



# Material Safety Data Sheet

## Section 1. Chemical Product and Company Identification

Product name	<b>Low Sulfur Diesel Fuel</b> <b>Ultra-low Sulfur Diesel Fuel</b>	<u>In Case of Emergency</u>	Chemtrec: (800) 424-9300 Total Petrochemicals & Refining USA, Inc.: (800) 322-3462
Supplier	Total Petrochemicals & Refining USA, Inc. P O Box 674411 Houston, TX 77267-4411	<u>Technical Information</u>	For non-emergency product information: email product.stewardship@total.com
Chemical Family	Hydrocarbon Mixture	MSDS#	RF0049
CAS Registry Number	68476-34-6	Validation Date	1/1/2015
		Print Date	1/2/2015
Synonym	Furnace Oil #2, Diesel, Fuel Oil #2		

## Section 2. Hazards Identification

Emergency Overview	COMBUSTIBLE LIQUID AND VAPOR. MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. ASPIRATION HAZARD.
Routes of Entry	Dermal contact. Eye contact. Inhalation. Ingestion.
Potential Acute Health Effects	<p><i>Eyes</i> May cause eye irritation.</p> <p><i>Skin</i> May cause skin irritation. Skin inflammation is characterized by itching, scaling, reddening or, occasionally, blistering.</p> <p><i>Inhalation</i> May cause respiratory tract irritation. Intoxication, dizziness, drowsiness, headache and nausea, weakness and fatigue. Burning sensation in chest, possible asphyxiation and unconsciousness.</p> <p><i>Ingestion</i> Aspiration hazard if swallowed. Can enter lungs and cause damage. The greatest hazard of ingestion is accidental PULMONARY ASPIRATION, which can cause potentially fatal CHEMICAL PNEUMONITIS and NONCARDIOGENIC PULMONARY EDEMA.</p> <p>Local irritation, burning sensation in mouth, esophagus, and stomach. Vomiting, belching, and diarrhea with blood-tinged feces. Drowsiness.</p>
Potential Chronic Health Effects	Signs and symptoms of chronic exposure are similar to those of acute exposure. Skin: dermatitis.
	<b>CARCINOGENIC EFFECTS:</b>  Classified A3 (Proven for animals.) by ACGIH, Classified None. by OSHA [fuel, diesel no. 2]. Classified 3 (Not classifiable for humans.) by IARC [fuel, diesel no. 2].  Classified 2B (Possible for humans.) by IARC, 3 (Possible for humans.) by European Union. Classified 2 (Reasonably anticipated to be human carcinogens.) by NTP. A4 (Not classifiable for humans or animals.) by ACGIH [for naphthalene].  Lifetime skin painting studies conducted by the American Petroleum Institute and others have shown that similar products boiling between 175-370 C (350-700 F) usually produce skin tumors and/or cancer in mice. The degree of carcinogenic response was weak to moderate with a relatively long latent period. The implications of these results for humans have not been determined.

Medical Conditions Aggravated by Overexposure	Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.
Overexposure /Signs/ Symptoms	Effects of overexposure may include irritation of the digestive tract, irritation of the respiratory tract, nausea, diarrhea and signs of nervous system depression, such as headache, drowsiness, dizziness, loss of coordination, disorientation, and fatigue.
See Toxicological Information (Section 11)	

### **Section 3. Composition and Information on Ingredients**

*Occupational exposure limits, if available, are listed in Section 8.*

Substance Name	CAS #	% by Weight
Diesel Oil # 2	68476-34-6	~ 100
nonane	111-84-2	<5
biphenyl	92-52-4	<2
naphthalene	91-20-3	<2

### **Section 4. First Aid Measures**

Eye Contact	Check for and remove any contact lenses. Flush with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. DO NOT use an eye ointment. Seek medical attention.
Skin Contact	After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.
Inhalation	Allow the victim to rest in a well ventilated area. Seek immediate medical attention.
Ingestion	DO NOT induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.
Notes to Physician	May administer activated charcoal or gastric lavage. Emesis may result in chemical pneumonitis (#2 Diesel).

### **Section 5. Fire Fighting Measures**

Flammability of the Product	Combustible.
Auto-ignition Temperature	>204°C (399.2°F)
Flash Points	CLOSED CUP: 54.4°C (130°F). (Pensky-Martens.).
Flammable Limits	LOWER: 0.4% UPPER: 6%
Products of Combustion	carbon oxides (CO, CO <sub>2</sub> ) sulfur oxides (SO <sub>2</sub> , SO <sub>3</sub> ...)
Fire Hazards in Presence of Various Substances	Flammable in presence of open flames and sparks, of heat.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of static discharge: Expected. Risks of explosion of the product in presence of mechanical impact: Not expected. No specific information is available in our database regarding the product's risks of explosion in the presence of various materials.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder, CO <sub>2</sub> , and halon. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet.
Protective Clothing (Fire)	Wear MSHA/NIOSH approved self-contained breathing apparatus or equivalent and full protective gear (Bunker gear).

**Special Remarks on Fire Hazards** Combustible. Avoid inhalation of vapors. May generate dense smoke while burning.

**Special Remarks on Explosion Hazards** May form explosive mixtures with air. Container may explode in fire. Flashback along vapor trail may occur. May explode if ignited in an enclosed area.

### Section 6. Accidental Release Measures

**Small Spill and Leak** Warn personnel to move away. Eliminate ignition sources and ventilate area. Absorb with an inert material and place in an appropriate waste disposal container.

**Large Spill and Leak** Combustible material. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities. Dike spill area and do not allow product to reach sewage system or surface or ground water. Notify any reportable spill to authorities. (See section 12 for environmental risks and 13 for disposal information.)

### Section 7. Handling and Storage

**Handling** Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Storage** Keep container tightly closed. Keep in a cool, well-ventilated place. Keep away from sources of ignition. Keep away from incompatibles as oxidizers.

All efforts should be made to prevent any leaks or spills. Storage tanks containing should be engineered to prevent contact with water resources, as this material could contaminate the water resources. Surface spills can reach groundwater through porous soil or cracked surfaces. The storage tanks should be monitored regularly for leaks. Where spills or leaks are possible, a comprehensive response plan should be developed and implemented.

### Section 8. Exposure Controls/Personal Protection

**Engineering Controls** Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

#### Personal Protection

*Eyes* Safety glasses. Splash goggles.

*Body* Flame retardant clothing covering the entire body.

#### Respiratory

Use a MSHA/NIOSH approved respirator or equivalent at high concentrations.

*Hands* Chemical resistant gloves if contact is possible.

*Feet* Shoes.

#### Protective Clothing (Pictograms)



**Personal Protection in Case of a Large Spill** Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Product Name**

**Exposure Limits**

Diesel Oil # 2	ACGIH TLV (United States, 2011). TWA: 100 mg/m <sup>3</sup>
nonane	ACGIH TLV (United States, 2011). TWA: 200 ppm 8 hour(s). TWA: 1050 mg/m <sup>3</sup> 8 hour(s). NIOSH REL (United States, 6/2009). TWA: 200 ppm 10 hour(s). TWA: 1050 mg/m <sup>3</sup> 10 hour(s).
biphenyl	ACGIH TLV (United States, 2011). TWA: 0.2 ppm 8 hour(s). NIOSH REL (United States, 6/2009). TWA: 0.2 ppm 10 hour(s).
naphthalene	ACGIH TLV (United States, 2011). TWA: 10 ppm 8 hour(s). STEL: 15 ppm 15 minute(s). NIOSH REL (United States, 6/2009). TWA: 10 ppm 10 hour(s). STEL: 15 ppm 15 minute(s).

Consult local authorities for acceptable exposure limits.

### **Section 9. Physical and Chemical Properties**

Physical State and Appearance	Liquid.
Color	Straw color.
Odor	Kerosine-like
Molecular Weight	Not applicable.
Molecular Formula	Not applicable.
Boiling/Condensation Point	160 to 354.4°C (320 to 670°F)
Specific Gravity	0.87 (Water = 1)
Vapor Pressure	1.6 mm of Hg (@ 20°C)
Vapor Density	8 (Air = 1)
Volatility	100% (v/v).
Evaporation Rate	600 X slower compared to Ethylether
VOC	100 (%)
Solubility in Water	Negligible.
Physical Chemical Comments	No additional remark.

### **Section 10. Stability and Reactivity**

Stability and Reactivity	The product is stable.
Conditions of Instability	No additional remark.
Incompatibility with Various Substances	Extremely reactive or incompatible with strong oxidizing agents.
Hazardous Decomposition Products	carbon monoxide & carbon dioxide
Hazardous Polymerization	No.

### Section 11. Toxicological Information

Toxicity to Animals	Product/ingredient name	Result	Species	Dose	Exposure
	Fuel, diesel no.2	LD50 Dermal	Rabbit	>3160 mg/kg	-
		LD50 Oral	Rat	>5000 mg/kg	-
		LD50 Oral	Rat	7500 mg/kg	-
		TDLo Oral	Rat	1.25 mL/kg	-
	nonane	LC50 Inhalation Vapor	Rat	17000 mg/m3	4 hours
		LC50 Inhalation Gas.	Rat	3200 ppm	4 hours
	biphenyl	LD50 Dermal	Rabbit	>5010 mg/kg	-
		LD50 Oral	Rat	2140 mg/kg	-
		LD50 Unreported	Rat	4500 mg/kg	-
		TDLo Intraperitoneal	Rat	160 mg/kg	-
	naphthalene	LD50 Dermal	Rabbit	>20 gm/kg	-
		LD50 Dermal	Rat	>2500 mg/kg	-
		LD50 Oral	Rat	490 mg/kg	-
		LD50 Unreported	Rat	1250 mg/kg	-
		TDLo Intraperitoneal	Rat	100 mg/kg	-

**Chronic Effects on Humans** Signs and symptoms of chronic exposure are similar to those of acute exposure. Skin: dermatitis.

#### CARCINOGENIC EFFECTS:

Classified A3 (Proven for animals.) by ACGIH,  
Classified None. by OSHA [fuel, diesel no. 2].  
Classified 3 (Not classifiable for humans.) by IARC [fuel, diesel no. 2].

Classified 2B (Possible for humans.) by IARC, 3 (Possible for humans.) by European Union.  
Classified 2 (Reasonably anticipated to be human carcinogens.) by NTP. A4 (Not classifiable for humans or animals.) by ACGIH [for naphthalene].

Lifetime skin painting studies conducted by the American Petroleum Institute and others have shown that similar products boiling between 175-370 C (350-700 F) usually produce skin tumors and/or cancer in mice. The degree of carcinogenic response was weak to moderate with a relatively long latent period. The implications of these results for humans have not been determined.

**Other Toxic Effects on Humans** Aspiration hazard if swallowed. Can enter lungs and cause damage. May cause respiratory tract irritation. May cause skin, eye and respiratory irritation. Can cause central nervous system (CNS) depression.

**Special Remarks on Toxicity to Animals** Prolonged or repeated inhalation of highly concentrated petroleum distillates caused liver tumors in mice and kidney damage and tumors in male rats. Skin paint with distillates (boiling range 100-700 F) applied repeatedly and never washed off can cause skin cancer. Chronic exposure to unfiltered diesel exhaust produced tumors in lungs and lymphomas in mice and rats.

**Special Remarks on Chronic Effects on Humans** NIOSH recommends that whole diesel exhaust be regarded as a potential carcinogen.

**Special Remarks on Other Toxic Effects on Humans** No additional remark.

### Section 12. Ecological Information

Ecotoxicity	Aquatic toxicity: 2990 ppm/24 hr (kerosene). Does not bioconcentrate in the food chain (kerosene).
BOD5 and COD	53%, 5 days (for kerosene which is similar to diesel)
Mobility	Not available.  No additional information.
Special Remarks on the Products of Biodegradation	No additional remark.

### Section 13. Disposal Considerations

Waste Information	Recover free liquid. Transfer to an approved disposal area in accordance with federal, state, and local regulations. The classification of the product may meet the criteria for a hazardous waste.
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Consult your local or regional authorities.

### Section 14. Transport Information (for domestic bulk shipments, non-bulk shipments may differ)

DOT Classification for Bulk Shipments (non bulk shipments may differ)	DOT CLASS 3: Flammable liquid.
Proper Shipping Name/Description	UN1202, Diesel Fuel, 3, PGIII RQ (contains Naphthalene, Biphenyl)
UN Number	UN1202
Packing Group	III
Marine Pollutant	Not listed in Appendix B to 49CFR172.101
Hazardous Substances Reportable Quantity	Naphthalene 100 lbs Biphenyl 100 lbs
Special Provisions for Transport	See codes as shown in 49 CFR 172.101 column 7.
TDG Classification	Not available.
IMO/IMDG Classification	Not available.
ICAO/IATA Classification	Not available.
USCG Proper Shipping Name	Oil misc. Diesel; Oil, Fuel No. 2-D



### Section 15. Regulatory Information

HCS Classification	HCS CLASS: Combustible liquid having a flash point between 37.8°C (100°F) and 93.3°C (200°F).
U.S. Federal Regulations	<p>TSCA 4(a) final test rules: naphthalene TSCA 8(a) PAIR: naphthalene TSCA 8(a) CDR Exempt/Partial exemption: Partial exemption United States inventory (TSCA 8b): All components are listed or exempted. TSCA 12(b) annual export notification: naphthalene</p> <p>SARA 302/304/311/312 extremely hazardous substances: To the best of our knowledge, there are no substances that would be at reportable levels for this regulation in this product. SARA 302/304 emergency planning and notification: To the best of our knowledge, there are no substances that would be at reportable levels for this regulation in this product. SARA 302/304/311/312 hazardous chemicals: nonane; biphenyl; naphthalene SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Fuel, diesel no.2: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard</p>



**SARA 302/304/311/312 extremely hazardous substances:** To the best of our knowledge, there are no substances that would be at reportable levels for this regulation in this product.

**SARA 302/304 emergency planning and notification:** To the best of our knowledge, there are no substances that would be at reportable levels for this regulation in this product.

**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:** Fuel, diesel no.2: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

**SARA 313 Supplier Notification**

This product contains the following EPCRA section 313 chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR 372 -Table 372.65).

<u>Product name</u>	<u>CAS number</u>	<u>Concentration (%)</u>
biphenyl	92-52-4	<2
naphthalene	91-20-3	<2

**Clean Water Act (CWA) 307:** naphthalene

**Clean Water Act (CWA) 311:** naphthalene

**Clean Air Act (CAA) 112 accidental release prevention:** To the best of our knowledge, there are no substances that would be at reportable levels for this regulation in this product.

**Clean Air Act (CAA) 112 regulated flammable substances:** To the best of our knowledge, there are no substances that would be at reportable levels for this regulation in this product.

**Clean Air Act (CAA) 112 regulated toxic substances:** To the best of our knowledge, there are no substances that would be at reportable levels for this regulation in this product.

**International Regulations**

**WHMIS (Canada)** Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).

**CEPA Toxic substances:** The following components are listed: Polycyclic aromatic hydrocarbons

**Canadian ARET:** None of the components are listed.

**Canadian NPRI:** The following components are listed: Nonane; Biphenyl; Naphthalene

**Alberta Designated Substances:** None of the components are listed.

**Ontario Designated Substances:** None of the components are listed.

**Quebec Designated Substances:** None of the components are listed.

**DSCL (EEC)** R40- Limited evidence of a carcinogenic effect.

**CEPA DSL/NDL** All components are listed or exempted.

**International Lists** **Australia inventory (AICS):** All components are listed or exempted.

**China inventory (IECSC):** All components are listed or exempted.

**Japan inventory (ENCS):** All components are listed or exempted.

**Japan inventory (ISHL):** Not determined.

**Korea inventory (KECI):** All components are listed or exempted.

**New Zealand Inventory of Chemicals (NZIoC):** All components are listed or exempted.

**Philippines inventory (PICCS):** All components are listed or exempted.

**State Regulations**

**Massachusetts Substances:** The following components are listed: NONANE; BIPHENYL; NAPHTHALENE

**New Jersey Hazardous Substances:** The following components are listed: FUEL OIL

**New York Acutely Hazardous Substances:** The following components are listed: Biphenyl; Naphthalene

**Pennsylvania RTK Hazardous Substances:** The following components are listed: NONANE; 1,1'-BIPHENYL; NAPHTHALENE

**WARNING:** This product contains a chemical or chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

## Section 16. Other Information

Label requirements COMBUSTIBLE LIQUID AND VAPOR.  
MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.  
ASPIRATION HAZARD.

Hazardous Material  
Information System  
(U.S.A.)

Health	*	1
Fire Hazard		2
Reactivity		0
Personal Protection		

National Fire  
Protection  
Association  
(U.S.A.)



References Chemtox Database  
Hazardous Substance Database

Validated on 1/1/2015.

Printed 1/2/2015.

Chemtrec:  
(800) 424-9300  
Total Petrochemicals & Refining USA, Inc.:  
(800) 322-3462

### Notice to Reader

*To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.*

MSDS Name Diesel Oil #2 - Low Sulfur

MSDS Code

LO\_S\_DIESEL

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To obtain an electronic copy of this MSDS, please email: [product.stewardship@total.com](mailto:product.stewardship@total.com).