

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name Heavy Fuel Oil
Version # 01
Revision date 08-26-2010
CAS # Mixture
Product use Fuel in boilers and heaters.
Synonym(s) Slurry, No. 5 Fuel Oil, decant, Low Sulfur No. 6, High Sulfur No. 6, No. 6 Fuel Oil
Manufacturer/Supplier Sinclair Oil Corporation
P.O. Box 30825, Salt Lake City, UT
(888) 340-3466
(801)524-2740
Emergency Chemtech: (800) 424-9300
(703) 527-3887 (collect)

2. Hazards Identification

Physical state Liquid.
Appearance Thick Dark Brown Oil
Emergency overview WARNING

Harmful if swallowed. May cause eye, skin and respiratory tract irritation. May cause damage to the blood, liver and kidneys.
Cancer hazard - can cause cancer.

Combustible liquid and vapor.

Potential health effects

Routes of exposure Ingestion. Skin contact. Eye contact. Inhalation.

Eyes May cause eye irritation.

Skin May cause skin irritation. Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema/chapping and oil acne. Harmful: danger of serious damage to health by prolonged exposure in contact with skin.

Inhalation May cause respiratory tract irritation. Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness. Prolonged inhalation may be harmful.

Ingestion Harmful if swallowed. Ingestion may cause irritation and malaise.

Target organs Blood. Central nervous system. Eyes. Kidney. Liver. Skin.

Chronic effects Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema/chapping and oil acne. Prolonged and repeated contact with the product may cause skin cancer.

Signs and symptoms Irritation of eyes and mucous membranes. Skin irritation. Defatting of the skin. Dermatitis. Ingestion may cause irritation and malaise.

Potential environmental effects Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Clarified oils (Petroleum), catalytic cracked	64741-62-4	=< 99
Residues (petroleum), light vacuum	68512-62-9	0 - 50
Fuels, diesel, no. 2	68476-34-6	0 - 10
Naphthalene	91-20-3	0 - 2

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush with plenty of water for up to 15 minutes. Get medical attention if irritation develops and persists.
Skin contact	Remove contaminated clothing. Wash with soap and water. In case of rashes, wounds or other skin disorders: Seek medical attention and bring along these instructions.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. Call a physician if symptoms develop or persist.
Ingestion	Immediately rinse mouth and drink plenty of water or milk. Keep person under observation. Do not induce vomiting. If vomiting occurs, keep head low. Transport immediately to hospital and take these instructions.
Notes to physician	Provide general supportive measures and treat symptomatically. Symptoms may be delayed.
General advice	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties	Combustible liquid and vapor. Vapors may form explosive mixtures with air. Material will float and can be re-ignited on surface of water.
Extinguishing media	
Suitable extinguishing media	Water spray, foam, dry powder or carbon dioxide.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Protection of firefighters	
Specific hazards arising from the chemical	Thermal decomposition may produce smoke, oxides of carbon and lower molecular weight organic compounds whose composition have not been characterized. Sulphur Oxides (SO _x). Nitrogen Oxides (NO _x).
Protective equipment and precautions for firefighters	Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Use water spray to cool unopened containers. Cool containers with flooding quantities of water until well after fire is out.
Specific methods	Move container from fire area if it can be done without risk. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire.

6. Accidental Release Measures

Personal precautions	Stay upwind. Ensure adequate ventilation. Avoid contact with skin. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Wear protective clothing as described in Section 8 of this safety data sheet. In case of spills, beware of slippery floors and surfaces.
Environmental precautions	Prevent spreading over a wide area (e.g. by containment or oil barriers). Do not contaminate water. Contact local authorities in case of spillage to drain/aquatic environment. U.S. regulations require reporting releases of this material to the environment which exceed the reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.
Methods for cleaning up	<p>Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible.</p> <p>Small Spills: Absorb spillage with non-combustible, absorbent material.</p> <p>Large Spills: Remove with vacuum trucks or pump to storage/salvage vessels. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Wash area with soap and water. Ensure that waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labeled container.</p>
Other information	Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling

Access to work area should be restricted to people handling the product only. Should be handled in closed systems, if possible. Caution! Vapors may be present in the headspace of closed containers. Ventilate after opening. Vapors are heavier than air and may travel along the floor and in the bottom of containers. Avoid contact with eyes, skin, and clothing. Avoid inhalation of vapors. Wear appropriate personal protective equipment. Immediately change contaminated clothes. Do not eat, drink or smoke when using the product. Be aware of potential for surfaces to become slippery. Observe good industrial hygiene practices.

Storage

Follow rules for combustible liquids. Store in a cool, dry place with adequate ventilation. Keep away from incompatible materials, open flames, and high temperatures. Keep away from food, drink and animal feeding stuffs. Store away from incompatible materials.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Fuels, diesel, no. 2 (68476-34-6)	TWA	100 mg/m3	Inhalable fraction and vapor.
Naphthalene (91-20-3)	STEL	15 ppm	
	TWA	10 ppm	

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

Components	Type	Value
Naphthalene (91-20-3)	PEL	10 ppm
		50 mg/m3

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

Components	Type	Value
Fuels, diesel, no. 2 (68476-34-6)	TWA	100 mg/m3
Naphthalene (91-20-3)	STEL	15 ppm
		79 mg/m3
		10 ppm
	TWA	52 mg/m3

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 (68476-34-6)	TWA	100 mg/m3	Vapor and aerosol.
Naphthalene (91-20-3)	STEL	15 ppm	
	TWA	10 ppm	

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

Components	Type	Value	Form
Fuels, diesel, no. 2 (68476-34-6)	TWA	100 mg/m3	Vapor and aerosol.
Naphthalene (91-20-3)	STEL	15 ppm	
		78 mg/m3	
		10 ppm	
	TWA	52 mg/m3	

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

Components	Type	Value
Naphthalene (91-20-3)	STEL	79 mg/m3
		15 ppm
		52 mg/m3
		10 ppm

Mexico. Occupational Exposure Limit Values

Components	Type	Value
Naphthalene (91-20-3)	STEL	75 mg/m ³
		15 ppm
	TWA	50 mg/m ³
		10 ppm
Engineering controls	Observe occupational exposure limits and minimize the risk of exposure to a minimum. Provide adequate ventilation and minimize the risk of inhalation of vapors and oil mist. Use explosion-proof equipment. Provide easy access to water supply and eye wash facilities.	
Personal protective equipment		
Eye / face protection	Wear goggles/face shield.	
Skin protection	Protection suit must be worn. Protective clothing should be chemical/oil resistant. Anti-static and flame-retardant protective clothing is recommended.	
Respiratory protection	In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134. Use a NIOSH/MSHA approved air purifying respirator as needed to control exposure. Consult with respirator manufacturer to determine respirator selection, use, and limitations. Use positive pressure, air-supplied respirator for uncontrolled releases or when air purifying respirator limitations may be exceeded. Follow respirator protection program requirements (OSHA 1910.134 and ANSI Z88.2) for all respirator use. Wear air-supplied mask in confined areas. Seek advice from local supervisor.	
General hygiene considerations	When using, do not eat, drink or smoke. Wash hands after handling. Launder contaminated clothing before reuse. Private clothes and working clothes should be kept separately. Handle in accordance with good industrial hygiene and safety practice. Observe any medical surveillance requirements.	

9. Physical & Chemical Properties

Appearance	Thick Dark Brown Oil
Color	Brown.
Odor	Strong Hydrocarbon
Odor threshold	Not available.
Physical state	Liquid.
Form	Liquid.
pH	Not applicable
Melting point	Not available.
Freezing point	Not available.
Boiling point	600 °F (315.6 °C)
Flash point	150 °F (65.6 °C)
Evaporation rate	Not available.
Flammability limits in air, upper, % by volume	5 %
Flammability limits in air, lower, % by volume	1 %
Vapor pressure	Not available.
Vapor density	> 1
Specific gravity	0.9 - 1.1
Solubility (water)	Insoluble in water.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	765 °F (407.2 °C)
Decomposition temperature	Not available.

10. Chemical Stability & Reactivity Information

Chemical stability	Stable at normal conditions.
Conditions to avoid	Heat, sparks, flames, elevated temperatures. Contact with incompatible materials.
Incompatible materials	Strong acids. Strong bases. Alkalis. Strong oxidizing agents.

Hazardous decomposition products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Components	Test Results
Naphthalene (91-20-3)	Acute Dermal LD50 Rabbit: > 2 g/kg Acute Oral LD50 Rat: 490 mg/kg
Acute effects	Harmful if swallowed. May cause eye, skin and respiratory tract irritation. Breathing of high vapor concentrations may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness. May irritate and cause stomach pain, vomiting, diarrhea and nausea. May cause damage to the blood, liver and kidneys.
Local effects	Irritating to eyes, respiratory system and skin. Ingestion may cause irritation and malaise.
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.
Sensitization	May cause eczema-like skin disorders (dermatitis). May cause photosensitization, evidenced by repeated occurrence of a dermatitic rash on exposure to sunlight.
Chronic effects	Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema/chapping and oil acne. May cause central nervous system depression.
Carcinogenicity	May cause cancer.
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	
Clarified oils (Petroleum), catalytic cracked (CAS 64741-62-4)	2B Possibly carcinogenic to humans.
Naphthalene (CAS 91-20-3)	2B Possibly carcinogenic to humans.
US NTP Report on Carcinogens: Anticipated carcinogen	
Naphthalene (CAS 91-20-3)	Anticipated carcinogen.
Epidemiology	Pre-existing skin conditions including dermatitis might be aggravated by exposure to this product.
Mutagenicity	Knowledge about mutagenicity is incomplete.
Reproductive effects	Has shown teratogenic effects in laboratory animals.
Further information	Components of the product may be absorbed into the body through the skin.

12. Ecological Information

Ecotoxicological data

Components	Test Results
Residues (petroleum), light vacuum (68512-62-9)	LC50 Fish: 48 mg/l 48 Hours
Naphthalene (91-20-3)	LC50 Rainbow trout, donaldson trout (Oncorhynchus mykiss): 0.91 - 2.82 mg/l 96 hours
Ecotoxicity	Oil spills are generally hazardous to the environment.
Environmental effects	The product contains volatile organic compounds which have a photochemical ozone creation potential.
Aquatic toxicity	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Persistence and degradability	No data available.
Bioaccumulation / Accumulation	No data available.
Partition coefficient (n-octanol/water)	Not available.

Mobility in environmental media

The product is insoluble in water. It will spread on the water surface while some of the components will eventually sediment in water systems. The volatile components of the product will spread in the atmosphere.

13. Disposal Considerations

Disposal instructions

Dispose in accordance with all applicable regulations. This material and/or its container must be disposed of as hazardous waste.

14. Transport Information

DOT

Basic shipping requirements:

UN number	NA1993
Proper shipping name	Fuel oil
Hazard class	3
Packing group	III
Labels required	3

Additional information:

Special provisions	144, B1, IB3, T4, TP1, TP29
Packaging exceptions	150
Packaging non bulk	203
Packaging bulk	242

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

TDG

Not regulated as dangerous goods.



DOT

15. Regulatory Information

US federal regulations

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

Naphthalene (CAS 91-20-3)	0.1 %
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US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Naphthalene (CAS 91-20-3)	Listed.
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US TSCA Section 12(b) Export Notification: Export Notification requirement/De minimis concentration

Naphthalene (CAS 91-20-3)	0.1 % One-Time Export Notification only.
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CERCLA (Superfund) reportable quantity (lbs)

Naphthalene 100

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
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Section 302 extremely hazardous substance	No
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Section 311 hazardous chemical	No
Drug Enforcement Agency (DEA)	Not controlled
WHMIS status	Controlled
WHMIS classification	B3 - Flammable/Combustible 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)	No
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)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations

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

Naphthalene (CAS 91-20-3) Listed.

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

Clarified oils (Petroleum), catalytic cracked (CAS 64741-62-4) Listed.

Naphthalene (CAS 91-20-3) Listed.

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

Clarified oils (Petroleum), catalytic cracked (CAS 64741-62-4) Listed: October 1, 1990 Carcinogenic.

Naphthalene (CAS 91-20-3) Listed: April 19, 2002 Carcinogenic.

US - Massachusetts RTK - Substance: Listed substance

Naphthalene (CAS 91-20-3) Listed.

US - New Jersey Community RTK (EHS Survey): Reportable threshold

Fuels, diesel, no. 2 (CAS 68476-34-6) 10000 LBS

Naphthalene (CAS 91-20-3) 500 LBS

US - New Jersey RTK - Substances: Listed substance

Naphthalene (CAS 91-20-3) Listed.

US - Pennsylvania RTK - Hazardous Substances: Listed substance

Fuels, diesel, no. 2 (CAS 68476-34-6) Listed.

Naphthalene (CAS 91-20-3) Listed.

16. Other Information

HMIS® ratings	Health: 2* Flammability: 2 Physical hazard: 0
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NFPA ratings	Health: 2 Flammability: 2 Instability: 0
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Disclaimer

This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.

Issue date

08-26-2010