

SAFETY DATA SHEET

No. 2 Fuel Oil

1. IDENTIFICATION

Product Identifier No. 2 Fuel Oil

Synonyms: No. 2 Heating Oil, #2 Fuel Oil, Low Sulfur Heating Oil (LSHO), Ultra Low Sulfur Heating Oil (ULSHO)

Intended use of the product: Fuel

Contact: Ray Energy Corp.
2794 7th Avenue
Troy, New York 12180
www.rayenergy.com

Contact Information: EMERGENCY TELEPHONE NUMBER (24 hrs.): CHEMTREC (800) 424-9300
COMPANY CONTACT (business hours): 518-874-4510

2. HAZARD IDENTIFICATION

According to OSHA 29 CFR 1910.1200 HCS

Classification of the Substance or Mixture

Classification (GHS-US):

Flam. Liquid	Category 3	H226
Skin Corrosion/Irritation	Category 2	H315
Aspiration Hazard	Category 1	H304
Acute toxicity – Inhalation	Category 4	H332
STOT SE	Category 3	H336
Carcinogenicity	Category 2	H350
Aquatic Chronic	Category 2	H411
Eye damage/Irritation	Category 2	H319

Labeling Elements



Signal Word (GHS-US):

Hazard Statements (GHS-US):

Danger

H226 – Flammable liquid and vapor.
H315 – Causes Skin irritation.
H304 – May be fatal if swallowed and enters airways.
H332 – Harmful if inhaled.
H336 – May cause drowsiness or dizziness.
H350 – May cause cancer.
H411 – Toxic to aquatic life with long lasting effects.
H319 – May cause eye damage/irritation.

Precautionary Statements (GHS-US):

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 - Keep container tightly closed.
P240 – Ground/bond container and receiving equipment.

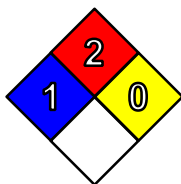
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- P243 – Take precautionary measures against static discharge.
- P261 – Avoid breathing dust/fume/gas/mist/vapors/spray.
- P264 – Wash skin thoroughly after handling.
- P271 – Use only outdoors or in a well-ventilated area.
- P273 – Avoid release to the environment.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P303+361+353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse with water/shower.
- P308+311 - If exposed or concerned: Get medical advice/attention.
- P301+310 - If swallowed: Immediately call a poison center/doctor/...
- P331 - Do NOT induce vomiting.
- P403+235 - Store in a well-ventilated place. Keep cool.
- P405 - Store locked up.
- P501 – Dispose of contents/container in accordance with local/regional/national/international regulation.

Other information:

NFPA 704
 Health: 1
 Fire: 2
 Reactivity: 0



3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Composition Information

Mixture

Name	Product Identifier (CAS#)	% (w/w)	Classification
No. 2 Fuel Oil	68476-30-2	95-100	Flam Liq. 3, H226; Skin Irrit. 2, H315; Aspiration 1, H304; STOT SE 3, H336; Carc.2. H350; Aquatic chronic 2, H411
Methyl Esters	N/A	0-5	N/A
Naphthalene	91-20-3	0.1	Carc. 2, H351; Acute Tox. 4, H302; Aquatic Acute 1, H400; Aquatic Chronic 1, H411

Additional Formulation Information:

No. 2 Fuel Oil consists of C9+ hydrocarbons resulting from distillation of crude oil.

Low Sulfur Heating Oil typically contains less than 500 ppm of sulfur

Ultra-Low Sulfur Heating Oil typically contains less than 15 ppm of sulfur

4. FIRST AID MEASURES

Route	Measures
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Inhalation Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

Route	Measures
Ingestion	Aspiration Hazard: DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Ingestion may cause gastrointestinal disturbances including irritation, nausea, vomiting, and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory failure, and death.
Eye Contact	In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention. In case of contact lenses, remove immediately.
Skin Contact	Remove contaminated clothing and shoes. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops. Thermal burns require immediate medical attention depending on the severity and of the area of the body burned.

Most Important Symptoms

Contact with eyes and face may cause irritation. Long-term exposure may cause dermatitis (itching, irritation, pain and swelling).

Inhalation may cause irritation and significant or long term exposure could cause respiratory insufficiency and pulmonary edema.

Ingestion may cause aspiration, gastrointestinal disturbance, and CNS effects.

Immediate Medical Attention and Special Treatment

For contact with skin or eyes, immediately wash or flush contaminated eyes with gently flowing water. If possible, irrigate each eye continuously with 0.9% saline (NS). If ingested, rinse mouth. Do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs).

If inhaled, administer oxygen or establish a patent airway if breathing is labored. Suction if necessary. Monitor closely, anticipate seizures. Consider orotracheal or nostracheal intubation of airway control if patient is unconscious or is in severe respiratory distress.

Discard any clothing or shoes contaminated as they may be flammable.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Foam, carbon dioxide, dry chemical are most suitable

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO₂, water spray, firefighting foam, or Halon. Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other firefighting equipment.

LARGE FIRES: Foam, carbon dioxide, dry chemical. Water may be ineffective for fighting the fire, but may be used to cool fire exposed containers.

Specific Hazards / Products of Combustion

Moderate fire hazard when exposed to heat or flame with a very low flash point. Product is flammable and easily ignited when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.



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Combustion may produce smoke, carbon monoxide and other products of incomplete combustion.

Special Precautions and Protective Equipment for Firefighters

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 firefighting foam.

Firefighting Equipment/Instructions

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH- approved pressure-demand self-contained breathing apparatus with full face piece and protective clothing.

Refer to Section 9 for fire properties of this chemical including flash point, auto ignition temperature, and explosive limits.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY SPCC, SPILL CONTINGENCY or EMERGENCY PLAN.

Personal Precautions

Due to high vapor density, flammable / toxic vapors may be present in low lying areas, dikes, pits, drains, or trenches. Vapors may accumulate in low lying areas and reach ignitable concentrations. Ventilate the area. Use of non-sparking tools and intrinsically safe equipment is recommended. Potential for flammable atmosphere should be monitored using a combustible gas indicator positioned downwind of the spill area. Refer to Sections 2 and 7 for further hazard warnings and handling instructions.

Use appropriate personal protective equipment to prevent eye/skin contact and absorption. Use NIOSH approved respiratory protection, if warranted, to prevent exposures above permissible limits. Refer to Section 8. Contaminated clothing should not be near sources of ignition.

Emergency Measures

As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. Consider wind direction. Secure all ignition sources (flame, spark, hot work, hot metal, etc.) from area. Evaluate the direction of product travel, diking sewers, etc. to confirm spill areas. Do not touch or walk-through spilled material. For large spills, isolate initial action distance downwind 1,000 ft. (300 m).

Environmental Precautions

Stop the spill to prevent environmental release if it can be done safely. Product is toxic to aquatic life. Take action to isolate environmental receptors including drains, storm sewers and natural water bodies. Keep on impervious surface if at all possible. Use water sparingly to prevent product from spreading. Foam and absorbents may be used to reduce / prevent airborne release.

Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Follow federal, state or local requirements for reporting environmental release where necessary. Refer to Section 15 for further information.

Containment and Clean-Up Methods

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 firefighting 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.

Take up with dry earth, sand or other non-combustible, inert oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container with clean, non-sparking tools for reclamation or disposal. Response and cleanup crews must be properly trained and must utilize proper protective equipment. Refer to Section 8 for appropriate protective equipment.



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7. HANDLING AND STORAGE

USE ONLY AS A FUEL.
DO NOT SIPHON BY MOUTH.

Handling Precautions

Handle as a flammable liquid. Keep away from heat, sparks, and open flame. No smoking. Electrical equipment should be approved for classified area. Bond and ground containers during product transfer pursuant to NFPA 70 and API RP 2003 to reduce the possibility of static-initiated fire or explosion. Follow precautions to prevent static initiated fire.

Use good personal hygiene practices. Use only with protective equipment specified in Section 8. Avoid repeated and/or prolonged skin exposure. Use only outdoors or in well ventilated areas. 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 laundry 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. Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure.

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) is loaded into tanks previously containing low flash point products (such as this product) - see API RP 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

Storage

Large quantities of fuel oil are stored in tanks or portable containers at an ambient storage temperature. Separate from incompatible chemicals (Refer to Section 10) by distance or secondary containment. Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers that are clearly labeled. Label all secondary containers that this material is transferred into with the chemical name and associated hazard(s). Empty product containers or vessels may contain flammable vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Storage tanks should have a venting system. If stored in small containers, the area should be well ventilated, away from ignition sources and protected from potential damage or vehicular traffic. Post "No Smoking" signs in product storage areas. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code" or applicable building 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 "Safe Entry and Cleaning of Petroleum Storage Tanks".

Incompatibles

Keep away from strong oxidizers, ignition sources and heat.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits

Component	CAS #	List	Value
No. 2 Fuel Oil	68476-30-2	ACGIH TLV-TWA	100 mg/m3*
Naphthalene	91-20-3	ACGIH TLV-TWA	10 ppm
		OSHA PEL	10 ppm
		ACGIH STEL	15 ppm

*Critical effects; Skin; A3; CNS impairment.

Engineering Controls

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Intrinsically safe equipment and non-sparking tools shall be used in circumstances where concentrations may exceed lower flammable limits. Grounding and bonding shall be used to prevent accumulation and discharge of static electricity. Emergency shower and eyewash should be provided in proximity to handling areas in the event of exposure to decontaminate.



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Personal Protective Equipment

Exposure	Equipment
Eye / Face	Wear appropriate chemical protective glasses or goggles or face shields to prevent skin and eye contact especially caused from splashing.
Skin	Wear appropriate personal protective clothing to prevent skin contact. Gloves constructed of nitrile, neoprene or PVC are recommended when handling this material. Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure.

Exposure	Equipment
Respiratory	<p>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 and limitations.</p> <p>Use a positive pressure, air-supplied 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.</p>
Thermal	Product is stored at ambient temperature. No thermal protection is required except for emergency operations involving actual or potential for fire. Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Value
Appearance	Clear or straw-colored liquid dyed red for distribution
Odor	Mild petroleum distillate odor.
Odor Threshold	<1 ppm
pH	Not available
Melting Point	-15 °F (-26 °C)
Boiling Point Range	320 to 690 °F (160 to 366 °C)
Flash Point	>125.6 °F (52 °C) PMCC
Evaporation Rate	Slow, varies with conditions
Flammability	Flammable liquid
Flammable Limits	0.6 % - 7.5%
Vapor Pressure	0.009 psia @ 70 °F
Vapor Density	>1 (air=1)
Specific Gravity	0.81-0.88 @ 60 °F (16 °C) (water=1)
Solubility	Insoluble in water; miscible with other petroleum solvents.
Partition Coefficient (Noctanol/water)	Log Kow range of 3.3 to >.6.0
Autoignition Temperature	494 °F (257 °C)
Decomposition Temperature	When heated it emits acrid smoke and irritating vapors.
Viscosity	>3 cSt



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Percent Volatiles

95-100

10. STABILITY AND REACTIVITY

Stability

This is a stable material that is flammable liquid (OSHA/GHS hazard category 3). Stable during transport.

Reactivity

Material is not self-reacting. Flammable concentrations may be present in air. Compound can react with oxidizing materials.

Possibility of Hazardous Reactions Hazardous

polymerization will not occur.

Incompatibility

Keep away from strong oxidizers such as nitric and sulfuric acids.

Conditions to Avoid

Avoid high temperatures, open flames, sparks, static electricity, welding, smoking and other ignition sources.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

11. TOXICOLOGICAL INFORMATION

Acute Toxicity:

Acute Toxicity (Inhalation LC50)

No. 2 Fuel Oil (68476-30-2)

LC50 Inhalation Rat >4.6 mg/l/4h

Acute Toxicity (Dermal LD50)

No. 2 Fuel Oil (68476-30-2)

LD50 Dermal Rabbit >2000 mg/kg

Acute Toxicity (Oral LD50)

No. 2 Fuel Oil (68476-30-2)

LD50 Oral Rat >12000 mg/kg

Acute Toxicity (Oral LD50)

Methyl Esters

LD50 Oral Rat >14400 mg/kg

Skin Corrosion/Irritation: Prolonged and repeated contact may cause skin irritation leading to dermatitis. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

Serious Eye Damage/Irritation: Causes serious eye irritation.

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not available

Carcinogenicity: OSHA: NO, IARC: Group 3, NTP: NO, ACGIH: NOIC: A3, NIOSH: NO

IARC: Group 3 – Not classifiable as to their carcinogenicity to humans ACGIH: A3 – Confirmed animal carcinogen with unknown relevance to humans



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Petroleum middle distillates have been shown to produce skin tumors in laboratory animals following repeated and prolonged exposures. 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.

This product is similar to Diesel Fuel. IARC classifies whole diesel fuel exhaust particulates (byproduct of combustion of this material) carcinogenic to humans (Group 1) and NIOSH regards diesel fuel exhaust particulate as a potential occupational carcinogen.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Specific Target Organ Toxicity (Single Exposure): Inhalation exposure may cause drowsiness or dizziness by inhalation exposure.

Aspiration Hazard: The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Potential Health Effects: Vapor irritating to skin, eyes, nose, and throat. Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

WARNING: The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

12. ECOLOGICAL INFORMATION

Toxicity

This material is expected to be toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment.

Data for Component: No. 2 Fuel Oil (68476-30-2)

Material is toxic to aquatic organisms based on an acute basis (LC50/EC50 >1 but \leq 10 mg/L in the most sensitive species tested).

Material is a long-term aquatic hazard based on a chronic basis (LC50/EC50 >1 but \leq 10 mg/L in the most sensitive species tested).

Persistence and Degradation: This material is not expected to be readily biodegradable.

Bioaccumulative Potential: Not available

Mobility in Soil: Not available

Other Adverse Effects: None known

Other Information: Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options. May be considered a hazardous waste if disposed. Direct solid waste (landfill) or incineration at a solid waste facility is not permissible. Do not discharge to sanitary or storm sewer. Personnel handling waste containers should follow precautions provided in this document.

Shipping containers must be DOT authorized packages. Follow licensure and regulations for transport of hazardous material and hazardous waste as applicable.

14. TRANSPORT INFORMATION



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US DOT

UN Identification Number	NA 1993
Proper Shipping Name	Fuel oil (No. 2)
Hazard Class and Packing Group	3, PGIII
Shipping Label	Combustible liquid
Placard / Bulk Package	Combustible liquid, 1993
Emergency Response Guidebook Guide Number	128

IATA Information

UN Identification Number	UN 1993
Proper Shipping Name	Fuel oil (No. 2)
Hazard Class and Packing Group	3, PGIII
ICAO Label	3
Packing Instructions Cargo	355
Max Quantity Per Package Cargo	220L
Packing Instructions Passenger	344Y
Max Quantity per Package	60L

ICAO

UN Identification Number	UN 1993
Shipping Name / Description	Fuel oil (No. 2)
Hazard Class and Packing Group	3, PG III
IMDG Label	3

IMDG

UN Identification Number	UN 1993
Shipping Name / Description	Heating Oil, Light
Hazard Class and Packing Group	3, PGIII
IMDG Label	3
EmS Number	N/A
Marine Pollutant	Yes

15. REGULATORY INFORMATION

U.S. Federal, State, and Local Regulatory Information

Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard	Yes
Delayed (Chronic) Health Hazard	Yes
Fire Hazard	Yes
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

Clean Water Act (Oil Spills)

Any spill or release of this product to "navigable waters" (Essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National



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Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA Section 103 and SARA Section 304 (Release to the Environment)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts this material. This product does not contain any chemicals subject to the reporting requirements of CERCLA Section 103 or SARA 304.

SARA Section 313- Supplier Notification

This product does not contain any chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.

EPA Notification (Oil Spills)

If there is a discharge of more than 1,000-gallons of oil into or upon navigable waters of the United States, or if it is the second spill event of 42 gallons or more of oil into water within a twelve (12) month period, a written report must be submitted to the Regional Administrator of the EPA within sixty days of the event.

Pennsylvania Right to Know Hazardous Substance list:

The following product components are cited in the Pennsylvania Special Hazardous Substance List, and are present at levels which require reporting.

Component	CAS	Amount
No. 2 Fuel Oil	68476-30-2	100%

New Jersey Right to Know Hazardous Substance list:

The following product components are cited in the New Jersey Right to Know Hazardous Substance List, and are present at levels which require reporting.

Component	CAS	Amount
No. 2 Fuel Oil	68476-30-2	100%

California Proposition 65 WARNING: This product contains chemicals known to the State of California to cause Cancer or Reproductive Toxicity.

Component	CAS	Amount
Naphthalene	91-20-3	<0.1%

U.S. Toxic Substances Control Act

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30.

CEPA - Domestic Substances List (DSL)

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

Canadian Regulatory Information (WHMIS)

Class B3 – Combustible Liquid

Class D2A – Materials causing other toxic effects. (Very Toxic)

Description of Revisions

Revised to meet Globally Harmonized System for chemical hazard communication requirements pursuant to OSHA regulatory revisions 77 FR 17884, March 26, 2012.



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Abbreviations

°F	Degrees Fahrenheit (temperature)	mL	Milliliter
<	Less than	mm ²	Square millimeters
=	Equal to	mmHg	Millimeters of mercury (pressure)
>	Greater than	N/A	Not applicable
AP	Approximately	N/D	Not determined
C	Centigrade (temperature)	ppm	Parts per million
kg	Kilogram	sec	Second
L	Liter	ug	Micrograms
mg	Milligrams		

Acronyms

ACGIH	American Conference of Governmental Industrial Hygienists	CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
AIHA	American Industrial Hygiene Association	DOT	U.S. Department of Transportation
AL	Action Level	EC50	Ecological concentration 50%
ANSI	American National Standards Institute	EPA	U.S. Environmental Protection Agency
API	American Petroleum Institute	ERPG	Emergency Response Planning Guideline
CAS	Chemical Abstract Service	GHS	Global Harmonized System
HMIS	Hazardous Materials Information System	REL	Recommended Exposure Limit (NIOSH)
IARC	International Agency for Research On Cancer	RVP	Reid Vapor Pressure
IATA	International Air Transport Association	SARA	Superfund Amendments and
IMDG	International Maritime Dangerous Goods	SCBA	Self Contained Breathing Apparatus
Koc	Soil Organic Carbon	SPCC	Spill Prevention, Control, & Countermeasures
LC50	Lethal concentration 50%	STEL	Short term Exposure Limit (15 minutes)
LD50	Lethal dose 50%	TLV	Threshold Limit Value (ACGIH)
MSHA	Mine Safety and Health Administration	TSCA	Toxic Substance Control Act
NFPA	National Fire Protection Association	TWA	Time Weighted Average (8 hr.)
NIOSH	National Institute of Occupational Safety and Health	UN	United Nations
NOIC	Notice of Intended Change	UNECE	United Nations Economic Commission for Europe
NTP	National Toxicology Program	WEEL	Workplace Environmental Exposure Level
OPA	Oil Pollution Act of 1990	WHMIS	Canadian Workplace Hazardous Materials Information System
OSHA	U.S. Occupational Safety & Health Administration		
PEL	Permissible Exposure Limit (OSHA)		
RCRA	Resource Conservation and Recovery Act Reauthorization Act of 1986 Title III		

Disclaimer of Expressed and Implied Warranties

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

** End of Safety Data Sheet **

