



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

| Section 1. Chemical Product and Company Identification | | | |
|---|--|-----------------------------|--|
| Product Name | SENTRON LD 5000 | Code | STN5LD, 460-171-1 |
| Synonym | Not available | Validated on | 5/27/2005. |
| Manufacturer | PETRO-CANADA P.O. Box 2844 Calgary, Alberta T2P 3E3 | In case of Emergency | Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s). |
| Material Uses | SENTRON LD 5000 is a premium low ash natural gas engine oil with extended drain interval capability. | | |

| Section 2. Composition and Information on Ingredients | | | | | |
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| | | | <i>Exposure Limits (ACGIH)</i> | | |
| Name | CAS # | % (W/W) | TLV-TWA(8 h) | STEL | CEILING |
| Mixture of severely hydrotreated and hydrocracked base oil (petroleum) and other proprietary, non-hazardous additives. | Mixture | 100 | 5 mg/m ³ (oil mist) | 10 mg/m ³ (oil mist) | Not established |
| Manufacturer Recommendation | Not applicable | | | | |
| Other Exposure Limits | Consult local, state, provincial or territory authorities for acceptable exposure limits. | | | | |

| Section 3. Hazards Identification. | |
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| Potential Health Effects | Prolonged or repeated contact may cause skin irritation, defatting, drying and dermatitis. Not expected to cause more than slight skin or eye irritation. With its relatively low vapour pressure, this product is not expected 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 | |
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| Eye Contact | No effects expected. If irritation does occur, flush contaminated eye(s) with lukewarm, gently flowing water for 5 minutes or until the chemical is removed. If irritation persists, obtain medical advice. |
| Skin Contact | Quickly and gently, blot or brush away excess chemical. Wash gently and thoroughly with water and non-abrasive soap for 5 minutes or until chemical is removed. Remove contaminated clothing, shoes and leather goods (e.g., watchbands, belts, etc.). If irritation persists, repeat flushing. Obtain medical advice immediately. Completely decontaminate clothing, shoes and leather goods before reuse or discard. |
| Inhalation | Remove source of contamination or move victim to fresh air. If irritation persists, obtain medical advice. |
| Ingestion | NEVER give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. DO NOT INDUCE VOMITING. Have victim drink 240 to 300 mL (8 to 10 oz) of water to dilute material in stomach. If vomiting occurs naturally, rinse mouth and repeat administration of water. Obtain medical attention. |
| Note to Physician | Not available |

| Section 5. Fire-fighting Measures | | | |
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| Flammability | May be combustible at high temperature. | Flammable Limits | Not available |
| Flash Points | Open cup: 272°C (521.6°F) (Cleveland.). | Auto-Ignition Temperature | Fire Point: 292°C (557.6°F) |
| Fire Hazards in Presence of Various Substances | Low fire hazard. This material must be heated before ignition will occur. | Explosion Hazards in Presence of Various Substances | Do not cut, weld, heat, drill or pressurize empty container. Containers may explode in heat of fire. |

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| Products of Combustion | Carbon oxides (CO, CO ₂), nitrogen oxides (NO _x), sulphur oxides (SO _x), phosphorous oxides (PO _x) zinc oxides, calcium oxides (CaO _x), smoke and irritating vapours as products of incomplete combustion. |
| Fire Fighting Media and Instructions | NAERG2004, GUIDE 171, Substances (low to moderate hazard). If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (0.5 mile) in all directions; also, consider initial evacuation for 800 meters (0.5 mile) in all directions. Shut off fuel to fire if it is possible to do so without hazard. If this is impossible, withdraw from area and let fire burn out under controlled conditions. Withdraw immediately in case of rising sound from venting safety device or any discolouration of tank due to fire. Cool containing vessels with water spray in order to prevent pressure build-up, autoignition or explosion. SMALL FIRE: use DRY chemicals, foam, water spray or CO ₂ . 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

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| Material Release or Spill | Consult current National Emergency Response Guide Book (NAERG) for appropriate spill measures if necessary. Ensure clean-up personnel wear appropriate personal protective equipment. Extinguish all ignition sources. Stop leak if safe to do so. Dike spilled material. Use appropriate inert absorbent material to absorb spilled product. Collect used absorbent for later disposal. Avoid contact with spilled material. Avoid contaminating sewers, streams, rivers and other water courses with spilled material. Notify appropriate authorities immediately. |
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Section 7. Handling and Storage

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

Section 8. Exposure Controls/Personal Protection

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

Section 9. Physical and Chemical Properties

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| Physical State and Appearance | Viscous liquid. | Viscosity | 124 cSt @ 40°C (104°F), 13.4 cSt @ 100°C (212°F), VI=104 |
| Colour | Dark brown. | Pour Point | -30°C (-22°F) |
| Odour | Mild petroleum oil like. | Softening Point | Not applicable |
| Odour Threshold | Not available | Dropping Point | Not applicable |
| Boiling Point | Not available | Penetration | Not applicable |
| Density | 0.8787 kg/L @ 15°C (59°F). | Oil / Water Dist. Coefficient | Not available |
| Vapour Density | Not available | Ionicity (in water) | Not available |

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| Vapour Pressure | Negligible at ambient temperature and pressure. | Dispersion Properties | Not available |
| Volatility | Non-volatile. | Solubility | Insoluble in water. |

Section 10. Stability and Reactivity

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| Corrosivity | Not available | | |
| Stability | The product is stable under normal handling and storage conditions. | Hazardous Polymerization | Will not occur under normal working conditions. |
| Incompatible Substances / Conditions to Avoid | Reactive with oxidizing agents and acids. | Decomposition Products | May release CO _x , NO _x , SO _x , H ₂ S, SiO _x , methacrylate monomers, alkyl mercaptans, smoke and irritating vapours when heated to decomposition. |

Section 11. Toxicological Information

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| Routes of Entry | Skin contact, eye contact, inhalation and ingestion. | | |
| Acute Lethality | Acute toxicity information is not available for the product as a whole, therefore, data for the base oils are provided below: Acute Oral toxicity (LD50): >5000 mg/kg (rat) Acute Dermal toxicity (LD50): >2000 mg/kg (rabbit) | | |
| Chronic or Other Toxic Effects | | | |
| Dermal Route: | Prolonged or repeated contact may defat and dry skin, and cause dermatitis. Short-term exposure is expected to cause only slight irritation, if any. | | |
| Inhalation Route: | With its relatively low vapour pressure, this product is not expected 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 $\geq 0.1\%$ 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): | This product is not known to contain any chemicals at reportable quantities that are listed as Group A1 or A2 carcinogens by ACGIH. | | |
| Carcinogenicity (IARC): | This product is not known to contain any chemicals at reportable quantities that are listed as Group 1, 2A, or 2B carcinogens by IARC. | | |
| Carcinogenicity (NTP): | This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by NTP. | | |
| Carcinogenicity (IRIS): | This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by IRIS. | | |
| Carcinogenicity (OSHA): | This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by OSHA. | | |
| Other Considerations | No additional remark. | | |

Section 12. Ecological Information

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


Section 13. Disposal Considerations

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| Waste Disposal | Spent/ used/ waste product may meet the requirements of a hazardous waste. Consult your local or regional authorities. Ensure that waste management processes are in compliance with government requirements and local disposal regulations. |
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Section 14. Transport Information

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| TDG Classification | Not a hazardous material for transport according to the TDG Regulations. (Canada) | Special Provisions for Transport | Not applicable. |
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Section 15. Regulatory Information

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| Other Regulations | <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) or are exempt.</p> <p>German Water Hazard Classification (Verwaltungsvorschrift wassergefährdende Stoffe - VwVwS) WGK=2</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> <p>EUROPEAN LABEL:</p> <p>Contains (Calcium long chain alkaryl sulfonate). May produce an allergic reaction.</p> | | | | | | | | | | | | | | | | | | |
| DSD/DPD (Europe) | Not classified under the Dangerous Substances or Dangerous Preparations Directives. | HCS (U.S.A.) | Does not meet the definitions of a health or physical hazard according to the OSHA - Hazard Communication Standard. (United States) | | | | | | | | | | | | | | | | |
| ADR (Europe) (Pictograms) | <p>NOT EVALUATED FOR EUROPEAN TRANSPORT</p> <p>NON ÉVALUÉ POUR LE TRANSPORT EUROPÉEN.</p> | DOT (U.S.A) (Pictograms) |  | | | | | | | | | | | | | | | | |
| HMIS (U.S.A.) | <table border="1"> <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 | NFPA (U.S.A.) | <table border="1"> <tr> <td>Health</td> <td>1</td> <td>Fire Hazard</td> <td>1</td> </tr> <tr> <td>Reactivity</td> <td>0</td> <td>Specific hazard</td> <td></td> </tr> </table> | Health | 1 | Fire Hazard | 1 | Reactivity | 0 | Specific hazard | |
| Health Hazard | 1 | | | | | | | | | | | | | | | | | | |
| Fire Hazard | 1 | | | | | | | | | | | | | | | | | | |
| Reactivity | 0 | | | | | | | | | | | | | | | | | | |
| Personal Protection | B | | | | | | | | | | | | | | | | | | |
| Health | 1 | Fire Hazard | 1 | | | | | | | | | | | | | | | | |
| Reactivity | 0 | Specific hazard | | | | | | | | | | | | | | | | | |
| | | Rating | <p>0 Insignificant</p> <p>1 Slight</p> <p>2 Moderate</p> <p>3 High</p> <p>4 Extreme</p> | | | | | | | | | | | | | | | | |

Section 16. Other Information

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| References | Available upon request. * Marque de commerce de Petro-Canada - Trademark |
| Glossary | <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</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 & 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 & Health Administration</p> <p>PEL - Permissible Exposure Limit</p> |

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| List | RCRA - Resource Conservation and Recovery Act |
| CNS - Central Nervous System | RTECS - Registry of Toxic Effects of Chemical Substances |
| COD5 - Chemical Oxygen Demand in 5 days | SARA - Superfund Amendments and Reorganization Act |
| CPR - Controlled Products Regulations | SD - Single Dose |
| DOT - Department of Transport | STEL - Short Term Exposure Limit (15 minutes) |
| DSCL - Dangerous Substances Classification and Labeling (Europe) | TDG - Transportation Dangerous Goods (Canada) |
| DSD/DPD - Dangerous Substances or Dangerous Preparations Directives (Europe) | TDLo/TCLo - Lowest Published Toxic Dose/Concentration |
| DSL - Domestic Substance List | TLm - Median Tolerance Limit |
| EEC/EU - European Economic Community/European Union | TLV-TWA - Threshold Limit Value-Time Weighted Average |
| EINECS - European Inventory of Existing Commercial Chemical Substances | TSCA - Toxic Substances Control Act |
| EPA - Environmental Protection Agency | USEPA - United States Environmental Protection Agency |
| EPCRA - Emergency Planning and Community Right to Know Act | USP - United States Pharmacopoeia |
| FDA - Food and Drug Administration | WHMIS - Workplace Hazardous Material Information System |
| FIFRA - Federal Insecticide, Fungicide and Rodenticide Act | |
| HCS - Hazard Communication Standard | |
| HMIS - Hazardous Material Information System | |
| IARC - International Agency for Research on Cancer | |

For Copy of MSDS

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

Internet: www.petro-canada.ca/msds

Lubricants:

Western Canada, telephone: 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: 800-201-6285

For Product Safety Information: (905) 804-4752

Prepared by Product Safety - JDW on 5/27/2005.

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.