



EXCAVATION

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FUEL



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Material Safety Data Sheet

GASOLINE, UNLEADED E-10

NFPA: Flammability



HMIS III:

HEALTH	1
FLAMMABILITY	3
PHYSICAL	0

0 = Insignificant, 1 = Slight, 2 = Moderate, 3 = High, 4 = Extreme

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	: GASOLINE, UNLEADED E-10		
Synonyms	: Blend of highly flammable petroleum distillates, also containing 10% ethanol, 888100005366		
MSDS Number	: 888100005366	Version	: 2.10
Product Use Description	: Fuel		
Company	: For: Tesoro Refining & Marketing Co. 19100 Ridgewood Parkway, San Antonio, TX 78259		
Tesoro Call Center	: (877) 783-7676	Chemtrec (Emergency Contact)	: (800) 424-9300

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Regulatory status : This material is considered hazardous by the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200).

Hazard Summary : Extremely flammable. Irritating to eyes and respiratory system. Affects central nervous system. Harmful or fatal if swallowed. Aspiration Hazard.

Recent preliminary reports suggest that the ethanol component may not be compatible with fiberglass gasoline tanks. Ethanol may dissolve fiberglass resin, causing engine damage and possibly allow leakage of explosive gasoline. Manuals for certain small engines also state that E-10 Gasoline may require minor modifications or adjustments.

Potential Health Effects

Eyes : Causes eye irritation.

Skin : May cause skin irritation. Can be absorbed through skin.

Ingestion : Aspiration hazard if liquid is inhaled into lungs, particularly from vomiting after ingestion. Aspiration may result in chemical pneumonia, severe lung damage, respiratory failure and even death. Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death may occur.

Chronic Exposure : Long-term exposure may cause effects to specific organs, such as to the liver,

kidneys, blood, nervous system, and skin. Contains benzene, which can cause blood disease, including anemia and leukemia.

Target Organs

: Eyes, Skin, Central nervous system, Liver, Kidney, Blood

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Weight %
Gasoline, natural; Low boiling point naphtha	8006-61-9	10 - 30%
Toluene	108-88-3	10 - 30%
Xylene	1330-20-7	10 - 30%
Ethanol; ethyl alcohol	64-17-5	10%
Trimethylbenzene	25551-13-7	1 - 5%
Isopentane; 2-methylbutane	78-78-4	1 - 5%
Naphthalene	91-20-3	1 - 5%
Benzene	71-43-2	0.1 - 4.7%
Pentane	109-66-0	1 - 5%
Cyclohexane	110-82-7	1 - 5%
Ethylbenzene	100-41-4	1 - 5%
Butane	106-97-8	1 - 20%
Heptane [and isomers]	142-82-5	0.5 - 0.75%
N-hexane	110-54-3	0.5 - 0.75%

SECTION 4. FIRST AID MEASURES

- Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Contaminated leather, particularly footwear, must be discarded. Note that contaminated clothing may be a fire hazard. Seek medical advice if symptoms persist or develop.
- Eye contact** : Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Seek medical advice if symptoms persist or develop.
- Ingestion** : Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Obtain medical attention.

Notes to physician : Symptoms: Dizziness, Discomfort, Headache, Nausea, Kidney disorders, Liver disorders, Aspiration may cause pulmonary edema and pneumonitis. Lung edema.

SECTION 5. FIRE-FIGHTING MEASURES

Form : Liquid

Flash point : -45 °C (-49 °F)

Auto Ignition temperature : 257.22 °C (495.00 °F)

Lower explosive limit : 1.3 %(V)

Upper explosive limit : 7.6 %(V)

Suitable extinguishing media : SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO₂, water spray, fire fighting foam, or Halon. 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., Keep containers and surroundings cool with water spray.

Specific hazards during fire fighting : Extremely flammable liquid and vapor. This material is combustible/flammable and is sensitive to fire, heat, and static discharge.

Special protective equipment for fire-fighters : 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.

Further information : 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. Exposure to decomposition products may be a hazard to health. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Evacuate personnel to safe areas. Ventilate the area. Remove all sources of ignition. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental precautions : Discharge into the environment must be avoided. If the product contaminates rivers and lakes or drains inform respective authorities.

Methods for cleaning up : Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations.

SECTION 7. HANDLING AND STORAGE

- Handling** : Keep away from fire, sparks and heated surfaces. No smoking near areas where material is stored or handled. The product should only be stored and handled in areas with intrinsically safe electrical classification.

- Advice on protection against fire and explosion** : Hydrocarbon liquids including this product can act as a non-conductive flammable liquid (or static accumulators), and may form ignitable vapor-air mixtures in storage tanks or other containers. Precautions to prevent static-initiated fire or explosion during transfer, storage or handling, include but are not limited to these examples:
 - (1) Ground and bond containers during product transfers. Grounding and bonding may not be adequate protection to prevent ignition or explosion of hydrocarbon liquids and vapors that are static accumulators.
 - (2) 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 fuel oil or diesel) is loaded into tanks previously containing low flash point products (such as gasoline or naphtha).
 - (3) Storage tank level floats must be effectively bonded.

For more information on precautions to prevent static-initiated fire or explosion, see NFPA 77, Recommended Practice on Static Electricity (2007), and API Recommended Practice 2003, Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents (2008).

- Dust explosion class** : Not applicable

- Requirements for storage areas and containers** : Keep away from flame, sparks, excessive temperatures and open flame. Use approved containers. Keep containers closed and clearly labeled. Empty or partially full product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose containers to sources of ignition. Store in a well-ventilated area. The storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". 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".

- Advice on common storage** : Keep away from food, drink and animal feed. Incompatible with oxidizing agents. Incompatible with acids.

- Other data** : No decomposition if stored and applied as directed. Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

List	Components	CAS-No.	Type:	Value
OSHA	Benzene	71-43-2	TWA	1 ppm
		71-43-2	STEL	5 ppm
		71-43-2	OSHA_ACT	0.5 ppm
OSHA Z1	Xylene	1330-20-7	PEL	100 ppm 435 mg/m3
	Ethanol; Ethyl alcohol	64-17-5	PEL	1,000 ppm 1,900 mg/m3
	Naphthalene	91-20-3	PEL	10 ppm 50 mg/m3

	Cyclohexane	110-82-7	PEL	300 ppm 1,050 mg/m3
	Ethylbenzene	100-41-4	PEL	100 ppm 435 mg/m3
	Heptane [and isomers]	142-82-5	PEL	500 ppm 2,000 mg/m3
	N-hexane	110-54-3	PEL	500 ppm 1,800 mg/m3
ACGIH	Toluene	108-88-3	TWA	50 ppm
	Xylene	1330-20-7	TWA	100 ppm
		1330-20-7	STEL	150 ppm
	Ethanol; Ethyl alcohol	64-17-5	TWA	1,000 ppm
	Trimethylbenzene	25551-13-7	TWA	25 ppm
	Isopentane; 2-Methylbutane	78-78-4	TWA	600 ppm
	Naphthalene	91-20-3	TWA	10 ppm
		91-20-3	STEL	15 ppm
	Benzene	71-43-2	TWA	0.5 ppm
		71-43-2	STEL	2.5 ppm
	Pentane	109-66-0	TWA	600 ppm
	Cyclohexane	110-82-7	TWA	100 ppm
	Ethylbenzene	100-41-4	TWA	100 ppm
		100-41-4	STEL	125 ppm
	Heptane [and isomers]	142-82-5	TWA	400 ppm
		142-82-5	STEL	500 ppm
	N-hexane	110-54-3	TWA	50 ppm

- Engineering measures** : Use adequate ventilation to keep gas and vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Use only intrinsically safe electrical equipment approved for use in classified areas.
- Eye protection** : Safety glasses or goggles are recommended where there is a possibility of splashing or spraying. Ensure that eyewash stations and safety showers are close to the workstation location.
- Hand protection** : Gloves constructed of nitrile or neoprene are recommended. Consult manufacturer specifications for further information.
- Skin and body protection** : If needed to prevent skin contact, chemical protective clothing such as of DuPont TyChem®, Saranex or equivalent recommended based on degree of exposure. Flame resistant clothing such as Nomex ® is recommended in areas where material is stored or handled.
- Respiratory protection** : 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. Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection. Use a NIOSH/ MSHA-approved positive-pressure supplied-air 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.

Work / Hygiene practices : 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. Waterless hand cleaners are effective. 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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: Liquid
Appearance	: Clear, straw colored
Odor	: Characteristic hydrocarbon-like
Flash point	: -45 °C (-49 °F)
Auto Ignition temperature	: 257.22 °C (495.00 °F)
Thermal decomposition	: No decomposition if stored and applied as directed.
Lower explosive limit	: 1.3 %(V)
Upper explosive limit	: 7.6 %(V)
pH	: Not applicable
Freezing point	: No data available
Boiling point	: 85 to 437 °F (39 to 200 °C)
Vapor Pressure	: 345 - 1,034 hPa at 37.8 °C (100.0 °F)
Relative Vapor Density	: Approximately 3 to 4
Density	: 0.8 g/cm ³
Water solubility	: Negligible
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available
Percent Volatiles	: 100 %
Conductivity (conductivity can be reduced by environmental factors such as a decrease in temperature)	Hydrocarbon liquids without static dissipater additive may have conductivity below 1 picoSiemens per meter (pS/m). The highest electro-static ignition risks are associated with "ultra-low conductivities" below 5 pS/m. See Section 7 for sources of information on defining safe loading and handling procedures for low conductivity products

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid : Avoid high temperatures, open flames, sparks, welding, smoking and other

	ignition sources.
Materials to avoid	: Strong oxidizing agents. Peroxides. Strong acids.
Hazardous decomposition products	: Carbon monoxide, carbon dioxide and noncombusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.
Thermal decomposition	: No decomposition if stored and applied as directed.
Hazardous reactions	: Keep away from oxidizing agents, and acidic or alkaline products. Hazardous polymerization does not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Carcinogenicity

NTP	: Naphthalene (CAS-No.: 91-20-3) Benzene (CAS-No.: 71-43-2)
IARC	: Gasoline, natural; Low boiling point naphtha (CAS-No.: 8006-61-9) Naphthalene (CAS-No.: 91-20-3) Benzene (CAS-No.: 71-43-2) Ethylbenzene (CAS-No.: 100-41-4)
OSHA	: Benzene (CAS-No.: 71-43-2)
CA Prop 65	: WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Toluene (CAS-No.: 108-88-3) Benzene (CAS-No.: 71-43-2)
Acute oral toxicity	: LD50 rat Dose: 18.8 mg/kg
Acute inhalation toxicity	: LC50 rat Dose: 20.7 mg/l Exposure time: 4 h
Skin irritation	: Irritating to skin.
Eye irritation	: Irritating to eyes.
Further information	: Liver and kidney injuries may occur. Components of the product may affect the nervous system. IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain. This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH. Acute toxicity of benzene results primarily from depression of the central nervous system (CNS). Inhalation of concentrations over 50 ppm can

produce headache, lassitude, weariness, dizziness, drowsiness, over excitation. Exposure to very high levels can result in unconsciousness and death.

Component:

Gasoline, natural; Low boiling point naphtha 8006-61-9

Acute oral toxicity: LD50 rat
Dose: 18.8 mg/kg

Acute inhalation toxicity: LC50 rat
Dose: 20.7 mg/l
Exposure time: 4 h

Skin irritation: Classification: Irritating to skin.
Result: Mild skin irritation

Eye irritation: Classification: Irritating to eyes.
Result: Moderate eye irritation

Toluene 108-88-3

Acute oral toxicity: LD50 rat
Dose: 636 mg/kg

Acute dermal toxicity: LD50 rabbit
Dose: 12,124 mg/kg

Acute inhalation toxicity: LC50 rat
Dose: 49 mg/l
Exposure time: 4 h

Skin irritation: Classification: Irritating to skin.
Result: Mild skin irritation

Prolonged skin contact may defat the skin and produce dermatitis.

Eye irritation: Classification: Irritating to eyes.
Result: Mild eye irritation

Xylene 1330-20-7

Acute oral toxicity: LD50 rat
Dose: 2,840 mg/kg

Acute dermal toxicity: LD50 rabbit
Dose: ca. 4,500 mg/kg

Acute inhalation toxicity: LC50 rat
Dose: 6,350 mg/l
Exposure time: 4 h

Skin Irritation: Classification: Irritating to skin.
Result: Mild skin irritation

Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

Eye irritation: Classification: Irritating to eyes.
Result: Mild eye irritation

Ethanol; Ethyl alcohol 64-17-5

Acute oral toxicity: LD50 rat
Dose: 6,200 mg/kg

Acute dermal toxicity: LD50 rabbit
Dose: 19,999 mg/kg

Acute inhalation toxicity: LC50 rat
Dose: 8,001 mg/l
Exposure time: 4 h

Skin irritation: Classification: Irritating to skin.
Result: Mild skin irritation

Prolonged skin contact may cause skin irritation and/or dermatitis.

Eye irritation: Classification: Irritating to eyes.
Result: Mild eye irritation

Naphthalene 91-20-3

Acute oral toxicity: LD50 rat
Dose: 2,001 mg/kg

Mild eye irritation

		<p><u>Acute dermal toxicity:</u> LD50 rat Dose: 2,501 mg/kg</p> <p><u>Acute inhalation toxicity:</u> LC50 rat Dose: 101 mg/l Exposure time: 4 h</p> <p><u>Skin irritation:</u> Classification: Irritating to skin. Result: Mild skin irritation</p> <p><u>Eye irritation:</u> Classification: Irritating to eyes. Result: Mild eye irritation</p> <p><u>Carcinogenicity:</u> N11.00422130</p>
Benzene	71-43-2	<p><u>Acute oral toxicity:</u> LD50 rat Dose: 930 mg/kg</p> <p><u>Acute inhalation toxicity:</u> LC50 rat Dose: 44 mg/l Exposure time: 4 h</p> <p><u>Skin irritation:</u> Classification: Irritating to skin. Result: Mild skin irritation Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.</p> <p><u>Eye irritation:</u> Classification: Irritating to eyes. Result: Risk of serious damage to eyes.</p>
Pentane	109-66-0	<p><u>Acute oral toxicity:</u> LD50 rat Dose: 2,001 mg/kg</p> <p><u>Acute inhalation toxicity:</u> LC50 rat Dose: 364 mg/l Exposure time: 4 h</p> <p><u>Skin irritation:</u> Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.</p> <p><u>Eye irritation:</u> Classification: Irritating to eyes. Result: Mild eye irritation</p>
Cyclohexane	110-82-7	<p><u>Acute dermal toxicity:</u> LD50 rabbit Dose: 2,001 mg/kg</p> <p><u>Acute inhalation toxicity:</u> LC50 rat Dose: 14 mg/l Exposure time: 4 h</p> <p><u>Skin irritation:</u> Classification: Irritating to skin. Result: Skin irritation</p> <p><u>Eye irritation:</u> Classification: Irritating to eyes. Result: Mild eye irritation</p>
Ethylbenzene	100-41-4	<p><u>Acute oral toxicity:</u> LD50 rat Dose: 3,500 mg/kg</p> <p><u>Acute dermal toxicity:</u> LD50 rabbit Dose: 15,500 mg/kg</p> <p><u>Acute inhalation toxicity:</u> LC50 rat Dose: 18 mg/l Exposure time: 4 h</p> <p><u>Skin irritation:</u> Classification: Irritating to skin. Result: Mild skin irritation</p> <p><u>Eye irritation:</u> Classification: Irritating to eyes. Result: Risk of serious damage to eyes.</p>

Heptane [and isomers]	142-82-5	<p><u>Acute oral toxicity:</u> LD50 rat Dose: 15,001 mg/kg</p> <p><u>Acute inhalation toxicity:</u> LC50 rat Dose: 103 g/m³ Exposure time: 4 h</p> <p><u>Skin irritation:</u> Classification: Irritating to skin. Result: Skin irritation Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.</p> <p><u>Eye irritation:</u> Classification: Irritating to eyes. Result: Mild eye irritation</p>
N-hexane	110-54-3	<p><u>Acute oral toxicity:</u> LD50 rat Dose: 25,000 mg/kg</p> <p><u>Acute dermal toxicity:</u> LD50 rabbit Dose: 2,001 mg/kg</p> <p><u>Acute inhalation toxicity:</u> LC50 rat Dose: 171.6 mg/l Exposure time: 4 h</p> <p><u>Skin irritation:</u> Classification: Irritating to skin. Result: Skin irritation</p> <p><u>Eye irritation:</u> Classification: Irritating to eyes. Result: Mild eye irritation</p> <p><u>Teratogenicity:</u> N11.00418960</p>

SECTION 12. ECOLOGICAL INFORMATION

Additional ecological information : Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable, under Federal and State regulations.

Component:

Toluene	108-88-3	<p><u>Toxicity to fish:</u> LC50 Species: Carassius auratus (goldfish) Dose: 13 mg/l Exposure time: 96 h</p> <p><u>Acute and prolonged toxicity for aquatic invertebrates:</u> EC50 Species: Daphnia magna (Water flea) Dose: 11.5 mg/l Exposure time: 48 h</p> <p><u>Toxicity to algae:</u> IC50 Species: Selenastrum capricornutum (green algae) Dose: 12 mg/l Exposure time: 72 h</p>
Ethanol; Ethyl alcohol	64-17-5	<p><u>Toxicity to fish:</u> LC50 Species: Leuciscus idus (Golden orfe) Dose: 8,140 mg/l Exposure time: 48 h</p> <p><u>Acute and prolonged toxicity for aquatic invertebrates:</u> EC50 Species: Daphnia magna (Water flea) Dose: 9,268 - 14,221 mg/l</p>

Isopentane; 2-Methylbutane	78-78-4	Exposure time: 48 h
		<u>Toxicity to fish:</u> LC50 Species: Oncorhynchus mykiss (rainbow trout) Dose: 3.1 mg/l Exposure time: 96 h
		<u>Acute and prolonged toxicity for aquatic invertebrates:</u> EC50 Species: Daphnia magna (Water flea) Dose: 2.3 mg/l Exposure time: 96 h
Naphthalene	91-20-3	<u>Toxicity to algae:</u> EC50 Species: Dose: 33 mg/l Exposure time: 24 h
Pentane	109-66-0	<u>Acute and prolonged toxicity for aquatic invertebrates:</u> EC50 Species: Daphnia magna (Water flea) Dose: 9.74 mg/l Exposure time: 48 h
Cyclohexane	110-82-7	<u>Acute and prolonged toxicity for aquatic invertebrates:</u> EC50 Species: Daphnia magna (Water flea) Dose: 3.78 mg/l Exposure time: 48 h
Heptane [and isomers]	142-82-5	<u>Toxicity to fish:</u> LC50 Species: Carassius auratus (goldfish) Dose: 4 mg/l Exposure time: 24 h
		<u>Acute and prolonged toxicity for aquatic invertebrates:</u> EC50 Species: Daphnia magna (Water flea) Dose: 1.5 mg/l Exposure time: 48 h
N-hexane	110-54-3	<u>Toxicity to fish:</u> LC50 Species: Pimephales promelas (fathead minnow) Dose: 2.5 mg/l Exposure time: 96 h
		<u>Acute and prolonged toxicity for aquatic invertebrates:</u> EC50 Species: Daphnia magna (Water flea) Dose: 2.1 mg/l Exposure time: 48 h

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal : Dispose of container and unused contents in accordance with federal, state and local requirements.

SECTION 14. TRANSPORT INFORMATION

CFR

Proper shipping name : Petrol
 UN-No. : 1203
 Class : 3
 Packing group : II

TDG

Proper shipping name : Gasoline
 UN-No. : UN1203
 Class : 3
 Packing group : II

IATA Cargo Transport

UN UN-No. : UN1203
 Description of the goods : Gasoline
 Class : 3
 Packaging group : II
 ICAO-Labels : 3
 Packing instruction (cargo aircraft) : 364
 Packing instruction (cargo aircraft) : Y341

IATA Passenger Transport

UN UN-No. : UN1203
 Description of the goods : Gasoline
 Class : 3
 Packaging group : II
 ICAO-Labels : 3
 Packing instruction (passenger aircraft) : 353
 Packing instruction (passenger aircraft) : Y341

IMDG-Code

UN-No. : UN 1203
 Description of the goods : Gasoline
 Class : 3
 Packaging group : II
 IMDG-Labels : 3
 EmS Number : F-E S-E
 Marine pollutant : No

SECTION 15. REGULATORY INFORMATION

OSHA Hazards : Flammable liquid
 : Highly toxic by ingestion
 : Moderate skin irritant
 : Severe eye irritant
 : Carcinogen

TSCA Status : On TSCA Inventory

DSL Status : . All components are on the Canadian DSL list.

b

Material Safety Data Sheet

Biodiesel

NFPA: Flammability



HMIS III:

HEALTH	1
FLAMMABILITY	2
PHYSICAL	

0 = Insignificant, 1 = Slight, 2 = Moderate, 3 = High, 4 = Extreme

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	: Biodiesel		
Synonyms	: #1 Bio-Fuel Oil, #2 Bio-Fuel Oil, #1 Bio-Diesel, #2 Bio-Diesel, Diesel Fuel #1, 888100004569		
MSDS Number	: 888100004569	Version	: 1.8
Product Use Description	: Fuel		
Company	: For: Tesoro Refining & Marketing Co. 19100 Ridgewood Parkway, San Antonio, TX 78259		
Tesoro Call Center	: (877) 783-7676	Chemtrec (Emergency Contact)	: (800) 424-9300

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Regulatory status	: This material is considered hazardous by the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200).
Signal Word	: Warning
Hazard Summary	: Combustible Liquid. Toxic. Long-term, repeated skin contact with liquid may cause skin cancer.

Potential Health Effects

Eyes	: Eye irritation may result from contact with liquid, mists, and/or vapors.
Skin	: Skin irritation leading to dermatitis may occur upon prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed. Long-term, repeated skin contact with liquid may cause skin cancer .
Ingestion	: Harmful or fatal if swallowed. Do NOT induce vomiting. This material can irritate the mouth, throat, stomach, and cause nausea, vomiting, diarrhea and restlessness. Aspiration hazard if liquid is inhaled into lungs, particularly from vomiting after ingestion. Aspiration may result in chemical pneumonia, severe lung damage, respiratory failure and even death. Call a physician immediately.
Target Organs	: Kidney, Liver, Skin, Eyes, Central nervous system

Inhalation : Vapors or mists from this material can irritate the nose, throat, and lungs, and can cause signs and symptoms of central nervous system depression, depending on the concentration and duration of exposure.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Weight %
Diesel Fuel	68476-34-6	100%
Methyl Esters	67784-80-9	1 - 20%
Naphthalene	91-20-3	1 - 5%
Xylene	1330-20-7	0.75 - 1%
1,2,4-Trimethylbenzene	95-63-6	0.75 - 1%
Nonane	111-84-2	0.75 - 1%

SECTION 4. FIRST AID MEASURES

Inhalation : Move to fresh air. Give oxygen. If breathing is irregular or stopped, administer artificial respiration. Seek medical attention immediately.

Skin contact : Take off all contaminated clothing immediately. Wash off immediately with soap and plenty of water. Wash contaminated clothing before re-use. If skin irritation persists, call a physician.

Eye contact : Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists, seek medical attention.

Ingestion : Do NOT induce vomiting. Ingestion may result in nausea, vomiting, diarrhea and restlessness. Aspiration may cause pulmonary edema and pneumonitis. Seek medical attention immediately

Notes to physician : Symptoms: Dizziness, Discomfort, Headache, Nausea, Disorder, Vomiting, Lung oedema, Aspiration may cause pulmonary edema and pneumonitis. Liver disorders, Kidney disorders.

SECTION 5. FIRE-FIGHTING MEASURES

Form : Liquid

Flash point : 38 °C (100 °F)

Auto Ignition temperature : 177 °C (351 °F)

Lower explosive limit : 0.3 %(V)

Upper explosive limit : 10 %(V)

Suitable extinguishing media : Carbon dioxide (CO2), Water spray, Dry chemical, Foam, Keep containers and surroundings cool with water spray.

Specific hazards during fire : Fire Hazard Do not use a solid water stream as it may scatter and spread fire. Cool

fighting	closed containers exposed to fire with water spray.
Special protective equipment for fire-fighters	: Wear self-contained breathing apparatus and protective suit. Use personal protective equipment.
Further information	: Exposure to decomposition products may be a hazard to health. 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

Personal precautions	: 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 contain spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact. Ensure adequate ventilation. Use personal protective equipment.
Environmental precautions	: Carefully contain and stop the source of the spill, if safe to do so. 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. Discharge into the environment must be avoided. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up	: Take up with sand or oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

SECTION 7. HANDLING AND STORAGE

Handling	: Keep away from fire, sparks and heated surfaces. No smoking near areas where material is stored or handled. The product should only be stored and handled in areas with intrinsically safe electrical classification
Advice on protection against fire and explosion	: Hydrocarbon liquids including this product can act as a non-conductive flammable liquid (or static accumulators), and may form ignitable vapor-air mixtures in storage tanks or other containers. Precautions to prevent static-initated fire or explosion during transfer, storage or handling, include but are not limited to these examples: <ul style="list-style-type: none"> (1) Ground and bond containers during product transfers. Grounding and bonding may not be adequate protection to prevent ignition or explosion of hydrocarbon liquids and vapors that are static accumulators. (2) 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 fuel oil or diesel) is loaded into tanks previously containing low flash point products (such as gasoline or naphtha).

(3) Storage tank level floats must be effectively bonded.
 For more information on precautions to prevent static-initated fire or explosion, see NFPA 77, Recommended Practice on Static Electricity (2007), and API Recommended Practice 2003, Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents (2008).

- Requirements for storage areas and containers** : Keep away from flame, sparks, excessive temperatures and open flame. Use approved containers. Keep containers closed and clearly labeled. Empty or partially full product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose containers to sources of ignition. Store in a well-ventilated area. The storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". 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".
- Advice on common storage** : Keep away from food, drink and animal feed. Incompatible with oxidizing agents. Incompatible with acids.
- Other data** : Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

List	Components	CAS-No.	Type:	Value
OSHA Z1	Naphthalene	91-20-3	PEL	10 ppm 50 mg/m3
	Xylene	1330-20-7	PEL	100 ppm 435 mg/m3
ACGIH	Diesel Fuel	68476-30-2	TWA	100 mg/m3
ACGIH	Naphthalene	91-20-3	TWA	10 ppm
		91-20-3	STEL	15 ppm
	Xylene	1330-20-7	TWA	100 ppm
		1330-20-7	STEL	150 ppm
	Nonane	111-84-2	TWA	200 ppm

- Engineering measures** : Use adequate ventilation to keep gas and vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Use only intrinsically safe electrical equipment approved for use in classified areas.
- Eye protection** : Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.
- Hand protection** : Gloves constructed of nitrile, neoprene, or PVC are recommended. Consult manufacturer specifications for further information.
- Skin and body protection** : If needed to prevent skin contact, chemical protective clothing such as of DuPont TyChem®, Saranex or equivalent recommended based on degree of exposure. The resistance of specific material may vary from product to product as well as with degree of exposure.
- Respiratory protection** : 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. Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection. NIOSH/MSHA approved positive-pressure self-contained breathing apparatus (SCBA) or Type C positive-pressure supplied air with escape bottle must be used for gas concentrations above occupational exposure limits, for potential of uncontrolled release, if exposure levels are not known, or in an oxygen-deficient atmosphere.

Work / Hygiene practices : 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. Waterless hand cleaners are effective. 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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: Liquid										
Appearance	: Clear, straw colored										
Odor	: Characteristic petroleum (kerosene) odor										
Flash point	: 38 °C (100 °F)										
Auto Ignition temperature	: 177 °C (351 °F)										
Thermal decomposition	: No decomposition if stored and applied as directed.										
Lower explosive limit	: 0.3 %(V)										
Upper explosive limit	: 10 %(V)										
pH	: Not applicable										
Freezing point	: Not applicable										
Boiling point	: 148 °C(298 °F)										
Vapor Pressure	: < 2 mm Hg at 20 °C										
Water solubility	: Negligible										
Percent Volatiles	: 100 %										
Conductivity (conductivity can be reduced by environmental factors such as a decrease in temperature)	<table border="0"> <tr> <td>Diesel Fuel Oils at terminal load rack:</td> <td>At least 25 pS/m</td> </tr> <tr> <td>Ultra Low Sulfur Diesel (ULSD) without conductivity additive:</td> <td>0 pS/m to 5 pS/m</td> </tr> <tr> <td>ULSD at terminal load rack with conductivity additive:</td> <td>At least 50 pS/m but</td> </tr> <tr> <td>conductivity may decrease from environmental factors such as temperature drop.</td> <td></td> </tr> <tr> <td>JP-8 at terminal load rack:</td> <td>150 pS/m to 600 pS/m</td> </tr> </table>	Diesel Fuel Oils at terminal load rack:	At least 25 pS/m	Ultra Low Sulfur Diesel (ULSD) without conductivity additive:	0 pS/m to 5 pS/m	ULSD at terminal load rack with conductivity additive:	At least 50 pS/m but	conductivity may decrease from environmental factors such as temperature drop.		JP-8 at terminal load rack:	150 pS/m to 600 pS/m
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conductivity may decrease from environmental factors such as temperature drop.											
JP-8 at terminal load rack:	150 pS/m to 600 pS/m										

SECTION 10. STABILITY AND REACTIVITY

- Conditions to avoid** : Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Keep away from strong oxidizers. Viton ® ; Fluorel ®
- Materials to avoid** : Strong oxidizing agents. Peroxides.
- Hazardous decomposition products** : Carbon monoxide, carbon dioxide and noncombusted hydrocarbons (smoke). Diesel exhaust particulates may be a lung hazard - see Section 11.
- Thermal decomposition** : No decomposition if stored and applied as directed.
- Hazardous reactions** : Keep away from oxidizing agents, and acidic or alkaline products.

SECTION 11. TOXICOLOGICAL INFORMATION

Carcinogenicity

- NTP** : Naphthalene (CAS-No.: 91-20-3)
- IARC** : Naphthalene (CAS-No.: 91-20-3)
- OSHA** : No component of this product which is present at levels greater than or equal to 0.1 % is identified as a carcinogen or potential carcinogen by OSHA.
- CA Prop 65** : WARNING! This product contains a chemical known to the State of California to cause cancer.
naphthalene (CAS-No.: 91-20-3)
- Skin irritation** : Irritating to skin.
- Eye irritation** : Irritating to eyes.
- Further information** : Positive mutagenicity results have been reported. Studies have shown that similar products produce skin cancer or 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. Repeated over-exposure may cause liver and kidney injury. Components of the product may affect the nervous system. IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A). NIOSH regards whole diesel fuel exhaust particulates as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

Component:

- | | | |
|------------------------------|------------|---|
| Diesel Fuel | 68476-34-6 | <p><u>Acute oral toxicity:</u> LD50 rat
Dose: 5,001 mg/kg</p> <p><u>Acute dermal toxicity:</u> LD50 rabbit
Dose: 2,001 mg/kg</p> <p><u>Acute inhalation toxicity:</u> LC50 rat
Dose: 7.64 mg/l
Exposure time: 4 h</p> <p><u>Skin irritation:</u> Classification: Irritating to skin.
Result: Severe skin irritation</p> <p><u>Eye irritation:</u> Classification: Irritating to eyes.
Result: Mild eye irritation</p> |
| Soybean oil, Me ester | 67784-80-9 | <p><u>Acute oral toxicity:</u> LD50 rat
Dose: 51 mg/kg</p> |

Naphthalene	91-20-3	<p><u>Acute oral toxicity:</u> LD50 rat Dose: 2,001 mg/kg</p> <p><u>Acute dermal toxicity:</u> LD50 rat Dose: 2,501 mg/kg</p> <p><u>Acute inhalation toxicity:</u> LC50 rat Dose: 101 mg/l Exposure time: 4 h</p> <p><u>Skin irritation:</u> Classification: Irritating to skin. Result: Mild skin irritation</p> <p><u>Eye irritation:</u> Classification: Irritating to eyes. Result: Mild eye irritation</p> <p><u>Carcinogenicity:</u> N11.00422130</p>
Xylene	1330-20-7	<p><u>Acute oral toxicity:</u> LD50 rat Dose: 2,840 mg/kg</p> <p><u>Acute dermal toxicity:</u> LD50 rabbit Dose: ca. 4,500 mg/kg</p> <p><u>Acute inhalation toxicity:</u> LC50 rat Dose: 6,350 mg/l Exposure time: 4 h</p> <p><u>Skin irritation:</u> Classification: Irritating to skin. Result: Mild skin irritation Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.</p> <p><u>Eye irritation:</u> Classification: Irritating to eyes. Result: Mild eye irritation</p>
1,2,4-Trimethylbenzene	95-63-6	<p><u>Acute inhalation toxicity:</u> LC50 rat Dose: 18 mg/l Exposure time: 4 h</p> <p><u>Skin irritation:</u> Classification: Irritating to skin. Result: Skin irritation</p> <p><u>Eye irritation:</u> Classification: Irritating to eyes. Result: Eye irritation</p>
Nonane	111-84-2	<p><u>Acute oral toxicity:</u> LD50 mouse Dose: 218 mg/kg</p> <p><u>Acute inhalation toxicity:</u> LC50 rat Exposure time: 4 h</p>

SECTION 12. ECOLOGICAL INFORMATION

Adsorbed organic bound halogens (AOX)	:	Not included
Additional ecological information	:	Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable, under Federal and State regulations.
<u>Component:</u>		
Naphthalene	91-20-3	<p><u>Toxicity to algae:</u> EC50 Species: Dose: 33 mg/l Exposure time: 24 h</p>

1,2,4-Trimethylbenzene 95-63-6

Toxicity to fish:
 LC50
 Species: Pimephales promelas (fathead minnow)
 Dose: 7.72 mg/l
 Exposure time: 96 h

Acute and prolonged toxicity for aquatic invertebrates:
 EC50
 Species: Daphnia
 Dose: 3.6 mg/l
 Exposure time: 48 h

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal : Consult federal, state and local waste regulations to determine appropriate waste characterization of material and allowable disposal methods.

SECTION 14. TRANSPORT INFORMATION

CFR

Proper shipping name : DIESEL FUEL
 UN-No. : 1202
 Class : 3
 Packing group : III

TDG

Proper shipping name : DIESEL FUEL
 UN-No. : UN1202
 Class : 3
 Packing group : III

IATA Cargo Transport

UN UN-No. : UN1202
 Description of the goods : DIESEL FUEL
 Class : 3
 Packaging group : III
 ICAO-Labels : 3
 Packing instruction (cargo aircraft) : 366
 Packing instruction (cargo aircraft) : Y344

IATA Passenger Transport

UN UN-No. : UN1202
 Description of the goods : DIESEL FUEL
 Class : 3
 Packaging group : III
 ICAO-Labels : 3
 Packing instruction (passenger aircraft) : 355
 Packing instruction (passenger aircraft) : Y344

IMDG-Code

UN-No. : UN 1202
 Description of the goods : DIESEL FUEL
 Class : 3
 Packaging group : III
 IMDG-Labels : 3
 EmS Number : F-E S-E
 Marine pollutant : No

SECTION 15. REGULATORY INFORMATION

OSHA Hazards : Highly toxic by ingestion
 Severe skin irritant
 Moderate eye irritant
 Possible Cancer Hazard

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIROMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil. Fractions of crude oil, and products (both finished and intermediate) from the crude oil refining process and any indigenous components of such from the CERCLA Section 103 reporting requirements. However, other federal reporting requirements, including SARA Section 304, as well as the Clean Water Act may still apply.

TSCA Status : On TSCA Inventory
 DSL Status : All components of this product are on the Canadian DSL list.
 SARA 311/312 Hazards : Acute Health Hazard
 Chronic Health Hazard
 Fire Hazard

SARA III US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required

<u>Components</u>	<u>CAS-No.</u>
Naphthalene	91-20-3
Xylene	1330-20-7
1,2,4-Trimethylbenzene	95-63-6

PENN RTK US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

<u>Components</u>	<u>CAS-No.</u>
Nonane	111-84-2
1,2,4-Trimethylbenzene	95-63-6
Xylene	1330-20-7
Naphthalene	91-20-3
Soybean oil, Me ester	67784-80-9
Fuels, diesel, No 2; Gasoil - unspecified	68476-34-6

MASS RTK US. Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)

c

Material Safety Data Sheet

Diesel Fuel - NR

NFPA: Flammability



HMIS III:

HEALTH	1
FLAMMABILITY	2
PHYSICAL	0

0 = Insignificant, 1 = Slight, 2 = Moderate, 3 = High, 4 = Extreme

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Diesel Fuel - NR
Synonyms	:	Dakota 50, Diesel Fuel - Non-Road, Red Dyed Diesel, Agricultural Diesel, Ag Diesel, 888100008799
MSDS Number	:	888100008799
Version	:	1.3
Product Use Description	:	Fuel
Company	:	For: Tesoro Refining & Marketing Co. 19100 Ridgewood Parkway, San Antonio, TX 78259
Tesoro Call Center	:	(877) 783-7676
Chemtrec (Emergency Contact)	:	(800) 424-9300

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Regulatory status	:	This material is considered hazardous by the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200).
Signal Word	:	WARNING
Hazard Summary	:	Combustible Liquid
		Toxic

Potential Health Effects

Inhalation	:	Vapors or mists from this material can irritate the nose, throat, and lungs, and can cause signs and symptoms of central nervous system depression, depending on the concentration and duration of exposure.
Eyes	:	Eye irritation may result from contact with liquid, mists, and/or vapors.
Skin	:	Skin irritation leading to dermatitis may occur upon prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed. Long-term, repeated skin contact may cause skin cancer.
Ingestion	:	Harmful or fatal if swallowed. Do NOT induce vomiting. This material can irritate the mouth, throat, stomach, and cause nausea, vomiting, diarrhea and restlessness. Aspiration hazard if liquid is inhaled into lungs, particularly from vomiting after ingestion. Aspiration may result in chemical pneumonia, severe

lung damage, respiratory failure and even death.

Target Organs : Kidney, Liver, Central nervous system, Eyes, Skin

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Weight %
Fuels, diesel, No 2; Gasoil - unspecified	68476-34-6	100%
Naphthalene	91-20-3	1 - 5%
Xylene	1330-20-7	1 - 5%
Nonane	111-84-2	0.75 - 1%
1,2,4-Trimethylbenzene	95-63-6	0.75 - 1%
Sulfur	7704-34-9	15 ppm Maximum

SECTION 4. FIRST AID MEASURES

Inhalation	: Move to fresh air. Give oxygen. If breathing is irregular or stopped, administer artificial respiration. Seek medical attention immediately.
Skin contact	: Take off all contaminated clothing immediately. Wash off immediately with soap and plenty of water. Wash contaminated clothing before re-use. If skin irritation persists, seek medical attention.
Eye contact	: Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists, seek medical attention.
Ingestion	: Do NOT induce vomiting. Ingestion may result in nausea, vomiting, diarrhea and restlessness. Aspiration may cause pulmonary edema and pneumonitis. Seek medical attention immediately.
Notes to physician	: Symptoms: Dizziness, Discomfort, Headache, Nausea, Disorder, Vomiting, Lung edema, Aspiration may cause pulmonary edema and pneumonitis. Liver disorders, Kidney disorders.

SECTION 5. FIRE-FIGHTING MEASURES

Form	: Liquid
Flash point	: 38 °C (100 °F)Minimum for #1 NRLM ; 52° Minimum for #2 NRLM
Lower explosive limit	: 0.7 %(V)
Upper explosive limit	: 5 %(V)
Suitable extinguishing media	: Carbon dioxide (CO2), Water spray, Dry chemical, Foam, Keep containers and surroundings cool with water spray.
Specific hazards during fire fighting	: Fire Hazard Do not use a solid water stream as it may scatter and spread fire. Cool closed containers exposed to fire with water spray.

- Special protective equipment for fire-fighters** : Wear self-contained breathing apparatus and protective suit. Use personal protective equipment.
- Further information** : Exposure to decomposition products may be a hazard to health. 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

- Personal precautions** : Consider wind direction; stay upwind and uphill, if possible. Evacuate nonessential personnel and remove or secure all ignition sources. Evaluate the direction of product travel, diking, sewers, etc. to contain spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact. Ensure adequate ventilation. Use personal protective equipment.
- Environmental precautions** : Carefully contain and stop the source of the spill, if safe to do so. 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. Discharge into the environment must be avoided. If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods for cleaning up** : Take up with sand or oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

SECTION 7. HANDLING AND STORAGE

- Handling** : Keep away from fire, sparks and heated surfaces. No smoking near areas where material is stored or handled. The product should only be stored and handled in areas with intrinsically safe electrical classification.
- Advice on protection against fire and explosion** : Hydrocarbon liquids including this product can act as a non-conductive flammable liquid (or static accumulators), and may form ignitable vapor-air mixtures in storage tanks or other containers. Precautions to prevent static-initated fire or explosion during transfer, storage or handling, include but are not limited to these examples:
 - (1) Ground and bond containers during product transfers. Grounding and bonding may not be adequate protection to prevent ignition or explosion of hydrocarbon liquids and vapors that are static accumulators.
 - (2) 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 fuel oil or diesel) is loaded into tanks previously containing low flash point products (such gasoline or naphtha).
 - (3) Storage tank level floats must be effectively bonded.
 For more information on precautions to prevent static-initated fire or explosion, see NFPA 77, Recommended Practice on Static Electricity (2007), and API Recommended Practice 2003, Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents (2008).

- Dust explosion class** : Not applicable
- Requirements for storage areas and containers** : Keep away from flame, sparks, excessive temperatures and open flame. Use approved containers. Keep containers closed and clearly labeled. Empty or partially full product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose containers to sources of ignition. Store in a well-ventilated area. The storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". 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".
- Advice on common storage** : Keep away from food, drink and animal feed. Incompatible with oxidizing agents. Incompatible with acids.
- Other data** : No decomposition if stored and applied as directed.

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		1330-20-7	STEL	150 ppm
	Nonane	111-84-2	TWA	200 ppm

- Engineering measures** : Use only intrinsically safe electrical equipment approved for use in classified areas.
- Eye protection** : Safety glasses with side-shields reference to 29 CFR 1910.133
- Hand protection** : Gloves constructed of nitrile, neoprene, or PVC are recommended. Consult manufacturer specifications for further information.
- Skin and body protection** : If needed to prevent skin contact, chemical protective clothing such as of DuPont TyChem®, Saranex or equivalent recommended based on degree of exposure. The resistance of specific material may vary from product to product as well as with degree of exposure.

- Respiratory protection** : 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. Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection. NIOSH/MSHA approved positive-pressure self-contained breathing apparatus (SCBA) or Type C positive-pressure supplied air with escape bottle must be used for gas concentrations above occupational exposure limits, for potential of uncontrolled release, if exposure levels are not known, or in an oxygen-deficient atmosphere.
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Thermal decomposition	: No decomposition if stored and applied as directed.										
Lower explosive limit	: 0.7 %(V)										
Upper explosive limit	: 5 %(V)										
Freezing point	: Not applicable										
Boiling point	: 160 °C(320 °F)										
Vapor Pressure	: < 2 mm Hg at 20 °C										
Relative Vapor Density	: 5.7 (Air = 1.0)										
Water solubility	: Negligible										
Percent Volatiles	: 100 %										
Conductivity (conductivity can be reduced by environmental factors such as a decrease in temperature	<table border="0"> <tr> <td>Diesel Fuel Oils at terminal load rack:</td> <td>At least 25 pS/m</td> </tr> <tr> <td>Ultra Low Sulfur Diesel (ULSD) without conductivity additive:</td> <td>0 pS/m to 5 pS/m</td> </tr> <tr> <td>ULSD at terminal load rack with conductivity additive:</td> <td>At least 50 pS/m but</td> </tr> <tr> <td>conductivity may decrease from environmental factors such as temperature drop.</td> <td></td> </tr> <tr> <td>JP-8 at terminal load rack:</td> <td>150 pS/m to 600 pS/m</td> </tr> </table>	Diesel Fuel Oils at terminal load rack:	At least 25 pS/m	Ultra Low Sulfur Diesel (ULSD) without conductivity additive:	0 pS/m to 5 pS/m	ULSD at terminal load rack with conductivity additive:	At least 50 pS/m but	conductivity may decrease from environmental factors such as temperature drop.		JP-8 at terminal load rack:	150 pS/m to 600 pS/m
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- Materials to avoid** : Strong oxidizing agents Peroxides
- Hazardous decomposition products** : Carbon monoxide, carbon dioxide and noncombusted hydrocarbons (smoke). Diesel exhaust particulates may be a lung hazard - see Section 11.
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- Hazardous reactions** : Keep away from oxidizing agents, and acidic or alkaline products.

SECTION 11. TOXICOLOGICAL INFORMATION

Carcinogenicity

- NTP** : Naphthalene (CAS-No.: 91-20-3)
- IARC** : Naphthalene (CAS-No.: 91-20-3)
- OSHA** : No component of this product which is present at levels greater than or equal to 0.1 % is identified as a carcinogen or potential carcinogen by OSHA.
- CA Prop 65** : WARNING! This product contains a chemical known to the State of California to cause cancer.
Naphthalene (CAS-No.: 91-20-3)
- Skin irritation** : Irritating to skin.
- Eye irritation** : Irritating to eyes.
- Further information** : Studies have shown that similar products produce skin cancer or 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. Positive mutagenicity results have been reported. Repeated over-exposure may cause liver and kidney injury
IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A). NIOSH regards whole diesel fuel exhaust particulates as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

Component:

- | | | |
|---|------------|---|
| Fuels, diesel, No 2; Gasoil - unspecified | 68476-34-6 | <p><u>Acute oral toxicity:</u> LD50 rat
Dose: 5,001 mg/kg</p> <p><u>Acute dermal toxicity:</u> LD50 rabbit
Dose: 2,001 mg/kg</p> <p><u>Acute inhalation toxicity:</u> LC50 rat
Dose: 7.64 mg/l
Exposure time: 4 h</p> <p><u>Skin irritation:</u> Classification: Irritating to skin.
Result: Severe skin irritation</p> <p><u>Eye irritation:</u> Classification: Irritating to eyes.
Result: Mild eye irritation</p> |
| Naphthalene | 91-20-3 | <p><u>Acute oral toxicity:</u> LD50 rat</p> |

		<p>Dose: 2,001 mg/kg</p> <p><u>Acute dermal toxicity:</u> LD50 rat Dose: 2,501 mg/kg</p> <p><u>Acute inhalation toxicity:</u> LC50 rat Dose: 101 mg/l Exposure time: 4 h</p> <p><u>Skin irritation:</u> Classification: Irritating to skin. Result: Mild skin irritation</p> <p><u>Eye irritation:</u> Classification: Irritating to eyes. Result: Mild eye irritation</p> <p><u>Carcinogenicity:</u> N11.00422130</p>
Xylene	1330-20-7	<p><u>Acute oral toxicity:</u> LD50 rat Dose: 2,840 mg/kg</p> <p><u>Acute dermal toxicity:</u> LD50 rabbit Dose: ca. 4,500 mg/kg</p> <p><u>Acute inhalation toxicity:</u> LC50 rat Dose: 6,350 mg/l Exposure time: 4 h</p> <p><u>Skin irritation:</u> Classification: Irritating to skin. Result: Mild skin irritation Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.</p> <p><u>Eye irritation:</u> Classification: Irritating to eyes. Result: Mild eye irritation</p>
Nonane	111-84-2	<p><u>Acute oral toxicity:</u> LD50 mouse Dose: 218 mg/kg</p> <p><u>Acute inhalation toxicity:</u> LC50 rat Exposure time: 4 h</p>
1,2,4-Trimethylbenzene	95-63-6	<p><u>Acute inhalation toxicity:</u> LC50 rat Dose: 18 mg/l Exposure time: 4 h</p> <p><u>Skin irritation:</u> Classification: Irritating to skin. Result: Skin irritation</p> <p><u>Eye irritation:</u> Classification: Irritating to eyes. Result: Eye irritation</p>
Sulfur	7704-34-9	<p><u>Acute oral toxicity:</u> LD50 rat Dose: 5,001 mg/kg</p> <p><u>Acute dermal toxicity:</u> LD50 rabbit Dose: 2,001 mg/kg</p> <p><u>Acute inhalation toxicity:</u> LC50 rat Dose: 9.24 mg/l Exposure time: 4 h</p> <p><u>Eye irritation:</u> Classification: Irritating to eyes. Result: Mild eye irritation</p>

SECTION 12. ECOLOGICAL INFORMATION

Biochemical Oxygen Demand (BOD) : No data available

Chemical Oxygen Demand (COD) : No data available

Adsorbed organic bound halogens (AOX) : Not included

Additional ecological information : Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable, under Federal and State regulations.

Component:

Naphthalene	91-20-3	<u>Toxicity to algae:</u> EC50 Species: Dose: 33 mg/l Exposure time: 24 h
1,2,4-Trimethylbenzene	95-63-6	<u>Toxicity to fish:</u> LC50 Species: Pimephales promelas (fathead minnow) Dose: 7.72 mg/l Exposure time: 96 h <u>Acute and prolonged toxicity for aquatic invertebrates:</u> EC50 Species: Daphnia Dose: 3.6 mg/l Exposure time: 48 h
Sulfur	7704-34-9	<u>Acute and prolonged toxicity for aquatic invertebrates:</u> EC0 Species: Daphnia magna (Water flea) Dose: > 10,000 mg/l Exposure time: 24 h

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal : Consult federal, state and local waste regulations to determine appropriate waste characterization of material and allowable disposal methods.

SECTION 14. TRANSPORT INFORMATION

CFR

Proper shipping name : DIESEL FUEL
 UN-No. : 1202 (NA 1993)
 Class : 3
 Packing group : III

TDG

Proper shipping name : DIESEL FUEL
 UN-No. : UN1202 (NA 1993)
 Class : 3
 Packing group : III

IATA Cargo Transport

UN UN-No. : UN1202 (NA 1993)
 Description of the goods : DIESEL FUEL
 Class : 3
 Packaging group : III

ICAO-Labels : 3
 Packing instruction (cargo aircraft) : 366
 Packing instruction (cargo aircraft) : Y344

IATA Passenger Transport

UN UN-No. : UN1202 (NA 1993)
 Description of the goods : DIESEL FUEL
 Class : 3
 Packaging group : III
 ICAO-Labels : 3
 Packing instruction (passenger aircraft) : 355
 Packing instruction (passenger aircraft) : Y344

IMDG-Code

UN-No. : UN 1202 (NA 1993)
 Description of the goods : DIESEL FUEL
 Class : 3
 Packaging group : III
 IMDG-Labels : 3
 EmS Number : F-E S-E
 Marine pollutant : No

SECTION 15. REGULATORY INFORMATION

OSHA Hazards : Combustible Liquid
 Toxic by ingestion
 Severe skin irritant
 Moderate eye irritant
 Possible Cancer Hazard

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIROMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil. Fractions of crude oil, and products (both finished and intermediate) from the crude oil refining process and any indigenous components of such from the CERCLA Section 103 reporting requirements. However, other federal reporting requirements, including SARA Section 304, as well as the Clean Water Act may still apply.

TSCA Status : On TSCA Inventory
 DSL Status : All components of this product are on the Canadian DSL list.
 SARA 311/312 Hazards : Fire Hazard
 Acute Health Hazard
 Chronic Health Hazard

SARA III US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required

Components

CAS-No.

Naphthalene

91-20-3

Xylene	1330-20-7
1,2,4-trimethylbenzene	95-63-6
PENN RTK	US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)
<u>Components</u>	<u>CAS-No.</u>
Sulfur	7704-34-9
1,2,4-trimethylbenzene	95-63-6
Nonane	111-84-2
Xylene	1330-20-7
Naphthalene	91-20-3
Fuels, diesel, No 2; Gasoil - unspecified	68476-34-6
MASS RTK	US. Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)
<u>Components</u>	<u>CAS-No.</u>
Sulfur	7704-34-9
1,2,4-Trimethylbenzene	95-63-6
Nonane	111-84-2
Xylene	1330-20-7
Naphthalene	91-20-3
NJ RTK	US. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)
<u>Components</u>	<u>CAS-No.</u>
Sulfur	7704-34-9
1,2,4-Trimethylbenzene	95-63-6
Nonane	111-84-2
Xylene	1330-20-7
Naphthalene	91-20-3
Fuels, diesel, No 2; Gasoil - unspecified	68476-34-6
California Prop. 65	: WARNING! This product contains a chemical known to the State of California to cause cancer.
	Naphthalene 91-20-3

SECTION 16. OTHER INFORMATION

Further information
 The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in

combination with any other materials or in any process, unless specified in the text.

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