Safety Data Sheet

OSHA Hazard Communication Standard 29 CFR 1910.1200. Prepared to GHS Rev 3.

Revision date: Initial version **Date of issue: Feb.11, 2015**

Product name: Biodegradable Hydraulic Fluid

SECTION 1: Identification

Product identifier: **Biodegradable Hydraulic Fluid.**
Synonyms:
Product Code:
SDS number:
Recommended use:
Recommended restrictions:

Manufacturer/Importer/Supplier/Distributor information:
Company Name:
Company Address:
Company Telephone:
Company Contact Name:
Emergency phone number:

SECTION 2: Hazard(s) identification

Classification of the chemical in accordance with paragraph (d) of §1910.1200:

Physical hazards

Health hazards

Environmental hazards

GHS Signal word: **Not applicable.**

GHS Hazard statement(s):

GHS Hazard symbol(s):

GHS Precautionary statement(s):

Prevention:

Response:

Storage:

Disposal:

Hazard(s) not otherwise Classified (HNOC):

Percentage of ingredient(s) of unknown acute toxicity:

SECTION 3: Composition/information on ingredients

Substance

Chemical name	Concentration (weight %)	CAS#

SECTION 4: First-aid Measures

Inhalation:

Skin contact:

Eye contact:

Ingestion:

Most important symptoms/effects, acute and delayed:

Indication of immediate medical attention and special treatment needed:

SECTION 5: Fire-fighting measures

Suitable extinguishing media:

Unsuitable extinguishing media:

Specific hazards arising from the chemical:

Special protective equipment and precautions for fire-fighters:

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Environmental Precautions:

Methods and materials for containment and cleaning up:

SECTION 7: Handling and Storage

Precautions for safe handling:

Conditions for safe storage, including any incompatibles:

SECTION 8: Exposure controls/personal protection

Control Parameters:

Occupational exposure limits:

US OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200): Permissible Exposure Limits		
Substance	**PEL-TWA (8 hour)**	**PEL-STEL (15 min)**

US ACGIH Threshold Limit Values		
Substance	**TLV-TWA (8 hour)**	**TLV-STEL (15 min)**

US NIOSH Guidelines		
Substance	**REL - TWA**	**STEL**

Appropriate engineering controls:

Environmental exposure controls:

Individual protection measures, such as personal protective equipment:

Eye/face protection:

Skin and Hand protection:

Respiratory protection:

Other:

Thermal hazards:

SECTION 9: Physical and chemical properties

Appearance

Physical state:

Form:

Color:

Odor:

Odor threshold:
pH:
Melting point/freezing point:
Boiling point:
Flash point:
Evaporation rate:
Flammability (solid, gas):
Upper/lower flammability or explosive limits
Flammability limit – lower %):
Flammability limit – upper (%):
Explosive limit – lower (%):
Explosive limit – upper (%):
Vapor pressure:
Vapor density:
Specific gravity:
Solubility in water:
Partition coefficient (n-octanol/water):
Auto-ignition temperature:
Decomposition temperature:
Viscosity:

Other information
Bulk density:
Pour point:

SECTION 10: Stability and Reactivity

Reactivity:
Chemical stability:
Possibility of hazardous reactions:
Conditions to avoid:
Incompatible materials:
Hazardous decomposition Products:

SECTION 11: Toxicological information

Information on likely routes of exposure:

Inhalation:
Ingestion:
Skin:
Eye:

Symptoms related to the physical, chemical, and toxicological characteristics:

Delayed and immediate effects and chronic effects from short or long-term exposure:

Acute toxicity:

Product/Ingredient Information:

Substance	Test Type (species)	Value

Skin corrosion/irritation:

Serious eye damage/eye irritation:

Respiratory sensitization:

Skin sensitization:

Germ cell mutagenicity:

Carcinogenicity:

Reproductive toxicity:

Specific target organ toxicity-Single exposure:

Specific target organ toxicity-Repeat exposure:

Aspiration hazard:

Further information:

SECTION 12: Ecological information

Ecotoxicity:

Ingredient Information:

Substance	Test Type	Species	Value

Persistence and degradability:

Bioaccumulative potential:

Mobility in soil:

Mobility in general:

Other adverse effects:

SECTION 13: Disposal considerations

Disposal instructions:

SECTION 14: Transport Information

Land Transport DOT:

Air Transport IATA:

Sea Transport IMDG:

Environmental Hazards:

SECTION 15: Regulatory Information

USA:

United States Federal Regulations:

Toxic Substances Control Act (TSCA)

SARA Superfund and Reauthorization Act of 1986 Title III sections 302, 311,312 and 313:

CERCLA Hazardous Substance List, 40 CFR 302.4:

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3

SARA Title III
Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):

Section 311/312 (40 CFR 370):
Immediate Hazard:
Delayed Hazard:
Fire Hazard:
Pressure Hazard:
Reactivity Hazard:

Section 313 Toxic Release Inventory (40 CFR 372):

U.S. Export Control Classification Number:

STATE REGULATIONS:

California Proposition 65 (California Safe Drinking Water and Toxic Enforcement Act of 1986):

Massachusetts Oil and Hazardous Materials List:

Minnesota Hazardous Substance List:

New Jersey Environmental Hazardous Substances List:

Pennsylvania Hazardous Substance List:

Canada

WHMIS (Canada)

CANADA INVENTORY (DSL)

SECTION 16: Other Information

Revision Date:

Key to abbreviations:

DISCLAIMER

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **NO. 2 DIESEL FUEL**
Product Description: Hydrocarbons and Additives
Product Code: 123455-22, 123455-29, 152017-00
Intended Use: Diesel engine fuel, Heating Oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX 77389 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	www.exxon.com, www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is hazardous according to regulatory guidelines (see (M)SDS Section 15).

CLASSIFICATION:

Flammable liquid: Category 3.
Acute inhalation toxicant: Category 4. Skin irritation: Category 2. Carcinogen: Category 2. Specific target organ toxicant (repeated exposure): Category 2. Aspiration toxicant: Category 1.

LABEL:
Pictogram:

Signal Word: Danger

Hazard Statements:

H226: Flammable liquid and vapor. H304: May be fatal if swallowed and enters airways. H315: Causes skin irritation. H332: Harmful if inhaled. H351: Suspected of causing cancer. H373: May cause damage to organs through prolonged or repeated exposure. Bone marrow, Liver, Thymus

Precautionary Statements:
P101: If medical advice is needed, have product container or label at hand. P102: Keep out of reach of children. P103: Read label before use.P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P210: Keep away from heat/sparks/open flames/hot surfaces. -- No smoking. P233: Keep container tightly closed. P240: Ground / bond container and receiving equipment. P241: Use explosion-proof electrical, ventilating, and lighting equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P260: Do not breathe mist / vapours. P264: Wash skin thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection.P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P302 + P352: IF ON SKIN: Wash with plenty of soap and water. P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P308 + P313: IF exposed or concerned: Get medical advice/ attention. P312: Call a POISON CENTER or doctor/physician if you feel unwell. P331: Do NOT induce vomiting. P332 + P313: If skin irritation occurs: Get medical advice/ attention. P362 + P364: Take off contaminated clothing and wash it before reuse. P370 + P378: In case of fire: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish. P391: Collect spillage.P403 + P235: Store in a well-ventilated place. Keep cool. P405: Store locked up.P501: Dispose of contents and container in accordance with local regulations.

Contains: DIESEL OIL..C9-20

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

Material can accumulate static charges which may cause an ignition. Material can release vapors that readily form flammable mixtures. Vapor accumulation could flash and/or explode if ignited.

HEALTH HAZARDS

May cause central nervous system depression. High-pressure injection under skin may cause serious damage. Under conditions of poor personal hygiene and prolonged repeated contact, some polycyclic aromatic compounds (PACs) have been suspected as a cause of skin cancer in humans. May be irritating to the eyes, nose, throat, and lungs.

ENVIRONMENTAL HAZARDS

Expected to be toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

NFPA Hazard ID:	Health:	2	Flammability:	2	Reactivity:	0
HMIS Hazard ID:	Health:	2*	Flammability:	2	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
DIESEL OIL..C9-20	68334-30-5	80 - > 99%	H226, H304, H332, H351, H315, H373, H401, H411

Hazardous Constituent(s) Contained in Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
ETHYL BENZENE	100-41-4	0.1 - 1%	H225, H304, H332, H373, H401, H412
NAPHTHALENE	91-20-3	0.1 - 1%	H228(2), H302, H351, H400(M factor 1), H410(M factor 1)

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

NOTE: Composition may contain up to 0.5% performance additives and / or dyes.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Remove contaminated clothing. Dry wipe exposed skin and cleanse with waterless hand cleaner and follow by washing thoroughly with soap and water. For those providing assistance, avoid further skin contact to yourself or others. Wear impervious gloves. Launder contaminated clothing separately before reuse. Discard contaminated articles that cannot be laundered. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

Seek immediate medical attention. Do not induce vomiting.

NOTE TO PHYSICIAN

If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

PRE-EXISTING MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED BY EXPOSURE

Contains hydrocarbon solvent/petroleum hydrocarbons; skin contact may aggravate an existing dermatitis.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Flammable. Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Vapors are flammable and heavier than air. Vapors may travel across the ground and reach remote ignition sources causing a flashback fire danger. Hazardous material. Firefighters should consider protective equipment indicated in Section 8.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >38°C (100°F) [ASTM D-93]
Flammable Limits (Approximate volume % in air): LEL: 0.6 UEL: 7.0
Autoignition Temperature: >200°C (392°F)

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: half-face or full-face respirator with filter(s) for organic vapor and, when applicable, H2S, or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to aromatic hydrocarbons are recommended. Note: gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact

with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do it without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Large Spills: Water spray may reduce vapor; but may not prevent ignition in closed spaces.

Water Spill: Stop leak if you can do it without risk. Eliminate sources of ignition. Warn other shipping. If the Flash Point exceeds the Ambient Temperature by 10 degrees C or more, use containment booms and remove from the surface by skimming or with suitable absorbents when conditions permit. If the Flash Point does not exceed the Ambient Air Temperature by at least 10C, use booms as a barrier to protect shorelines and allow material to evaporate. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Avoid all personal contact. Do not siphon by mouth. Do not use as a cleaning solvent or other non-motor fuel uses. For use as a motor fuel only. It is dangerous and/or unlawful to put fuel into unapproved containers. Do not fill container while it is in or on a vehicle. Static electricity may ignite vapors and cause fire. Place container on ground when filling and keep nozzle in contact with container. Do not use electronic devices (including but not limited to cellular phones, computers, calculators, pagers or other electronic devices, etc.) during safety critical tasks, such as bulk fuel loading or unloading operations, or in storage areas where vapors may be present, unless the devices are certified intrinsically safe by an approved national testing agency and to the safety standards required by national and/or local laws and regulations. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter) and is considered a semiconductive, static accumulator if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semiconductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, anti-static additives and filtration can greatly influence the conductivity of a liquid.

STORAGE

The type of container used to store the material may affect static accumulation and dissipation. Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Storage containers should be grounded and bonded. Fixed storage containers, transfer containers and associated equipment should be grounded and bonded to prevent accumulation of static charge. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit / Standard			NOTE	Source
DIESEL OIL..C9-20	Stable Aerosol.	TWA	5 mg/m3		Skin	ExxonMobil
DIESEL OIL..C9-20	Vapor.	TWA	200 mg/m3		Skin	ExxonMobil
DIESEL OIL..C9-20 [total hydrocarb, vapor&aerosol]	Inhalable fraction and vapor	TWA	100 mg/m3		Skin	ACGIH
ETHYL BENZENE		TWA	435 mg/m3	100 ppm	N/A	OSHA Z1
ETHYL BENZENE		TWA	20 ppm		N/A	ACGIH
NAPHTHALENE		TWA	50 mg/m3	10 ppm	N/A	OSHA Z1
NAPHTHALENE		TWA	10 ppm		Skin	ACGIH

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

Biological limits

Substance	Specimen	Sampling Time	Limit	Determinant	Source
ETHYL BENZENE	Creatinine in urine	End of shift	0.15 g/g	Sum of mandelic acid and phenylglyoxylic acid	ACGIH BELs (BEIs)
NAPHTHALENE	No Biological Specimen provided	End of shift	Not Assigned	1-Naphthol, with hydrolysis + 2-Naphthol, with hydrolysis	ACGIH BELs (BEIs)

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

Use explosion-proof ventilation equipment to stay below exposure limits.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use

with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

Half-face filter respirator

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

Chemical resistant gloves are recommended. If contact with forearms is likely wear gauntlet style gloves.

Eye Protection: If contact with material is likely, chemical goggles are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

Chemical/oil resistant clothing is recommended.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Clear (May Be Dyed)
Odor: Petroleum/Solvent
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.81 - 0.87
Density (at 15 ºC): 810 kg/m³ (6.76 lbs/gal, 0.81 kg/dm³) - 876 kg/m³ (7.31 lbs/gal, 0.88 kg/dm³)
Flammability (Solid, Gas): N/A

Flash Point [Method]: >38°C (100°F) [ASTM D-93]
Flammable Limits (Approximate volume % in air): LEL: 0.6 UEL: 7.0
Autoignition Temperature: >200°C (392°F)
Boiling Point / Range: 145°C (293°F) - 370°C (698°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: 0.067 kPa (0.5 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 1.7 cSt (1.7 mm2/sec) at 40 °C - 4.1 cSt (4.1 mm2/sec) at 40 °C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: < -6°C (21°F)

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Avoid heat, sparks, open flames and other ignition sources.

MATERIALS TO AVOID: Halogens, Strong Acids, Strong Bases, Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: (Rat) 4 hour(s) LC50 4100 mg/m3 (Vapor and aerosol)	Moderately toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 403
Irritation: No end point data for material.	Elevated temperatures or mechanical action may form vapors, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs.
Ingestion	
Acute Toxicity (Rat): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 401
Skin	
Acute Toxicity (Rabbit): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 434
Skin Corrosion/Irritation (Rabbit): Data	Irritating to the skin. Based on test data for structurally similar

available.	materials. Test(s) equivalent or similar to OECD Guideline 404
Eye	
Serious Eye Damage/Irritation (Rabbit): Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 405
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: Data available.	Not expected to be a skin sensitizer. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 406
Aspiration: Data available.	May be fatal if swallowed and enters airways. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: Data available.	Not expected to be a germ cell mutagen. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 471 475
Carcinogenicity: Data available.	Caused cancer in laboratory animals, but the relevance to humans is uncertain. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 451
Reproductive Toxicity: Data available.	Not expected to be a reproductive toxicant. Test(s) equivalent or similar to OECD Guideline 414
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: Data available.	Concentrated, prolonged or deliberate exposure may cause organ damage. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 410 413

TOXICITY FOR SUBSTANCES

NAME	ACUTE TOXICITY
ETHYL BENZENE	Inhalation Lethality: 4 hour(s) LC50 17.8 mg/l (Vapor) (Rat); Oral Lethality: LD50 3.5 g/kg (Rat)
NAPHTHALENE	Inhalation Lethality: 4 hour(s) LC50 > 0.4 mg/l (Max attainable vapor conc.) (Rat); Oral Lethality: LD50 533 mg/kg (Mouse)

OTHER INFORMATION

For the product itself:

Target Organs Repeated Exposure: Bone marrow, Liver, Thymus

Vapor concentrations above recommended exposure levels are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anesthetic and may have other central nervous system effects.

Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

Diesel fuel: Caused cancer in animal tests. Caused mutations in vitro. Repeated dermal exposures to high concentrations in test animals resulted in reduced litter size and litter weight, and increased fetal resorptions at maternally toxic doses. Dermal exposure to high concentrations resulted in severe skin irritation with weight loss and some mortality. Inhalation exposure to high concentrations resulted in respiratory tract irritation, lung changes/infiltration/accumulation, and reduction in lung function.

Diesel exhaust fumes: Carcinogenic in animal tests. Inhalation exposures to exhaust for 2 years in test animals resulted in lung tumors and lymphoma. Extract of particulate produced skin tumors in test animals. Caused mutations

in vitro.

Contains:
NAPHTHALENE: Exposure to high concentrations of naphthalene may cause destruction of red blood cells, anemia, and cataracts. Naphthalene caused cancer in laboratory animal studies, but the relevance of these findings to humans is uncertain.
ETHYLBENZENE: Caused cancer in laboratory animal studies. The relevance of these findings to humans is uncertain.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
ETHYL BENZENE	100-41-4	5
NAPHTHALENE	91-20-3	2, 5

--REGULATORY LISTS SEARCHED--

1 = NTP CARC
2 = NTP SUS
3 = IARC 1
4 = IARC 2A
5 = IARC 2B
6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

ECOTOXICITY

Material -- Expected to be toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

MOBILITY

More volatile component -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

High molecular wt. component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Material -- Expected to be inherently biodegradable

Atmospheric Oxidation:

More volatile component -- Expected to degrade rapidly in air

ECOLOGICAL DATA

Ecotoxicity

Test	Duration	Organism Type	Test Results
Aquatic - Acute Toxicity	48 hour(s)	Daphnia magna	EL50 1 - 1000 mg/l: data for similar materials
Aquatic - Acute Toxicity	96 hour(s)	Fish	LL50 1 - 100 mg/l: data for similar materials
Aquatic - Acute Toxicity	72 hour(s)	Pseudokirchneriella subcapitata	EL50 1 - 100 mg/l: data for similar materials
Aquatic - Chronic Toxicity	72 hour(s)	Pseudokirchneriella subcapitata	NOELR 1 - 10 mg/l: data for similar materials

Persistence, Degradability and Bioaccumulation Potential

Media	Test Type	Duration	Test Results
Water	Ready Biodegradability	28 day(s)	Percent Degraded < 60 : similar material

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

RCRA Information: Disposal of unused product may be subject to RCRA regulations (40 CFR 261). Disposal of the used product may also be regulated due to ignitability, corrosivity, reactivity or toxicity as determined by the Toxicity Characteristic Leaching Procedure (TCLP). Potential RCRA characteristics: IGNITABILITY.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT)

Proper Shipping Name: DIESEL FUEL
Hazard Class & Division: COMBUSTIBLE LIQUID
ID Number: NA1993
Packing Group: III
Marine Pollutant: Yes
ERG Number: 128
Label(s): NONE

Transport Document Name: NA1993, DIESEL FUEL, COMBUSTIBLE LIQUID, PG III, MARINE POLLUTANT

Footnote: The flash point of this material is greater than 100 F. Regulatory classification of this material varies. DOT: Flammable liquid or combustible liquid. OSHA: Combustible liquid. IATA/IMO: Flammable liquid. This material is not regulated under 49 CFR in a container of 119 gallon capacity or less when transported solely by land, as long as the material is not a hazardous waste, a marine pollutant, or specifically listed as a hazardous substance.

LAND (TDG)

Proper Shipping Name: GAS OIL
Hazard Class & Division: 3
UN Number: 1202
Packing Group: III
Special Provisions: 88, 150

SEA (IMDG)

Proper Shipping Name: GAS OIL
Hazard Class & Division: 3
EMS Number: F-E, S-E
UN Number: 1202
Packing Group: III
Marine Pollutant: Yes
Label(s): 3
Transport Document Name: UN1202, GAS OIL, 3, PG III, (>38°C c.c.), MARINE POLLUTANT

AIR (IATA)

Proper Shipping Name: GAS OIL
Hazard Class & Division: 3
UN Number: 1202
Packing Group: III
Label(s) / Mark(s): 3
Transport Document Name: UN1202, GAS OIL, 3, PG III

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, IECSC, KECI, PICCS, TSCA

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

CERCLA: This material is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Contact local authorities to determine if other reporting requirements apply.

SARA (311/312) REPORTABLE GHS HAZARD CLASSES: Acute Toxicity (any route of exposure), Aspiration Hazard, Carcinogenicity, Flammable (gases, aerosols, liquids, or solids), Skin Corrosion or Irritation, Specific Target Organ toxicity (single or repeated exposure)

SARA (313) TOXIC RELEASE INVENTORY:

Chemical Name	CAS Number	Typical Value
ETHYL BENZENE	100-41-4	0.1 - 1%
NAPHTHALENE	91-20-3	0.1 - 1%

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
DIESEL OIL..C9-20	68334-30-5	1, 18
ETHYL BENZENE	100-41-4	1, 4, 10, 17, 19
NAPHTHALENE	91-20-3	1, 4, 10, 17, 19

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov. Chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm are created by the combustion of this product.

This warning is given to comply with California Health and Safety Code 25249.6 and does not constitute an admission or a waiver of rights.

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H225: Highly flammable liquid and vapor; Flammable Liquid, Cat 2
H226: Flammable liquid and vapor; Flammable Liquid, Cat 3
H302: Harmful if swallowed; Acute Tox Oral, Cat 4
H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H332: Harmful if inhaled; Acute Tox Inh, Cat 4
H351: Suspected of causing cancer; GHS Carcinogenicity, Cat 2
H373: May cause damage to organs through prolonged or repeated exposure; Target Organ, Repeated, Cat 2
H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
H401: Toxic to aquatic life; Acute Env Tox, Cat 2

H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1
H411: Toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 2
H412: Harmful to aquatic life with long lasting effects; Chronic Env Tox, Cat 3

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Composition: Component Table information was modified.
Section 07: Handling and Storage - Handling information was modified.
Section 12: information was modified.
Section 14: Special Provisions information was added.
THIS MSDS COVERS THE FOLLOWING MATERIALS: DIESEL EFFICIENT | DIESEL NO. 2 | ESSO DIESEL FUEL | EXXON DIESEL FUEL | EXXON SYNERGY DIESEL EFFICIENT | LOW SULFUR DIESEL | MARINE DIESEL FUEL | MOBIL DIESEL EFFICIENT | MOBIL DIESEL FUEL | MOBIL SYNERGY DIESEL EFFICIENT | ULTRA LOW SULFUR DIESEL | WINTERIZED DIESEL FUEL

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Internal Use Only
MHC: 1A, 0B, 2, 0, 4, 1 PPEC: C

DGN: 7079307XUS (1012398)

Safety Data Sheet
Gasoline

SECTION 1 IDENTIFICATION

Product Name: Gasoline
Synonyms: Unleaded Gasoline, Regular Gasoline, Motor Fuel, 85 Octane Gasoline, 87 Octane Gasoline

SDS #: F1

Product Use: Motor Fuel
Restrictions on Use: Use only as directed

Manufacturer:
Sinclair Oil Company
P.O. Box 30825
Salt Lake City, Utah 84130

Telephone: **General Information:** (801) 524-2777 **Fax:** (801) 524-2740
Contact person: Jeremiah Webster

Emergency Telephone: 800-424-9300 (CHEMTREC) or (703) 527-3887

SDS Date of Preparation: January 23, 2015

SECTION 2: HAZARDS IDENTIFICATION

Classification:

Physical	Health
Flammable Liquid Category 2	Aspiration Toxicity Category 1 Skin Irritation Category 2 Specific Target Organ Toxicity Single Exposure Category 3 (Nervous System) Carcinogen Category 1A Germ Cell Mutagenicity Category 1B

Label Elements:
Danger!

Hazard Phrases:
Highly flammable liquid and vapor.
May be fatal if swallowed and enters airways.
Causes skin irritation.
May cause drowsiness or dizziness.
May cause cancer.
May cause genetic defects.

Precautionary Phrases:
Prevention

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood
Keep away from heat, sparks, open flames, and hot surfaces. No smoking.
Keep container tightly closed.
Ground and bond container and receiving equipment
Use explosion-proof electrical, ventilating and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing vapors.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves, skin protection and eye protection.

Response
IF SWALLOWED: Immediately call a POISON CENTER or doctor.
Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
If skin irritation occurs: Get medical attention.
Take off contaminated clothing and wash it before reuse.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER or doctor if you feel unwell.
IF exposed or concerned: Get medical attention.
In case of fire: Use water fog, carbon dioxide, dry chemical and foam to extinguish.

Storage and Disposal
Store in a well-ventilated place. Keep cool. Keep container tightly closed.
Store locked up.
Dispose of contents and container in accordance with local and national regulations.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Concentration
Gasoline	8006-61-9	95-100%
Naphthalene	91-20-3	0-3%
Benzene	71-43-2	0-0.5%

SECTION 4 EMERGENCY and FIRST AID PROCEDURES

Eye Contact: Immediately flush eyes with water for several minutes. Get medical attention if irritation persists.

Skin Contact: Remove contaminated clothing and flush skin with water for several minutes. Wash thoroughly with soap and water. Get medical attention if irritation develops or persists. Launder clothing before reuse. Discard contaminated shoes.

Inhalation: Remove to fresh air. If breathing is difficult have qualified personnel administer oxygen. If breathing has stopped, administer artificial respiration. Get medical attention**.**

Ingestion: Do not induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconsciousness person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration into the lungs. Get immediate medical attention.

Most important symptoms/effects, acute and delayed: May cause eye irritation. Causes skin irritation with redness and drying. Inhalation may cause respiratory irritation and central nervous system effects. Harmful or fatal if swallowed. Aspiration during swallowing or vomiting may cause lung damage. May cause cancer. May cause genetic defects.

Indication of immediate medical attention and special treatment, if necessary: Immediate medical attention is required for ingestion.

SECTION 5 FIRE and EXPLOSION HAZARD DATA

Suitable extinguishing media: Use water fog, foam, carbon dioxide, or dry chemical. Do not use a steady stream of water. Product may float on the surface of water and create a floating fire hazard.
Specific hazards arising from the chemical: This product is highly flammable and forms explosive mixtures with air. Vapors are heavier than air and will travel along surfaces to remote ignition sources and flash back. Closed containers may explode if exposed to extreme heat. Combustion may produce carbon oxides and other products of incomplete combustion.
Special protective equipment and precautions for fire-fighters: Firefighters should wear full emergency equipment and a NIOSH approved positive pressure self-contained breathing apparatus. Cool fire exposed container with water. Do not allow run-off from firefighting to enter drains or water courses.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures: Wear appropriate protective equipment. Eliminate ignitions sources and ventilate the area with explosion proof equipment. Wash thoroughly after handling.
Environmental hazards: Avoid release into the environment. Report spill as required by local and federal regulations.
Methods and materials for containment and cleaning up: Contain with an inert absorbent and place into a closable container for disposal. Use non-sparking tools and equipment. If spill has not ignited, use water spray to disperse the vapors and protect personnel attempting to stop leak. Prevent entry in storm sewers and waterways. Runoff can cause a fire or explosion hazard in sewers.

SECTION 7 HANDLING and STORAGE

Precautions for safe handling: Avoid contact with eyes, skin and clothing. Avoid breathing vapors. Wash thoroughly after handling. Use only with adequate ventilation. Wash thoroughly with soap and water after handling. Keep containers closed when not in use. Keep product away from heat, sparks, flames and all other sources of ignition. Do not permit smoking in use or storage areas. Use with non-sparking tools and explosion proof equipment. Electrically bond and ground containers for transfer

Do not cut, drill, grind or weld on or near containers, even empty containers. Empty containers retain product residues can be hazardous. Follow all SDS precautions when handling empty containers.

Improper filling of portable gasoline containers creates a fire hazard. Only dispense gasoline into an approved and properly labeled gasoline container. Always place portable containers on the ground while filling. Ensure pump nozzle is in contact with the container while filling. Do not use the nozzle's lock open device. Do not fill portable containers that are inside a vehicle or trailer/truck bed.

Do not use as a cleaner or solvent. Use only as a motor fuel. Do not siphon by mouth.

Refer to OSHA 1910.1028 for requirements for handling and use of benzene.

Conditions for safe storage, including any incompatibilities: S Store in accordance with regulations for the storage of flammable liquids. Store in a dry, well ventilated area away from heat, direct sunlight and all sources of ignition. Store away from oxidizers and other incompatible materials. Protect containers from physical damage.

SECTION 8 EXPOSURE CONTROLS and PERSONAL PROTECTION

Exposure Guidelines:

INGREDIENTS	EXPOSURE LIMITS
Gasoline	300 ppm TWA , 500 ppm STEL ACGIH TLV
Naphthalene	10 ppm TWA OSHA PEL
	10 ppm, skin TWA ACGIH TLV
Benzene	1 ppm TWA, 5 ppm STEL OSHA PEL
	0.5 ppm TWA, 2.5 ppm STEL ACGIH TLV

29 CFR 1910.1028 is the OSHA regulation on Occupational Exposure to Benzene. Assure compliance with these regulations.

Appropriate engineering controls: Use with local exhaust ventilation to maintain exposures below the occupational exposure limits. Use explosion proof equipment where required

Respiratory protection: If exposures are exceeded, use a NIOSH approved organic vapor respirator appropriate for the form and concentration of the contaminants should be used. Selection of respiratory protection depends on the contaminant type, form and concentration. Select in accordance with OSHA 1910.134 and good Industrial Hygiene practice.
Skin protection: Impervious gloves such as viton recommended to prevent skin contact.
Eye protection: Wear chemical safety goggles to avoid eye contact.
Other: Impervious coveralls, apron and boots is required to prevent skin contact and contamination of personal clothing. A safety shower and eye wash should be available in the immediate work area.

SECTION 9 PHYSICAL and CHEMICAL PROPERTIES

Appearance (physical state, color, etc.): Colored or clear liquid
Odor: Aromatic hydrocarbon odor.

Odor threshold: 0.3 ppm (gasoline)	**pH:** Not applicable
Melting point/Pourpoint: -76°F (-60°C)	**Boiling Point:** 230° F (110°C)
Flash point: -45°F (-42.8°C)	**Evaporation rate:** Not available
Flammability (solid, gas): Not applicable	
Flammable limits: LEL: 1.4%	**UEL:** 7.6%
Vapor pressure: 7-15 psia	**Vapor density:** >1
Relative density: 0.65-0.75	**Solubility:** Insoluble in water
Partition coefficient: n-ctanol/water: Not available	**Auto-ignition temperature:** >530°F (>276.6°C)
Decomposition temperature: Not available	**Viscosity:** Not applicable

SECTION 10 STABILITY and REACTIVITY

Reactivity: This product is not expected to be reactive.
Chemical stability: The product is stable.
Possibility of hazardous reactions: None known.
Conditions to avoid: Keep away from heat and all sources of ignition.
Incompatible materials: Avoid oxidizing agents, acids, alkalies and halogens.

Hazardous decomposition products: Thermal decomposition may yield carbon oxides and other products of incomplete combustion.

SECTION 11 TOXICOLOGICAL INFORMATION

Health Hazards:

Inhalation: Vapors may cause respiratory irritation and central nervous system effect including headache, dizziness, headaches, giddiness, euphoria, vertigo, blurred vision, nausea, numbness, drowsiness, anesthesia, and coma. Gasoline vapors are heavier than air and may cause asphyxiation in enclosed or poorly ventilated area. Overexposure to benzene by inhalation may cause exhilaration, nervous excitation, and/or giddiness, followed by a period of depression, drowsiness, or fatigue, tightness of the chest, unconsciousness, tremors or death.

Skin Contact: Skin contact may cause irritation, redness and defatting of the skin.

Eye Contact: Eye contact may cause mild irritation with redness, tearing and pain.

Ingestion: Swallowing may cause gastrointestinal irritation, nausea, vomiting, diarrhea, vertigo, drowsiness, mental confusion, staggering gait, slurred speech, convulsions, unconsciousness and death due to circulatory failure. Aspiration during swallowing or vomiting may cause lung damage.

Chronic Effects of Overexposure: Prolonged occupational overexposure may cause dermatitis. Reports have associated repeated and prolonged overexposure to petroleum distillates with adverse liver, kidney and bone marrow effects and with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the product may be harmful or fatal. Repetitive direct skin application of kerosene over a two year period resulted in skin cancer in laboratory animals. Petroleum hydrocarbons of similar composition and boiling ranges have been known to product kidney damage and tumors in male rats following prolonged inhalation exposures. Benzene has been shown to cause damage to the blood forming system with anemia, leukopenia and thrombocytopenia by all routes of exposure.

Mutagenicity: Benzene did not induce in vitro mutation in bacteria using standard AMES test conditions. Mammalian cell gene mutation tests carried out in various human, mouse and Chinese hamster cells resulted in mixed results. Benzene is an in vivo mutagen in mammals, especially when chromosomal aberrations and micronuclei are induced. It has been reported that benzene exposure in humans induces genotoxic effects in lymphocytes in vivo.

Reproductive Toxicity: In a reproductive study, rats were administered 250 and 1000 mg/kg of petroleum distillates for at least 70 days prior to mating and during the 14 day mating cycle. The absence of adverse effects on in-life parameters (such as body weight, feed consumption, and clinical observations), a dosage level of 1000 mg/kg/day was considered to be the no-observed-adverse-effect level (NOAEL) for reproductive and systemic toxicity.

Carcinogenicity: Gasoline is listed by IARC as "Possibly Carcinogenic to Humans", Group 2B and as a "Confirmed Animal Carcinogen with Unknown Relevance to Humans: A3 by ACGIH. Benzene is listed by IARC as "Carcinogenic to Humans" Group 1, by NTP as "Known to Be a Human Carcinogen" and as a "Confirmed Human Carcinogen", A1 by ACGIH. Naphthalene is listed by IARC as "Possibly Carcinogenic to Humans", Group 2B, as "Reasonably Anticipated to be a Human Carcinogen" and as a "Confirmed Animal Carcinogen with Unknown Relevance to Humans", A3 by ACGIH.

Acute Toxicity Values: Acute Toxicity Estimate: Oral 14492 mg/kg
Gasoline: Oral rat LD50 >5000 mg/kg, Inhalation rat LC50 >5.61 mg/L/4 hr, Dermal rabbit LD50 >2000 mg/kg
Naphthalene: Oral rat LD50 533 mg/kg, Inhalation rat LC0 0.4 mg/L (highest attainable concentration), Dermal rat LC50 >2500 mg/kg
Benzene: Oral rat LD50 >2000 mg/kg, Inhalation rat LC50 41.69 mg/L/4 hr, Dermal rabbit LD50 > 8260 mg/kg

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:
Gasoline: 96 hr LL50 Pimephales promelas 8.2 mg/kg, 48 hr EL50 4.5 mg/L, 72 hr EL50 Pseudokirchnerella subcapitata 3.1 mg/L
Naphthalene: 96 hr LC50 Pimephales promelas 6.08 mg/L, 48 hr EC50 daphnia magna 2.16 mg/L
Benzene: 96 hr LC50 Oncorhynchus mykiss 5.3 mg/L, 48 hr EC50 daphnia magna 10 mg/L, 72 hr EC50 Pseudokirchnerella subcapitata 32 mg/L

Persistence and degradability: Gasoline is inherently biodegradable.
Bioaccumulative potential: The bioaccumulation potentials of the major components of gasoline range from low to high. Some higher molecular weight components may be taken up by fish and domestic animals and bioconcentrated if they persist in environment.
Mobility in soil: Gasoline is expected to possess low to moderate mobility in soil.
Other adverse effects: None known.

SECTION 13: DISPOSAL INFORMATION

Waste Disposal Method: Dispose in accordance with all local, state and federal regulations.

SECTION 14: TRANSPORTATION INFORMATION

	UN Number	Proper shipping name	Hazard Class	Packing Group	Environmental Hazard
DOT	UN1203	Gasoline	3	PG II	No
TDG	UN1203	Gasoline	3	PG II	No
IMDG	UN1203	Gasoline	3	PG II	No
IATA	UN1203	Gasoline	3	PG II	No

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): Not applicable.

Special precautions: None known.

SECTION 15: REGULATORY INFORMATION

Safety, health, and environmental regulations specific for the product in question.

CERCLA Hazardous Substances (Section 103)/RQ: This product has a Reportable Quantity (RQ) of 3,333 lbs. (based on the RQ for Naphthalene of 100 lbs). Releases above the RQ must be reported to the National Response Center. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

EPA SARA 311 Hazard Classification: Acute Health, Chronic Health, Fire Hazard

SARA 313: This product contains the following chemicals subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372):

Benzene	71-43-2	0-0.5%
Naphthalene	91-20-3	0-3%

CALIFORNIA PROPOSITION 65: This product contains chemicals known to the State of California to cause cancer or reproductive toxicity.

WHMIS CLASSIFICATION: Class B, Division 2 (Flammable Liquid), Class D, Division 2A (Very Toxic Material Causing Other Toxic Effects)

This product has been classified in accordance with the hazard criteria in the CPR and the MSDS contains all the information required by the CPR.

Australia AICS: All of the components are listed on the Australian Inventory of Chemical Substances.

Canada DSL: All of the components are listed on the Canadian Domestic Substances List.

China: All the components are listed on Inventory of Existing Chemical Substances in China.

European EINECS: All of the ingredients are listed on the EINECS inventory.

Korea: All the components are listed on the Korean Existing Chemical List.

New Zealand: All the components are listed on the New Zealand Inventory of Chemicals.

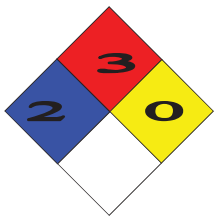
Philippines: All the components are listed on the Philippine Inventory of Chemical and Chemical Substances inventory.

US EPA Toxic Substances Control Act: All of the components of this product are listed on the TSCA inventory.

SECTION 16: OTHER INFORMATION

SDS Revision History: Converted to GHS format – all Sections revised
Date of current revision: January 9, 2015
Date of previous revision: December 2002

National Fire Protection Association (U.S.A)



Health: 2*
Flammability : 3
Instability: 0
Specific Hazard:

Disclaimer: This product material safety data sheet provides health and safety information. The product should be used in applications consistent with this product literature. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to ensure safe workplace operations.

This material safety data sheet is provided in good faith and meets the requirements of the hazardous communication provisions of SARA TITLE III and 29 CFR 1910.1200(g) of the OSHA regulations. The above information is based on review of available information Sinclair believes is reliable and is supplied for informational purposes only. Sinclair does not guarantee its completeness or accuracy. Since conditions of use are outside the control of Sinclair, Sinclair disclaims all warranties, express or implied, and any liability for damage or injury which results from the use of the above data. Nothing herein is intended to permit infringement of valid patents and licenses.

APPENDIX B – MARINE TRANSPORTATION SERVICES OIL SPILL RESPONSE PLAN

Government of Northwest Territories
Gouvernement des Territoires du Nord-Ouest

OIL SPILL RESPONSE PLAN

Marine Transportation Services

Hay River, NT

Syncro Yard & Terminal C

TABLE OF CONTENTS

1.0 INTRODUCTION AND SCOPE OF THE PLAN

The purpose of this Oil Spill Response Plan is to outline the general steps to be taken to prevent fuel spills as well as steps to be taken in the event of a fuel spill to mitigate damage to the environment. Specific situations may require adapting the plan to fit the situation. The plan describes the roles and responsibilities of key organizations and personnel, as well as the procedures for responding to a spill while protecting the safety and health of the response team, the community, and the environment.

This Oil Spill Response Plan only applies to the equipment and property used by MTS in its operations, as well as any other environmental and animal pathways or recipients affected by a fuel spill as a result of MTS operations.

Employees will follow the spill procedures posted at the tanks; The QHSE Coordinator will activate the Oil Spill Response Plan and become the On-Scene Commander (OSC) for any oil spills that MTS may be responsible for.

The Contractor is solely responsible for their employees. If a spill occurs due to inadequate employee awareness and training, bad housekeeping practices or tank overfills, it is the Contractor's responsibility to clean up that spill. MTS will be available to provide assistance however all costs associated with this type of spill is the responsibility of the Contractor. It is therefore imperative that the Contractor trains his staff in Oil Spill Prevention and Response, Workplace Hazardous Materials Information System (WHMIS), Transportation of Dangerous Goods (TDG), and First Aid.

MTS will also:

- comply with existing regulations;
- protect the environment as much as possible;
- co-operate with other agencies that need help with fuel spills and any related environmental clean-up;
- anticipate future spill response equipment and personnel needs and prepare for them;
- keep employees, government officials and the public informed.

This Oil Spill Contingency Plan will be updated annually. Report changes as they arise to your Supervisor. (ANNEX A).

2.0 SITE SPECIFICS AND SPILL RISKS

2.1 FACILITY DESCRIPTION – Hay River, NT Syncro Yard

The MTS Syncro Yard is located in Hay River, NT. There are a total of 16 tanks located in the yard and 2 at Terminal C. *Appendix B: Registered Tanks* can be viewed.

Access (for delivery or spill response)

Access to the Syncro Yard is through main road transportation located at 1-104th Ave Hay River, NT. Terminal C can be accessed through the main highway (HWY 2) located at 42003 Mackenzie HWY, Hay River, NT. Both Facilities can be accessed by vehicle.

2.2 SPILL PATHWAYS & AREAS OF SENSITIVITY

The Syncro Yard is located at the mouth of the Great Slave Lake and the end of the Hay River. There is limited potential for spill into sensitive areas since all tanks are located in-land. Bulk fuel tanks are also in lined berms.

Syncro Yard:

A: Syncro Yard
B: Hay River/Mouth of Great Slave Lake
: Tank Locations

Terminal C Yard:

A: Terminal C Yard
B: Hay River
: Tank Locations

3.0 SPILL PREVENTION

Petroleum Products are one of the most important energy sources in the world. To successfully manage these energy resources, proper knowledge of spill prevention must be followed. This is completed visually, on a monthly basis through the use of MTS Inspections. Any abnormalities should be immediately reported to your supervisor. Spills can have a significant impact on the environment and they are very costly to clean up. The effects of an oil spill can still be found tens of years after the spill if not cleaned up properly.

Every drop of fuel spilled has an impact on the environment and is very costly. This is clearly demonstrated in the following table:

OIL LOSS BY DRIPS			
RATE	**LITRES/YR**	**COST @ $1.50/ Litre**	**CONTAMINATED SOIL (tons)**
1 drop/10 seconds	151	$225	150 tons
1 drop/5 seconds	302	$350	300 tons
1 drop/second	1550	$2,325	1500 tons

3.1 INSPECTIONS

MTS expects those responsible for the delivery of fuel and dispensing equipment to visually inspect the tank system on days when fuel system checks are required. Some things you should be checking are as follows:

(i) Continuously check the fuel truck and hoses for leaks when delivering fuel.
(ii) Visually inspect tank valves and pipe connections.
(iii) Visually check the fuel pump system (if installed)
(iv) Investigate any visual signs of fuel spillage on the ground.
(v) Remove all snow around valves, flex connectors, and flange points.

The QHSE Coordinator must complete the Monthly Tank Inspection. Any abnormalities in the operational equipment or safety concerns will be reported.

3.2 SPILL EQUIPMENT ON SITE

All dispensing equipment fed by fuel oil tanks (2500L or larger) shall be equipped with a Spill Kit. The suggested contents of this Kit are listed in the chart below. If you use any of the contents in this kit, please report it to the Supervisor as soon as possible so they can arrange for replacement supplies. It is very important that the best condition of the spill kit is maintained to ensure the contents are ready for use, if necessary.

SPILL KIT CONTENTS

Syncro yard & Terminal C	**On-Site 55 gal. Spill Response Kit**			
	High Performance Oil Sorbent Roll	1	Containment/Recovery	38" x 25'
	High Performance Oil Sorbent Pads	2 Bags	Containment/Recovery	17" x 19"
	Powersorb Oil Sorbent Minibooms	6	Containment	2" x 48"
	Powersorb Oil Sorbent Minibooms	1	Containment	3" x 10'
	Saranex-coated Tyvek Coveralls	4	Safety	Disposable
	Pr. PVC Gloves	4	Safety	
	Pr. Splash Goggles	4	Safety	
	Polyethylene Disposable Bags	6	Storage	6 ml. Thickness, 44" x 30"
	Spill Report Forms	1 booklet	Paperwork	Kept in plastic bag inside drum
	55 gal. D.O.T. approved Salvage Drum	1	Storage	c/w Screw-on Top (Polyethylene)

Mobile Equipment

Pump truck #3253

One of the four pump trucks that is available to be used in the event of an emergency spill. Each tank capacity is approximately 8,000 liters.

Spill Response Containers

Syncro Container # 20262	Terminal C Container # 260413
4 Sections – 50' Bennett River Boom	13 Bundles 38" x 18" x 18" Matasorb
1 Boom Connector Slings	4 3/8" x38" x 144" Sorbent Rolls
2 50' Hand Lines	4 Oil Snares
2 12" Maker Buoy	2 Boxes Petro Mesh
1 5' x 4" Kamlock 'Manta Ray" Skimmer Head	1 8" x 10" x 40' Sorbent Boom
1 4" x 25' Suction Hose	1 Anchor
1 4" x 50' P.V.C. Hose	6 PFD's
40 Loose – 8" x 10' Sorbent Booms	2 Plug & Dyke
4 Bag – 8" x 10' x 4' Sorbent Booms	1 Long Handled Forks
1 Bag – 3/8" x 38" x 144' Sorbent Roll	1 Short Handled Forks
1 Bags – 18" x 18" 'Matasorb' Sorbent Pads	1 Tool Box (MT)
1 Bag – 18" x 18" 'Econo Sore' Sorbent Pad	1 12" Marker Buoy
7 Boxes – Viscous Oil Sorbent	1 10" Marker Buoy
1 10 lb. ABC Fire Extinguisher	1 Boom Anchor Buoys
	1 Sweds Saw
	1 10 lbs. Fire Extinguisher

3.3 SAFE TRANSFER PROCEDURES

It is very important that everyone transferring fuel follow Safe Transfer Procedures.

The Government of the Northwest Territories (GNWT) is committed to providing safe and environmentally sound procedures for bulk product transfers at all of our facilities. The following steps should be taken by all employees involved in the transfer of fuels within the GNWT facility.

Safety Notes:

- All employees should review and have readily available, the site spill contingency plan and be familiar with its contents.
- Workers shall wear personal protective equipment (PPE) as necessary to protect themselves from any hazards involved. Be sure you have a supply of PPE on hand prior to commencing operations. Please refer to Material Safety Data Sheets (MSDS) located in Appendix D and E.
- Workers must remain on site throughout the transfer process and know how to immediately shut down the transfer in the event of a system failure, fire, or leak. If an immediate shut down is required, the employee shall stop the transfer process and shut

off the transfer valve. The employee must remain on site to maintain control of the situation, unless deemed unsafe to do so (e.g. fire).

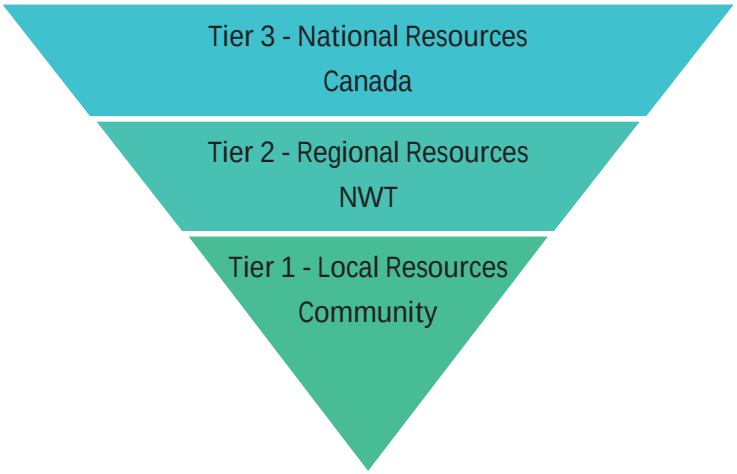
- Workers should inspect emergency equipment prior to any re-supply/transfer operation. Fire extinguishers and spill kits should be inspected regularly and be readily accessible (clear away snow and ice). Any problems with emergency equipment should be reported to your Supervisor.
- Fill caps shall be locked at all times except during the transfer process.

4.0 SPILL RESPONSE TEAM & INITIAL RESPONSE

The Spill observer notifies the QHSE Coordinator immediately. The QHSE Coordinator initiates the Oil Spill Response Plan. Safe and efficient management of an oil spill will prevent it from causing major damage to the environment and/or human inhabitation. Remember, if you leave an oil spill on the ground, it may seep deep into the ground causing a large area of contamination. Also, it is possible for an oil spill to seep down into the water table.

4.1 SPILL RESPONSE TEAM (SRT) – TIERS

The SRT is made up of responders and contractors. These people implement the response activities under the management of the local Spill Authority**. In the case of a fuel delivery spill that occurs when no local Spill Authority is present, the Fuel Delivery Contractor (Tier 1) will act as the On-Scene Commander (OSC) until the Infrastructure Representative or Spill Authority (Tier 2) arrives on site.** The Fuel Delivery Contractor will then hand over the duty of OSC to the person of authority.



4.2 THE ON-SCENE COMMANDER (OSC) – RESPONSIBILITIES AND TRAINING

The On-Scene Commander (OSC) is initially the most senior representative from the lead agency present at the time of the spill. This person is trained in Basic Oil Spill Response and is typically the QHSE Coordinator.

The responsibilities of the OSC begin before a spill has occurred. Personnel who may have to act as the OSC should be familiar with the operation of the facility; the various actions that need to be taken in the event of an incident; the potential resources, both human and equipment, that will be available; and the potential hazards and concerns that will need to be considered while dealing with the spill (location of drinking water sources, environmentally sensitive areas, etc.)

The OSC's first priority is always the safety of the workers and the general public. No emergency is considered so important that any worker should be asked to risk their own safety.

The OSC is directly responsible for:

- Identifying any risks involved with clean-up and related operations.
- Providing protective clothing and equipment to reduce any potential health or safety risks to personnel involved with spill clean-up.
- Evaluating and correcting any unsafe operations or work practices before an incident occurs (e.g. not wearing proper Personal Protection Equipment).
- Will take measures to protect environmental sensitive areas (outlined in Section 2.2), if required.

NOTE: WHEN AN MTS EMPLOYEE ARRIVES ON SITE, THAT PERSON WILL BECOME THE ON-SCENE-COMMANDER (OSC). THE INITIAL OSC WILL TRANSFER DUTIES TO THAT EMPLOYEE BUT WILL REMAIN ON SITE TO PROVIDE ASSISTANCE AS NECESSARY.

RESPONSE ORGANIZATION TRAINING

Tier 3

Fuel Dispensing and Delivery Contractors are trained in Basic Spill Prevention and Response at the start of contract. This may be a good resource in some areas.

The fuel delivery contractor must provide Basic Oil Spill training to their fuel delivery employees. The contractor must keep all training records on file.

The contractor must also provide training to employees in Workplace Hazardous Materials Information System (WHMIS) and Transportation of Dangerous Goods (TDG).

Tier 2

A MTS supervisor may have to become the OSC and as such they should seek training in Basic Spill Response. For larger spills The Canadian Coast Guard (CCG) may be an additional resource in some areas. MTS Spill Response Team are trained in Basic Spill Prevention and Response, Standard First Aid & CPR, TDG and WHMIS.

Should a spill require contracted assistance by a 3rd party, OSC would initiate as such.

4.3 INITIAL RESPONSE CHECKLIST

Immediately:

- Stop flow of product
- EVALUATE FIRE AND SAFETY HAZARD, EVACUATE/SECURE AREA IF NECESSARY
- TEND TO THE INJURED
- SHUT OFF ALL POTENTIAL SOURCES OF IGNITION, DO NOT SMOKE
- IN THE EVENT OF AN EMERGENCY, CALL 911
- MOVE VEHICLES ONLY IN THE CASE OF FIRE, AND IF SAFE TO DO SO

Following:

- CONTAIN THE SPILL - BEGIN IMMEDIATELY
- BLOCK OFF DRAINS, CULVERTS, DIKES AND DITCHES
- SURROUND SPILL USING BOOMS, STRAW BALES, PEAT MOSS,
- ABSORBENT MATERIAL, SAND, GRAVEL, EARTH, AND SNOW

Report and Clean Up:

- NOTIFY SUPERVISOR AND GIVE THE FOLLOWING INFORMATION:
  1. SOURCE OF SPILL/PRODUCT
  2. APPROXIMATE AMOUNT
  3. LOCATION AND MOVEMENT OF SPILL
  4. ACTION TAKEN
- CLEAN UP - BEGIN IMMEDIATELY
- COMMENCE RECOVERY, CLEAN UP, RESTORATION

- REPORT THE SPILL TO THE GNWT 24 HOUR SPILL REPORT HOTLINE (867) 920–8130 CALL COLLECT

4.4 SAFETY

PPE (Personal Protective Equipment) – Before attempting to clean up any type of petroleum product spill, you must be wearing your PPE. PPE must include Tyvek coveralls, plastic gloves, safety goggles, and leak proof boots.

SDS – Review the Safety Data Sheets (SDS) (Appendix D & E). Be sure you familiarize yourself with the hazards associated with each product you are working with.

Certification - Supervisors must ensure all potential response staff is certified in Transportation of Dangerous Goods (TDG) and Workplace Hazardous Materials Information System (WHMIS). This training can be completed online for a small fee. Additionally, fuel truck operators must have a valid NWT Driver's License of the appropriate class.

4.5 RESPONSE STRATEGIES

This section lists the actions to take for various spill scenarios that may result from daily operations. In most cases, it is assumed that the contractor will be on the site, and therefore will be responsible for any initial action. Subsequent actions will depend upon the location of the spill, the size of the spill, and the potential danger to people, the community as a whole, the environment, and any wildlife in the area.

The below procedures assume the minimum spill is $1m^3$, or 1,000L, and have been developed accordingly. However, MTS will still respond to any size of spill, as required. The below procedures can be adapted where necessary to suit smaller spills.

In all instances, the ultimate success of any action will be more assured personnel remain calm and assertive prior to taking action. The main priority is ensuring public safety and maintaining control of the spill.

4.5.1 Fuel Spill at Storage Tank

The first priority is always dealing with any injured personnel.

Next, if safe to do so:

- Close off all valves immediately after identifying a spill. No operations will be restarted if they interfere with spill response, clean-up, or disposal.
- All initial response actions will be completed according to the **Initial Response Checklist** laid out in **Section 4.3.**
- Using the contents of the spill kit (Section 3.2), contain the spilled fuel as best possible. Various containment strategies are illustrated in **Section 5.0**. The OSC will already be familiar with these techniques.

4.5.2 Fuel Spill as a Result of Incident with Fuel Truck

- The priority is dealing with any injuries to personnel involved in the incident. Personnel on scene must follow the **Initial Response Checklist** laid out in **Section 4.3**. The fuel contractor must already be familiar with the necessary procedures.
- Make sure that the truck's engine has been turned off and there is no danger of a spark that may cause a fire.
- Put markers on the road to warn the public of the incident.
- Using the contents of the spill kit (Section 3.2), contain the spilled fuel as best possible.

4.5.3 Fire at a Fuel Storage Tank

Fire extinguishers are located throughout all GNWT buildings

Find out what started the fire and shut off source if it is possible and safe to do so.

- If the fire is still small, attempt to put the fire out using the **PASS** method:

  Pull the pin;
  Aim the nozzle at the base of the flames;
  Squeeze the trigger; and
  Sweep the nozzle from side to side to extinguish the fire.

- Never turn your back on a fuel fire, as flammable fumes may re-ignite. Back away slowly when you are confidence that the fire has been extinguished.
- If the fire is too big for a fire extinguisher alone, leave the area immediately and notify the public. Call the local Fire Department and then your Supervisor.
- In the event of a catastrophic tank failure, evacuation of the facility is a real possibility.
- The possibility of an explosion is a serious threat.

5.0 CONTAINMENT TECHNIQUES, REMOVAL & REPORTING

5.1 CONTAINMENT METHODS

- **Containment of Spills on Land**

  Spills on land include spills on rock, gravel, and soil. Soil is a natural sorbent so it will soak up the spilled fuel. It is very important to keep land spills away from any water bodies.

  Absorbents: If the spill is small, you can use enough absorbent pads to soak up the fuel.

  Dykes: Dykes can be created using soil surrounding a spill on land. Dykes are constructed down slope and around the entire area of the spill.

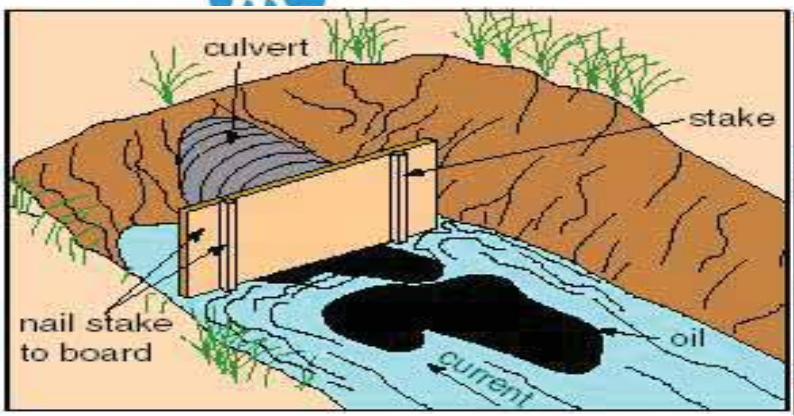
  Trenches: Trenches can be dug out to contain spills as long as the top layer of soil is not frozen. Shovels, axes or a loader can be used, depending on how big the spill is. A trench should be dug down to the bedrock or permafrost so it can be sucked up later by a pump or by using sorbents.

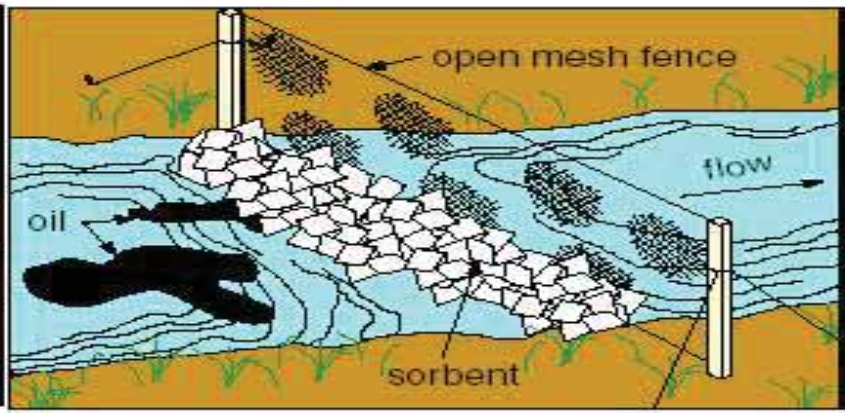
- **Containment of Spills on Ice**

  Spills on ice are the easiest spills to contain because ice does not soak up the fuel. For small spills, sorbent materials are used to soak up fuel. The contaminated ice can then be scraped up and shoveled into a plastic bag or barrel. However, if a spill occurs on ice that is on top of water it can be very dangerous. If the fuel manages to find its way into cracks in the ice, it will affect the water underneath.

  Dykes: Dykes can be used to contain fuel spills on ice. Collect new snow, compact it and mound it to form a dyke down slope from the spill. The collected fuel can then be pumped into barrels or collected with sorbents.

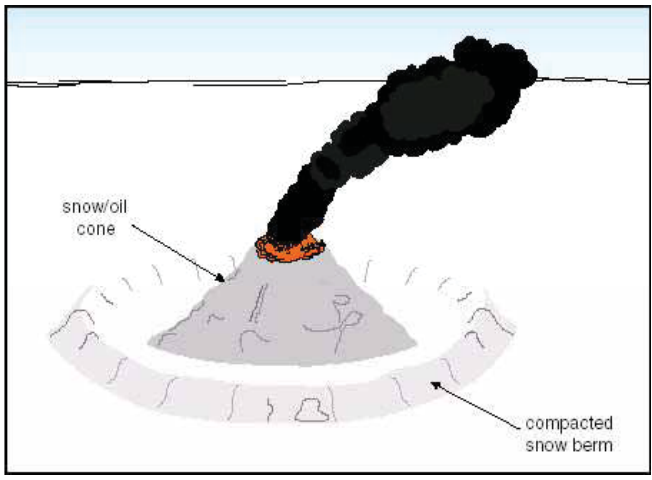
  Flooding, with trenches or sumps to collect oil that is floating, can be used with vacuum systems to recover the oil may be an option.





Earth or snow dams constructed across ditches may be used to contain a spill and stop its flow. A dam may be built with earth, wood, sandbags, or snow. The dam should be lined with plastic sheeting to make it impermeable to the oil. In the winter, water may be sprayed on snow dams to form ice to make it impermeable.

Blocked Culvert - Care should be taken to ensure the dam is large enough to contain the entire spill; insufficient capacity may result in overtopping failure. For ditches with flowing water or for small streams, it may be necessary to allow water flow to continue and to retain the lighter-than-water liquids.



Burning - Under no circumstances should ANYONE attempt to burn spilled oil/gas. A permit must first be obtained from the necessary government agencies – this type of burning would only be completed when PPD, RWED or ENR is on site with a valid permit for burning. Burning is most likely to be successful in winter conditions when the spill can be contained in a cone made of the contaminated snow and other debris.

5.2 REMOVAL TECHNIQUES

Excessive removal of soil is often a concern, as natural replacement and re-vegetation rates can be slow in many areas. Clean fill should be used to replace any contaminated soil that is removed.

Treatment or cleanup activities should be planned to avoid mixing clean and contaminated soils. In particular, mixing oil into clean subsurface soils should be avoided.

Avoid tracking oil into clean areas. Vehicles and personnel should always work from a clean area toward a contaminated area to avoid cross-contamination.

During manual treatment, avoid over-filling collection bags or containers to minimize spillage and to prevent bags or containers from breaking.

Contaminated fuel/oil/soil will be disposed of at a registered receiving facility.

- **Manual removal** may include scraping or wiping with sorbent materials. Workers must wear PPE that includes splash suits (Tyvek Coveralls) or rain gear, boots, and gloves. Contaminated materials can be placed directly in plastic bags, drums, or other containers for transfer. If the containers are to be carried to a temporary storage area, they should not weigh more than what can be carried by one person easily and safely. To avoid spillage, containers should not be overfilled or dragged.

  Sorbent materials are placed along the perimeter to collect oil as it spreads laterally (protection mode) or in the contaminated area after the spill has stopped spreading (cleanup mode). Commercially available sorbents can be supplied as pads, rugs, blankets, rolls, sweeps, pillows or booms. Locally available materials may be appropriate on occasion (e.g. straw or peat) but usually such natural products are less effective and efficient than commercial sorbents.

- **Vacuum systems** are used primarily where oil is pooled in natural depressions and hollows, or where it has been herded into collection areas such as lined pits or trenches (sumps). This technique can be used in combination with flooding or washing techniques to float and collect oil. A dual-head wash and vacuum system can be used in locations that are difficult to access, such as between boulders.

- **Mechanical removal** can involve a range of devices to remove oil and contaminated surface and subsurface materials. Mechanical removal is more rapid than manual removal but generates larger quantities of waste. The method of operation varies considerably depending on the type of equipment that is available and its ability to operate on the land in question. Some equipment (e.g. elevating scrapers, loaders, backhoes or vacuum trucks) can remove and transfer material directly to a truck or temporary storage area in a single step. Other equipment (graders and bulldozers) are less efficient and require two steps or more to move or side cast material that must then be picked up by other types of equipment (scrapers, loaders or backhoes) for transfer.

- **Vegetation cutting** is a labor-intensive technique used in marshes or on attached plants, such as long grass. It is applicable only where the continued presence of oil may pose a contact threat to animals and birds that use the area, or where mobile oil or oiled plants could be released to impact adjacent healthy organisms. If oiled stems are cut, avoid disturbance of the root systems as this will delay recovery of the plants.

5.3 Documentation

Development		
Name	**Position**	**Date**
Prepared by: T. Townend	QHSE Coordinator	Jan. 20, 2021
Reviewed by: S. Hagerman	Director MTS	
Approved by: S. Hagerman	Director MTS	

Revision History					
#	**Revised Sections**	**Description of Revisions**	**Revised by (name, position)**	**Approved by (name, position)**	**Issue Date**
01		NEW Oil Spill Response Plan			
02					
03					
04					
05					
06					

APPENDIX A: RESPONSE CONTACTS

The QHSE Coordinator Initiates the Oil Spill Response Plan.

*Emergency services can be reached at **911** or local phone number.*

Organization	Contact	Phone#	Address/Location	Training
MTS	Tyler Townend, QHSE Coordinator	867 874 5120 867 876 0166	1-104th Ave Hay River, NT	OSC WHMIS EMOST TDG
MTS	Tom Maher, Manager, Marine Operations, DPA/CSO	867 874 5106 867 875 8373	1-104th Ave Hay River, NT	DPA CSO
MTS	Seth Barnaby, Shipyard Manager	867 874 5112 867 875 7839		EMOST WHMIS
Midnight Petroleum	Fuel Delivery Contact	867 874 2201	Hay River, NT	
Canadian Coast Guard		867 874 5559 780 841 8974	Hay River, NT	
Local ENR	Albert Bourque	867 875 5571	Hay River, NT	
Environmental Protection		867 669 4730 867 445 5145	Yellowknife, NT	
Fisheries & Oceans				
Transport Canada	CANUTEC	613 996 6666		
RCMP		**1 867 874 1111**	**Hay River, NT**	
Fire Department		**1 867 874 2222**	**Hay River, NT**	
Ambulance		**1 867 874 9333**	**Hay River, NT**	

APPENDIX B: REGISTERED TANKS

EC#	ID #	Location	Description	Capacity	Material	Double or single wall	Secondary Containment	Product
00055272	4718	Syncro	Syncro Waste Fuel	147,931 L	Steel	Single	Yes	Waste Fuel
00055273	4721	Syncro	Tank Farm Used Oil	147,931 L	Steel	Single	Yes	Used Oil
00055275	4734	Syncro	Tank Farm Used Oil	64,379 L	Steel	Single	Yes	Used Oil
00055274	4736	Syncro	Tank Farm Used Oil	64,379 L	Steel	Single	Yes	Used Oil
00055228	6855	Syncro	Syncro Diesel tank stand	2,900 L	Steel	Single	No	Diesel
00055231	#1	Syncro	Syncro Tank Farm	64,002 L	Steel	Single	Yes	Waste Fuel
00055232	#2	Syncro	Syncro Tank Farm	64,002 L	Steel	Single	Yes	Waste Fuel
00055234	#3	Syncro	Syncro Tank Farm	64,002 L	Steel	Single	Yes	Waste Fuel
00055235	#4	Syncro	Syncro Tank Farm	64,002 L	Steel	Single	Yes	Waste Fuel
00055236	#5	Syncro	Syncro Tank Farm	63,780 L	Steel	Single	Yes	Diesel
00055237	#6	Syncro	Syncro Tank Farm	42,038 L	Steel	Single	Yes	Waste Fuel
00055238	#7	Syncro	Syncro Tank Farm	63,780 L	Steel	Single	Yes	Gas
00055223		Terminal C	Terminal C Diesel Tank	2,400 L	Steel	Double	No	Diesel
00055223		Terminal C	Terminal C Diesel Tank	4,500 L	Steel	Double	No	Diesel
00055243		Syncro	Company Gas Tank	15,532 L	Steel	Single	Yes	Gas
00055279		Syncro	Garage Waste OilTank 1	22,031 L	Steel	Single	Yes	Waste Fuel
00055279		Syncro	Garage Waste OilTank 2	1,135 L	Steel	Single	Yes	Waste Fuel
00055278		Syncro	Garage Diesel Tank	4,530 L	Steel	Double	No	Diesel

APPENDIX C: NT-NU SPILL REPORT

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
Tel: (867) 920-8130 • Fax: (867) 873-6924 • Email: spills@gov.nt.ca

REPORT LINE USE ONLY

A	Report Date: MM / DD / YY	Report Time:	☐ Original Spill Report OR ☐ Update # _____ to the Original Spill Report	Report Number:
B	Occurrence Date: MM / DD / YY	Occurrence Time:		
C	Land Use Permit Number (if applicable):		Water Licence Number (if applicable):	
D	Geographic Place Name or Distance and Direction from the Named Location:		Region: ☐ NT ☐ Nunavut ☐ Adjacent Jurisdiction or Ocean	
E	Latitude: _____ Degrees _____ Minutes _____ Seconds		Longitude: _____ Degrees _____ Minutes _____ Seconds	
F	Responsible Party or Vessel Name:		Responsible Party Address or Office Location:	
G	Any Contractor Involved:		Contractor Address or Office Location:	
H	Product Spilled: ☐ Potential Spill	Quantity in Litres, Kilograms or Cubic Metres:	U.N. Number:	
I	Spill Source:	Spill Cause:	Area of Contamination in Square Metres:	
J	Factors Affecting Spill or Recovery:	Describe Any Assistance Required:	Hazards to Persons, Property or Environment:	
K	Additional Information, Comments, Actions Proposed or Taken to Contain, Recover or Dispose of Spilled Product and Contaminated Materials:			

L	Reported to Spill Line by:	Position:	Employer:	Location Calling From:	Telephone:
M	Any Alternate Contact:	Position:	Employer:	Alternate Contact Location:	Alternate Telephone:

REPORT LINE USE ONLY

N	Received at Spill Line by:	Position:	Employer:	Location Called:	Report Line Number:

Lead Agency: ☐ EC ☐ CCG/TCMSS ☐ GNWT ☐ GN ☐ ILA ☐ AANDC ☐ NEB ☐ Other: _____ | Significance: ☐ Minor ☐ Major ☐ Unknown | File Status: ☐ Open ☐ Closed

Agency:	Contact Name:	Contact Time:	Remarks:
Lead Agency:			
First Support Agency:			
Second Support Agency:			
Third Support Agency:			

APPENDIX D: SDS SHEET, DIESEL

SAFETY DATA SHEET

SECTION 1 IDENTIFICATION

PRODUCT

Product Name: (see Section 16 for Synonyms) DIESEL/BIODIESEL BLEND
Product Description: Hydrocarbons and Additives
SDS Number: 20463

Intended Use: Diesel engine fuel

COMPANY IDENTIFICATION

Supplier: **Imperial Oil Downstream**
P.O. Box 2480, Station M
Calgary, ALBERTA T2P 3M9 Canada

24 Hour Emergency Telephone	1-866-232-9563
Transportation Emergency Phone Number	1-866-232-9563
Product Technical Information	1-800-268-3183
Supplier General Contact	1-800-567-3778

SECTION 2 HAZARD IDENTIFICATION

This material is considered to be hazardous according to regulatory guidelines.

This product has been classified in accordance with hazard criteria of the Hazardous Products Regulations (HPR) SOR/2015-17 and the SDS contains all the information required by the HPR SOR/2015-17.

CLASSIFICATION:

Flammable Liquids — Category 3
Acute Toxicity (Inhalation) — Category 4
Skin Irritation — Category 2
Carcinogenicity — Category 2
Specific Target Organ Toxicity — Repeated Exposure — Category 2
Aspiration Hazard — Category 1

LABEL:
Pictogram:

Signal Word: Danger

Hazard Statements:
H226: Flammable liquid and vapour. H304: May be fatal if swallowed and enters airways. H315: Causes skin irritation. H332: Harmful if inhaled. H351: Suspected of causing cancer. H373: May cause damage to organs through prolonged or repeated exposure. Bone marrow, Liver, Thymus

Precautionary Statements:
P101: If medical advice is needed, have product container or label at hand. P102: Keep out of reach of children. P103: Read label before use.P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233: Keep container tightly closed. P240: Ground and bond container and receiving equipment. P241: Use explosion-proof electrical, ventilating and lighting equipment. P242: Use non-sparking tools. P243: Take action to prevent static discharges. P260: Do not breathe mist / vapours. P264: Wash skin thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection.P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P302 + P352: IF ON SKIN: Wash with plenty of soap and water. P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P308 + P313: IF exposed or concerned: Get medical advice/attention. P312: Call a POISON CENTER or doctor/physician if you feel unwell. P331: Do NOT induce vomiting. P332 + P313: If skin irritation occurs: Get medical advice/attention. P362 + P364: Take off contaminated clothing and wash it before reuse. P370 + P378: In case of fire: Use water fog, foam, dry chemical or carbon dioxide (CO_2) to extinguish. P391: Collect spillage.P403 + P235: Store in a well-ventilated place. Keep cool. P405: Store locked up.P501: Dispose of contents and container in accordance with local regulations.

Contains: Fuel oil, No 2; naphthalene

Other hazard information:

Health Hazards Not Otherwise Classified: None as defined under HPR SOR/2015-17.

Physical Hazards Not Otherwise Classified: None as defined under HPR SOR/2015-17.

PHYSICAL / CHEMICAL HAZARDS
Material can accumulate static charges which may cause an ignition. Material can release vapours that readily form flammable mixtures. Vapour accumulation could flash and/or explode if ignited.

HEALTH HAZARDS
High-pressure injection under skin may cause serious damage. Under conditions of poor personal hygiene

and prolonged repeated contact, some polycyclic aromatic compounds (PACs) have been suspected as a cause of skin cancer in humans. May be irritating to the eyes, nose, throat, and lungs. Repeated exposure may cause skin dryness or cracking.

ENVIRONMENTAL HAZARDS

Expected to be toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

NFPA Hazard ID:	Health:	2	Flammability:	2	Reactivity:	0
HMIS Hazard ID:	Health:	2*	Flammability:	2	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) in Hazardous product

Name	CAS#	Concentration*	GHS Hazard Codes
Fuel oil, No 2	68476-30-2	<98%	H226, H304, H332, H351, H315, H373, H401, H411

Hazardous Constituent(s) Contained in Complex Substance(s)

Name	CAS#	Concentration*	GHS Hazard Codes
naphthalene	91-20-3	< 1.0%	H228(2), H302, H351, H400(M factor 1), H410(M factor 1)

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

NOTE: Composition may contain up to 0.5% performance additives and / or dyes. May contain up to 20% by weight of soybean oil, methyl ester (CAS# 67784-80-9).

SECTION 4 FIRST-AID MEASURES

INHALATION

Immediately remove from further exposure. Get immediate medical assistance. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. Give supplemental oxygen, if available. If breathing has stopped, assist ventilation with a mechanical device.

SKIN CONTACT

Remove contaminated clothing. Dry wipe exposed skin and cleanse with waterless hand cleaner and follow by washing thoroughly with soap and water. For those providing assistance, avoid further skin contact to yourself or others. Wear impervious gloves. Launder contaminated clothing separately before reuse. Discard contaminated articles that cannot be laundered. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately

by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

Seek immediate medical attention. Do not induce vomiting.

NOTE TO PHYSICIAN

If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

PRE-EXISTING MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED BY EXPOSURE

Contains hydrocarbon solvent/petroleum hydrocarbons; skin contact may aggravate an existing dermatitis.

SECTION 5 FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO_2) to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: FLAMMABLE. Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Vapour is flammable and heavier than air. Vapour may travel across the ground and reach remote ignition sources, causing a flashback fire danger. Hazardous material. Firefighters should consider protective equipment indicated in Section 8.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulphur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >38°C (100°F) [ASTM D-93]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required, due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: half-face or full-face respirator with filter(s) for organic vapor and, when applicable, H2S, or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to aromatic hydrocarbons are recommended. Note: gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapour-suppressing foam may be used to reduce vapour. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Large Spills: Water spray may reduce vapour, but may not prevent ignition in enclosed spaces.

Water Spill: Stop leak if you can do so without risk. Eliminate sources of ignition. Warn other shipping. If the Flash Point exceeds the Ambient Temperature by 10 deg C or more, use containment booms and remove from the surface by skimming or with suitable absorbents when conditions permit. If the Flash Point does not exceed the Ambient Air Temperature by at least 10C, use booms as a barrier to protect shorelines and allow material to evaporate. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Avoid all personal contact. Do not siphon by mouth. Place rags, absorbent pads, paper towels etc. contaminated with biodiesel in a container and cover with water. Secure the lid on the container (See Section 5 - Unusual Fire Hazards). Do not use as a cleaning solvent or other non-motor fuel uses. For use as a motor fuel only. It is dangerous and/or unlawful to put petrol into unapproved containers. Do not fill container while it is in or on a vehicle. Static electricity may ignite vapour and cause fire. Place container on ground when filling and keep nozzle in contact with container. Do not use electronic devices (including but not limited to cellular phones, computers, calculators, pagers or other electronic devices, etc.) during safety critical tasks, such as bulk fuel loading or unloading operations, or in storage areas where vapours may be present, unless the

devices are certified intrinsically safe by an approved national testing agency and to the safety standards required by national and/or local laws and regulations. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter) and is considered a semiconductive, static accumulator if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semiconductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, anti-static additives and filtration can greatly influence the conductivity of a liquid.

STORAGE

The type of container used to store the material may affect static accumulation and dissipation. Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Storage containers should be earthed and bonded. Fixed storage containers, transfer containers and associated equipment should be grounded and bonded to prevent accumulation of static charge.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Substance Name	Form	Limit/Standard			Note	Source
Fuel oil, No 2	Stable Aerosol.	TWA	5 mg/m3		Skin	Supplier
Fuel oil, No 2	Vapour.	TWA	200 mg/m3		Skin	Supplier
FUEL OIL NO. 2. [total hydrocarb, vapor&aerosol]	Inhalable fraction and vapour	TWA	100 mg/m3		Skin	ACGIH
naphthalene		TWA	10 ppm		Skin	ACGIH

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

Use explosion-proof ventilation equipment to stay below exposure limits.

PERSONAL PROTECTON

Personal protecive equipment selections vary based on potential exposure conditions such as applications,

handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

Chemical resistant gloves are recommended. If contact with forearms is likely wear gauntlet style gloves.

Eye Protection: If contact with material is likely, chemical goggles are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

Chemical/oil resistant clothing is recommended.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practise good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Colour: Amber
Odour: Petroleum/Solvent
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.82 - 0.9

Flammability (Solid, Gas): N/A
Flash Point [Method]: >38°C (100°F) [ASTM D-93]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/D
Boiling Point / Range: > 150°C (302°F)
Decomposition Temperature: N/D
Vapour Density (Air = 1): > 2 at 101 kPa
Vapour Pressure: 0.067 kPa (0.5 mm Hg) at 20°C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): N/D
Solubility in Water: Negligible
Viscosity: 1.6 cSt (1.6 mm2/sec) at 40°C - 5 cSt (5 mm2/sec) at 40°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Avoid heat, sparks, open flames and other ignition sources.

MATERIALS TO AVOID: Halogens, Strong Acids, Strong Bases, Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Moderately toxic. Based on assessment of the components.
Irritation: No end point data for material.	Elevated temperatures or mechanical action may form vapours, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Irritating to the skin. Based on assessment of the components.

Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitisation	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	May be fatal if swallowed and enters airways. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Caused cancer in laboratory animals, but the relevance to humans is uncertain. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Concentrated, prolonged or deliberate exposure may cause organ damage. Based on assessment of the components.

TOXICITY FOR SUBSTANCES

NAME	ACUTE TOXICITY
Fuel oil, No 2	Inhalation Lethality: 4 hour(s) LC50 4.1 mg/l (Vapor and aerosol)
naphthalene	Inhalation Lethality: 4 hour(s) LC50 > 0.4 mg/l (Max attainable vapor conc.) (Rat); Oral Lethality: LD 50 533 mg/kg (Mouse)

OTHER INFORMATION

For the product itself:

Target Organs Repeated Exposure: Bone marrow, Liver, Thymus

Vapour concentrations above recommended exposure levels are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anaesthetic and may have other central nervous system effects. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

Diesel fuel: Carcinogenic in animal tests. Caused mutations in-vitro. Repeated dermal exposures to high concentrations in test animals resulted in reduced litter size and litter weight, and increased fetal resorptions at maternally toxic doses. Dermal exposure to high concentrations resulted in severe skin irritation with weight loss and some mortality. Inhalation exposure to high concentrations resulted in respiratory tract irritation, lung changes/infiltration/accumulation, and reduction in lung function. Diesel exhaust fumes: Carcinogenic in animal tests. Inhalation exposures to exhaust for 2 years in test animals resulted in lung tumours and lymphoma. Extract of particulate produced skin tumours in test animals. Caused mutations in-vitro.

Contains:

NAPHTHALENE: Exposure to high concentrations of naphthalene may cause destruction of red blood cells, anemia, and cataracts. Naphthalene caused cancer in laboratory animal studies, but the relevance of these findings to humans is uncertain.

CMR Status:

Chemical Name	CAS Number	List Citations
Fuel oil, No 2	68476-30-2	4
naphthalene	91-20-3	3, 4

--REGULATORY LISTS SEARCHED--

1 = IARC 1
2 = IARC 2A
3 = IARC 2B
4 = ACGIH ALL
5 = ACGIH A1
6 = ACGIH A2

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

ECOTOXICITY

Material -- Expected to be toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

MOBILITY

More volatile component -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

High molecular wt. component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Material -- Expected to be inherently biodegradable

Atmospheric Oxidation:

More volatile component -- Expected to degrade rapidly in air

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (TDG)

Proper Shipping Name: DIESEL FUEL
Hazard Class & Division: 3
UN Number: 1202
Packing Group: III
Special Provisions: 88, 150

LAND (DOT)

Proper Shipping Name: DIESEL FUEL
Hazard Class & Division: COMBUSTIBLE LIQUID
ID Number: NA1993
Packing Group: III
ERG Number: 128
Label(s): NONE
Transport Document Name: NA1993 DIESEL FUEL, COMBUSTIBLE LIQUID, PG II

Footnote: The flash point of this material is greater than 38°C/100°F. Regulatory classifcation of this material varies. DOT: Flammable liquid or combustible liquid. OSHA: Combustible liquid. IATA/IMO: Flammable liquid. This material is not regulated under 49 CFR in a container of 450 litre/119 gallon capacity or less when transported solely by land, as long as the material is not a hazardous waste, a marine pollutant, or specifically listed as a hazardous substance.

SEA (IMDG)

Proper Shipping Name: GAS OIL
Hazard Class & Division: 3
EMS Number: F-E, S-E
UN Number: 1202
Packing Group: III
Marine Pollutant: No
Label(s): 3
Transport Document Name: UN1202, GAS OIL, 3, PG III, (38°C c.c.)

AIR (IATA)

Proper Shipping Name: GAS OIL
Hazard Class & Division: 3

UN Number: 1202
Packing Group: III
Label(s) / Mark(s): 3
Transport Document Name: UN1202, GAS OIL, 3, PG III

SECTION 15 REGULATORY INFORMATION

CEPA: All components of this product are either on the Domestic Substance List (DSL) or are exempt.

Listed or exempt from listing/notification on the following chemical inventories (May contain substance(s) subject to notification to the EPA Active TSCA inventory prior to import to USA): DSL

The Following Ingredients are Cited on the Lists Below: None.

--REGULATORY LISTS SEARCHED--

1 = TSCA 4	3 = TSCA 5e	5 = TSCA 12b
2 = TSCA 5a2	4 = TSCA 6	6 = NPRI

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H302: Harmful if swallowed; Acute Tox Oral, Cat 4
H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H332: Harmful if inhaled, Acute Tox Inh, Cat 4
H351: Suspected of causing cancer; GHS Carcinogenicity, Cat 2
H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
H401: Toxic to aquatic life; Acute Env Tox, Cat 2
H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1
H411: Toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 2

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

SYNONYMS: BIODIESEL BLEND B2, BIODIESEL BLEND B5, BIODIESEL BLEND B10, BIODIESEL BLEND B20, DIESEL LOW SULPHUR with BIO up to 10%, DIESEL LOW SULPHUR DYED with BIO up to 10%, DIESEL LOW SULPHUR DYED may contain biodiesel, DIESEL LOW SULPHUR may contain biodiesel, FURNACE FUEL DYED may contain biodiesel, DIESEL LOW SULPHUR RAIL may contain biodiesel, DIESEL LOW SULPHUR RAIL DYED may

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contain biodiesel, DIESEL LOW SULPHUR 1% biodiesel, DIESEL LOW SULPHUR 10% biodiesel, DIESEL LOW SULPHUR 2% biodiesel, DIESEL LOW SULPHUR 20% biodiesel, DIESEL LOW SULPHUR 5% biodiesel, DIESEL LOW SULPHUR DYED 1% biodiesel, DIESEL LOW SULPHUR DYED 10% biodiesel, DIESEL LOW SULPHUR DYED 2% biodiesel, DIESEL LOW SULPHUR DYED 20% biodiesel, DIESEL LOW SULPHUR DYED 5% biodiesel, DIESEL LS RAIL 5% biodiesel, DIESEL LS RAIL DYED 5% biodiesel, FURNACE FUEL DYED 5% biodiesel, DIESEL LOW SULPHUR RAIL 5% biodiesel, DIESEL LOW SULPHUR RAIL DYED 5% biodiesel

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DGN: 7093830 (1016263)

APPENDIX E: SDS SHEET, UNLEADED GASOLINE

SAFETY DATA SHEET

SECTION 1 IDENTIFICATION

PRODUCT

Product Name: UNLEADED GASOLINE
Product Description: Hydrocarbons and Additives
SDS Number: 8522

Intended Use: Fuel

Trade Names	Trade Names
AUTOMOTIVE GASOLINE	ESSO EXTRA GASOLINE
ESSO MIDGRADE GASOLINE	ESSO PREMIUM GASOLINE
ESSO REGULAR GASOLINE	ESSO SUPREME GASOLINE
EXXON MIDGRADE GASOLINE	EXXON PREMIUM GASOLINE
EXXON REGULAR GASOLINE	GASOLINE MIDGRADE UNLEADED MUL89
GASOLINE MIDGRADE UNLEADED MUL89 DCA	GASOLINE MIDGRADE UNLEADED MUL89 DCA DYED
GASOLINE MIDGRADE UNLEADED MUL89 LDCA	GASOLINE MIDGRADE UNLEADED MUL89 LDCA DYED
GASOLINE PREMIUM UNLEADED PUL91	GASOLINE PREMIUM UNLEADED PUL91 DCA
GASOLINE PREMIUM UNLEADED PUL91 DCA DYED	GASOLINE PREMIUM UNLEADED PUL91 LDCA
GASOLINE PREMIUM UNLEADED PUL91 LDCA DYED	GASOLINE RBOB BLENDSTOCK P91
GASOLINE RBOB BLENDSTOCK R87	GASOLINE REGULAR UNLEADED RUL87
GASOLINE REGULAR UNLEADED RUL87 DCA	GASOLINE REGULAR UNLEADED RUL87 DCA DYED
GASOLINE REGULAR UNLEADED RUL87 DYED	GASOLINE REGULAR UNLEADED RUL87 LDCA
GASOLINE REGULAR UNLEADED RUL87 LDCA DYED	

COMPANY IDENTIFICATION

Supplier: **Imperial Oil Downstream**
P.O. Box 2480, Station M
Calgary, ALBERTA T2P 3M9 Canada

24 Hour Emergency Telephone	1-866-232-9563
Transportation Emergency Phone Number	1-866-232-9563
Product Technical Information	1-800-268-3183
Supplier General Contact	1-800-567-3776

SECTION 2 HAZARD IDENTIFICATION

This material is considered to be hazardous according to regulatory guidelines.

This product has been classified in accordance with hazard criteria of the Hazardous Products Regulations (HPR) SOR/2015-17 and the SDS contains all the information required by the HPR SOR/2015-17.

CLASSIFICATION:

Flammable Liquids — Category 1
Skin Irritation — Category 2
Germ Cell Mutagenicity — Category 1B
Carcinogenicity — Category 1B
Reproductive Toxicity (Developmental) — Category 2
Specific Target Organ Toxicity — Single Exposure (Central Nervous System) — Category 3
Aspiration Hazard — Category 1

LABEL:
Pictogram:

Signal Word: Danger

Hazard Statements:
H224: Extremely flammable liquid and vapour. H304: May be fatal if swallowed and enters airways. H315: Causes skin irritation. H336: May cause drowsiness or dizziness. H340: May cause genetic defects. H350: May cause cancer. H361: Suspected of damaging the unborn child.

Precautionary Statements:
P101: If medical advice is needed, have product container or label at hand. P102: Keep out of reach of children. P103: Read label before use.P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233: Keep container tightly closed. P240: Ground and bond container and receiving equipment. P241: Use explosion-proof electrical, ventilating and lighting equipment. P242: Use non-sparking tools. P243: Take action to prevent static discharges. P261: Avoid breathing mist / vapours. P264: Wash skin thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection.P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P302 + P352: IF ON SKIN: Wash with plenty of soap and water. P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P308 + P313: IF exposed or concerned: Get medical advice/attention. P312: Call a POISON CENTER or doctor/physician if you feel unwell. P331: Do NOT induce vomiting. P332 + P313: If skin irritation occurs: Get medical advice/attention. P362 + P364: Take off contaminated clothing and wash it before reuse. P370 + P378: In case of fire: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish. P391: Collect spillage.P403 + P235: Store in a well-ventilated place. Keep cool. P405: Store locked up.P501: Dispose of contents and container in accordance with local regulations.

Contains: Benzene; GASOLINE; Toluene

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Other hazard information:

Health Hazards Not Otherwise Classified: None as defined under HPR SOR/2015-17.

Physical Hazards Not Otherwise Classified: None as defined under HPR SOR/2015-17.

PHYSICAL / CHEMICAL HAZARDS

Material can accumulate static charges which may cause an ignition. Material can release vapours that readily form flammable mixtures. Vapour accumulation could flash and/or explode if ignited.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. May be irritating to the eyes, nose, throat, and lungs. May cause central nervous system depression. Exposure to benzene is associated with cancer (acute myelcid leukaemia and myelodysplastic syndrome), damage to the blood-producing system, and serious blood disorders (see Section 11).

ENVIRONMENTAL HAZARDS

Expected to be toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

NFPA Hazard ID:	Health:	2	Flammability:	3	Reactivity:	0
HMIS Hazard ID:	Health:	2*	Flammability:	3	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) in Hazardous product

Name	CAS#	Concentration*	GHS Hazard Codes
ETHYL ALCOHOL	64-17-5	0 - 1%	H225, H319(2A)
GASOLINE	86290-81-5	98 - 100%	H224, H304, H336, H340(1B), H350(1B), H361(D), H315, H401, H411

Hazardous Constituent(s) Contained in Complex Substance(s)

Name	CAS#	Concentration*	GHS Hazard Codes
Benzene	71-43-2	0 - 1.5%	H225, H303, H304, H340(1B), H350(1A), H315, H319(2A), H372, H401
CUMENE	98-82-8	0 - 1%	H226, H304, H335, H351, H401, H411
CYCLOHEXANE	110-82-7	0 - 1.5%	H225, H304, H336, H315, H400(M factor 1), H410(M factor 1)
ETHYL BENZENE	100-41-4	0 - 3.5%	H225, H332, H373, H401,

			H412
n-Hexane	110-54-3	0 - 5%	H225, H304, H336, H361(F), H315, H373, H401, H411
Naphthalene	91-20-3	0 - 1%	H302, H351, H400(M factor 1), H410(M factor 1)
Toluene	108-88-3	0 - 26%	H225, H304, H336, H361(D), H315, H373, H401, H412
XYLENES	1330-20-7	0 - 26%	H226, H304, H312, H332, H335, H315, H320(2B), H373, H401

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

NOTE: The concentration of the components shown above may vary substantially. In certain countries, benzene content may be limited to lower levels. Oxygenates such as tertiary-amyl-methyl ether, ethanol, di-isopropyl ether, and ethyl-tertiary-butyl ether may be present. Because of volatility considerations, gasoline vapor may have concentrations of components very different from those of liquid gasoline. The major components of gasoline vapor are: butane, isobutane, pentane, and isopentane. The reportable component percentages, shown in the composition/information on ingredients section, are based on API's evaluation of a typical gasoline mixture.

SECTION 4 FIRST-AID MEASURES

INHALATION

Immediately remove from further exposure. Get immediate medical assistance. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. Give supplemental oxygen, if available. If breathing has stopped, assist ventilation with a mechanical device.

SKIN CONTACT

Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

Seek immediate medical attention. Do not induce vomiting.

NOTE TO PHYSICIAN

If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately. This material, or a component, may be associated with cardiac sensitization following very high exposures (well above occupational exposure limits) or with concurrent exposure to high stress levels or heart-stimulating substances like epinephrine. Administration of such substances should be avoided.

SECTION 5 FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish

flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. If a leak or spill has not ignited, use water spray to disperse the vapours and to protect personnel attempting to stop a leak. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in encosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Extremely Flammable. Vapour is flammable and heavier than air. Vapour may travel across the ground and reach remote ignition sources, causing a flashback fire danger. Hazardous material. Firefighters should consider protective equipment indicated in Section 8.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulphur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: -40°C (-40°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 1.4 UEL: 7.6
Autoignition Temperature: >250°C (482°F)

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required, due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for persona protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: half-face or full-face respirator with filter(s) for organic vapor and, when applicable, H2S, or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to aromatic hydrocarbons are recommended. Note: gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A

vapour-suppressing foam may be used to reduce vapour. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Large Spills: Water spray may reduce vapour, but may not prevent ignition in enclosed spaces.

Water Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. Do not confine in area of spill. Advise occupants and shipping in downwind areas of fire and explosion hazard and warn them to stay clear. Allow liquid to evaporate from the surface. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Avoid all personal contact. Prevent exposure to ignition sources, for example use non-sparking tools and explosion-proof equipment. Potentially toxic/irritating fumes/vapour may be evolved from heated or agitated material. Do not siphon by mouth. Use only with adequate ventilation. Do not use as a cleaning solvent or other non-motor fuel uses. For use as a motor fuel only. It is dangerous and/or unlawful to put petrol into unapproved containers. Do not fill container while it is in or on a vehicle. Static electricity may ignite vapour and cause fire. Place container on ground when filling and keep nozzle in contact with container. Do not use electronic devices (including but not limited to cellular phones, computers, calculators, pagers or other electronic devices etc) in or around any fuelling operation or storage area unless the devices are certified intrinsically safe by an approved national testing agency and to the safety standards required by national and/or local laws and regulations. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter) and is considered a semiconductive, static accumulator if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semiconductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, anti-static additives and filtration can greatly influence the conductivity of a liquid.

STORAGE

Ample fire water supply should be available. A fixed sprinkler/deluge system is recommended. The type of container used to store the material may affect static accumulation and dissipation. Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Outside or detached storage preferred. Storage containers should be earthed and bonded.

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Fixed storage containers, transfer containers and associated equipment should be grounded and bonded to prevent accumulation of static charge.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Substance Name	Form	Limit/Standard			Note	Source
Benzene		STEL	1 ppm			Supplier
Benzene		TWA	0.5 ppm			Supplier
Benzene		STEL	2.5 ppm		Skin	ACGIH
Benzene		TWA	0.5 ppm		Skin	ACGIH
CUMENE		TWA	5 ppm		Skin	Supplier
CUMENE		TWA	50 ppm			ACGIH
CYCLOHEXANE		TWA	100 ppm			ACGIH
ETHYL ALCOHOL		STEL	1000 ppm			ACGIH
ETHYL BENZENE		TWA	20 ppm			ACGIH
GASOLINE		STEL	200 ppm			Supplier
GASOLINE		TWA	100 ppm			Supplier
GASOLINE		STEL	500 ppm			ACGIH
GASOLINE		TWA	300 ppm			ACGIH
n-Hexane		TWA	50 ppm		Skin	ACGIH
Naphthalene		TWA	10 ppm		Skin	ACGIH
Toluene		TWA	20 ppm			ACGIH
XYLENES		STEL	150 ppm			ACGIH
XYLENES		TWA	100 ppm			ACGIH

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

Use explosion-proof ventilation equipment to stay below exposure limits.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of

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respirators to be considered for this material include:

No protection is ordinarily required under normal conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

Chemical resistant gloves are recommended.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

Chemical/oil resistant clothing is recommended.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practise good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Colour: Clear (May Be Dyed)
Odour: Petroleum/Solvent
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.74
Flammability (Solid, Gas): N/A
Flash Point [Method]: -40°C (-40°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 1.4 UEL: 7.6
Autoignition Temperature: >250°C (482°F)
Boiling Point / Range: > 20°C (68°F) - 225°C (437°F)
Decomposition Temperature: N/D
Vapour Density (Air = 1): 3.2 at 101 kPa

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Vapour Pressure: > 26.6 kPa (200 mm Hg) at 20°C | 76 kPa (570 mm Hg) at 38 °C - 103 kPa (772.5 mm Hg) at 38°C
Evaporation Rate (n-butyl acetate = 1): > 10
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3
Solubility in Water: Negligible
Viscosity: <1 cSt (1 mm2/sec) at 40°C
Oxidizing Properties: See Hazards Identificaton Section.

OTHER INFORMATION
Freezing Point: N/D
Melting Point: N/A

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Avoid heat, sparks, open flames and other ignition sources.

MATERIALS TO AVOID: Alkalies, Halogens, Strong Acids, Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: (Rat) 4 hour(s) LC50 > 5000 mg/m3 (Vapour)	Minimally Toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 403
Irritation: No end point data for material.	Elevated temperatures or mechanical action may form vapours, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs.
Ingestion	
Acute Toxicity (Rat): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 401
Skin	
Acute Toxicity (Rabbit): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 402
Skin Corrosion/Irritation: No end point data for material.	Irritating to the skin. Based on test data for structurally similar materials.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 405
Sensitisation	
Respiratory Sensitization: No end point data	Not expected to be a respiratory sensitizer.

for material.	
Skin Sensitization: Data available.	Not expected to be a skin sensitizer. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 406
Aspiration: Data available.	May be fatal if swallowed and enters airways. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: Data available.	Caused genetic effects in laboratory animals, but the relevance to humans is uncertain. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 471 475 476
Carcinogenicity: Data available.	Caused cancer in laboratory animals. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 451
Reproductive Toxicity: Data available.	Caused damage to the fetus in laboratory animals, but the relevance to humans is uncertain. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	May cause drowsiness or dizziness.
Repeated Exposure: Data available.	Not expected to cause organ damage from prolonged or repeated exposure. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 410 412 453

TOXICITY FOR SUBSTANCES

NAME	ACUTE TOXICITY
ETHYL BENZENE	Inhalation Lethality: 4 hour(s) LC50 17.8 mg/l (Vapour) (Rat); Oral Lethality: LD 50 3.5 g/kg (Rat)
Naphthalene	Inhalation Lethality: 4 hour(s) LC50 > 0.4 mg/l (Max attainable vapor conc.) (Rat); Oral Lethality: LD 50 533 mg/kg (Mouse)

OTHER INFORMATION
For the product itself:

Laboratory animal studies have shown that prolonged and repeated inhalation exposure to light hydrocarbon vapours in the same boiling range as this product can produce adverse kidney effects in male rats. However, these effects were not observed in similar studies with female rats, male and female mice, or in limited studies with other animal species. Additionally, in a number of human studies, there was no clinical evidence of such effects at normal occupational levels. In 1991, The U.S. EPA determined that the male rat kidney is not useful for assessing human risk. Vapour concentrations above recommended exposure levels are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anaesthetic and may have other central nervous system effects. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema. Exposure to this material, or one of its components, in situations where there is the potential for high levels, such as in confined spaces or with abuse, may result in abnormal heart rhythm (arrhythmia). High-level exposure to hydrocarbons (above occupational exposure limits) may initiate arrhythmia in a worker that is undergoing stress or is taking a heart-stimulating substance such as epinephrine, a nasal decongestant, or an asthma or cardiovascular drug.
Contains:
BENZENE: Caused cancer (acute myeloid leukemia and myelodysplastic syndrome), damage to the blood-producing system, and serious blood disorders in human studies. Caused genetic effects and effects on the immune system in laboratory animal and some human studies. Caused toxicity to the fetus and cancer in laboratory animal studies.
CUMENE: Repeated inhalation exposure of cumene vapour produced damage in the kidney of male rats only.

These effects are believed to be species specific and are not relevant to humans. ETHANOL: Prolonged or repeated exposure to high concentrations of ethanol vapour or overexposure by ingestion may produce adverse effects to brain, kidney, liver, and reproductive organs, birth defects in offspring, and developmental toxicity in offspring. GASOLINE UNLEADED: Carcinogenic in animal tests. Chronic inhalation studies resulted in liver tumours in female mice and kidney tumours in male rats. Neither result considered significant for human health risk assessment by the United States EPA and others. Did not cause mutations in-vitro or in-vivo. Negative in inhalation developmental studies and reproductive tox studies. Inhalation of high concentrations in animals resulted in reversible central nervous system depression, but no persistent toxic effect on the nervous system. Non-sensitizing in test animals. Caused nerve damage in humans from abusive use (sniffing). NAPHTHALENE: Exposure to high concentrations of naphthalene may cause destruction of red blood cells, anemia, and cataracts. Naphthalene caused cancer in laboratory animal studies, but the relevance of these findings to humans is uncertain.

N-HEXANE: Prolonged and/or repeated exposures to n-Hexane can cause progressive and potentially irreversible damage to the peripheral nervous system (e.g. fingers, feet, arms, legs, etc.). Simultaneous exposure to Methyl Ethyl Ketone (MEK) or Methyl Isobutyl Ketone (MIBK) and n-Hexane can potentiate the risk of adverse effects from n-Hexane on the peripheral nervous system. n-Hexane has been shown to cause testicular damage at high doses in male rats. The relevance of this effect for humans is unknown. TOLUENE : Concentrated, prolonged or deliberate inhalation may cause brain and nervous system damage. Prolonged and repeated exposure of pregnant animals (> 1500 ppm) have been reported to cause adverse fetal developmental effects. ETHYLBENZENE: Caused cancer in laboratory animal studies. The relevance of these findings to humans is uncertain.

CMR Status:

Chemical Name	CAS Number	List Citations
Benzene	71-43-2	1, 4, 5
CUMENE	98-82-8	3, 4
CYCLOHEXANE	110-82-7	4
ETHYL ALCOHOL	64-17-5	4
ETHYL BENZENE	100-41-4	3, 4
GASOLINE	86290-81-5	3, 4
n-Hexane	110-54-3	4
Naphthalene	91-20-3	3, 4
Toluene	108-88-3	4
XYLENES	1330-20-7	4

--REGULATORY LISTS SEARCHED--

1 = IARC 1
2 = IARC 2A
3 = IARC 2B
4 = ACGIH ALL
5 = ACGIH A1
6 = ACGIH A2

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

ECOTOXICITY

Material – Expected to be toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

MOBILITY

More volatile component – Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

Less volatile component – Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Majority of components – Expected to be inherently biodegradable

Atmospheric Oxidation:

More volatile component – Expected to degrade rapidly in air

BIOACCUMULATION POTENTIAL

Majority of components – Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (TDG)

Proper Shipping Name: GASOLINE
Hazard Class & Division: 3
UN Number: 1203