Material Name: Fuel Oil No. 2

Synonyms: #2 Heating Oil; 2 Oil; Off-road Diesel Fuel

*** Section 1 - Product and Company Identification ***

Manufacturer Information
Hess Corporation  
1 Hess Plaza  
Woodbridge, NJ 07095-0961  
Phone: 732-750-6000 Corporate EHS  
Emergency # 800-424-9300 CHEMTREC  
www.hess.com (Environment, Health, Safety Internet Website)

*** Section 2 - Hazards Identification ***

GHS Classification:
- Flammable Liquids - Category 3
- Acute Toxicity, Inhalation - Category 4
- Skin Corrosion/Irritation – Category 2
- Eye Damage/Irritation – Category 2B
- Carcinogenicity - Category 2
- Specific Target Organ Toxicity (Single Exposure) – Category 3 (respiratory irritation, narcosis)
- Aspiration Hazard – Category 1
- Hazardous to the Aquatic Environment, Acute Hazard – Category 3

GHS LABEL ELEMENTS

Symbol(s)

Signal Word
DANGER

Hazard Statements
- Flammable liquid and vapor.
- Harmful if inhaled.
- Causes skin irritation.
- Causes eye irritation.
- Suspected of causing cancer.
- Suspected of causing genetic defects.
- May cause respiratory irritation.
- May cause drowsiness or dizziness.
- May be fatal if swallowed and enters airways.
- Harmful to aquatic life.

Precautionary Statements

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

Response
In case of fire: Use water spray, fog or foam.
If on skin (or hair): Wash with plenty of soap and water. Take off immediately all contaminated clothing and wash it before reuse. If skin irritation occurs, get medical advice/attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center or doctor if you feel unwell.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
If exposed or concerned: Get medical advice/attention.
If swallowed: Immediately all a poison center or doctor/physician if you feel unwell. Do NOT induce vomiting.

Storage
Store in a well-ventilated place.
Keep cool. Store locked up.
Keep container tightly closed.

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations.

*** Section 3 - Composition / Information on Ingredients ***

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Component</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>68476-30-2</td>
<td>Fuel oil No. 2</td>
<td>100</td>
</tr>
<tr>
<td>91-20-3</td>
<td>Naphthalene</td>
<td>&lt;0.1</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.

*** Section 4 - First Aid Measures ***

First Aid: Eyes
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.
First Aid: Skin
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or with waterless hand cleanser. Obtain medical attention if irritation or redness develops.

First Aid: 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.

First Aid: 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.

*** Section 5 - Fire Fighting Measures ***

General Fire Hazards
See Section 9 for Flammability Properties.
Vapors may be ignited 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. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Hazardous Combustion Products
Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media
SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or gaseous extinguishing agent.
LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Unsuitable Extinguishing Media
None

Fire Fighting Equipment/Instructions
Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment. Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive 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.

*** Section 6 - Accidental Release Measures ***

Recovery and Neutralization
Carefully contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up
Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal.
Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental Precautions

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. 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.

Prevention of Secondary Hazards

None

*** Section 7 - Handling and Storage ***

Handling Procedures

Handle as a combustible liquid. Keep away from heat, sparks, excessive temperatures and open flame! No smoking or open flame in storage, use or handling areas. Bond and ground containers during product transfer to reduce the possibility of 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 this product is loaded into tanks previously containing low flash point products (such as gasoline) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

Storage Procedures

Keep containers closed and clearly labeled. Use approved vented storage containers. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This 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."

Incompatibilities

Keep away from strong oxidizers; Fluorel ®

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

Component Exposure Limits

Fuel oil No. 2 (68476-30-2)

ACGIH: 0.2 mg/m³ TWA (inhalable fraction and vapor, as total hydrocarbons, listed under Diesel fuel)
Skin - potential significant contribution to overall exposure by the cutaneous route (listed under Diesel fuel)
Naphthalene (91-20-3)
ACGIH: 10 ppm TWA
15 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 10 ppm TWA; 50 mg/m3 TWA
NIOSH: 10 ppm TWA; 50 mg/m3 TWA
15 ppm STEL; 75 mg/m3 STEL

Engineering Measures
Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

Personal Protective Equipment: Respiratory
A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

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.

Personal Protective Equipment: Hands
Gloves constructed of nitrile, neoprene, or PVC are recommended.

Personal Protective Equipment: Eyes
Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

Personal Protective Equipment: Skin and Body
Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

### Section 9 - Physical & Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Red or reddish/orange colored</td>
</tr>
<tr>
<td>(dyed)</td>
<td></td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>0.009 psia @ 70 °F (21 °C)</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>340 to 700 °F (171 to 371 °C)</td>
</tr>
<tr>
<td>Solubility (H2O)</td>
<td>Negligible</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Slow; varies with conditions</td>
</tr>
<tr>
<td>Octanol/H2O Coeff.</td>
<td>ND</td>
</tr>
<tr>
<td>Flash Point Method</td>
<td>PMCC</td>
</tr>
<tr>
<td>Lower Flammability Limit</td>
<td>0.6</td>
</tr>
<tr>
<td>(LFL)</td>
<td></td>
</tr>
<tr>
<td>Auto Ignition</td>
<td>494°F (257°C)</td>
</tr>
<tr>
<td>Odor</td>
<td>Mild, petroleum distillate</td>
</tr>
<tr>
<td>pH</td>
<td>ND</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>&gt;1.0</td>
</tr>
<tr>
<td>Melting Point</td>
<td>ND</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>AP 0.823-0871</td>
</tr>
<tr>
<td>VOC</td>
<td>ND</td>
</tr>
<tr>
<td>Flash Point</td>
<td>100 °F (38 °C) minimum</td>
</tr>
<tr>
<td>Upper Flammability Limit</td>
<td>7.5</td>
</tr>
<tr>
<td>(UFL)</td>
<td></td>
</tr>
<tr>
<td>Burning Rate</td>
<td>ND</td>
</tr>
</tbody>
</table>

### Section 10 - Chemical Stability & Reactivity Information

Chemical Stability
This is a stable material.
Hazardous Reaction Potential
Will not occur.

Conditions to Avoid
Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Incompatible Products
Keep away from strong oxidizers; Fluorel ®

Hazardous Decomposition Products
Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

*** Section 11 - Toxicological Information ***

Acute Toxicity
A: General Product Information
Harmful if swallowed.

B: Component Analysis - LD50/LC50
Fuel oil No. 2 (68476-30-2)
Oral LD50 Rat 12 g/kg; Dermal LD50 Rabbit 4720 µL/kg; Dermal LD50 Rabbit >2000 mg/kg; Inhalation LC50 Rat 4.6 mg/L 4 h

Naphthalene (91-20-3)
Inhalation LC50 Rat >340 mg/m3 1 h; Oral LD50 Rat 490 mg/kg; Dermal LD50 Rat >2500 mg/kg; Dermal LD50 Rabbit >20 g/kg

Product Mixture
Oral LD50 Rat 14.5 ml/kg; Dermal LD50 Rabbit >5 mL/kg; Guinea Pig Sensitization: negative; Primary dermal irritation: moderately irritating (Draize mean irritation score - 3.98 rabbits); Draize eye irritation: mildly irritating (Draize score, 48 hours, unwashed - 2.0 rabbits)

Potential Health Effects: Skin Corrosion Property/Stimulativeness
Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

Potential Health Effects: Eye Critical Damage/ Stimulativeness
Contact with eyes may cause mild irritation.

Potential Health Effects: Ingestion
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.

Potential Health Effects: Inhalation
Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, 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, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.
Safety Data Sheet

Material Name: Fuel Oil No. 2

Respiratory Organs Sensitization/Skin Sensitization
This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity
This product is not reported to have any mutagenic effects. Material of similar composition has been positive in a mutagenicity study.

Carcinogenicity
A: General Product Information
Suspected of causing cancer.

Dermal carcinogenicity: positive - mice
Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. 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.

B: Component Carcinogenicity

Fuel oil No. 2  (68476-30-2)
ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans (listed under Diesel fuel)

Naphthalene  (91-20-3)
ACGIH: A4 - Not Classifiable as a Human Carcinogen
NTP: Reasonably Anticipated To Be A Human Carcinogen (Possible Select Carcinogen)
IARC: Monograph 82 [2002] (Group 2B (possibly carcinogenic to humans))

Reproductive Toxicity
This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure
This product is not reported to have any specific target organ general toxicity single exposure effects.

Specified Target Organ General Toxicity: Repeated Exposure
This product is not reported to have any specific target organ general toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard
The major health threat of ingestion occurs from the danger of 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.

*** Section 12 - Ecological Information ***

Ecotoxicity
A: General Product Information
Very toxic to aquatic life with long lasting effects. Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.
### B: Component Analysis - Ecotoxicity - Aquatic Toxicity

#### Fuel oil No. 2 (68476-30-2)

<table>
<thead>
<tr>
<th>Test &amp; Species</th>
<th>Conditions</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>96 Hr LC50 Pimephales promelas</td>
<td>35 mg/L [flow-through]</td>
<td></td>
</tr>
</tbody>
</table>

#### Naphthalene (91-20-3)

<table>
<thead>
<tr>
<th>Test &amp; Species</th>
<th>Conditions</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>96 Hr LC50 Pimephales promelas</td>
<td>5.74-6.44 mg/L [flow-through]</td>
<td></td>
</tr>
<tr>
<td>96 Hr LC50 Oncorhynchus mykiss</td>
<td>1.6 mg/L [flow-through]</td>
<td></td>
</tr>
<tr>
<td>96 Hr LC50 Oncorhynchus mykiss</td>
<td>0.91-2.82 mg/L [static]</td>
<td></td>
</tr>
<tr>
<td>96 Hr LC50 Pimephales promelas</td>
<td>1.99 mg/L [static]</td>
<td></td>
</tr>
<tr>
<td>96 Hr LC50 Lepomis macrochirus</td>
<td>31.0265 mg/L [static]</td>
<td></td>
</tr>
<tr>
<td>72 Hr EC50 Skeletonema costatum</td>
<td>0.4 mg/L</td>
<td></td>
</tr>
<tr>
<td>48 Hr LC50 Daphnia magna</td>
<td>2.16 mg/L</td>
<td></td>
</tr>
<tr>
<td>48 Hr EC50 Daphnia magna</td>
<td>1.96 mg/L [Flow through]</td>
<td></td>
</tr>
<tr>
<td>48 Hr EC50 Daphnia magna</td>
<td>1.09 - 3.4 mg/L [Static]</td>
<td></td>
</tr>
</tbody>
</table>

### Persistence/Degradability
No information available.

### Bioaccumulation
No information available.

### Mobility in Soil
No information available.

---

**Section 13 - Disposal Considerations**

**Waste Disposal Instructions**
See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

**Disposal of Contaminated Containers or Packaging**
Dispose of contents/container in accordance with local/regional/national/international regulations.

---

**Section 14 - Transportation Information**

<table>
<thead>
<tr>
<th>DOT Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shipping Name:</strong> Fuel Oil, No. 2</td>
</tr>
<tr>
<td><strong>UN #:</strong> 1202</td>
</tr>
<tr>
<td><strong>Placard:</strong> FLAMMABLE 3</td>
</tr>
</tbody>
</table>
**Section 15 - Regulatory Information**

### Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

**Naphthalene** (91-20-3)

- **SARA 313**: 0.1 % de minimis concentration
- **CERCLA**: 100 lb final RQ; 45.4 kg final RQ

### SARA Section 311/312 – Hazard Classes

<table>
<thead>
<tr>
<th>Acute Health</th>
<th>Chronic Health</th>
<th>Fire</th>
<th>Sudden Release of Pressure</th>
<th>Reactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</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. If you may be required to report releases of chemicals listed in 40 CFR 372.28, you may contact Hess Corporate Safety if you require additional information regarding this product.

### State Regulations

#### Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
<th>RI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

**WARNING!** This product contains a chemical known to the state of California to cause cancer.

#### Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

### Additional Regulatory Information
Component Analysis - Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>TSCA</th>
<th>CAN</th>
<th>EEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil No. 2</td>
<td>68476-30-2</td>
<td>Yes</td>
<td>DSL</td>
<td>EINECS</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>Yes</td>
<td>DSL</td>
<td>EINECS</td>
</tr>
</tbody>
</table>

*** Section 16 - Other Information ***

NFPA® Hazard Rating
Health 1
Fire 2
Reactivity 0

HMIS® Hazard Rating
Health 1* Slight
Fire 2 Moderate
Physical 0 Minimal

*Chronic

Abbreviations:
AP = Approximately; < = Less than > = Greater than; N/A = Not Applicable; N/D = Not Determined; ppm = parts per million

Key/Legend
EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; API = American Petroleum Institute (202) 682-8000; IARC = International Agency for Research on Cancer; MSHA = Mine Safety and Health Administration; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

Literature References
None

Other Information
Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

End of Sheet