



U. S. Oil & Refining Co.

3001 Marshall Avenue, Tacoma, Washington, 98421 (253) 383-1651

Product Specification Heating Oil #2

Properties	ASTM Method	Specifications	
		Min.	Max
Flash Point, PMCC, °C	D93	38	
Water & Sediment, vol%	D2709		0.05
Distillation, 90% Recovered, °C	D86	282	338
Viscosity, mm ² /s @ 40°C	D7042	1.9	4.1
Carbon Residue 10%, mass%	D4530		0.35
Sulfur, ppm	D7039		15
Lubricity, HFRR@60°C, micron	D6079		520
Corrosion, Copper Strip, 3h @ 50°C	D130		No. 3
Density, kg/m ³ @ 15 °C	D4052		876
Pour Point, °C	D5950		-6
Conductivity, pS/m, at point, time, & temperature of delivery to purchaser	D2624	25	

Product conforms to ASTM D396 Grade No. 2 S15 specification.



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SAFETY DATA SHEET

Diesel
Date of Preparation: April 14, 2020

Section 1: IDENTIFICATION

Product Identifier: Diesel

Other Means of Identification: #2 Diesel Clear; Diesel Government Use; F76 Navy Distillate; Heating Oil #2; Low Sulfur Diesel-Off Road; Ultra Low Sulfur Diesel-Clear; Ultra Low Sulfur Diesel-Dyed; #2 Fuel Oil, ULSD.

SDS Number: 844

Product Code: #2 Diesel Clear (311100); Diesel, Govt. Use (312400); Dyed Premium Diesel, Ultra Low (302301); Dyed Ultra Low Diesel w/ CENEX (3023002); F76 Navy Distillate (311400); Heating Oil (302200); Low Sulfur Diesel, Off Road (312300); Ultra Low Premium Diesel, Clear (301101); Ultra Low Sulfur Diesel, Clear (301100); Ultra Low Diesel Clear w/ CENEX (302301); Ultra Low Sulfur Diesel, Dyed (Dock) (3023003); Ultra Low Sulfur Diesel, Dyed (302300).

Product Use: Fuel.

Restrictions on Use: Not available.

Manufacturer/Supplier: U.S. OIL & REFINING CO.
3001 Marshall Ave.
Tacoma, WA 98421

Emergency Phone: U.S. OIL & REFINING CO.: (253) 383-1651
CHEMTREC: 800-424-9300
NATIONAL POISON CENTER: 1-800-222-1222

Date of Preparation of SDS: April 14, 2020

Section 2: HAZARD(S) IDENTIFICATION

CLASSIFICATION: Flammable Liquids, Category 3
Skin Irritation, Category 2
Carcinogenicity, Category 2
Specific Target Organ Toxicity (Single Exposure), Category 3 - Narcotic Effects
Aspiration Hazard, Category 1



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LABEL ELEMENTS

Hazard
Symbol(s):



Signal Word: Danger

Hazard Statements: H226: Flammable liquid and vapor.
H315: Causes skin irritation.
H351: Suspected of causing cancer.
H336: May cause drowsiness or dizziness.
H304: May be fatal if swallowed and enters airways.

PRECAUTIONARY STATEMENTS

Prevention: 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, or spray.
P264: Wash hands thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves, protective clothing and eye protection.

Response: P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor.
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 attention.
P312: Call a POISON CENTER or doctor if you feel unwell.
P331: Do NOT induce vomiting.
P332 + P313: If skin irritation occurs: Get medical attention.
P362 + P364: Take off contaminated clothing and wash it before reuse.
P370 + P378: In case of fire: Use dry chemical, CO₂, water spray or regular foam to extinguish.

Storage: P403 + P233: Store in a well-ventilated place. Keep container tightly closed.
P235: Keep cool.
P405: Store locked up.



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Disposal: P501: Dispose of contents and container in accordance with applicable regional, national and local laws and regulations.

Hazards Not Otherwise Classified: No applicable information was found.

Ingredients with Unknown Acute Toxicity: 100% of this product mixture consists of ingredient(s) of unknown acute toxicity.

This material is considered hazardous by the OSHA Hazard Communication Standard, (29 CFR 1910.1200).

This material is not considered hazardous by the Hazardous Products Regulations.

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredient(s)	Common name / Synonyms	CAS No.	% wt./wt.
Fuels, Diesel, No. 2	Diesel Fuel No. 2	68476-34-6	0 - 100
Fuels, Diesel	Not available.	68334-30-5	0 - 100
Fuel Oil, No. 2	Fuel Oil No. 2	68476-30-2	0 - 100
Naphthalene	Not available.	91-20-3	0 - 0.5

Section 4: FIRST-AID MEASURES

Inhalation: If inhaled: Remove person to fresh air and keep comfortable for breathing. If symptoms persist, get medical attention/advice. If breathing or the heart stops, trained personnel should immediately begin artificial respiration (AR) or cardiopulmonary resuscitation (CPR) respectively. Get medical attention immediately.

Acute and delayed symptoms and effects: May cause drowsiness or dizziness. May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. Excessive inhalation may cause headache, dizziness, confusion, loss of appetite and/or loss of consciousness.

Skin Contact: If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower for at least 15 minutes. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Acute and delayed symptoms and effects: Causes skin irritation. Signs/symptoms may include localized redness, swelling, and itching.

Eye Contact: If in eyes: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If symptoms persist, get medical attention/advice.

Acute and delayed symptoms and effects: May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.



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Ingestion: If swallowed: Do NOT induce vomiting. Immediately call a poison center or doctor. If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration. Never give anything by mouth to an unconscious person. If breathing or the heart stops, trained personnel should immediately begin artificial respiration (AR) or cardiopulmonary resuscitation (CPR) respectively. Get medical attention immediately.

Acute and delayed symptoms and effects: May be fatal if swallowed and enters airways. May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

Note to Physicians: Symptoms may not appear immediately.

Section 5: FIRE-FIGHTING MEASURES

NFPA 704



SUITABLE/UNSUITABLE EXTINGUISHING MEDIA

Suitable Extinguishing Media: Small Fire: Dry chemical, CO₂, water spray or regular foam.
Large Fire: Water spray, fog or regular foam. Move containers from fire area if it can be done safely.

Unsuitable Extinguishing Media: Do not use straight streams.

SPECIFIC HAZARDS

Flammable liquid and vapor. Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapor explosion hazard indoors, outdoors or in sewers. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water.

If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

Fire involving Tanks or Car/Trailer Loads: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Products of Combustion: Oxides of Carbon. Oxides of Sulfur. Oxides of Nitrogen.
Aromatic Hydrocarbons.



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Sensitivity to Mechanical Impact: This material is not sensitive to mechanical impact.
Sensitivity to Static Discharge: Take precautionary measures against static discharge. This material is sensitive to static discharge.

SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS

Inhalation or contact with material may irritate or burn skin and eyes. Fire may produce irritating, corrosive and/or toxic gases. Vapors may cause dizziness or suffocation. Runoff from fire control or dilution water may cause pollution. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

Section 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Personal Precautions: Do not touch or walk through spilled material. Use personal protection recommended in Section 8.

Protective Equipment: Emergency eyewash capability should be available. Wear respiratory protection as conditions warrant.

Emergency Procedures: As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

Methods for Containment: Stop leak if it can be done without risk. A vapor suppressing foam may be used to reduce vapors. Prevent spreading of material into sewers. Avoid allowing water runoff to contact spilled material.

Methods for Clean-Up: Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material. Large spills should be removed with explosion proof vacuum equipment.

Section 7: HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING:

Do not swallow. Avoid breathing mist, vapors, or spray. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use non-sparking tools. Take action to prevent static discharges. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area.

CONDITIONS FOR SAFE STORAGE:

Store in a cool, dry, well-ventilated place. Use approved containers that are tightly closed and clearly labeled. Store away from incompatible materials. See Section 10 for information on



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Incompatible Materials. Protect storage containers from physical damage, sunlight, and all sources of ignition. Post area as "No Smoking".

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

Component	ACGIH	OSHA
Diesel Fuel No. 2 [CAS No. 68476-34-6]	100 mg/m ³ (TWA); Skin; A3; Inhalable fraction and vapor (2007)	No PEL established.
Fuels, Diesel [CAS No. 68334-30-5]	100 mg/m ³ (TWA); Skin; A3; Inhalable fraction and vapor (2007)	No PEL established.
Fuel Oil No. 2 [CAS No. 68476-30-2]	100 mg/m ³ (TWA); Skin; A3; Inhalable fraction and vapor (2007)	No PEL established.
Naphthalene [CAS No. 91-20-3]	10 ppm (TWA); Skin; A3 (2013)	10 ppm (TWA), 50 mg/m ³ (TWA); 15 ppm (STEL) [Vacated]

PEL: Permissible Exposure Limit
TWA: Time-Weighted Average
STEL: Short-Term Exposure Limit

ENGINEERING CONTROLS

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits. Use explosion-proof electrical, ventilating, and lighting equipment.

PERSONAL PROTECTIVE EQUIPMENT (PPE)



Eye/Face Protection:

Wear safety glasses. Use equipment for eye protection that meets the standards referenced by CSA Standard CAN/CSA-Z94.3-92 and OSHA regulations in 29 CFR 1910.133 for Personal Protective Equipment.

Hand Protection:

Wear protective gloves. Consult manufacturer specifications for further information.

Skin and Body Protection:

Wear protective clothing. Flame resistant clothing that meets the NFPA 2112 and CAN/CGSB 155.20 standards is recommended in areas where material is stored or handled.

Respiratory Protection:

If engineering controls and ventilation are not sufficient to control exposure to below the allowable limits then an appropriate NIOSH approved air-purifying respirator, with organic vapor cartridge, or self-contained breathing apparatus must be used. Supplied air breathing apparatus must be used when oxygen concentrations are low or if airborne concentrations exceed the limits of the air-purifying respirators.



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General Hygiene Considerations: Handle according to established industrial hygiene and safety practices. Consult a competent industrial hygienist to determine hazard potential and/or the PPE manufacturers to ensure adequate protection. Emergency eyewash should be available near operations presenting a potential splash exposure. Avoid skin exposure. Promptly remove contaminated clothing, gloves, and shoes.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Transparent liquid.
Color:	Varies, clear, yellow (pale to straw), greenish-yellow, red, green color.
Odor:	Faint petroleum odor.
Odor Threshold:	Not available.
Physical State:	Liquid.
pH:	Not available.
Melting Point / Freezing Point:	Not available.
Initial Boiling Point:	150 °C (300 °F)
Boiling Range:	150 to 360 °C (300 to 680 °F)
Flash Point:	> 52 °C (126 °F)
Evaporation Rate:	Not available.
Flammability (solid, gas):	Not applicable.
Lower Flammability Limit:	Approximately 0.7 %
Upper Flammability Limit:	Approximately 5.0 %
Vapor Pressure:	Not available.
Vapor Density:	> 1 (Air = 1)
Relative Density:	0.84 to 0.88 (Water = 1) at 16 °C (60 °F)
Solubilities:	Insoluble in water.
Partition Coefficient: n-Octanol/Water:	Not available.
Auto-ignition Temperature:	257 °C (495 °F)
Decomposition Temperature:	Not available.
Viscosity:	3 cSt at 40 °C (104 °F)
Percent Volatile, wt. %:	Not available.



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VOC Content, wt. %: Not available.

Section 10: STABILITY AND REACTIVITY

Reactivity: Contact with incompatible materials. Sources of ignition. Exposure to heat.

Chemical Stability: Stable under normal storage conditions.

Possibility of Hazardous Reactions: None known.

Conditions to Avoid: Contact with incompatible materials. Sources of ignition. Exposure to heat.

Incompatible Materials: Strong acids. Strong oxidizers.

Hazardous Decomposition Products: None known.

Section 11: TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE: Eye contact. Skin contact. Inhalation. Ingestion. Skin absorption.

ACUTE EXPOSURE

PRODUCT TOXICITY

Oral: Not available.

Dermal: Not available.

Inhalation: Not available.

COMPONENT TOXICITY

Component	CAS No.	LD ₅₀ oral	LD ₅₀ dermal	LC ₅₀
Diesel Fuel No. 2	68476-34-6	Not available.	Not available.	Not available.
Fuels, Diesel	68334-30-5	7500 mg/kg (rat)	> 5000 µL/kg (rabbit)	Not available.
Fuel Oil No. 2	68476-30-2	12000 mg/kg (rat)	4720 µL/kg (rabbit)	Not available.
Naphthalene	91-20-3	490 mg/kg (rat)	> 2500 mg/kg (rat)	> 340 mg/m ³ (rat); 1H

Target Organs: Skin. Eyes. Gastrointestinal tract. Respiratory system. Blood. Liver. Kidneys. Central nervous system.

SYMPTOMS (including delayed and immediate effects)

Inhalation: May cause drowsiness or dizziness. May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. Excessive inhalation may cause headache, dizziness, confusion, loss of appetite and/or loss of consciousness. Hemolytic anemia (destruction of red blood cells) is the primary health concern for humans exposed to Naphthalene for either short or long periods of time. Other effects may include nausea, profuse perspiration, vomiting, kidney damage and liver damage. Optic neuritis (inflammation of the optic nerve) has



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been observed. Cataracts have also occurred.

- Eye:** May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.
- Skin:** Causes skin irritation. Signs/symptoms may include localized redness, swelling, and itching. Naphthalene may be absorbed through the skin in harmful amounts.
- Ingestion:** May be fatal if swallowed and enters airways. May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea. Naphthalene may cause liver and kidney damage. May cause blood abnormalities, methemoglobinemia, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), convulsions, and death. Ingestion of large quantities of Naphthalene may cause severe hemolytic anemia and hemoglobinuria.

- Skin Sensitization:** Not available.
- Respiratory Sensitization:** Not available.
- Medical Conditions Aggravated By Exposure:** Exposure to Naphthalene may aggravate Glucose-6-Phosphate Dehydrogenase deficiency.

CHRONIC EFFECTS (from short and long-term exposure)

- Target Organs:** Skin. Eyes. Gastrointestinal tract. Respiratory system. Central nervous system. Cardiovascular system. Blood. Liver. Kidneys. Central nervous system. Thymus.
- Chronic Effects:** Prolonged or repeated contact may dry skin and cause irritation. High vapor concentrations, generally greater than 10% by volume, may sensitize the heart and lead to lethal cardiac arrhythmias. Diesel fuel may cause damage to the blood, thymus and liver through prolonged or repeated exposure.
- Carcinogenicity:** May cause cancer. Lifetime skin painting studies in animals with petroleum distillates have produced tumors in animals following prolonged and repeated skin contact.

Component Carcinogenicity

Component	ACGIH	IARC	NTP	OSHA	Prop 65
Diesel Fuel No. 2	A3	Not listed.	Not listed.	Not listed.	Not listed.
Fuels, Diesel	A3	Not listed.	Not listed.	Not listed.	Not listed.
Fuel Oil No. 2	A3	Not listed.	Not listed.	Not listed.	Not listed.
Naphthalene	A3	Group 2B	List 2	OSHA Carcinogen.	Listed.

- Mutagenicity:** Not available.
- Reproductive Effects:** Not available.
- Developmental Effects**
- Teratogenicity:** Not available.
- Embryotoxicity:** Not available.



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Toxicologically Synergistic Materials: Not available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity: This product is potentially toxic to aquatic organisms and should be kept out of sewage and drainage systems and all bodies of water.

Persistence / Degradability: Not available.

Bioaccumulation / Accumulation: Not available.




Mobility in Environment: Not available.

Other Adverse Effects: Not available.

Section 13: DISPOSAL CONSIDERATIONS

Disposal Instructions: Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

Section 14: TRANSPORT INFORMATION

REGULATORY INFORMATION	ID NUMBER	EMERGENCY RESPONSE GUIDEBOOK	PROPER SHIPPING NAME	CLASS	PACKING GROUP	PLACARD
DOT Classification	NA1993	Guide 128	FUEL OIL	3	III	
TDG Classification	UN1202	Guide 128	DIESEL FUEL	3	III	
IATA/ICAO	UN1202	Guide 128	DIESEL FUEL	3	III	

Section 15: REGULATORY INFORMATION

CHEMICAL INVENTORIES

US (TSCA)

The components of this product are in compliance with the chemical notification requirements of TSCA.

Canada (DSL)

The components of this product are in compliance with the chemical notification requirements of the NSN Regulations under CEPA, 1999.



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FEDERAL REGULATIONS

United States

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SARA Title III

Component	Section 302 (EHS) TPQ (lbs.)	Section 304 EHS RQ (lbs.)	CERCLA RQ (lbs.)	Section 313	RCRA CODE	CAA 112(r) TQ (lbs.)
Naphthalene	Not listed.	Not listed.	100	313	U165	Not listed.

SARA SECTION 311/312 - EPA HAZARD CATEGORIES

<u>ACUTE HEALTH</u>	<u>CHRONIC HEALTH</u>	<u>FIRE</u>	<u>SUDDEN RELEASE OF PRESSURE</u>	<u>REACTIVE</u>
X	X	X	-	-

State Regulations

California
California Prop 65:



WARNING This product can expose you to Naphthalene, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Section 16: OTHER INFORMATION

Disclaimer:

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for his own particular use.

Date of Preparation of SDS: April 14, 2020
Version: 2.0
GHS SDS Prepared by: Deerfoot Consulting Inc.
Phone: (403) 720-3700