



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	DIESEL FUELS
Version #	03
Issue date	09-November-2010
Revision date	25-June-2013
Supersedes date	04-November-2012
MSDS Number	102
Product use	Refinery feedstock.
Synonym(s)	Diesel Fuels All Grades, Diesel Fuel No.2, Fuel Oil No.2, High Sulfur Diesel Fuel, Low Sulfur Diesel Fuel, Ultra Low Sulfur Diesel Fuel, CARB (California Air Resource Board) Diesel Fuel, Off-Road Diesel Fuel, Dyed Diesel Fuel, X Grade Diesel Fuel, X-1 Diesel Fuel, R5 ULSD, B5 ULS D See section 16 for complete information.
Manufacturer/Supplier	Valero Marketing & Supply Company and Affiliates P.O. Box 696000 San Antonio, TX 78269-6000
General Assistance	210-345-4593
Emergency	24 Hour Emergency 866-565-5220 1-800-424-9300 (CHEMTREC USA)

2. Hazards Identification

Physical state	Liquid.
Appearance	Liquid (may be dyed red).
Emergency overview	<p>WARNING!</p> <p>Combustible liquid and vapor. May be ignited by heat, sparks or flames. Heat may cause the containers to explode.</p> <p>Harmful if inhaled or swallowed. May be harmful if absorbed through skin. Aspiration may cause lung damage. Irritating to eyes, respiratory system and skin. In high concentrations, vapors and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea. Suspect cancer hazard - may cause cancer. Prolonged exposure may cause chronic effects. Diesel exhaust has been reported to be an occupational hazard due to NIOSH-reported potential carcinogenic properties. Hydrogen sulfide, a highly toxic gas, may be present or released. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment. The toxicological properties of this material have not been fully investigated.</p> <p>Static accumulating flammable materials can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite material and vapor may cause flash fire (or explosion).</p>
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	Contact may irritate or burn eyes. Eye contact may result in corneal injury.
Skin	May be harmful if absorbed through skin. Irritating to skin. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Inhalation	Harmful if inhaled. Irritating to respiratory system. In high concentrations, vapors and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea. May cause breathing disorders and lung damage. May cause cancer by inhalation. Prolonged inhalation may be harmful.
Ingestion	Harmful if swallowed. Ingestion may result in vomiting; aspiration (breathing) of vomitus into lungs must be avoided as even small quantities may result in aspiration pneumonitis. Irritating to mouth, throat, and stomach.
Target organs	Blood. Eyes. Liver. Respiratory system. Skin. Kidneys. Central nervous system.

Chronic effects	Suspect cancer hazard - may cause cancer. Liver injury may occur. Kidney injury may occur. Exposure may cause lung cancer and also noted a positive association with an increased risk of bladder cancer. May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue, mental confusion and blurred vision) and/or damage. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Signs and symptoms	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash. The toxicological properties of this product have not been thoroughly investigated. Use appropriate precautions.
Potential environmental effects	Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Fuels, diesel, no. 2	68476-34-6	85 - 100
Biodiesel - Fatty acid methyl esters	67762-38-3	0 - 5
Fuels, diesel, C9-18-alkane branched and linear	1159170-26-9	0 - 5
n-Nonane	111-84-2	1 - 3
Octane (All isomers)	111-65-9	1 - 2
Hexane (Other isomers)	96-14-0	0 - 1
Naphthalene	91-20-3	0 - 1
n-Heptane	142-82-5	0 - 1
n-Hexane	110-54-3	0 - 1

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.
Skin contact	Remove contaminated clothing and shoes. Wash off immediately with soap and plenty of water. Get medical attention if irritation develops or persists. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes. If high pressure injection under the skin occurs, always seek medical attention.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
Ingestion	Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Do not give mouth-to-mouth resuscitation. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Get medical attention immediately.

Notes to physician In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. The toxicological properties of this material have not been fully investigated.

General advice If exposed or concerned: get medical attention/advice. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use.

5. Fire Fighting Measures

Flammable properties Combustible liquid and vapor. Containers may explode when heated.

Extinguishing media

Suitable extinguishing media	Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.

Protection of firefighters

Protective equipment and precautions for firefighters Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

**Fire fighting
equipment/instructions**

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. Cool containers exposed to flames with water until well after the fire is out. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Water runoff can cause environmental damage. Use compatible foam to minimize vapor generation as needed.

Specific methods

In the event of fire and/or explosion do not breathe fumes.

**Hazardous combustion
products**

Carbon monoxide. Carbon Dioxide. Sulfur oxides. Nitrogen oxides (NOx). Hydrocarbons. Hydrogen sulfide.

6. Accidental Release Measures

Personal precautions

Keep unnecessary personnel away. Local authorities should be advised if significant spills cannot be contained. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the MSDS for Personal Protective Equipment.

Environmental precautions

If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Flammable. Review Firefighting Measures, Section 5, before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g. by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Use compatible foam to minimize vapor generation as needed. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 1-800-424-8802. For highway or railways spills, contact Chemtrec at 1-800-424-9300.

Methods for containment

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Local authorities should be advised if significant spillages cannot be contained. Stop leak if you can do so without risk. This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas.

Methods for cleaning up

Use non-sparking tools and explosion-proof equipment.

Small Spills: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. This material and its container must be disposed of as hazardous waste.

Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent product from entering drains. Do not allow material to contaminate ground water system. Should not be released into the environment.

Other information

Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling

Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Wear personal protective equipment. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Avoid prolonged exposure. Use only with adequate ventilation. Wash thoroughly after handling. The product is combustible, and heating may generate vapors which may form explosive vapor/air mixtures. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. When using, do not eat, drink or smoke. Avoid release to the environment.

Storage

Flammable liquid storage. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. The pressure in sealed containers can increase under the influence of heat. Keep container tightly closed in a cool, well-ventilated place. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Fuels, diesel, no. 2 (CAS 68476-34-6)	TWA	100 mg/m3	Inhalable fraction and vapor.
Hexane (Other isomers) (CAS 96-14-0)	STEL	1000 ppm	
Naphthalene (CAS 91-20-3)	TWA	500 ppm	
	STEL	15 ppm	
n-Heptane (CAS 142-82-5)	TWA	10 ppm	
	STEL	500 ppm	
n-Hexane (CAS 110-54-3)	TWA	400 ppm	
	STEL	50 ppm	
n-Nonane (CAS 111-84-2)	TWA	200 ppm	
Octane (All isomers) (CAS 111-65-9)	TWA	300 ppm	

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Naphthalene (CAS 91-20-3)	PEL	50 mg/m3
		10 ppm
n-Heptane (CAS 142-82-5)	PEL	2000 mg/m3
		500 ppm
n-Hexane (CAS 110-54-3)	PEL	1800 mg/m3
		500 ppm
Octane (All isomers) (CAS 111-65-9)	PEL	2350 mg/m3
		500 ppm

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
Fuels, diesel, no. 2 (CAS 68476-34-6)	TWA	100 mg/m3
Hexane (Other isomers) (CAS 96-14-0)	STEL	3500 mg/m3
		1000 ppm
Naphthalene (CAS 91-20-3)	TWA	1760 mg/m3
		500 ppm
	STEL	79 mg/m3
		15 ppm
n-Heptane (CAS 142-82-5)	TWA	52 mg/m3
		10 ppm
	STEL	2050 mg/m3
		500 ppm
n-Hexane (CAS 110-54-3)	TWA	1640 mg/m3
		400 ppm
	STEL	176 mg/m3
		50 ppm
n-Nonane (CAS 111-84-2)	TWA	1050 mg/m3
		200 ppm
	STEL	1400 mg/m3
		300 ppm

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value	Form
Fuels, diesel, no. 2 (CAS 68476-34-6)	TWA	100 mg/m3	Vapor and aerosol.

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value	Form
Hexane (Other isomers) (CAS 96-14-0)	TWA	200 ppm	
Naphthalene (CAS 91-20-3)	STEL	15 ppm	
	TWA	10 ppm	
n-Heptane (CAS 142-82-5)	STEL	500 ppm	
	TWA	400 ppm	
n-Hexane (CAS 110-54-3)	TWA	20 ppm	
n-Nonane (CAS 111-84-2)	TWA	200 ppm	
Octane (All isomers) (CAS 111-65-9)	TWA	300 ppm	

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value	Form
Fuels, diesel, no. 2 (CAS 68476-34-6)	TWA	100 mg/m3	Inhalable fraction and vapor.
Hexane (Other isomers) (CAS 96-14-0)	STEL	1000 ppm	
	TWA	500 ppm	
Naphthalene (CAS 91-20-3)	STEL	15 ppm	
	TWA	10 ppm	
n-Heptane (CAS 142-82-5)	STEL	500 ppm	
	TWA	400 ppm	
n-Hexane (CAS 110-54-3)	TWA	50 ppm	
n-Nonane (CAS 111-84-2)	TWA	200 ppm	
Octane (All isomers) (CAS 111-65-9)	TWA	300 ppm	

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value
Hexane (Other isomers) (CAS 96-14-0)	STEL	3500 mg/m3
	TWA	1000 ppm 1760 mg/m3
Naphthalene (CAS 91-20-3)	STEL	500 ppm 79 mg/m3
	TWA	15 ppm 52 mg/m3
n-Heptane (CAS 142-82-5)	STEL	10 ppm 2050 mg/m3
	TWA	500 ppm 1640 mg/m3
n-Hexane (CAS 110-54-3)	TWA	400 ppm 176 mg/m3
n-Nonane (CAS 111-84-2)	TWA	50 ppm 1050 mg/m3
Octane (All isomers) (CAS 111-65-9)	STEL	200 ppm 1750 mg/m3
	TWA	375 ppm 1400 mg/m3
		300 ppm

Mexico. Occupational Exposure Limit Values

Components	Type	Value
Hexane (Other isomers) (CAS 96-14-0)	STEL	3500 mg/m3
	TWA	1000 ppm 1760 mg/m3

Mexico. Occupational Exposure Limit Values

Components	Type	Value
Naphthalene (CAS 91-20-3)	STEL	500 ppm
		75 mg/m3
		15 ppm
	TWA	50 mg/m3
		10 ppm
		2000 mg/m3
n-Heptane (CAS 142-82-5)	STEL	500 ppm
		1600 mg/m3
		400 ppm
n-Hexane (CAS 110-54-3)	TWA	176 mg/m3
		50 ppm
		1300 mg/m3
n-Nonane (CAS 111-84-2)	STEL	250 ppm
		1050 mg/m3
		200 ppm
Octane (All isomers) (CAS 111-65-9)	STEL	1800 mg/m3
		375 ppm
		1450 mg/m3
	TWA	300 ppm

Exposure guidelines

Canada - Alberta OELs: Skin designation

Naphthalene (CAS 91-20-3)	Can be absorbed through the skin.
n-Hexane (CAS 110-54-3)	Can be absorbed through the skin.

Canada - British Columbia OELs: Skin designation

Fuels, diesel, no. 2 (CAS 68476-34-6)	Can be absorbed through the skin.
Naphthalene (CAS 91-20-3)	Can be absorbed through the skin.
n-Hexane (CAS 110-54-3)	Can be absorbed through the skin.

Canada - Manitoba OELs: Skin designation

Fuels, diesel, no. 2 (CAS 68476-34-6)	Can be absorbed through the skin.
Naphthalene (CAS 91-20-3)	Can be absorbed through the skin.
n-Hexane (CAS 110-54-3)	Can be absorbed through the skin.

Canada - Ontario OELs: Skin designation

Fuels, diesel, no. 2 (CAS 68476-34-6)	Can be absorbed through the skin.
Naphthalene (CAS 91-20-3)	Can be absorbed through the skin.
n-Hexane (CAS 110-54-3)	Can be absorbed through the skin.

Canada - Quebec OELs: Skin designation

n-Hexane (CAS 110-54-3)	Can be absorbed through the skin.
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Canada - Saskatchewan OELs: Skin designation

Fuels, diesel, no. 2 (CAS 68476-34-6)	Can be absorbed through the skin.
Naphthalene (CAS 91-20-3)	Can be absorbed through the skin.
n-Hexane (CAS 110-54-3)	Can be absorbed through the skin.

Mexico OELs: Skin designation

n-Heptane (CAS 142-82-5)	Can be absorbed through the skin.
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US - California OELs: Skin designation

n-Hexane (CAS 110-54-3)	Can be absorbed through the skin.
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US ACGIH Threshold Limit Values: Skin designation

Fuels, diesel, no. 2 (CAS 68476-34-6)	Can be absorbed through the skin.
Naphthalene (CAS 91-20-3)	Can be absorbed through the skin.
n-Hexane (CAS 110-54-3)	Can be absorbed through the skin.

Engineering controls

Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.

Personal protective equipment

Eye / face protection

Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.

Skin protection	Wear chemical-resistant, impervious gloves. Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended.
Respiratory protection	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.
General hygiene considerations	Consult supervisor for special handling instructions. Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practice.

9. Physical & Chemical Properties

Appearance	Liquid (may be dyed red).
Physical state	Liquid.
Form	Liquid.
Color	Clear. Straw.
Odor	Kerosene (strong).
Odor threshold	Not available.
pH	Not available.
Vapor pressure	< 1 mm Hg (20°C)
Vapor density	3 (Air = 1)
Boiling point	325 - 700 °F (162.78 - 371.11 °C)
Melting point/Freezing point	-60.07 °F (-51.15 °C) Estimated
Solubility (water)	Not available.
Specific gravity	0.82 - 0.87 (60°F)
Flash point	> 100.0 °F (> 37.8 °C) Closed Cup
Flammability limits in air, upper, % by volume	8 %
Flammability limits in air, lower, % by volume	0.4 %
Auto-ignition temperature	494.96 °F (257.2 °C)
Evaporation rate	0
Viscosity	2 - 4.5 mm ² /s
Other data	
Flash point class	Combustible II

10. Chemical Stability & Reactivity Information

Chemical stability	Stable under normal temperature conditions and recommended use.
Conditions to avoid	Heat, flames and sparks. Ignition sources. Contact with incompatible materials. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Carbon oxides. Sulfur oxides. Nitrogen oxides (NOx). Hydrocarbons. Hydrogen sulfide.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Components	Species	Test Results
Fuels, diesel, no. 2 (CAS 68476-34-6)		
Acute		
<i>Inhalation</i>		
LC50	Rat	4.1 mg/l, 4 hours
Naphthalene (CAS 91-20-3)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2 g/kg
<i>Oral</i>		
LD50	Rat	490 mg/kg
n-Heptane (CAS 142-82-5)		
Acute		
<i>Inhalation</i>		
LC50	Rat	103 mg/l, 4 Hours
n-Hexane (CAS 110-54-3)		
Acute		
<i>Oral</i>		
LD50	Rat	28710 mg/kg
n-Nonane (CAS 111-84-2)		
Acute		
<i>Inhalation</i>		
LC50	Rat	3200 mg/l, 4 Hours
Octane (All isomers) (CAS 111-65-9)		
Acute		
<i>Inhalation</i>		
LC50	Rat	118 mg/l, 4 Hours
Sensitization	This substance may have a potential for sensitization which may provoke an allergic reaction among sensitive individuals.	
Acute effects	Harmful if inhaled, absorbed through skin, or swallowed. Harmful: may cause lung damage if swallowed. Irritating to eyes, respiratory system and skin. In high concentrations, vapors and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. The toxicological properties of this material have not been fully investigated.	
Chronic effects	Contains organic solvents which in case of overexposure may depress the central nervous system causing dizziness and intoxication. Repeated exposure to naphthalene may cause cataracts, allergic skin rashes, destruction of red blood cells, and anemia, jaundice, kidney and liver damage. Danger of serious damage to health by prolonged exposure. Prolonged or repeated overexposure may cause central nervous system, kidney, liver, and lung damage.	
Subchronic effects	Liver and kidney damage may occur after prolonged and repeated exposure.	
Carcinogenicity	International Agency for Research on Cancer (IARC): Whole diesel engine exhaust – IARC Group 1. Exposure may cause lung cancer and also noted a positive association with an increased risk of bladder cancer. Diesel exhaust has been reported to be an occupational hazard due to NIOSH-reported potential carcinogenic properties.	
ACGIH Carcinogens		
Fuels, diesel, no. 2 (CAS 68476-34-6)	A3 Confirmed animal carcinogen with unknown relevance to humans.	
Naphthalene (CAS 91-20-3)	A4 Not classifiable as a human carcinogen.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
Fuels, diesel, no. 2 (CAS 68476-34-6)	3 Not classifiable as to carcinogenicity to humans.	

US NTP Report on Carcinogens: Anticipated carcinogen

Naphthalene (CAS 91-20-3)

Reasonably Anticipated to be a Human Carcinogen.

Epidemiology	Studies have shown a risk of spontaneous abortions in women exposed to high concentrations of organic solvents during pregnancy. Pre-existing skin conditions including dermatitis might be aggravated by exposure to this product.
Mutagenicity	No component of this product present at levels greater than or equal to 0.1% is identified as a mutagen by OSHA.
Neurological effects	Chronic exposure to high concentrations of various hydrocarbon blends may lead to polyneuropathy (peripheral nerve damage), characterized by progressive weakness and numbness in the extremities, loss of deep tendon reflexes and reduction of motor nerve conduction velocity. Numerous cases of polyneuritis have been reported following prolonged exposures to a petroleum fraction containing various isomers of heptane as major ingredients. May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue) and/or damage.
Reproductive effects	Napthalene interferes with embryo development in experimental animals at dose levels that cause maternal toxicity. In humans, excessive exposure to this agent may cause hemolytic anemia in the mother and fetus.
Teratogenicity	The components of this product are not reported to cause teratogenic effects in humans. Based on best current information, there is no known teratogenicity associated with this product.
Further information	Symptoms may be delayed. Toxicological properties of this material have not been fully investigated.

12. Ecological Information**Ecotoxicological data**

Components	Species		Test Results
Fuels, diesel, no. 2 (CAS 68476-34-6)			
Aquatic			
Acute			
Crustacea	EL50	Daphnia magna	68 mg/l, 48 hours
Fish	LL50	Oncorhynchus mykiss	65 mg/l, 96 hours
Naphthalene (CAS 91-20-3)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	1.09 - 3.4 mg/l, 48 hours
Fish	LC50	Pink salmon (Oncorhynchus gorbuscha)	1.11 - 1.68 mg/l, 96 hours
n-Heptane (CAS 142-82-5)			
Aquatic			
Fish	LC50	Western mosquitofish (Gambusia affinis)	4924 mg/l, 96 hours
n-Hexane (CAS 110-54-3)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	2.101 - 2.981 mg/l, 96 hours
Ecotoxicity	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.		
Aquatic toxicity	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.		
Persistence and degradability	Not available.		
Bioaccumulation / Accumulation	Not available.		
Partition coefficient			
Hexane (Other isomers) (CAS 96-14-0)		3.6	
Octane (All isomers) (CAS 111-65-9)		5.18	
n-Heptane (CAS 142-82-5)		4.66	
n-Hexane (CAS 110-54-3)		3.9	
n-Nonane (CAS 111-84-2)		5.46	
Mobility in environmental media	No data available.		

13. Disposal Considerations

Waste codes	D001: Waste Flammable material with a flash point <140 °F
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US RCRA Hazardous Waste U List: Reference

Naphthalene (CAS 91-20-3)

U165

Disposal instructions

Dispose in accordance with all applicable regulations. Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.

14. Transport Information

DOT

Basic shipping requirements:

UN number UN1202
Proper shipping name Diesel fuel
Hazard class Combustible Liquid
Packing group III
Environmental hazards

Marine pollutant Yes

Additional information:

Special provisions 144, B1, IB3, T2, TP1
Packaging exceptions 150
Packaging non bulk 203
Packaging bulk 242

IATA

UN number UN1202
UN proper shipping name Diesel fuel
Transport hazard class(es) 3
Packing group III
Environmental hazards Yes
Labels required 3
ERG code 3L
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN1202
UN proper shipping name DIESEL FUEL
Transport hazard class(es) 3
Packing group III
Environmental hazards
Marine pollutant Yes
Labels required 3
EmS F-E, S-E
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable. However, this product is a liquid and if transported in bulk covered under MARPOL 73/78, Annex I.

TDG

UN number UN1202
Proper shipping name DIESEL FUEL
Hazard class Combustible Liquid
Packing group III
Marine pollutant Yes
Special provisions 82, 88

15. Regulatory Information

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

n-Nonane (CAS 111-84-2) 1.0 % One-Time Export Notification only.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Naphthalene (CAS 91-20-3)

n-Hexane (CAS 110-54-3)

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

Naphthalene (CAS 91-20-3) 0.1 %

n-Hexane (CAS 110-54-3) 1.0 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Naphthalene (CAS 91-20-3)

Listed.

n-Hexane (CAS 110-54-3)

Listed.

CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)

n-Nonane: 100

Octane (All isomers): 100

Hexane (Other isomers): 100

Naphthalene: 100

n-Hexane: 5000

Superfund Amendments and Reauthorization Act of 1986 (SARA)**Hazard categories**

Immediate Hazard - Yes

Delayed Hazard - Yes

Fire Hazard - Yes

Pressure Hazard - No

Reactivity Hazard - No

Section 302 extremely hazardous substance (40 CFR 355, Appendix A)

No

SARA 311/312 Hazardous chemical

Yes

Drug Enforcement Administration (DEA) (21 CFR 1308.11-15)

Not controlled

WHMIS status

Controlled

WHMIS classification

B3 - Combustible Liquids

D2A - Other Toxic Effects-VERY TOXIC

D2B - Other Toxic Effects-TOXIC

WHMIS labeling**Inventory status****Country(s) or region****Inventory name****On inventory (yes/no)***

Australia

Australian Inventory of Chemical Substances (AICS)

Yes

Canada

Domestic Substances List (DSL)

Yes

Canada

Non-Domestic Substances List (NDSL)

No

China

Inventory of Existing Chemical Substances in China (IECSC)

Yes

Europe

European Inventory of Existing Commercial Chemical Substances (EINECS)

Yes

Europe

European List of Notified Chemical Substances (ELINCS)

No

Japan

Inventory of Existing and New Chemical Substances (ENCS)

No

Korea

Existing Chemicals List (ECL)

Yes

New Zealand

New Zealand Inventory

Yes

Philippines

Philippine Inventory of Chemicals and Chemical Substances (PICCS)

Yes

United States & Puerto Rico

Toxic Substances Control Act (TSCA) Inventory

Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

State regulations

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

US - California Hazardous Substances (Director's): Listed substance

Hexane (Other isomers) (CAS 96-14-0)

Listed.

Naphthalene (CAS 91-20-3)

Listed.

n-Heptane (CAS 142-82-5)

Listed.

n-Hexane (CAS 110-54-3)	Listed.
n-Nonane (CAS 111-84-2)	Listed.
Octane (All isomers) (CAS 111-65-9)	Listed.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Benzene (CAS 71-43-2)	Listed.
Toluene (CAS 108-88-3)	Listed.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Benzene (CAS 71-43-2)	Listed: February 27, 1987 Carcinogenic.
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US - California Proposition 65 - CRT: Listed date/Developmental toxin

Benzene (CAS 71-43-2)	Listed: December 26, 1997 Developmental toxin.
Toluene (CAS 108-88-3)	Listed: January 1, 1991 Developmental toxin.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

Toluene (CAS 108-88-3)	Listed: August 7, 2009 Female reproductive toxin.
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US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

Benzene (CAS 71-43-2)	Listed: December 26, 1997 Male reproductive toxin.
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US - New Jersey RTK - Substances: Listed substance

Naphthalene (CAS 91-20-3)	Listed.
n-Heptane (CAS 142-82-5)	Listed.
n-Hexane (CAS 110-54-3)	Listed.
n-Nonane (CAS 111-84-2)	Listed.
Octane (All isomers) (CAS 111-65-9)	Listed.

US. Massachusetts RTK - Substance List

Hexane (Other isomers) (CAS 96-14-0)	Listed.
Naphthalene (CAS 91-20-3)	Listed.
n-Heptane (CAS 142-82-5)	Listed.
n-Hexane (CAS 110-54-3)	Listed.
n-Nonane (CAS 111-84-2)	Listed.
Octane (All isomers) (CAS 111-65-9)	Listed.

US. New Jersey Worker and Community Right-to-Know Act

Fuels, diesel, no. 2 (CAS 68476-34-6)	10000 lbs
Naphthalene (CAS 91-20-3)	500 lbs
n-Hexane (CAS 110-54-3)	500 lbs

US. Pennsylvania RTK - Hazardous Substances

Fuels, diesel, no. 2 (CAS 68476-34-6)	Listed.
Hexane (Other isomers) (CAS 96-14-0)	Listed.
Naphthalene (CAS 91-20-3)	Listed.
n-Heptane (CAS 142-82-5)	Listed.
n-Hexane (CAS 110-54-3)	Listed.
n-Nonane (CAS 111-84-2)	Listed.
Octane (All isomers) (CAS 111-65-9)	Listed.

Mexico regulations This safety data sheet was prepared in accordance with the Official Mexican Standard (NMX-R-019-SCFI-2011).

16. Other Information

Further information

HMIS® is a registered trade and service mark of the NPCA.

Other information

Note: This material Safety Data Sheet applies to the listed products and synonym descriptions for Hazard Communication purposes only. Technical Specifications vary greatly depending on the products and are not reflected in this document. Consult specification sheets for technical information.

HMIS® ratings

Health: 2*
Flammability: 2
Physical hazard: 0

NFPA ratings

Health: 2
Flammability: 2
Instability: 0

Disclaimer

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