

MATERIAL SAFETY DATA SHEET

PRODUCT TRADE NAME: **RL-3**

PRODUCT TYPE: Diesel fuel combustion improver

REVISION DATE: August 15, 2005

CHEMICAL NAME: Mixture

NFPA CODE: Health: 2 Fire: 2 Reactivity: 0

SECTION 1 - HAZARDOUS INGREDIENTS

Alkyl Nitrate - Supplier recommended TWA= 10 ppm CAS #27247-96-7

10-19.9% Heavy Aromatic Naphtha - CAS # 64742-94-5 Supplier recommended PEL = 100 ppm

1-4.9% Trimethyl benzene (mixed isomers)- CAS #25551-13-7

0.1-0.9% 1,2,4-Trimethyl benzene - CAS #95-63-6

1% Naphthalene- OSHA PEL:10ppm, OSHA STEL:15ppm, ACGIH TLV:10ppm, ACGIH STEL:15ppm. CAS #91-20-3

1-4.9% 2-Ethyl hexanol - TWA- None established CAS #104-76-7

SECTION 2 - FIRE AND EXPLOSION HAZARDS

FLASH POINT: 172°F (78°C)

UPPER FLAMMABLE LIMIT: Not Determined.

LOWER FLAMMABLE LIMIT: Not Determined.

EXTINGUISHING MEDIA: CO₂, dry chemical, foam.

SPECIAL FIREFIGHTING PROCEDURES: Wear self-contained breathing apparatus with full face piece. Material will float on water.

UNUSUAL FIRE & EXPLOSION HAZARDS: Toxic fumes may be evolved on burning or exposure to heat. Vapors are heavier than air. Container may rupture on heating. May evolve nitrogen oxides under fire conditions. 2-Ethylhexyl nitrate may undergo a self-accelerating exothermic reaction if heated above 212°F (100°C).

SECTION 3 - HEALTH HAZARD DATA

ORAL TOXICITY: LD50 > 5000 mg/kg in rats. Based on data from components.

EYE IRRITATION: May cause eye irritation.

SKIN IRRITATION: May cause skin irritation. Prolonged exposure may cause dermatitis.

DERMAL TOXICITY: LD50 > 2000 mg/kg in rabbits. Based on data from components.

INHALATION TOXICITY: LC50 (1Hr) in rats is 3000 -30,000 ppm. High concentrations may cause headaches, dizziness, weakness, and nausea.

CHRONIC TOXICITY: A 14-day dermal toxicity study of 2-ethylhexanol in rats showed blood effects, decreased spleen weight and decreased triglycerides. Repeated overexposure to naphthalene may cause destruction of red blood cells with anemia, fever, jaundice and kidney and liver damage. Repeated ingestion of 2-ethylhexanol may cause injury to the liver and kidneys.

TLV: None established. Oil mist TLV 5mg/m³.

FIRST AID PROCEDURES

SKIN: Wash well with soap and water.

EYE: Flush well with water for at least 15 minutes.

INHALATION: Remove to fresh air. See a physician if irritation persists. If breathing has stopped, apply artificial respiration.

ORAL: Call a physician. Do not induce vomiting.

ADDITIONAL: None.

SECTION 4 - SPECIAL PROTECTION INFORMATION

VENTILATION PROCEDURE: Mechanical ventilation recommended.

GLOVES PROTECTION: Neoprene or nitrile rubber gloves recommended.

EYE PROTECTION: Safety glasses recommended.

OTHER PROTECTION: NIOSH-approved organic vapor respirator if TLV exceeded. Long-sleeved shirt.

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SECTION 5 - PHYSICAL DATA

VAPOR PRESSURE: Not Determined
SPECIFIC GRAVITY: 0.9
WATER SOLUBILITY: Insoluble
PERCENT VOLATILE: Not Determined.
VAPOR DENSITY: Not Determined.
EVAPORATION RATE: Not Determined.
ODOR: Strong.
APPEARANCE: Reddish-brown liquid.

SECTION 6 - STABILITY

STABILITY: Material can be unstable at elevated temperatures.
INCOMPATIBILITY: Strong oxidizing agents.
POLYMERIZATION: Will not occur.
THERMAL DECOMPOSITION: Oxides of carbon, hydrogen, and nitrogen.

SPILL OR LEAK PROCEDURES

SPILL PROCEDURES: Ventilate area. Remove sources of ignition. Wear self-contained breathing apparatus, rubber boots, suit, and gloves. Prevent entry into sewers and waterways. Pick up free liquid for recycle/disposal. Absorb small amounts on inert material for disposal.

WASTE DISPOSAL: If disposed of, this material is believed to be a hazardous waste under RCRA due to toxicity. Waste management should be in compliance with federal, state, and local laws. If discarding this material, consider the possible relevance of the following chemicals and the treatment standards for the associated U.S. EPA RCRA Hazardous Waste Numbers:
0.004% Benzene CAS No: 71-43-2, D018

CERCLA REPORTING: Must report accidental spills of greater than 1300 gallons due to naphthalene.

SPECIAL PRECAUTIONS

SPECIAL PRECAUTIONS: **DO NOT HEAT!** Store in a cool (below 110°F), dry, place away from flame. Keep containers closed when not in use. Open container in a well-ventilated area. Remove contaminated clothing and laundry before reuse.

TRANSPORTATION AND LABELING

DOT PROPER SHIPPING NAME: Not Applicable.
DOT HAZARD CLASS: Not Applicable.
DOT ID NUMBER (UN NO.): Not Applicable.
EPA HAZARDOUS SUBSTANCES: No SARA Extremely Hazardous Substances at levels greater than 1%.
SARA Section 313: 1.4% Naphthalene CAS #91-20-3
U.S. TSCA INVENTORY: All components are included on the U.S. TSCA Inventory.

IMDG Shipping Description: Environmentally hazardous substances liquid, nos (Contains 2-ethyl hexyl nitrate, Naphthalene, Tetramethyl benzenes, Trimethylbenzene), Class 9, UN3082, PG III- Marine Pollutant.

PRECAUTIONARY LABELS: Combustible. Harmful if inhaled. Causes eye irritation. Causes skin irritation.
Harmful if absorbed through skin. May cause chronic health effects, based on data with laboratory animals.

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