1. CHEMICAL PRODUCT and COMPANY INFORMATION

EMERGENCY TELEPHONE NUMBER (24 hrs): CHEMTREC (800) 424-9300
COMPANY CONTACT (business hours): 800-542-0778

Global Companies LLC
Water Mill Center
800 South St.
Waltham, MA 02454-9161

SYNONYMS: #2 Heating Oil; High Sulfur Diesel; Heating Oil Plus™
See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>INGREDIENT NAME</th>
<th>CAS NUMBER</th>
<th>EXPOSURE LIMITS</th>
<th>CONCENTRATION (% BY WEIGHT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 2 Fuel Oil</td>
<td>68476-30-2</td>
<td>OSHA PEL: 5 mg/m³ (TWA) as mineral oil mist</td>
<td>95 – 100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACGIH TLV: 100 mg/m³ (TWA), skin A3</td>
<td></td>
</tr>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>OSHA PEL: 10 ppm (TWA)</td>
<td>Typically 0.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACGIH TLV: 10 ppm (TWA), 15 ppm (STEL), skin A4</td>
<td></td>
</tr>
<tr>
<td>Methyl Esters</td>
<td>67784-80-9</td>
<td>N/A</td>
<td>0 – 5</td>
</tr>
</tbody>
</table>

A complex combination of hydrocarbons with carbon numbers in the range C9 and higher produced from the distillation of petroleum crude oil.

3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW**

**CAUTION!**

**OSHA/NFPA COMBUSTIBLE LIQUID - SLIGHT TO MODERATE IRRITANT - EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED**

Moderate fire hazard. Avoid breathing vapors or mists. May cause dizziness and drowsiness. May cause moderate eye irritation and skin irritation (rash). Long-term, repeated exposure may cause skin cancer. If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs).

**EYES**

Contact with liquid or vapor may cause mild irritation.

**SKIN**

May cause skin irritation with prolonged or repeated contact. Single acute exposure not expected to cause allergic response. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed. Symptoms may include itching, irritation, pain and swelling.

**INGESTION**

Due to low viscosity, potential exists for aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death. Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

**INHALATION**

Excessive exposure may cause irritation to the nose, throat, lungs and respiratory tract. Central nervous system effects may include headache, dizziness, loss of balance and coordination and, at extreme exposures, unconsciousness, coma, respiratory failure, and death.
WARNING: The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products and inadequate oxygen levels, which may lead to suffocation, unconsciousness and death.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash).

See Section 11 for additional information regarding toxicity.

4. FIRST AID MEASURES

EYES
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 minutes. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water. If irritation or redness develops, seek medical attention.

INGESTION
DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material, which enter the mouth, should be rinsed out until the taste is dissipated.

INHALATION
Remove person to fresh air. If person is not breathing provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES
FLASH POINT: > 125°F (> 52 °C) minimum PMCC
AUTOIGNITION POINT: 494 °F (257 °C)
OSHA/NFPA FLAMMABILITY CLASS: 2 (COMBUSTIBLE)
LOWER EXPLOSIVE LIMIT (%): 0.6
UPPER EXPLOSIVE LIMIT (%): 7.5

FIRE AND EXPLOSION HAZARDS
OSHA and NFPA Class 2 Combustible Liquid. Vapors may ignite rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Vapors may travel long distances to an ignition source and flashback. Vapors are heavier than air and may accumulate in low areas. Runoff to sewer may lead to fire or explosion hazard.

EXTINGUISHING MEDIA
SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, carbon dioxide, fire fighting foam, or Halon. Use water spray to cool exposed materials.

LARGE FIRES: Fog or fire fighting foam recommended. Water spray may be ineffective for fighting fires, but may be used to cool fire-exposed materials and structures.

FIRE FIGHTING INSTRUCTIONS
Incipient stage fires may be extinguished using handheld portable fire extinguishers and other firefighting equipment. Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full face piece and full protective clothing. Isolate area surrounding fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water.
For large fires, the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

HAZARDOUS COMBUSTION PRODUCTS
Combustion may yield a complex mixture of airborne solids, liquids and gases, including smoke, carbon monoxide, carbon dioxide, and other products of incomplete combustion.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY’S SPCC, SPILL CONTINGENCY OR EMERGENCY RESPONSE PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Stay upwind and uphill when possible. Evaluate the direction of product travel, digging, sewers, etc. to confirm spill areas. Do not touch or walk-through spilled material. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by digging or using absorbents/ absorbent booms. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with dry earth, sand or other non-combustible, inert oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container with clean, non-sparking tools for reclamation or disposal. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8). Local, state, and/or Federal notification may be required if this material is released to the environment (see Section 15 for additional information).

7. HANDLING AND STORAGE HANDLING PRECAUTIONS

Handle as a combustible liquid. Keep away from heat, sparks, and open flame. Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce potential for static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as gasoline) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

GENERAL STORAGE PRECAUTIONS
Keep away from flame, sparks, and excessive temperatures. Use approved vented containers. Keep containers closed and clearly labeled. Label all secondary containers with the chemical name and associated hazard(s). Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat or weld containers. Do not expose containers to sources of ignition.

Store in a well ventilated area. Protect containers from damage and vehicular traffic. Post “No Smoking” signs in product storage areas. Storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks in Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES
Wear protective gloves when handling. Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin.
Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION

ENGINEERING CONTROLS
Use adequate local or general ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits.

EYE/FACE PROTECTION
Safety glasses with side shields or goggles are recommended where there is a possibility of splashing or spraying.

SKIN/HAND PROTECTION
Gloves constructed of nitrile, neoprene, or PVC are recommended. Chemical protective clothing such as DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The breakthrough performance of materials may vary between products, based on degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION
A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges/ canisters should be used where airborne concentrations are, or may be expected to be, above exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic, and the respirator manufacturer for additional guidance on respiratory protection selection.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES APPEARANCE

Red/orange dyed liquid.

ODOR
Mild, petroleum distillate odor

BASIC PHYSICAL PROPERTIES
BOILING RANGE: 320 to 690 °F (160 to 366 °C)
VAPOR PRESSURE: 0.009 psia @ 70 °F (21 °C)
VAPOR DENSITY (air = 1): > 1.0
SPECIFIC GRAVITY (H2O = 1): 0.81 to 0.88 @ 60 °F (16 °C)
PERCENT VOLATILES: 100 %
EVAPORATION RATE: Slow; varies with conditions
SOLUBILITY (H2O): Negligible

10. STABILITY and REACTIVITY

STABILITY: Stable under normal ambient conditions. Hazardous polymerization will not occur.

CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS
Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Keep away from strong acids and oxidizers; Viton®; Fluorel®

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).
11. TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>ORAL LD50</th>
<th>DERMAL LD50</th>
<th>INHALATION LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 2 Fuel Oil</td>
<td>&gt; 9 g/kg (rats)</td>
<td>&gt; 5g/kg (rabbits)</td>
<td>5 mg/L</td>
</tr>
<tr>
<td>Methyl Esters</td>
<td>&gt; 14.4 g/kg (rats)</td>
<td>No data</td>
<td>No data</td>
</tr>
</tbody>
</table>

Primary dermal irritation: extremely irritating (rabbits) Draize eye irritation: non-irritating (rabbits)
Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY


Petroleum middle distillates have been shown to produce skin tumors in laboratory animals following repeated and prolonged exposures. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal’s skin with soap and water between applications reduced tumor formation.

This product is similar to Diesel Fuel. IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A) and NIOSH regards it as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

MUTAGENICITY (genetic effects)

No. 2 Fuel Oil has been found positive in mutagenicity studies in which mice and rats were subjected to oral exposures.

12. ECOLOGICAL INFORMATION

This product should be regarded as toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment. Keep out of sewers, drainage areas, and waterways. Spills and releases should be reported, as applicable, in accordance with appropriate Federal and state regulations. (See Section 15 for additional information).

13. DISPOSAL CONSIDERATIONS

Although this material does not specifically meet the definition of a RCRA hazardous waste, it may be considered hazardous for disposal, as it displays a characteristic of hazardous waste. Consult federal, state and local waste regulations to determine appropriate disposal options. See Section 15 for further information.

14. TRANSPORTATION INFORMATION

| PROPER SHIPPING NAME:          | Fuel Oil, No. 2 |
| HAZARD CLASS and PACKING GROUP: | 3, PG III       |
| DOT IDENTIFICATION NUMBER:     | UN1202 / NA 1993|
| DOT SHIPPING LABEL:            | Combustible Liquid|
| EMERGENCY RESPONSE GUIDEBOOK NUMBER: | 128 |

15. REGULATORY INFORMATION

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product contains constituents listed on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other regulations at the state and/or local level. Consult those regulations applicable to your facility/operation.
RCRA INFORMATION
This product may be recycled. If disposed, this product is considered an ignitable hazardous waste. Consult federal, state and local waste regulations to determine appropriate disposal options.

CLEAN WATER ACT (OIL SPILLS)
Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow-up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)
The CERCLA definition of hazardous substances contains a “petroleum exclusion” clause that exempts crude oil, refined and unrefined petroleum products, and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES
This material does not contain chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

SARA SECTION 311/312 - HAZARD CATEGORIES

<table>
<thead>
<tr>
<th>Acute Health</th>
<th>Chronic Health</th>
<th>Fire</th>
<th>Sudden Release of Pressure</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SARA SECTION 313 - SUPPLIER NOTIFICATION
This product may contain listed chemicals below the de minimis levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372. This material is subject to the reporting requirements of Section 311-312 of the Emergency Planning and Community Right to Know Act (EPCRA) if stored at quantities in excess of 10,000 pounds at any one time.

You may be required to report releases of chemicals listed in 40 CFR 372.28. However, Polycyclic Aromatic Compounds (PACs) are coincidentally manufactured from the combustion of various fuel oils and other petroleum products. Under SARA Section 313, the de minimis exemption has been eliminated for PACs and other listed persistent bio-accumulative and toxic chemicals (PBTs). Refer to EPA guidance for additional reporting information.

EPA NOTIFICATION (OIL SPILLS)
If the there is a discharge of more than 1,000-gallons of oil into or upon navigable waters of the United States, or if it is the second spill event of 42 gallons or more of oil into water within a twelve (12) month period, a written report must be submitted to the Regional Administrator of the EPA within sixty days of the event.

CANADIAN REGULATORY INFORMATION (WHMIS)
Class B, Division 3 (Combustible Liquid) and Class D, Division 2, Subdivision B (Toxic by other means)

16. OTHER INFORMATION

NFPA® HAZARD RATING

<table>
<thead>
<tr>
<th>Health</th>
<th>Fire</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Slight</td>
<td>2 Moderate</td>
<td>Negligible</td>
</tr>
</tbody>
</table>

HMIS® HAZARD RATING

<table>
<thead>
<tr>
<th>Health</th>
<th>Fire</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Slight</td>
<td>2 Moderate</td>
<td>Negligible</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Chronic</td>
</tr>
</tbody>
</table>
ABBREVIATIONS:
AP = Approximately  
N/A = Not Applicable  
N/D = Not Determined  
< = Less than  
>= Greater than  
ppm = parts per million

ACRONYMS:
ACGIH American Conference of Governmental  Industrial Hygienists  
API American Petroleum Institute  
AIHA American Industrial Hygiene Association  
CERCLA Comprehensive Emergency Response,  Compensation, and Liability Act  
OSHA U.S. Occupational Safety & Health  Administration  
PEL Permissible Exposure Limit (OSHA)  
RCRA Resource Conservation and Recovery Act  
REL Recommended Exposure Limit (NIOSH)  
ANSI American National Standards Institute  
SARA Superfund Amendments and  Reauthorization Act of 1986 Title III  
DOT U.S. Department of Transportation  
SCBA Self-Contained Breathing Apparatus  
EPA U.S. Environmental Protection Agency  
SPCC Spill Prevention, Control, and  Countermeasures  
AIHA American Industrial Hygiene Association  
IARC International Agency For Research On  Cancer  
SARA Superfund Amendments and  Reauthorization Act of 1986 Title III  
HMSI Hazardous Materials Information  
RLM Resource Conservation and Recovery  
System Act  
Rel PEL (OSHA)  
MSHA Mine Safety and Health Administration  
STEL Short-Term Exposure Limit (generally 15 minutes)  
NFPA National Fire Protection Association  
TLV Threshold Limit Value (ACGIH)  
NIOSH National Institute of Occupational Safety  
and Health  
TWA Time Weighted Average (8 hr.)  
NOIC Notice of Intended Change  
WEEL Workplace Environmental Exposure  Level (AIHA)  
NTP National Toxicology Program  
WHMIS Canadian Workplace Hazardous  Materials Information System  
OPA Oil Pollution Act of 1990  
PMCC Pensky-martens Closed Cup Method

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