b>USUSUAL FIRE AND EXPLOSION HAZARDS</b> | : 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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**GSX 20**

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## SECTION VII: REACTIVITY DATA

**STABILITY:** [XXX] Stable [ ] Unstable

**INCOMPATIBILITY (Conditions to avoid):** Strong Oxidizers

**HAZARDOUS DECOMPOSITION PRODUCTS:** CO<sub>x</sub>, NO<sub>x</sub>

**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: *[Signature]*

# 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 <sub>50</sub> (oral rat) | LD <sub>50</sub> (dermal rabbit) | LC <sub>50</sub> (inhalator rat) |
|-----------------|-----------|------------|-----------------------------|----------------------------------|----------------------------------|
| Mineral Spirits | 30-60     | 64742-47-8 | >5 g/kg                     | >3 g/kg                          | not determined                   |
| Alkyl Phenol    | 3-7       | 68412-54-4 | 3000 mg/kg                  | 2830 mg/kg                       | not determined                   |
| Ethoxylate      |           |            |                             |                                  |                                  |

## SECTION III: TOXICOLOGICAL 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 cause painful burning or stinging of eyes and lids, watering of eyes and inflammation of conjunctiva.

**INGESTION** : May cause nausea and vomiting.

**INHALATION** : Inhalation not likely.

# Material Safety Data / Fiche signalétique

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**WDS-120L**

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**SECTION V: FIRST AID MEASURES**

|              |                                                                                                                    |
|--------------|--------------------------------------------------------------------------------------------------------------------|
| SKIN CONTACT | : Wash exposed area with soap and water.<br>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.<br>If conscious, dilute by giving two glasses of water.<br>Call a physician immediately. |
| INHALATION   | : Remove to fresh air.<br>If conscious, dilute by giving two glasses of water.<br>Call a physician immediately.    |

**SECTION VI: PHYSICAL DATA**

|                            |                       |
|----------------------------|-----------------------|
| APPEARANCE                 | Off white liquid      |
| ODOUR                      | Mineral oil smell     |
| SPECIFIC GRAVITY           | 1.07                  |
| BOILING POINT (°C)         | not determined        |
| MELTING POINT (°C)         | 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°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.<br>Sensitivity to static charge. |

# Material Safety Data / Fiche signalétique

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**WDS-120L**

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## SECTION VIII: REACTIVITY DATA

|                                              |                                       |                |
|----------------------------------------------|---------------------------------------|----------------|
| <b>STABILITY:</b>                            | [XXX] Stable                          | [ ] Unstable   |
| <b>INCOMPATIBILITY (Conditions to Avoid)</b> | Strong oxidizing and reducing agents. |                |
| <b>CONDITIONS OF REACTIVITY</b>              | Not known                             |                |
| <b>HAZARDOUS DECOMPOSITION PRODUCTS</b>      | CO <sub>x</sub> , smoke on combustion |                |
| <b>HAZARDOUS POLYMERIZATION</b>              | [XXX] Will not occur                  | [ ] Will occur |

## SECTION IX: PREVENTIVE MEASURES

### SPECIAL PROTECTION INFORMATION

|                                             |                                                                                                |
|---------------------------------------------|------------------------------------------------------------------------------------------------|
| <b>RESPIRATORY PROTECTION</b>               | In the absence of proper ventilation a NIOSH approved organic vapour respirator is recommended |
| <b>VENTILATION</b>                          | General mechanical, 10 changes per hour                                                        |
| <b>PROTECTIVE GLOVES</b>                    | Chemically resistant                                                                           |
| <b>EYE PROTECTION</b>                       | Safety glasses                                                                                 |
| <b>OTHER PROTECTIVE EQUIPMENT (Specify)</b> | 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 Lalach

# 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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**W-OB POLYMER**

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

|                                            |                                                                                                                                            |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>FLASH POINT:</b>                        | 62° C                                                                                                                                      |
| <b>FLAMMABLE LIMIT:</b>                    | Auto-ignition Temp. 227° C                                                                                                                 |
| <b>EXTINGUISHING MEDIA:</b>                | Dry chemical, CO <sub>2</sub> , foam and water are effective but may cause frothing.                                                       |
| <b>SPECIAL FIRE FIGHTING PROCEDURES:</b>   | Cool tanks and containers exposed to fire with water.                                                                                      |
| <b>UNUSUAL FIRE AND EXPLOSION HAZARDS:</b> | To protect against hazardous effects of combustion products respiratory protective equipment when in confined spaces or down wind of fire. |

**SECTION VII: REACTIVITY DATA**

|                                               |                                    |
|-----------------------------------------------|------------------------------------|
| <b>STABLE [XXX] INSTABLE [ ]</b>              |                                    |
| <b>INCOMPATIBILITY (CONDITIONS TO AVOID):</b> | Extreme heat and open flame.       |
| <b>HAZARDOUS DECOMPOSITION PRODUCTS:</b>      | Carbon dioxide; carbon monoxide.   |
| <b>HAZARDOUS POLYMERIZATION:</b>              | Will not occur [XXX] May occur [ ] |

**SECTION VIII: PREVENTATIVE MEASURES**

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

BY: Product Safety Committee

DATE REVISED: April 1, 2000

Review date: March 31/03Authorized by: Alan Beland

# Material Safety Data Sheet / Fiche signalétique

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Canada V4G 1L3  
Ph. (604) 940-6050 Fax (604) 940-6080

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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Toll Free: 1-800-685-8845

**SUPER SET**

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|                          |                |
|--------------------------|----------------|
| 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 Lelache

# Material Safety Data / Fiche signalétique

**WESTCOAST DRILLING SUPPLIES LTD.**

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:** 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 <sub>50</sub> (oral rat) | LD <sub>50</sub> (dermal rabbit) | LC <sub>50</sub> (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.

**INGESTION** : LD<sub>50</sub> (skin, rabbit) 3700 mg/kg based on components.  
: Due to the pH of the mixture, the corrosive properties of the individual components are not present in the mixture.

**INHALATION** : LD<sub>50</sub> (oral rat) 2200 mg/kg based on components.  
: 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<sub>50</sub> (rat) > 3200 mg/m<sup>3</sup> based on components.

## SECTION IV: TOXICOLOGICAL INFORMATION

**CARINOGENICITY** not determined

**REPRODUCTIVE TOXICITY** not determined

**TERATOGENICITY** not determined

**MUTAGENICITY** not determined

**DEVELOPMENTAL TOXICITY** not determined

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## CLAY STABILIZER

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### SECTION V: FIRST AID MEASURES

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

### SECTION VI: PHYSICAL DATA

|                            |                  |
|----------------------------|------------------|
| APPEARANCE                 | : Clear liquid   |
| ODOR                       | : Odourless      |
| SPECIFIC GRAVITY           | : 1.07           |
| BOILING POINT (°C)         | : >100°          |
| MELTING POINT (°C)         | : <-35°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°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 <sub>x</sub> , NO <sub>x</sub> |               |
| HAZARDOUS POLYMERIZATION              | : [XXX] Will not occur              | [ ] May occur |

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EMERGENCY 1-800-665-6645

## CLAY STABILIZER

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### 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 if 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

DATE REVISED: April 1, 2000

SUPERSEDES: March 1997

DATE REVISED: January 2002

BY: Product Safety Committee

Review date: March 31/03

Authorized by: Alan Lelache

# 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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**CALCIUM CHLORIDE FLAKE**

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|                          |                |
|--------------------------|----------------|
| 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:

Alan Lalonde

## MATERIAL SAFETY DATA SHEET

### SECTION I: IDENTIFICATION OF PRODUCT

COMPANY: **Diversity Technologies Corp.** DATE: **October 8, 2009**  
**8750 - 53<sup>rd</sup> 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 <sub>50</sub> Oral-Rat | LC <sub>50</sub> Inhal-Rat | ACGIH-TLV             |
|-------------------|---------|------------|---------------------------|----------------------------|-----------------------|
| 1,6-Hexanediamine | 30-60   | 124-09-4   | 750 mg/kg                 | Not available              | 2.3 mg/m <sup>3</sup> |
| 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.**

15BK2

Page 2 of 4

**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**

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

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**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.

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**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:  
SUPERSEDES:



BY: Product safety committee  
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

**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:** **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) 940-8060 Fax: (604) 940-8080

Toll Free: 1-800-665-6645

**SUPER POLY**

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

|                                     |                                                                                                                                  |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| FLASH POINT:                        | Not applicable                                                                                                                   |
| FLAMMABLE LIMIT:                    | Not determined                                                                                                                   |
| EXTINGUISHING MEDIA:                | Water, water fog, chemical, carbon dioxide CO <sub>2</sub> .                                                                     |
| 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

BY: Product Safety Committee

DATE REVISED: April 1, 2000

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 - 53<sup>rd</sup> 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**

| <u>INGREDIENT</u> | <u>% (w/w)</u> | <u>CAS NUMBER</u> | <u>LD<sub>50</sub> Oral-Rat</u> | <u>LC<sub>50</sub> Inhal-Rat</u> | <u>ACGIH-TLV</u> |
|-------------------|----------------|-------------------|---------------------------------|----------------------------------|------------------|
| 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.**

## 15BSODA ASH

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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.

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UNUSUAL FIRE AND  
EXPLOSION HAZARDS:

None known.

**SECTION VII: REACTIVITY DATA**STABILITY:  
INCOMPATIBILITY  
(CONDITIONS TO AVOID):STABLE [XX] UNSTABLE [ ]  
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:  
HAZARDOUS DECOMPOSITION  
PRODUCTS:  
HAZARDOUS POLYMERIZATION:Not available.  
Heating to decomposition, it emits fumes of sodium  
oxide.  
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<sup>3</sup>).

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 wash 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.

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**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<sub>2</sub> 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**

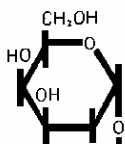
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BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

DATE ISSUED:  
SUPERSEDES:



BY: Product safety committee  
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](mailto:polydril@telus.net)  
[www.poly-drill.com](http://www.poly-drill.com)

**poly-drill.com**



# MATERIAL SAFETY DATA SHEET/FICHE SIGNALÉTIQUE

## 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.

Teratogenicity: 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 or 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 TRANSPORTATION

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

**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**

| <b>SUBSTANCE</b>                 | <b>CAS Number</b> | <b>PERCENT</b> | <b>ACGIH TLV-TWA</b>    | <b>OSHA PEL-TWA</b>                                 |
|----------------------------------|-------------------|----------------|-------------------------|-----------------------------------------------------|
| Bentonite                        | 1302-78-9         | 60 - 100%      | Not applicable          | Not applicable                                      |
| Crystalline silica, quartz       | 14808-60-7        | 1 - 5%         | 0.025 mg/m <sup>3</sup> | 10 mg/m <sup>3</sup><br>%SiO <sub>2</sub> + 2       |
| Crystalline silica, cristobalite | 14464-46-1        | 0 - 1%         | 0.025 mg/m <sup>3</sup> | 1/2 x 10 mg/m <sup>3</sup><br>%SiO <sub>2</sub> + 2 |
| Crystalline silica, tridymite    | 15468-32-3        | 0 - 1%         | 0.05 mg/m <sup>3</sup>  | 1/2 x 10 mg/m <sup>3</sup><br>%SiO <sub>2</sub> + 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 (centistokes):**

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

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

## 12. ECOLOGICAL INFORMATION

|                                  |                |
|----------------------------------|----------------|
| <b>Mobility (Water/Soil/Air)</b> | Not determined |
| <b>Persistence/Degradability</b> | Not determined |
| <b>Bio-accumulation</b>          | Not Determined |

#### Ecotoxicological Information

|                                    |                                        |
|------------------------------------|----------------------------------------|
| <b>Acute Fish Toxicity:</b>        | TLM96: 10000 ppm (Oncorhynchus mykiss) |
| <b>Acute Crustaceans Toxicity:</b> | Not determined                         |

|                                  |                |
|----------------------------------|----------------|
| <b>Acute Algae Toxicity:</b>     | Not determined |
| <b>Chemical Fate Information</b> | Not determined |
| <b>Other Information</b>         | Not applicable |

### 13. DISPOSAL CONSIDERATIONS

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| <b>Disposal Method</b>        | Bury in a licensed landfill according to federal, state, and local regulations. |
| <b>Contaminated Packaging</b> | 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

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

|                               |                                                |
|-------------------------------|------------------------------------------------|
| <b>MA Right-to-Know Law</b>   | One or more components listed.                 |
| <b>NJ Right-to-Know Law</b>   | One or more components listed.                 |
| <b>PA Right-to-Know Law</b>   | One or more components listed.                 |
| <b>Canadian Regulations</b>   |                                                |
| <b>Canadian DSL Inventory</b> | All components listed on inventory.            |
| <b>WHMIS Hazard Class</b>     | D2A Very Toxic Materials<br>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\*\*\*

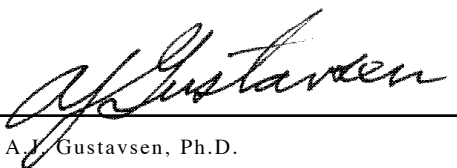


# Royal Purple, Ltd.

## Material Safety Data Sheet

|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                  |                                       |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|---------------------------------------|
| I.    | <p>Product Name: <b>Max-Gear®</b></p> <p>Chemical Family: Synthetic based lubricating oil</p> <p>Use: Lubricant and corrosion inhibitor</p> <p>Manufacturer: Royal Purple, Ltd.</p> <p>Address: 1 Royal Purple Lane, Porter, Texas 77365 USA</p> <p>Phone: 281-354-8600 Emergency Phone: 281-354-8600 Fax: 281-354-7600</p>                                                                                                                                                                                                                                                                                                                                                                                    |                                                  | Date Issued/Revised: October 12, 2005 |
| II.   | <p>Components:</p> <ul style="list-style-type: none"><li>• Base Oil (synthetic) — Synthetic additives with iso-paraffinic diluents.</li><li>• 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.</li><li>• All components of this product are listed on the U.S. TSCA inventory.</li><li>• This product contains no hazardous substances within the definition of OSHA Regulation 29 CFR 1910.1200.</li><li>• 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.</li></ul> |                                                  |                                       |
| III.  | <p>Main Hazards / Health Effects:</p> <p>Eyes: May cause irritation.</p> <p>Inhalation: Oil mist may line breathing passages with oil making breathing difficult.</p> <p>Ingestion: May cause diarrhea.</p> <p>Skin: May irritate the skin after prolonged periods of contact.</p>                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                  |                                       |
| IV.   | <p>First Aid:</p> <p>Eyes: Flush with water until all residual material is gone. If irritation persists, seek medical help.</p> <p>Inhalation: Clear air passage. If respiratory difficulty continues, seek medical help.</p> <p>Ingestion: Wash out mouth immediately. Do not induce vomiting. Consult physician.</p> <p>Skin: Wash thoroughly with hand cleanser, followed by soap and water. Contaminated clothing should be dry cleaned before reuse.</p>                                                                                                                                                                                                                                                  |                                                  |                                       |
| V.    | <p>Extinguishing Media:</p> <p>Suitable: Foam, dry powder, Halon®, carbon dioxide, sand, earth and water mist.</p> <p>Unsuitable: Water jet.</p> <p>Protective Equipment for Fire Fighting: Self-contained breathing apparatus.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                  |                                       |
| VI.   | <p>Accidental Release Measures:</p> <p>Personal Precautions: Wear gloves and protective overalls.</p> <p>Environmental Precautions: Do not allow it to enter drains.</p> <p>Spillage: Contain spill and keep from entering waterways. Absorb on porous material. Large quantities can be pumped.</p>                                                                                                                                                                                                                                                                                                                                                                                                           |                                                  |                                       |
| VII.  | <p>Handling and Storage:</p> <p>Handling: No special handling precautions necessary.</p> <p>Storage: Do not store at elevated temperatures.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                  |                                       |
| VIII. | <p>Exposure Control / Personal Protection:</p> <p>Respiratory Protection: Hydrocarbon absorbing respirator if misting.</p> <p>Hand Protection: Oil-proof gloves for hypersensitive persons.</p> <p>Eye Protection: Glasses, if applied to parts in motion.</p> <p>Body Protection: Overalls.</p>                                                                                                                                                                                                                                                                                                                                                                                                               |                                                  |                                       |
| 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/cm³): >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:**

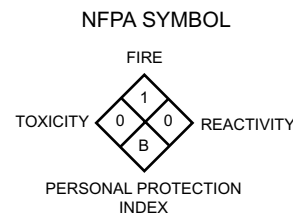
Signature: 

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

Date Issued/Revised: October 12, 2005

As of issue date, the information contained herein is accurate and reliable to the best of Royal Purple's knowledge. Royal Purple does not warrant or guarantee its accuracy or reliability and shall not be liable for any loss or damage arising out of the use thereof. It is the user's responsibility to satisfy itself that the information offered for its consideration is suitable for its particular use.

| 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                                         |



| HMIS SYMBOL  |   |
|--------------|---|
| HEALTH       | 0 |
| FLAMMABILITY | 1 |
| REACTIVITY   | 0 |
| PPI          | B |



# Royal Purple, Ltd.

## Material Safety Data Sheet

|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                       |                                    |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| I.    | <p>Product Name: <b>Ultra Performance® Grease</b><br/>Chemical Family: Synthetic based lubricating grease<br/>Use: Equipment lubrication<br/>Manufacturer: Royal Purple, Ltd.<br/>Address: 1 Royal Purple Lane, Porter, Texas 77365 USA<br/>Phone: 281-354-8600 Emergency Phone: 281-354-8600 Fax: 281-354-7600</p>                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                       | Date Issued/Revised: June 14, 2002 |
| II.   | <p>Components:</p> <ul style="list-style-type: none"><li>• Base Oil (synthetic) — Synthetic additives with iso-paraffinic diluents and aluminum complex thickener.</li><li>• 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.</li><li>• All components of this product are listed on the U.S. TSCA inventory.</li><li>• This product contains no hazardous substances within the definition of OSHA Regulation 29 CFR 1910.1200.</li><li>• 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.</li></ul> |                                                                                                                                                                                                                                                                                                                                       |                                    |
| III.  | <p>Main Hazards / Health Effects:<br/>Eyes: May cause irritation.<br/>Inhalation: Viscous nature may block breathing passages if inhaled.<br/>Ingestion: May cause diarrhea.<br/>Skin: May irritate the skin after prolonged periods of contact.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                       |                                    |
| IV.   | <p>First Aid:<br/>Eyes: Flush with water until all residual material is gone. If irritation persists, seek medical help.<br/>Inhalation: Clear air passage. If respiratory difficulty continues, seek medical help.<br/>Ingestion: Consult physician.<br/>Skin: Wash thoroughly with hand cleanser, followed by soap and water. Contaminated clothing should be dry cleaned before reuse.</p>                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                       |                                    |
| V.    | <p>Extinguishing Media:<br/>Suitable: Foam, dry powder, Halon®, carbon dioxide, sand, earth and water mist.<br/>Unsuitable: Water jet.<br/>Protective Equipment for Fire Fighting: Self-contained breathing apparatus.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                       |                                    |
| VI.   | <p>Accidental Release Measures:<br/>Personal Precautions: Wear gloves and protective overalls.<br/>Environmental Precautions: Avoid disposal into drains.<br/>Spillage: Scrape up bulk, wipe up remainder with cloth and pick up remaining residue with diatomaceous earth.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                       |                                    |
| VII.  | <p>Handling and Storage:<br/>Handling: No special handling precautions necessary.<br/>Storage: Do not store at elevated temperatures.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                       |                                    |
| VIII. | <p>Exposure Control / Personal Protection:<br/>Respiratory Protection: None needed.<br/>Hand Protection: Protective gloves for hypersensitive persons.<br/>Eye Protection: Glasses, if applied to parts in motion.<br/>Body Protection: Overalls.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                       |                                    |
| IX.   | Physical and Chemical Properties:<br>Physical State: Semi-solid (paste)<br>Color: Translucent purple<br>Odor: Sweet<br>pH: Neutral<br>Boiling Range / Point °F (°C): <600 (<316)<br>Pour Point °F (°C): 500 (260)<br>Flash Point (COC) °F (°C): >430 (>221)<br>Autoignition Temperature °F (°C): >500 (>260)<br>Explosive Properties LEL: 0.9 percent UEL: 7 percent                                                                                                                                                                                                                                                                                                                                                                          | Evaporation Rate (Butyl Acetate): <0.01<br>Partition Coefficient (Log Pow): N/A<br>Vapor Pressure (kPa): <0.01<br>Percent Volatiles: None<br>Density (g/cm³): 0.91<br>Flammability: Not flammable at ambient temp.<br>OAR Value: N/A (no volatiles)<br>Oxidizing Properties: None<br>Water Solubility: Insoluble<br>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 harmful 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.

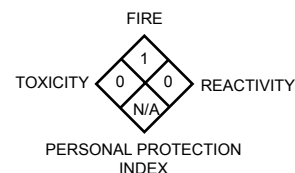
Date Issued/Revised: June 14, 2002

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#### 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          | N/A |

# MATERIAL SAFETY DATA SHEET

## TORQUELESS

### Product Identification

|                                    |                                                                           |
|------------------------------------|---------------------------------------------------------------------------|
| MANUFACTURER'S NAME:               | Control Chemical (1989) Corporation                                       |
| MANUFACTURER'S ADDRESS:            | 7016, 30 <sup>th</sup> Street S.E.<br>Calgary, Alberta, Canada<br>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, CO <sub>2</sub> , 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 ABSORPTION:                       | 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.<br>Ingestion: Greater than 5000 mg/kg in rats.<br>Eyes: Eye irritation not expected.<br>Skin: No skin irritation or allergic reaction expected |
| CHRONIC OVER EXPOSURE EFFECTS:         | Inhalation: Not hazardous unless burning toxic fumes possible.<br>Ingestion: Greater than 5000 mg/kg in rats.<br>Eyes: Eye irritation not expected.<br>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<br>Ingestion: Do not induce vomiting, contact physician.<br>Not toxic.<br>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 |

The information contained herein is based on data believed to be reliable, but is presented without guarantee or warranty and Control Chemical (1989) Corporation disclaims any liability incurred from the use thereof.

# MATERIAL SAFETY DATA SHEET

## SECTION I: IDENTIFICATION OF PRODUCT

COMPANY: **Diversity Technologies Corp.** DATE: Nov. 30, 2006  
**8750 – 53<sup>rd</sup> 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

| <u>INGREDIENT</u> | <u>% (w/w)</u> | <u>CAS NUMBER</u> | <u>LD<sub>50</sub> Oral-Rat</u> | <u>LC<sub>50</sub> Inhal-Rat</u> | <u>ACGIH-TLV</u>    |
|-------------------|----------------|-------------------|---------------------------------|----------------------------------|---------------------|
| Mica              | <10.0          | 12001-26-2        | Not available                   | Not available                    | 3 mg/m <sup>3</sup> |

## 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.

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

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%  
 EXTINGUISHING MEDIA: Dry chemical, CO<sub>2</sub>, 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<br>(CONDITIONS TO AVOID): | Strong oxidizers and reactives. Avoid powerful<br>ignition sources and extreme temperatures. |               |
| CONDITIONS OF REACTIVITY:                 | Contact with incompatibles or ignition sources.                                              |               |
| HAZARDOUS DECOMPOSITION<br>PRODUCTS:      | May release CO <sub>x</sub> , smoke and irritating vapours when<br>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<br>ventilation, process enclosure or other engineering<br>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<br>parts.                                                                            |
| OTHER PROTECTIVE EQUIPMENT<br>(Specify): | Protective clothing as required to prevent contact.<br>Ensure eyewash station and emergency shower are<br>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             |