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MATERIAL SAFETY DATA SHEET

EMERGENCY OVERVIEW

This slippery yellow liquid has a sweet odor. It has acute and chronic health effects for the lungs, nervous system, respiratory tract, and eyes. Please refer to the discussion in section three. Very harmful or fatal if swallowed. Get immediate medical attention if ingested for this material is quickly absorbed.

NFPA RATING: HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 0

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

GENERIC NAME: Yellow Antifreeze Concentrate

ISSUE DATE:

July 5, 2007

THIS LUBRICANTS USA PRODUCT IS:

EXTENDED LIFE ANTIFREEZE

CAS NUMBER:

Mixture

SYNONYMS / GENERAL NAMES:

Ethylene glycol coolant

24 HOUR EMERGENCY TELEPHONE:

(CHEMTREC) 1-800-424-9300

TECHNICAL INFORMATION:

1-800-442-5823

2. COMPOSITION / INFORMATION ON INGREDIENTS / HAZARDOUS INGREDIENTS

COMPONENTS	CAS NO.	%	HAZARD DATA
Ethylene glycol	107-21-1	70-100	ACGIH TLV ceiling 100 mg/m ³ . PEL 125 mg/m ³
Diethylene Glycol	111-46-6	1-5	AIHA exposure is 50 ppm total, 10 mg/m ³ aerosol

3. HAZARDOUS IDENTIFICATION

ROUTES OF ENTRY:	Skin contact, inhalation.
TARGET ORGANS:	Skin, lungs, liver, kidney
INHALATION:	At room temperature vapors are minimal due to physical properties. Breathing vapors may cause a mild burning sensation in the nose, throat and lungs. In extreme exposures central nervous system effects may include tremors, convulsions, loss of consciousness, coma or death.
IRRITANCY:	This product can cause mild, transient, eye or skin irritation with short-term contact with liquids or sprays.
REPRODUCTIVE EFFECTS:	WARNING! Contains minor components which when tested separately in animals have shown fetotoxicity or birth defects. Contains component that has caused slight toxic effects to fetus at doses nontoxic to the mother following skin contact. Exposures having no adverse effects on the mother should have no effect on the fetus.
CANCER INFORMATION:	This product does contain components which, in animals, have been shown to cause blood, kidney, liver or testicular effects.

4. FIRST AID MEASURES

EYES:	Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water while occasionally lifting and lowering eyelids. Seek medical attention.
DERMAL:	Remove contaminated shoes and clothing, wipe off excess material. Wash exposed skin with soap and water. Seek medical attention if tissue appears damaged or if irritation persists. Thoroughly clean contaminated clothing before reuse. Discard contaminated leather goods.
INGESTION:	This material (containing ethylene and diethylene glycol) may be harmful or fatal if swallowed. A lethal dose for an adult is 1 ml per kilogram (3 quarts per 100 lbs). Keep victim's head below hips while vomiting. Get medical attention immediately. Ingestion can result in severe kidney damage and central nervous system depression. Note to physician. Consider gastric lavage with protected airway, administration of alcohol dehydrogenase inhibitors. Contact a poison control center or toxicologist for guidance.
INHALATION:	Move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If breathing is difficult, a qualified individual should administer 100 percent humidified oxygen. Seek medical attention immediately. Keep the affected individual warm and at rest.
INJECTION:	Injection of fluid requires immediate medical attention.

5. FIRE FIGHTING MEASURES

FLASH POINT, °C(°F):	120°C (246°F) by PMCC method
FLAMMABLE LIMITS (% BY VOLUME):	LOWER: 3.2 UPPER: NO DATA
EXTINGUISHING MEDIA:	Use dry chemical, alcohol resistant foam, carbon dioxide or water fog.
SPECIAL FIRE FIGHTING PROCEDURES:	See instructions below
AUTO IGNITION TEMPERATURE:	N/A
EXPLOSION DATA:	N/A
NFPA RATING:	HEALTH: <u>2</u> FLAMMABILITY: <u>1</u> REACTIVITY <u>0</u>
INSTRUCTIONS: Keep people away. Isolate fire area and deny unnecessary entry. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Burning liquids may be extinguished by dilution with water. Do not use direct water stream—it may spread fire. Withdraw all personnel from area in case of rising sound from venting safety device or discoloration of the container. Move container from fire area if this is possible without hazard.	

6. ACCIDENTAL RELEASE MEASURES

SPILL PROCEDURES:	Do not touch damaged containers or spilled material unless wearing appropriate protective equipment. Slipping hazard—do not walk through spilled material. Stop leak if you can do so without risk. For small spills, absorb or cover with dry earth, sand, or other inert non-combustible absorbent material and place into waste containers for later disposal. Contain large spills to maximize product recovery or disposal. Prevent entry into waterways or sewers. In urban area, cleanup spills as soon as possible. In natural environments, seek cleanup advice from specialists to minimize physical habitat damage. This material will sink in water. Absorbent pads and similar materials can be used. Comply with all laws and regulations.
Ecotoxicity	Discharges are expected to cause only localized and non-persistent environmental damage. Toxic to many water organisms. Not expected to bioconcentrate in aquatic organisms. Fish are threatened because of lack of oxygen. LC 50 for shrimp is 100 ppm in 48 hr with aeration. LC 50 rainbow trout 41000 mg/l for 96 hours.
Environmental fate	The product is water soluble and will contaminate water. Biodegradation in soil and water is a major fate process. Biodegradation in aerobic environments takes up to 4 days and biodegradation in anaerobic atmospheres takes up to 7 days for ethylene glycol. The products of degradation are less toxic than ethylene glycol. For detailed ecological call the non-emergency number shown in section 1.

7. HANDLING AND STORAGE

HANDLING & STORAGE PROCEDURES: Avoid water contamination and extreme temperatures to minimize product degradation. Keep container closed. Do not store with strong oxidizing agents. Do not store at temperatures above 120°F or in direct sunlight for extended periods of time.

Empty containers may contain product residues that can ignite with explosive force. Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to flames, sparks, heat or other potential ignition sources. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:	Provide exhaust ventilation or other engineering controls to keep the airborne concentration of mists and/or vapors below the recommended exposure limits. An eye wash station and safety shower should be located near the workstation.
GLOVES PROTECTION:	Use gloves constructed of chemical resistant materials such as neoprene or heavy nitrile rubber if frequent or prolonged contact is expected. Use heat protective gloves when handling product at elevated temperatures.
EYE PROTECTION:	Safety glasses equipped with side shields should be adequate protection under most conditions of use. Wear goggles and/or face shield if splashing or spraying is likely, especially if material is heated above 125° F (or 51° C). Have suitable eye wash water available.
RESPIRATORY PROTECTION:	Vaporization or misting is not expected at ambient temperatures. Therefore, the need for respiratory protection is not anticipated under normal use conditions and with adequate ventilation. If elevated airborne concentrations above applicable workplace exposure levels are anticipated, a NIOSH-approved organic vapor respirator equipped with a dust/mist prefilter should be used. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).
CLOTHING RECOMMENDATION:	Avoid prolonged and/or repeated skin contact, especially after this product has been used in a crankcase. If splashing or spraying is expected chemical-resistant (Tyvek®, nitrile or neoprene) clothing should be worn. This might include long-sleeves, apron, slicker suit, boots and additional facial protection. If general contact occurs, promptly remove soaked clothing and take a shower.
OTHER COMMENTS:	Use good personal hygiene practices. Wash hands and other exposed skin areas with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities or leaving work. Since standards/control limits have not been established for this product, the exposure limits shown below are suggested as minimum control guidelines.
Occupational exposure guidelines	Applicable workplace exposure levels TWA: 100 mg/M ³ from ACGIH (TLV) OSHA (PEL) ceiling 50 ppmv

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Yellow, slightly viscous liquid
ODOR:	Mild odor
pH:	Basic 10.0 – 11.0
VAPOR PRESSURE, mm Hg (25°C):	<0.1 mm mercury
VAPOR DENSITY:	2.1 (Air =1)
MELTING POINT:	(Pour point -40 C, -40 F). Freeze -34 F (-37 C) as 50% water
BOILING POINT, 760 mm Hg, °C:	226 F
SOLUBILITY IN WATER:	Infinitely soluble in water.
SPECIFIC GRAVITY:	1.14 (Water = 1)
EVAPORATION RATE:	<0.01 (n-butyl acetate = 1)

VISCOSITY 40°C (100°C)	N/A
MOLECULAR WEIGHT:	N/A
PERCENT VOLATILE:	Negligible volatility

10. STABILITY AND REACTIVITY

STABILITY:	Stable
INCOMPATIBILITY:	Strong acids and oxidizers
POLYMERIZATION:	Will not occur
THERMAL DECOMPOSITION:	CO ₂ , CO, smoke, fumes, aldehydes, ketones, organic acids, polymer fragments and oxides of boron, nitrogen and silicon.

11. TOXICOLOGICAL INFORMATION

EYE IRRITATION:	This product can cause moderate to severe eye irritation. Vapors can also cause severe eye irritation.
DERMAL IRRITATION:	Product is mildly irritating to the skin and slightly toxic on prolonged or repeated contact.
INHALATION TOXICITY:	Vapors are mildly to markedly irritating to the lungs depending on the exposure level. Symptoms may include coughing and difficult breathing. At concentrations above the recommended exposure limits, it may cause central nervous system effects (headache, dizziness, nausea, vomiting, weakness, blurred vision, drowsiness, confusion or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.
INGESTION IRRITATION:	Product may be harmful or fatal if swallowed; may produce central nervous system (CNS) depression and kidney damage which may be fatal. Ingestion may also produce liver damage.
AGGRAVATED MEDICAL CONDITIONS:	Preexisting skin, eye and respiratory disorders may be aggravated by exposure to this product. Impaired kidney and liver functions from preexisting disorders may be aggravated by exposure to this product.
CHRONIC OR ACUTE EXPOSURE SYMPTOMS	CARCINOGENIC. Effects classified A4 (no classifiable for human or animal) by ACGIH for ethylene glycol. Irritation as noted above. Early to moderate CNS depression evidenced by giddiness, headache, dizziness and nausea. In extreme cases unconsciousness and death may occur. Kidney damage may be evidenced by changes in urine output, urine appearance or edema (swelling from fluid retention). Liver damage evidenced by loss of appetite, jaundice (yellowish skin color) and sometimes pain in upper abdomen on the right side. Contains material that may be harmful to developing fetus based on animal data.
OTHER REMARKS	Toxic to animals LD 50 (acute oral) 5087 mg/kg rat for the mixture LD 50 4700 mg/kg rat for ethylene glycol LD 50 6610 mg/kg guinea pig LD 50 1650 mg/kg cat

12. HEALTH INFORMATION

HMIS CODE: **HEALTH:** **2** **FIRE:** **1** **REACTIVITY:** **0**

No	HIGHLY TOXIC	No	SENSITIZER
No	TOXIC	No	REPRODUCTIVE EFFECTS
No	CORROSIVE	No	MUTAGEN
No	IRRITANT		

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal. Determine compliance status with all applicable requirements prior to disposal.

14. TRANSPORT INFORMATION**DOT (DEPARTMENT OF TRANSPORTATION)**

PROPER SHIPPING NAME:	Ethylene glycol
HAZARD CLASS:	DOT class 9, packing group III. (United States).
HAZARD IDENTIFICATION NUMBER:	UN 3082
DOT PLACARD:	N/A
COMPATIBILITY CATEGORY:	N/A
REPORTABLE QUANTITY	5000 lbs. (2270 kg)
EMERGENCY RESPONSE GUIDE	171

15. REGULATORY INFORMATION**SARA SECTION 313 - TOXIC CHEMICALS:**

This product contains toxic chemicals under SARA Section 313 and 40 CFR Part 372.

<u>Chemical Name</u>	<u>CAS number</u>	<u>Concentration</u>
Ethylene glycol	107-21-1	70-100%

SARA SECTION 311 - HAZARD CATEGORIES:

This product may meet one or more of the criteria for the hazard categories defined in 40 CFR Part 370 as established by Sections 311 and 312 of SARA as indicated below:

YES	IMMEDIATE (ACUTE) HEALTH HAZARD	NO	SUDDEN RELEASE OF PRESSURE HAZARD
YES	DELAYED (CHRONIC) HEALTH HAZARD	NO	REACTIVE HAZARD
NO	FIRE HAZARD		

SARA SECTION 302 - EXTREMELY HAZARDOUS WASTE:

This product is not known to contain any components in concentrations greater than one percent that are listed as Extremely Hazardous Substances in 40 CFR Part 355 pursuant to the requirements of Section 302(a) of SARA.

CLEAN WATER ACT (CWA):

Under the CWA, discharges of fluids to surface water without proper Federal and State permits must be reported immediately to the National Response Center at (800) 424-8802.

CERCLA HAZARDOUS SUBSTANCES:

As defined by CERCLA, the term "hazardous substance" does not include any ingredients or fraction thereof, which is not otherwise specifically listed or designated as a hazardous substance except ethylene glycol: Component RQ 5,000 lbs.

U.S. TSCA INVENTORY

All substances are on the TSCA Inventory: Ethylene glycol is also known as Ethanol, 2-(2-butoxyethoxy)-

CALIFORNIA PROPOSITION 65

This product contains no ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute.

NEW JERSEY or PENNSYLVANIA RIGHT-TO-KNOW LABEL

Antifreeze; ethylene glycol (0878) 90-96.99 wt% Special hazard
1,2-ethanediol (107-21-1) 90-96.99 wt %

ADDITIONAL REGULATORY REMARKS

None.

Product Code 13605

Sourcing K

16. OTHER INFORMATION

The information in this Material Safety Data Sheet should be provided to all who will use, handle, store, transport, or otherwise be exposed to this product. This information was prepared for the guidance of plant engineering, operations and management and for persons working with or handling this product. Lubricants USA believes this information to be reliable and up to date as of the date of publication, but makes no warranty that it is.

NFPA HAZARD RATING	least - 0	slight - 1	moderate - 2	high - 3	extreme - 4
HMIS HEALTH RATING	least - 0	slight - 1	moderate - 2	high - 3	extreme - 4

AP = approximately EQ = equal > = greater than < = less than NA = not applicable
 ND = no data NE = not established

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| ACGIH = American Conference of Governmental Industrial Hygienists | AIHA = American Industrial Hygiene Association |
| CERCLA = Comprehensive Environmental Response, Compensation and Liability Act (1980) | HMIS = Hazardous Materials Information System |
| EPA = Environmental Protection Agency | NFPA = National Fire Protection Association |
| IARC = International Agency for Research on Cancer | NLGI = National Lubricating Grease Institute |
| NIOSH = National Institute of Occupational Safety and Health | NTP = National Toxicology Program |
| NPCA = National Paint and Coating Manufacturers Association | RQ = Reportable quantity |
| OSHA = Occupational Safety and Health Administration | TSCA = Toxic Substance Control Act |
| SARA = Superfund Amendments and Reauthorization Act (1986) | |