Material Safety Data Sheet
PERKINS DIESEL FUEL CONDITIONER

Prepared according to EU Directive 91/155/EEC.

1	Substance/Product Identification

Product Trade Name **PERKINS DIESEL FUEL CONDITIONER**

Company ***The Lubrizol Corporation***
29400 Lakeland Boulevard
Wickliffe, Ohio 44092
Tel: (440) 943-4200

CAS Number Not applicable for mixtures.

Synonyms None.

Preparation/Revision Date 01 September 2006

Generic Chemical Name Mixture.

Product Type Miscellaneous fuel additive.

Emergency Phone Number (CHEMTREC) 1-800-424-9300. Outside the U.S. (703) 527-3887

MSDS No. 14229007-1201219-202610-811103

2	Composition/Information on Ingredients

Hazardous Ingredients

Comp	Percentage (by wt.)	Symbol (s)	Risk Phrase(s)	EU Number
2-Ethylhexyl nitrate	From 50 to 59.9 percent	N Xn	R20 R51/53 R65	248-363-6
Petroleum naphtha	From 10 to 19.9 percent	N Xn	R10 R36/38 R51/53 R65	265-198-5
Hydroxyethylated aminoethylamide	From 5 to 9.9 percent	C	R34 R43 R52	Polymer
Petroleum naphtha	From 1 to 4.9 percent	Xn	R10 R38 R53 R65	265-191-7
Naphthalene	1.3%	N Xn	R22 R40 R50/53	202-049-5
Alkarylamine	From 0.1 to 0.9 percent	N Xn	R22 R36/38 R51/53 R10 R43	202-374-2
1,2,4-Trimethylbenzene	From 0.1 to 0.9 percent	N Xn	R10 R20 R36/37/38 R51/53	202-436-9
Petroleum naphtha	From 0.1 to 0.9 percent	N Xn	R10 R36/38 R51/53 R65	265-199-0
n-Octane	From 0.1 to 0.9 percent	F N Xn	R11 R21/22 R38 R50/53 R65 R67	203-892-1

3	Hazards Identification

Symbol(s)

Product Classification	R20 -- Harmful by inhalation. R40 -- Limited evidence of a carcinogenic effect. R43 -- May cause sensitisation by skin contact. R51/53 -- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R65 -- Harmful: may cause lung damage if swallowed.

4 First Aid Measures

Ingestion	DO NOT INDUCE VOMITING. If conscious, give 2 glasses of water. Aspiration of material due to vomiting can cause chemical pneumonitis which can be fatal. Get immediate medical attention.
Eyes	Flush immediately with water for at least 15 minutes. Get immediate medical attention.
Skin	Wash with soap and water. Immediately remove contaminated clothing. Get medical attention if irritation persists. Launder contaminated clothing before reuse and discard shoes and other leather articles saturated with the material.
Inhalation	Remove exposed person to fresh air if adverse effects are observed. If breathing is labored, administer oxygen. If breathing has stopped, apply artificial respiration. If irritation persists or if toxic symptoms are observed, get medical attention.
Additional Information	Note to physician: Treat symptomatically.

5 Fire Fighting Measures

Flash Point	72 °C, 161.6 °F PMCC (Typical)
Extinguishing Media	CO2, dry chemical, or foam. Water can be used to cool and protect exposed material.
Firefighting Procedures	Recommend wearing self-contained breathing apparatus. Water may cause splattering.
Unusual Fire & Explosion Hazards	Toxic fumes, gases or vapors may evolve on burning. Vapors may be heavier than air and may travel along the ground to a distant ignition source and flash back. Container may rupture on heating. Toxic nitrogen oxides may evolve when burning. The alkyl nitrate contained in this product may decompose exothermicly if heated above 120° C. Studies in the Koenen Tube Test indicate that the reaction is non-explosive even when the alkyl nitrate is present at levels up to 70%.

6 Accidental Release Measures

Spill Procedures	Evacuate all non-essential personnel. Personal Protective Equipment must be worn, see Personal Protection Section for PPE recommendations. Remove sources of ignition. Ventilate spill area. Prevent entry into sewers and waterways. Pick up free liquid for recycle and/or disposal. Residual liquid can be absorbed on inert material. Check under Transportation and Labeling (DOT/CERCLA) and Other Regulatory Information Section (SARA) for hazardous substances to determine regulatory reporting requirements for spills.

7 Handling and Storage

Pumping Temperature	Ambient
Maximum Handling Temperature	55 °C, 131 °F
Handling Procedures	Keep away from potential sources of ignition. Open container in a well ventilated area.

Avoid breathing vapors. Keep containers closed when not in use. Do not discharge into drains or the environment, dispose to an authorized waste collection point. Use appropriate containment to avoid environmental contamination. DO NOT HEAT. Wash thoroughly after handling. 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.

Maximum Storage Temperature 45 °C, 113 °F

Storage Procedures Do not store near potential sources of ignition. Store in well ventilated area. Equip bulk storage tanks with overfill protection such as high level alarms or secondary containment. Store drums in area with secondary containment. Storage area should be covered to prevent rain water from entering. Store at ambient temperatures.

Loading Temperature Not Determined.

8 Exposure Controls/Personal Protection

Exposure Limits

Belgium

Comp	CAS No.	Long Term (8 Hours T.W.A.)	Short Term (15 mins.)
Naphthalene	91-20-3	10 ppm	15 ppm
n-Octane	111-65-9	300 ppm	375 ppm

EU

Comp	CAS No.	Long Term (8 Hours T.W.A.)	Short Term (15 mins.)
Naphthalene	91-20-3	10 ppm	N/E
1,2,4-Trimethylbenzene	95-63-6	20 ppm	N/E

Ireland

Comp	CAS No.	Long Term (8 Hours T.W.A.)	Short Term (15 mins.)
Naphthalene	91-20-3	10 ppm	15 ppm
n-Octane	111-65-9	300 ppm	375 ppm

UK
Not applicable.

(s) - Skin exposure
(p) - Proposed limit
(c) - Ceiling exposure
(l) - Recommended exposure limit
(u) - Supplier recommended exposure limit
(N/E) - None established

Other Exposure Limits Contains mineral oil. Under conditions which may generate mists, observe the OSHA PEL of 5 mg per cubic meter, ACGIH STEL of 10 mg per cubic meter. The recommended TWA for 2-Ethylhexyl nitrate is 1 PPM.

Engineering Controls Use local exhaust ventilation to control mists or vapors. Additional ventilation or exhaust may be required to maintain air concentrations below recommended exposure limits.

Hand Protection Use nitrile or neoprene gloves.

Eye Protection Safety glasses. If potential for splash or mist exists, wear chemical goggles or faceshield.

Respiratory Protection Use full face respirator with an organic vapor cartridge if the recommended 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.

Clothing Recommendation Long sleeve shirt is recommended. Wear either a chemical protective suit or apron when potential for contact with material exists. Use chemically protective boots when necessary to

avoid contaminating shoes. Do not wear rings, watches or similar apparel that could entrap the material and cause a skin reaction. Launder contaminated clothing before reuse.

9 Physical and Chemical Properties

Flash Point	72 °C, 161.6 °F PMCC (Typical)
Upper Flammable Limit	Not Determined.
Lower Flammable Limit	Not Determined.
Autoignition Point	Not Determined.
Explosion Data	Material does not have explosive properties.
Vapour Pressure	Not Determined.
pH	Not Determined.
Specific Gravity	0.94 (15.6 °C)
Bulk Density	7.85 Lb/gal, 0.94 Kg/L
Water Solubility	Insoluble.
Percent Solid	Not Determined.
Percent Volatile	Unknown.
Percent VOC	Not Determined.
Vapour Density	Not Determined.
Evaporation Rate	Not Determined.
Odour	Aromatic hydrocarbon
Appearance	Clear liquid.
Viscosity	9.6 Centistokes (25 °C) 6.6 Centistokes (40 °C)
Odour Threshold	Unknown.
Boiling Point	Not Determined.
Pour Point Temperature	< -40 °C, -40 °F
Melting / Freezing Point	Not Determined.

The above data are typical values and do not constitute a specification.

10 Stability and Reactivity

Stability	Material can become unstable at elevated temperatures and pressures.
Decomposition Temperature	Not Determined.
Incompatibility	Strong oxidizing agents. Halogens and halogenated compounds.
Polymerization	Will not occur.
Thermal Decomposition	Smoke, carbon monoxide, carbon dioxide, aldehydes and other products of incomplete combustion. Under combustion conditions, oxides of the following elements will be formed: nitrogen.

11 Toxicological Information

-- ACUTE EXPOSURE --

Eye Irritation	Moderate to strong eye irritation. Based on data from components or similar material.
Skin Irritation	Skin irritant. Based on data from components or similar materials. Prolonged or repeated skin contact as from clothing wet with material may cause dermatitis. Symptoms may include redness, edema, drying, and cracking of the skin.

Respiratory Irritation	If material is misted or if vapors are generated from heating, exposure may cause irritation of mucous membranes and the upper respiratory tract similar to that observed with mineral oil. Based on data from components or similar materials. Under good industrial hygiene practices where all exposure limits are observed, respiratory irritation should not be a problem. Exposure to a high concentration of vapor or mist is irritating to the respiratory tract. Breathing of vapor or mist may aggravate asthma and inflammatory or fibrotic pulmonary disease. If fatty acids are over-heated, vapors or entrained mist may cause respiratory irritation.
Dermal Toxicity	The LD50 in rabbits is > 2000 mg/Kg. Based on data from components or similar materials. Overexposure to organic nitrates by skin contact may cause headache, nausea and decreased blood pressure.
Inhalation Toxicity	The following estimated LC 50 is based on incomplete information on components. Aerosols of this material are considered harmful. Based on data from components or similar materials. High concentrations may cause headaches, dizziness, nausea, stupor, and other central nervous system effects leading to visual impairment, difficulty breathing and convulsions. Overexposure to organic nitrates by inhalation may cause headache, nausea and decreased blood pressure.
Oral Toxicity	The LD50 in rats is > 5000 mg/kg. Based on data from components or similar materials. Swallowing this material causes irritation of mouth, esophagus and stomach, with nausea, vomiting, diarrhea and abdominal pain.
Dermal Sensitization	May cause skin sensitization. Based on data from components or similar materials.
Inhalation Sensitization	No data available to indicate product or components may be respiratory sensitizers.

-- CHRONIC EXPOSURE --

Chronic Toxicity	Repeated overexposure to petroleum naphtha can cause nervous system damage. Repeated overexposure to naphthalene may cause destruction of red blood cells with anemia, fever, jaundice and kidney and liver damage.
Carcinogenicity	A two-year National Toxicology Program (NTP) study found an increased incidence of tumors of the nose in rats exposed to naphthalene by inhalation. In mice similarly exposed, increased incidences of alveolar/bronchiolar adenomas were observed. Naphthalene has been classified by the International Agency for Research on Cancer (IARC) as a possible human carcinogen (Group 2B) on the basis of sufficient evidence of carcinogenicity in experimental animals but inadequate evidence in exposed humans. This product is formulated with mineral oils which are considered to be severely refined and not considered to be carcinogenic under IARC. All of the oils in this product have been demonstrated to contain less than 3% extractables by the IP 346 test.
Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Reproductive Toxicity	No data available to indicate either product or components present at greater than 0.1% that may cause reproductive toxicity.
Teratogenicity	No evidence of adverse effects were found in a developmental toxicity study of 2-ethylhexanol 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.
Other	No other health hazards known.

12 Ecological Information

-- ENVIRONMENTAL TOXICITY --

Freshwater Fish Toxicity	The acute LC50 is 10 - 100 mg/L based on component data.
Freshwater Invertebrates Toxicity	The acute EC50 is 1 - 10 mg/L based on component data.
Algae Toxicity	The acute EC50 is 10 - 100 mg/L based on component data.

Saltwater Fish Toxicity	Not Determined.
Saltwater Invertebrates Toxicity	Not Determined.
Bacteria Toxicity	The acute EC50 is 10 - 100 mg/L based on component data.
Miscellaneous Toxicity	Not Determined.

-- ENVIRONMENTAL FATE --

Biodegradation	At least 25% of the components in this product show limited biodegradation based on OECD 301-type test data.
Bioaccumulation	25% or greater of the components potentially bioconcentrate, based on measured octanol/water partition coefficients.
Soil Mobility	Not Determined.
WGK	WGK = 2 according to the Water Hazardous Directive, VwVwS, dated May 17, 1999.

13 Disposal Consideration

Waste Disposal This material, if discarded, should be considered a European hazardous waste in accordance with European Law. H4, H5, H11, H14. Phenol, o-xylene.

14 Transport Information

ICAO/IATA (International)	Environmentally hazardous substance, liquid, n.o.s. (Alkyl (C7-C9) nitrates, Petroleum naphtha), Class 9, UN3082, PG III, Marine Pollutant
IMDG	Environmentally hazardous substance, liquid, n.o.s. (Alkyl (C7-C9) nitrates, Petroleum naphtha), Class 9, UN3082, PG III, Marine Pollutant
IMDG EMS Fire	F-A
IMDG EMS Spill	S-F
IMDG MFAG	None
IMO Marine Vessel	DO NOT TRANSPORT - ADDITIONAL INFORMATION REQUIRED
USCG Compatibility	Not Determined.
ADR/RID	UN3082 Environmentally hazardous substance, liquid, n.o.s. (Alkyl (C7-C9) nitrates, Petroleum naphtha), 9, III, ADR, Aquatic Pollutant
ADR/RID Hazard ID No.	90

Review classification requirements before shipping materials at elevated temperatures.

15 Regulatory Information

Symbol(s)

Indication of Danger
Harmful
Dangerous for the environment

Precautionary Labels
R20 -- Harmful by inhalation.
R40 -- Limited evidence of a carcinogenic effect.
R43 -- May cause sensitisation by skin contact.
R51/53 -- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R65 -- Harmful: may cause lung damage if swallowed.
S24 -- Avoid contact with skin.

	S26 -- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28 -- After contact with skin, wash immediately with plenty of water. S37/39 -- Wear suitable gloves and eye/face protection S61 -- Avoid release to the environment. Refer to special instructions/Safety data sheets.
Other Label Information	None.

-- Global Chemical Inventories --

USA	All components of this material are on the US TSCA Inventory or are exempt.
EU	All components are in compliance with the EC Seventh amendment Directive 92 /32/EEC.
Japan	All components are in compliance with the Chemical Substances Control Law of Japan.
Australia	All components are in compliance with chemical notification requirements in Australia.
Canada	All components are in compliance with the Canadian Environmental Protection Act and are present on the Domestic Substances List.
Switzerland	All components are in compliance with the Environmentally Hazardous Substances Ordinance in Switzerland.
Korea	This product requires notification before sale in Korea.
Philippines	This product requires notification before sale in the Philippines.
China	All components of this product are listed on the Inventory of Existing Chemical Substances in China.

-- Product Registrations --

Finnish Registration Number	Not Registered
Swedish Registration Number	Not Registered
Norwegian Registration Number	Not Registered
Danish Registration Number	Not Registered
Swiss Registration Number	Not Registered
Italian Registration Number	Not Registered
Korean Registration Number	Not Registered
New Zealand Registration Number	Not Registered
U.S. Dept of Agriculture	This product has not been filed with the USDA to support H2 approvals.
NSF Nonfood Compounds Registration	This product has not been filed with the NSF to support H1 or H2 approvals.

-- Other / International --

U.S. Tariff Heading Number	3811.90.00.00
Schedule B Number	3811.90.0000
FDA Approval	Not applicable.

16	**Other Information**

HMIS Codes

Health	Fire	Reactivity
2 *	2	1

Relevant R Phrases

R10 -- Flammable.
R11 -- Highly flammable.
R20 -- Harmful by inhalation.
R21/22 -- Harmful in contact with skin and if swallowed.
R22 -- Harmful if swallowed.
R34 -- Causes burns.
R36/37/38 -- Irritating to eyes, respiratory system and skin.
R36/38 -- Irritating to eyes and skin.
R38 -- Irritating to skin.
R40 -- Limited evidence of a carcinogenic effect.
R43 -- May cause sensitisation by skin contact.
R50/53 -- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53 -- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R52 -- Harmful to aquatic organisms.
R53 -- May cause long-term adverse effects in aquatic environment.
R65 -- Harmful: may cause lung damage if swallowed.
R67 -- Vapors may cause drowsiness or dizziness.

Revision Indicators

Section	Changed
2 EU HAZARDOUS INGREDIENTS	1 September 2006
8 CLOTHING RECOMMENDATIONS	1 September 2006
8 RESPIRATORY PROTECTION	1 September 2006
10 THERMAL DECOMPOSITION	1 September 2006
11 CARCINOGENICITY	1 September 2006
11 CHRONIC TOXICITY	1 September 2006
11 EYE IRRITATION	1 September 2006
12 ACCUMULATION	1 September 2006
13 WASTE DISPOSAL	1 September 2006