SAFETY DATA SHEET (SDS)

This material is to be used for research purposes only under the supervision of a technically qualified individual. The toxicological properties may have not been completely characterized. Please determine your responsibilities under your local regulations.

1. Identification of the substance or mixture and of the supplier

Identification

Product Name: **Marine**

Additional identification

Chemical name: Mixture

Recommended use and restriction on use

Recommended use: Not Determined.

Restrictions on use: Not Determined.

Details of the supplier of the safety data sheet

Supplier

Company name: Opti-Lube

Address: 1195 S 1680 W
Orem, UT 84058
USA

Telephone: 801-491-3717

Emergency telephone number:

FOR TRANSPORT EMERGENCY CALL CHEMTREC (+1) 703 527 3887, OR WITHIN THE USA 801 491 3717

2. Hazard(s) identification

Hazard Classification of the substance or mixture

Physical Hazards

Flammable liquids	Category 4

Health Hazards

Acute toxicity (Oral)	Category 4
Acute toxicity (Inhalation—dust and mist)	Category 4
Skin corrosion/Irritation	Category 2
Serious eye damage/Eye irritation	Category 2A
Carcinogenicity	Category 2
Specific Target Organ Toxicity Single Exposer	Category 3
Specific Target Organ Toxicity Repeated Exposer	Category 2
Aspiration Hazard	Category 1

Unknown toxicity

Acute toxicity, Oral	0.0 %
Acute toxicity, Dermal	0.0 %
Acute toxicity, Inhalation, vapor	94.1%
Acute toxicity, Inhalation, dust or mist	39.3%

Label Elements:

Signal Word:	Danger
Hazard Statement:	Combustible liquid. Flammable liquid and vapor. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. Suspected of causing cancer. May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary Statement:

Prevention:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No Smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/ equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breath dust or mists. Avoid release to the environment.
Response:	IF SWALLOWED: Immediately call a POISON CENTER/doctor. DO NOT induce vomiting. Specific treatment (see this label). IF ON SKIN (or hair): Immediately take off all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse. IF INHALED: remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. In case of fire: Use CO_2, dry chemical or foam extinction. Water can be used to cool and protect exposed material. Collect spillage.
Storage:	Store in a well-ventilated place. Keep cool. Store locked up. Keep container tightly closed.
Disposal:	Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
Other hazards which do not result in GHS classification:	Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may

3. Composition/Information on Ingredients

Mixtures

Chemical Name:	CAS-NO.	Percent by Weight
Petroleum Naphtha	64742-95-6	32 - 42%
2-Ethylhexanol	104-76-7	17 - 26%
2-Ethylhexyl nitrate	27247-96-7	8 - 16%
Mineral Oil	64742-54-7	0.2 - 1%
1,2,4 - Trimethylbenzene	95-63-6	8 - 16%
1,3,5 - Trimethylbenzene	108-67-8	0.8 - 4%
Petroleum Naphtha	64742-94-5	0.8 - 4%
Propylene glycol ether	107-98-2	0.8 - 4%
Xylene	1330-20-7	0.8 - 4%
Cumene	98-82-8	0.4 - 0.8%
Naphthalene	91-20-3	0.08 - 0.4%
++ Trimethylbenzene	25551-13-7	8 - 16%
++ 1,2,3 - Trimethylbenzene	526-73-8	0.8 - 4%
++ Diethylbenzenes	25340-17-4	0.4 - 0.8%

++ The listed components are subcomponents f the hazardous ingredients listed above.

4. First-aid measures

Description of first aid measures

Ingestion: Do NOT induce vomiting. Aspiration of material due to vomiting can cause chemical pneumonitis which can be fatal. If vomiting occurs naturally, the casualty should lean forward to reduce the risk of aspiration. Rinse mouth. Immediately call a POISON CENTER/Doctor.

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.

Eye Contact: Rinse Cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Skin Contact: Immediately take of contaminated clothing and wash before reuse. Wash skin thoroughly with soap and water. Call POISON CENTER/doctor/ physician if you feel unwell. Launder contaminated clothing before reuse.

Most important symptoms and effects, both acute and delayed:

Symptoms: Symptoms may be delayed. See section 11.

Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically.

5. Fire-fighting measures

General Fire Hazards: Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the fire. Fight fire from a protected location. Move containers from fire area if you can do so without risk.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: CO_2, Dry chemical or foam. Water can be used to cool and protect exposed material.

Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazard arising from the chemical: Vapors may cause a flash fire or ignite explosively. Prevent buildup of vapors or gases to explosive concentrations. Vapors may travel considerable distance to a source of ignition and flash back. Water may cause splattering. Container may rupture on heating. A solid stream of water will spread the burning material. Material creates a special hazard because it floats on water. See section 10 for additional information.

Advice for firefighters, Special protective equipment and precautions for firefighters:

Special fire fighting Procedures: No data available.

Special protective equipment for firefighters: Firefighters must use standard protective equipment, including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Ventilate closed spaces before entering them. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep upwind. Keep unauthorized personnel away. See Section 8 of the SDS for Person Protective Equipment.

Methods and material for containment and cleanup: Eliminate all ignition sources if safe to do so. Dike far ahead of larger spill for later recovery and disposal. Pick up free liquid for recycle and/or disposal. Residual liquid can be absorbed on inert material. Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas.

Environment Precautions: Avoid release to the environment. Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so.

7. Handling and Storage

Precautions for safe handling: Vapors are heavier than air and will tend to accumulate in low areas. Avoid use in confined areas without adequate ventilation. Areas of inadequate ventilation could contain concentrations high enough to cause eye irritation, headaches, respiratory discomfort or nausea. Carefully evaluate processes using this product at elevated temperatures to ensure safe operating conditions. Electrostatic buildup may occur when pouring or transferring this product from its container. The spark produced may be sufficient to ignite vapors of flammable liquids. Always transfer product by means which avoid static buildup. Avoid pouring product directly from its container into combustible or flammable solvent.. Static ignition hazard can result from handling and use. Electrically bond and ground all containers and equipment before transfer or use of material. Do not breath thermal decomposition products.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Observe good industrial hygiene practices. Use only in well-ventilated areas. Wear appropriate personal protective equipment.

Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Take precautionary measures against static discharged. Ground/bond container and receiving equipment. Use only non-sparking tools. Do not breath dust/ fume/gas/mist/vapors/spray. Avoid contact with eyes. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Launder contaminated clothing before reuse. Avoid environmental contamination.

Maximum Handling Temperature: 35°C / 95°F

Conditions for safe storage, including any incompatibilities: Keep cool. Store in a well-ventilated place. Do not store near potential sources of ignition. Keep at temperature not exceeding 40°C. Store in containers made of same material as original container. Store away from incompatible materials. See section 10 for incompatible materials.

Maximum Storage Temperature: 35°C / 95°F

8. Exposure Controls/personal Protection

Control Parameters:
Occupational Exposure Limits

Chemical name	Type	Exposer limit values	Source
Petroleum Naphtha - Non-aerosol. As total hydrocarbon vapor.	TWA	200 mg/m3	US. ACGIH Threshold Limit Values (02 2012)
Petroleum naphtha	REL	100 mg/m3	UN. NIOSH: Pocket Guide to Chemical Hazards (2010)
Mineral oil- Inhalable fraction	TWA	5 mg/m3	US. ACGIH Threshold Limit Values (03 2014)
++ Trimethylbenzene	TWA	25 ppm	US. ACGIH Threshold Limit Values (02 2012)
1, 2, 4 - Trimethylbenzene	TWA	25 ppm	US. ACGIH Threshold Limit Values (02 2012)
1, 2, 4 - Trimethylbenzene	REL	25 ppm, 125 mg/m3	UN. NIOSH: Pocket Guide to Chemical Hazards (2010)
1, 3, 5 - Trimethylbenzene	TWA	25 ppm	US. ACGIH Threshold Limit Values (02 2012)
1, 3, 5 - Trimethylbenzene	REL	25 ppm, 125 mg/m3	UN. NIOSH: Pocket Guide to Chemical Hazards (2010)
Propylene glycol ether	TWA	50 ppm	US. ACGIH Threshold Limit Values (02 2013)
Propylene glycol ether	STEL	100 ppm	US. ACGIH Threshold Limit Values (02 2013)
Propylene glycol ether	REL	100 ppm, 360 mg/m3	UN. NIOSH: Pocket Guide to Chemical Hazards (2010)
Propylene glycol ether	STEL	150 ppm, 540 mg/m3	UN. NIOSH: Pocket Guide to Chemical Hazards (2010)
Xylene	TWA	100 ppm	US. ACGIH Threshold Limit Values (02 2012)
Xylene	STEL	150 ppm	US. ACGIH Threshold Limit Values (02 2012)
Xylene	PEL	100 ppm, 435 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Cumene	TWA	50 ppm	US. ACGIH Threshold Limit Values (02 2012)
Cumene	REL	50 ppm, 245 mg/m3	UN. NIOSH: Pocket Guide to Chemical Hazards (2010)
Cumene	PEL	50 ppm, 245 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Naphthalene	TWA	10 ppm	US. ACGIH Threshold Limit Values (02 2012)
Naphthalene	STEL	15 ppm, 75 mg/m3	UN. NIOSH: Pocket Guide to Chemical Hazards (2010)
Naphthalene	REL	10 ppm, 50 mg/m3	UN. NIOSH: Pocket Guide to Chemical Hazards (2010)
Naphthalene	PEL	10 ppm, 50 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)

Other Exposure Limits

Chemical name	Type	Exposure Limit Values	Source
2 - Ethylhexyl nitrate	TWA	1 ppm	

Biological Limit Values

Chemical name	Exposure Limit Values	Source
Xylene (Methylhippuric acids: Sampling time: End of shift.)	1.5 g/g (Creatinine in urine)	ACGIH BEI (03 2013)

Appropriate engineering Controls: Mechanical ventilation or local exhaust ventilation is required. Material should be handled in enclosed vessels and equipment, in which case general (mechanical) room ventilation should be sufficient. Local exhaust ventilation should be used at points where dust, mist, vapors or gases can escape into the room air. Use explosion-proof ventilation equipment to stay below exposure limits.

Individual protection measures, such as personal protective equipment

General information: Use explosion-proof ventilation equipment. Provide easy access to water supply and eye wash facilities. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Use personal protective equipment as required.

Eye/face protection: Wear tight-fitting goggles or face shield. If potential for splash or mist exists, wear chemical goggles or face shield.

Skin Protection

Hand Protection: Butyl rubber. Use nitrile or neoprene gloves. Use good industrial hygiene practices. In case of skin contact, wash hands and arms with soap and water.

Other: Wear apron or protective clothing in case of contact. Do not wear rings, watches or similar apparel that could entrap the material.

Respiratory Protection: Use respirator with a combination organic vapor and dust/mist cartridge. Use respirator with an organic vapor cartridge is exposure limit is exceeded. Use self-contained breathing apparatus for entry into confined space, for other poorly ventilated areas and for large spill clean-up sites. A respiratory protection program compliant with all applicable regulation must be followed whenever workplace conditions require the use of a respirator. Under normal use conditions, respirator is not usually required. Use appropriate respiratory protection if exposure to dust particles, mist or vapors is likely. Use self-contained breathing apparatus for entry into confined space, for other poorly ventilated areas and for large spill cleanup sites.

Hygiene measures: Observe good industrial hygiene practices. Do not eat, drink or smoke when using this product. Avoid contact with skin and eyes. Wash contaminated clothing before reuse. Wash hands before breaks and immediately after handling the product.

9. Physical and chemical properties

Appearance	
Physical state:	liquid
Form:	liquid
Color:	Dark Yellow
Oder:	Characteristic Mild
Oder threshold:	No data available
pH:	No data available
Freezing point:	No data available
Boiling point:	360 °F (182 °C)
Flash point:	126 °F (52 °C) (Pensky-Martens Closed Cup)
Evaporation rate:	No data available
Flammability (solid, gas):	No data available
Upper/lower limit on flammability or explosive limits	
Flammability limit – upper (%):	No data available
Flammability limit – lower (%):	No data available
Explosive limit – upper (%):	No data available
Explosive limit – lower (%):	No data available
Vapor pressure (air=1):	No data available
Vapor density:	No data available
Relative density:	0.866 – 0.906 60.1°F (15.6°C)
Solubility(ies)	
Solubility in water:	Insoluble in water.
Solubility (other):	No data available
Partition coefficient (n-octanol/water):	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	7 MM2/S(104°F) (40°C)
Other information	
Pour Point Temperature:	-49°F (-45°C)

10. Stability and reactivity

Reactivity:	No data available
Chemical stability:	Material is stable under normal conditions.
Possibility of Hazardous Reactions:	May undergo self-accelerating, exothermic reaction if heated above 212 °F.
Conditions to Avoid:	Excessive heat. Contact with acids. Strong oxidizing agents. Strong caustic agents. Heat may cause the containers to explode. Heat, sparks, flames.
Incompatible Materials:	Strong oxidizing agents. Reducing agents. Strong alkalis. Strong acids. Aluminum. Lead and lead alloys, reactive metals, sodium or calcium hypochlorite. Avoid heat or dehydrating agents. Reaction with peroxides may result in violent decomposition of peroxide possible creating an explosion. Materials reactive with hydroxyl compounds. Nitriles.
Hazardous Decomposition Products:	Thermal decomposition or combustion may generate smoke, carbon monoxide, carbon dioxide and other products of incomplete combustion.

11. Toxicological Information

Information on likely routes of exposure

Inhalation:	Harmful if inhaled.
Ingestion:	Harmful if swallowed.
Skin contact:	May be harmful if contact with skin. Causes skin irritation.
Eye contact:	Causes serious eye irritation.

Information on toxicology effects, Acute toxicity

Oral

Product: Material can be aspirated into the lungs during the act of swallowing or vomiting. This could result in severe injury to the lungs and death. Ingestion can cause central nervous system effects such as headache, dizziness, drowsiness, and generalized weakness. Ingestion of 2-ethylhexyl nitrate may cause vasodilation resulting in reduced blood pressure and other cardiovascular effects. Symptoms include: headache, dizziness, nausea, fatigue, heart palpitations, confusion and possible loss of consciousness. ATEmix300-2000 mg/kg.
Swallowing material may cause irritation of the gastrointestinal lining, nausea, vomiting, diarrhea, and abdominal pain. ATEmix > 10.000 mg/kg.

Dermal

Product: Absorption of 2-ethylhexyl nitrate through the skin may cause vasodilation resulting in reduced blood pressure and other cardiovascular effects. Symptoms include: headache, dizziness, nausea, fatigue, heart palpitations, confusion and possible loss of consciousness. Prolonged or widespread contact with this material could result in the absorption of potentially harmful amounts. Skin absorption of components of this material will cause systemic effects; note toxicity in other sections. Components of this material may be absorbed through the skin. ATEmix > 2000 mg/kg.

Inhalation

Product: High concentrations may cause headaches, dizziness, nausea, behavioral changes, weakness, drowsiness and stupor. Inhalation of 2-ethylhexyl nitrate may cause vasodilation resulting in reduced blood pressure and other cardiovascular effects. Symptoms include: headache, dizziness, nausea, fatigue, heart palpitations, confusion and possible loss of consciousness. Repeated overexposure to petroleum naphtha can cause nervous system damage. High concentrations may cause headaches, dizziness, fatigue, nausea, vomiting, drowsiness, stupor, other central nervous system effects leading to visual impairment, respiratory failure, unconsciousness and death. ATEmix (, 4 h): 2 - 5 mg/l. Dusts, mists and fumes. ATEmix (, 4 h): 10 - 20 mg/l. Dusts, mists and fumes.

Skin Corrosion/Irritation

Product: Prolonged or repeat skin contact as from clothing wet with material may cause dermatitis. Symptoms may include: redness, edema, drying, and cracking of the skin. Alcohol may enhance the toxic effects. Prolonged or repeated contact may cause irritation. Causes skin irritation.

Serious Eye Damage/Eye Irritation

Product: Remarks: Causes serious eye irritation.

Respiratory sensitization: No data available.

Skin sensitization:

Petroleum naphtha	Classification: Not a skin sensitizer. (Literature)
2 - Ethylhexanol	Classification: Not a skin sensitizer. (Literature)

Mineral oil	Classification: Not a skin sensitizer. (Read across)
2 - Ethylhexyl nitrate	Classification: Not a skin sensitizer. (Supplier information)
Petroleum naphtha	Classification: Not a skin sensitizer. (Literature)
Xylene	Classification: Not a skin sensitizer. (Literature)
Cumene	Classification: Not a skin sensitizer. (Literature)

Specific Target Organ Toxicity – Single Exposure

Petroleum naphtha	If materials is misted or if vapors are generated from heating, exposure may cause irritation of mucous membranes and the upper respiratory tract. Nose, throat and lung irritant.
2-Eythylhexanol	Respiratory tract irritation.
2-Eythylhexyl nitrate	If materials is misted or if vapors are generated from heating, exposure may cause irritation of mucous membranes and the upper respiratory tract.
++ Trimethylbenzene	Nose, throat and lung irritant.
1,2,4-Trimethylbenzene	Nose, throat and lung irritant.
1,3,5-Trimethylbenzene	May cause irritation to the mucous membranes and upper respiratory tract.
++ 1,2,3-Trimethylbenzene	Nose, throat and lung irritant.
Petroleum naphtha	If materials is misted or if vapors are generated from heating, exposure may cause irritation of mucous membranes and the upper respiratory tract.
Xylene	Respiratory tract irritation.
Cumene	Respiratory tract irritation.

Aspiration Hazard: May be fatal if swallowed and enters airways.

Other Effects:

Petroleum naphtha	Narcotic effect.
2-Eythylhexyl nitrate	Alcohol may enhance the toxic effects.
++ Trimethylbenzene	Central nervous system. Blood.
Petroleum naphtha	Narcotic effect.
Propylene glycol ether	May cause drowsiness or dizziness.
Cumene	Central nervous system.
Naphthalene	Blood.

Chronic effects

Carcinogenicity:

Mineral oil	This product contains mineral oils which are severely refined and not considered carcinogenic. All of the oils in this product have been demonstrated to contain less than 3% extractables by the IP 346 test.
Cumene	IARC 2B: Possibly carcinogenic to humans.
Naphthalene	A two-year National Toxicology Program (NTP) study found an increased incidence of nasal tumors in rats exposed to naphthalene by inhalation. In mice similarly exposed, increased incidences of alveolar/brochiolar adenomas were observed.

IARC Monographs on the Evaluation or Carcinogenic Risks to Humans:

Cumene	Overall evaluation: 2B. Possible carcinogenic to humans.
Naphthalene	Overall evaluation: 2B. Possible carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens:

Naphthalene	Reasonably anticipated to be a human carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):
No carcinogenic components identified.

Germ Cell Mutagenicity:

2-Ethylhexanol	This material has not exhibited mutagenic or genotoxic potential in laboratory tests.
Petroleum naphtha	In vitro and in vivo genetic toxicity studies were negative.
2-Ethylhexyl nitrate	This material has not exhibited mutagenic or genotoxic potential in laboratory tests.
Propylene glycol ether	The Ames Salmonella test for mutagenicity was negative for this product.
Xylene	This material has not exhibited mutagenic or genotoxic potential in laboratory tests.
Cumene	This material has not exhibited mutagenic or genotoxic potential in laboratory tests.
++ Diethylbenzenes	This material has not exhibited mutagenic or genotoxic potential in laboratory tests.
Naphthalene	Naphthalene has caused mutagenic effects in vitro studies with metabolic activation, however, in vivo studies do not show evidence of germ cell mutagenicity.

Reproductive toxicity:

2-Ethylhexanol	No evidence of adverse effects were found in a developmental toxicity study of 2-ethylhexonal in rats. Doses up to 3 ml/kg applied to the skin during the most critical part of the gestation period produced evidence of toxicity to mothers, but no evidence of injury in the developing offspring. In a previous study, birth defects were observed by oral administration, an unlikely route of exposure in the workplace.
Xylene	Xylene is fetotoxic in rats and rabbits in the absence of maternal toxicity.

Specific Target Organ Toxicity – Repeated Exposure:

2-Ethylhexanol	Repeated exposure may result in kidney and liver damage. A 14-day dermal toxicity study of 2-ethylhexanol in rats showed blood effects, decreased spleen weight and decreased triglycerides. Unknown: Target Organ(s): Blood, Liver, Spleen, Kidney.
Petroleum naphtha	Prolonged or repeated exposure may cause kidney damage.
2-Ethylhexyl nitrate	Prolonged exposure to 2-ethylhexyl nitrate may cause vasodilation resulting in reduced blood pressure and other cardiovascular effects. Symptoms include headache dizziness, nausea, fatigue, heart palpitations, confusion and possible loss of consciousness.
Petroleum naphtha	Repeated overexposure to petroleum naphtha can cause nervous system damage.
Proplylene glycol ether	Dermal & Inhalation: Target Organ(s): Kidney, lung, liver
Xylene	Xylene has been found to cause cardiac, liver and kidney effects, anemia and eye damage in laboratory animals. Prolonged and repeated inhalation of hydrocarbon solvents such as xylene can cause chronic neurological disturbances. Chronic exposure to xylene has been shown to cause hearing loss in experimental animals.
++ Diethylbenzenes	Prolonged or repeated exposures may result in adverse effects on the liver, kidney and/or nervous system. Unknown: Target Organ(s): Kidney, liver, central nervous system.
Naphthalene	Repeated overexposure to naphthalene may cause cataracts. Repeated overexposure to naphthalene may cause destruction of red blood cells with anemia, fever, jaundice and kidney and liver damage.

12. Ecological Information

Ecotoxicity

Fish

Petroleum naphtha	LC 50 (Rainbow Trout, 4 d): 9.2mg/l
2-Ethylhexyl nitrate	LC 50 (Zebra Fish, 4 d): 2mg/l NOEC (Zebra Fish, 4 d): 1.52 mg/l
Petroleum naphtha	LC 50 (Rainbow Trout, 4 d): 2 mg/l
2-Ethylhexanol	LC 50 (Fathead Minnow, 4 d): 28.2 mg/l LC50 (Golden Orfe, 4 d): 17, 1 mg/l NOEC (Golden Orfe, 4 d): 14 mg/l
1,2,4-Trimethylbenzene	LC 50 (Fathead Minnow, 4 d): 7.72 mg/l
Propylene glycol ether	LC 50 (Fathead Minnow, 4 d): > 20,000 mg/l LC50 (Golden Orfe, 4 d): > 4,000 mg/l
Xylene	LC 50 (Fathead Minnow, 4 d): 13.4 mg/l LC 50 (Rainbow Trout, 4 d): 2.6 mg/l LC 50 (Rainbow Trout, 56 d): 1.3 mg/l NOEC (Rainbow Trout, 56 d): 1.3 mg/l
Cumene	LC 50 (Rainbow Trout, 4 d): 4.8 mg/l
++ Diethylbenzenes	LC 50 (Rainbow Trout, 4 h): 0.673 mg/l

Aquatic Invertebrates

2-Ethylhexyl nitrate	EC50 (Water flea (Daphnia magna), 2d): > 12.6 mg/l
Petroleum naphtha	EC 50 (Water flea (Daphnia magna), 2 d): 3.2 mg/l
2-Ethylhexanol	EC 50 (Water flea (Daphnia magna), 2 d): 39 mg/l
Petroleum naphtha	EC 50 (Water flea (Daphnia magna), 2 d): 3 mg/l
1,2,4-Trimethylbenzene	EC 50 (Water flea (Daphnia magna), 2 d): 3.6 mg/l
1,3,5-Trimethylbenzene	EC 50 (Water flea (Daphnia magna), 2 d): 6 mg/l
Propylene glycol ether	EC 50 (Water flea (Daphnia magna), 2 d): > 10,000 mg/l
Xylene	EC 50 (Water flea (Ceriodaphnia Dubia), 7 d): >1.17 mg/l EC 50 (Water flea (Daphnia magna), 2 d): 3.82 mg/l EC 50 (Water flea (Daphnia magna), 7 d): >0.96 mg/l NOEC (Water flea (Ceriodaphnia Dubia), 7 d): 1.17 mg/l NOEC (Water flea (Daphnia Magna), 7 d): 0.96 mg/l EC 50 (Water flea (Daphnia magna), 21 d): > 1.57 mg/l NOEC (Water flea (Daphnia Magna), 21 d): 1.57 mg/l
Cumene	EC 50 (Water flea (Daphnia magna), 2 d): 4 mg/l EC 50 (Shrimp (Mysidopsis Bahia), 4 d): 1.3 mg/l EC 50 (Water flea (Daphnia magna), 21 d): > 0.35 mg/l NOEC (Water flea (Daphnia Magna), 2 d): 2.01 mg/l
++ Diethylbenzenes	EC 50 (Water flea (Daphnia magna), 2 d): 2.01 mg/l

Toxicity to Aquatic Plants

Petroleum naphtha	EC 50 (Green algae (Selenastrum capricornutum), 3 d): 2.9 mg/l
2-Ethylhexanol	EC 50 (Green algae (Scenedesmus quadricauda), 3 d): 16.6 mg/l

12. Ecological Information

2-Ethylhexyl nitrate	EC 50 (Alga, 3 d): 3.22 mg/l
Petroleum naphtha	EC 50 (Green algae (Selenastrum capricornutum), 3 d): >1 000mg/l
1,3,5-Trimethylbenzene	EC 50 (Green algae (Scenedesmus quadricauda), 2 d): 25 mg/l
Petroleum naphtha	EC 50 (Green algae (Selenastrum capricornutum), 4 d): 1.1 mg/l
Propylene glycol ether	EC 50 (Alga, 4 d): >1,000 mg/l
Xylene	LC 50 (Alga, 3 d): 4.36 mg/l
Cumene	EC 50 (Green algae (Selenastrum capricornutum), 3 d): 2.6 mg/l
++ Diethylbenzenes	LC 50 (Green algae (Selenastrum capricornutum), 3 h): 1.21 mg/l

Toxicity to soil dwelling organisms

No data available

Sediment Toxicity No data available

Toxicity to Terrestrial Plants No data available

Toxicity to above-ground organisms

No data available

Toxicity to microorganisms

Petroleum naphtha	EC50 (Sludge, 0.1 d): > 99 mg/l
2-Ethylhexanol	EC 50 (Pseudomonas putida, 0.1 d): 540 mg/l EC 50 (Sludge, 0.5 d): > 100mg/l
2-Ethylhexyl nitrate	EC50 (Sludge, 0.3 d): > 1,000 mg/l
Xylene	LD 50 (Bacteria, 0.1 d): > 100 mg/l
Cumene	EC 50 (Pseudomonas putida, 1 d): > 211 mg/l

Persistence and Degradability

Biodegradation

Petroleum naphtha	OECD TG 301 F, 78%, 28 d, Readily biodegradable
2-Ethylhexanol	OECD TG 302 B, 95%, 5 d, Readily biodegradable OECD TG 301 C, 100%, 14 d, Readily biodegradable
2-Ethylhexyl nitrate	Miscellaneous, 0%, 28 d, Not readily degradable.
Petroleum naphtha	OECD TG 301 F, 58%, 28 d, Not Readily biodegradable.
Propylene glycol ether	Miscellaneous, 82%, 28 d, Readily degradable.
Xylene	OECD TG 301 C, 100%, 28 d, Readily biodegradable
Cumene	Miscellaneous, 86%, 28 d, Readily degradable.
++ Diethylbenzenes	Miscellaneous, 4.7%, 28 d, Not readily degradable.

Bioaccumulative Potential

Bioconcentration Factor (BCF)

2-Ethylhexanol	Bioconcentration Factor (BCF): 25.35 (Calculated)
Xylene	Bioconcentration Factor (BCF): 23.99 (Measured)

Partial Coefficient n-octanol / water (log Kow)

Petroleum naphtha	Log Kow: 4.5 (Measured)
2-Ethylhexyl nitrate	Log Kow: 5.24 (Measured)

2-Ethylhexanol	Log Kow: 2.9 (Measured)
1,3,5-Trimethylbenzene	Log Kow: 3.63 (Calculated)
Propylene glycol ether	Log Kow: -0.49 (Calculated)
Xylene	Log Kow: 3.15 (Measured)
Cumene	Log Kow: 3.55 (Measured)
Mobility	
2-Ethylhexyl nitrate	soil - 3.75
2-Ethylhexanol	soil - 1.42

Other Adverse Effects: No data available.

13. Disposal considerations

Disposal Methods: Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Empty containers retain material residue. Do not cut, weld, braze, solder, drill, grind or expose containers to heat, flame, spark, or other sources of ignition. Empty container contains product residue which may exhibit hazards of product.

Contaminated Packaging: Container packaging may exhibit hazards.

14. Transport Information

DOT

UN Number:	NA 1993
UN Proper Shipping Name:	Combustible liquid, n.o.s. (Petroleum naphtha, 2-Ethylhexyl nitrate)
Transport Hazard Class(es)	
Class:	CBL
Label(s):	—
Packing Group:	III
Marine Pollutant	Yes
Special Percautions for user:	None established
Reportable quantity:	Benzene 10 lbs, Naphthalene 100 lbs

IMDG

UN Number:	UN 1993
UN Proper Shipping Name:	FLAMMABLE LIQUID, N.O.S. (Petroleum naphtha)
Transport Hazard Class(es)	
Class:	3
Labels:	3
EmS No.:	F-E, S-E
Packing Group:	III
Marine Pollutant:	Yes
Limited Quantity	5.00L
Expected Quantity	E1
Special precautions for user:	None established

IATA

UN Number:	UN 1993
UN Proper Shipping Name:	Flammable liquid, n.o.s. (Petroleum naphtha)
Transport Hazard Class(es)	
Class:	3
Labels:	3
Marine Pollutant:	Yes
Packing Group:	lll
Limited Quantity:	10.00L
Expected Quantity:	E1
Environmental Hazards	Marine Pollutant
Special Precautions for user:	None established
Other information	
Passenger and cargo aircraft:	Allowed
Cargo aircraft only:	Allowed

Transport in bulk according to Annex ll of MARPOL73/78 and the IBC Code

None known.

Shipping descriptions may vary based on mode of transport, quantities, temperature of the material, package size, and/or origin and destination. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transport of the material. Review classification requirements before shipping materials at elevated temperatures.

15. Regulatory Information

US Federal Regulations

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

None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Fire	Immediate	Delayed
Reactive	(Acute) Health Hazards	(Chronic) Health Hazard

SARA 302 Extremely Hazardous Substance

SARA 304 Emergency Release Notification

SARA 311/312 Hazardous Chemical

SARA 313 (TRI Reporting)

This product may contain chemical(s) regulated under the superfund Amendments and Reauthorization Act (SARA). For additional information please contact Opti-Lube Customer Assistance: sales@opti-lube.com

US State Regulations

US. California Proposition 65

This product contains chemical(s) known to the State of California to cause cancer and/or to cause birth defects or other reproductive harm.

Propylene oxide	25.00PPM
Ethylbenzene	749.00PPM
Naphthalene	0.331%
Benzene	475.00PPB
Toluene	375.80PPB
Ethylene oxide	2.20PPB

Methanol	300.60PPT
Cumene	0.943%
++ Benzene	290.00PPM

Inventory Status

Australia (AICS)

All components are in compliance with chemical notification requirements in Australia.

Canada (DSL/NDSL)

All components are in compliance with the Canadian Environmental Protection Act and are present on the Domestic Substance List.

European Union (REACH)

To obtain information on the REACH compliance status of this product, please email us at sales@opti-lube.com

Japan (ENCS)

This product requires notification in Japan.

Korea (ECL)

This product requires notification before sale in Korea.

New Zealand (NZIoC)

All components are in compliance with chemical notification requirements in New Zealand.

Philippines (PICCS)

All components are in compliance with the Philippines Toxic Substance and Hazardous and Nuclear Wastes Control Act of 1990 (R.A. 6969).

Switzerland (SWISS)

All components are in compliance with the Environmentally Hazardous Substances Ordinance in Switzerland.

Taiwan (TCSCA)

All components of this product are listed on the Taiwan Inventory.

United States (TSCA)

All components of this material are on the US TSCA Inventory.

The information that was used to confirm the compliance status of this product may deviate from the chemical information shown in Section 3.

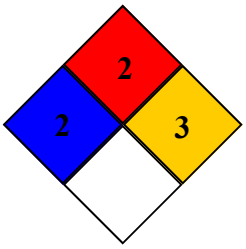
16. Other information, including date of preparation or last revision

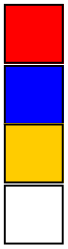
HMIS Hazard ID

Health	*	2
Flammability		2
Physical Hazards		3

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating Not Possible;
*Chronic health effect

NFPA Hazard ID





Flammability
Health
Reactivity
Special hazard

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating Not Possible;

Issue Date:	07/21/2015
Version #:	1.0
Source of Information:	Internal Company data and other publically available resources.
Further Information:	Contact Supplier (see Section 1)
Disclaimer:	As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim and liability for any use of this product. Information contained herein is believed to be true and accurate but all statements or suggestions are made without warranty, expressed or implied, regarding accuracy of the information, the hazards connected with the use of the material of the results to be obtained from the use thereof. Compliance with all applicable feral, state, and local regulations remains the responsibility of the user.