

NSN 6850-00-664-1409/NSN 6850-00-664-1403
MATERIAL SAFETY DATA SHEET
NUGENTEC 100 PROFESSIONAL CENTER DR. SUITE 101 ROHNERT PARK CA 945928

Revised: 15 JUL 2009

SECTION 1: PRODUCT IDENTIFICATION & EMERGENCY INFORMATION**PRODUCT NAME:** Antifreeze Ethylene Glycol Based Concentrate**CHEMICAL NAME:** Mixture**EMERGENCY TELEPHONE NUMBER:** CHEMTREC 800-424-9300**Additional Health Safety Information:**

Monday - Friday, 8 a.m. - 5 p.m. Mountain Standard Time 707 238-5165

SECTION 2: COMPONENTS AND HAZARD FORMATION

This product is hazardous as defined in 29 CFR 1910.1200.

COMPONENTS	CAS No. OF COMPONENTS	% By Weight	OSHA PEL	ACGIH TLV (STEL)
1,2-Ethanediol	107-21-1	>90%	125 mg/m ³	127 mg/kg
2,2'-oxybis-ethanol	111-46-6		NA	NA
Water	7732-18-5		NA	NA
Sodium Hydroxide	1310-73-2		2 mg/m ³	NA
Methyl Alcohol	67-56-1		200ppm; 260 mg/m ³	200 ppm;(250 ppm)
Additive mixture (inhibitor)	Proprietary	2%	N/E	N/E

NA = Not Available

N/E = Not Established

SECTION 3: HEALTH INFORMATION & PROTECTION**WARNING!****Eye Contact:** May cause slight irritation.**Skin Contact:** Can cause irritation. Prolonged exposure or repeated contact may cause dermatitis. A more severe response may occur if skin is abraded (scratched or cut). May be absorbed through the skin.**Inhalation:** Short-term harmful health effects are not expected from vapors generated at ambient temperatures. Overexposure can cause respiratory tract irritation. May produce symptoms of central nervous system (CNS) depression including headache, dizziness, nausea, loss of sense of balance, drowsiness, visual disturbances, unconsciousness, and death. Can cause pulmonary edema if aspirated into lungs.**Ingestion:** Can cause (CNS) symptoms similar to those by inhalation followed by rapid breathing, increased heart rate, possible toxicity to the kidney, decreased urine volume and severe metabolic acidosis. Lethal dose of ethylene glycol in humans is 100ml (3-4 ounces).**Section 4: FIRST AID MEASURES****Eye Contact:** Flush immediately with large amounts of water for at least 15 minutes, occasionally lifting upper and lower lids. Get prompt medical attention.**Skin Contact:** Immediately remove excess chemical and contaminated clothing. Wash contaminated skin with mild soap and water. Seek medical attention if redness or irritation occurs. Launder contaminated clothing before reuse. Discard contaminated leather goods (gloves, shoes, belts, wallets, etc.)**Inhalation:** Using proper respiratory protection, immediately remove the affected victim from exposure. Keep at rest. Administer artificial respiration if breathing is stopped. Call for prompt medical attention.**Ingestion:** If the individual is conscious, give water to dilute the stomach contents. Induce vomiting; have victim lean forward to reduce risk of aspiration. Seek prompt medical attention. DO NOT attempt to give an unconscious person anything by mouth.**SECTION 5: FIRE AND EXPLOSION HAZARD DATA****Flash Point:** 116°C, 241°F (Ethylene glycol) **Method of Determination:** ASTM D93**Flammable Limits:** LEL: 3.2% (V) (Ethylene glycol) UEL: 15.3% (V) (Ethylene glycol)**Fire Point:** Not Available **Method of Determination:** Not Available**Autoignition Temperature:** Not Available**Extinguishing media:** Alcohol resistant foam, dry chemical or CO₂. Water spray or fog may be used. Do not use direct water stream, as it will spread the fire.**Hazardous decomposition products:** May produce carbon monoxide, and carbon dioxide. HCN is possible in reducing atmospheres.**Fire fighting:** Fire fighters should wear self-contained breathing apparatus, in the positive pressure mode with full-face piece, when there is a possibility of exposure to smoke, fumes or hazardous decomposition products. Use water spray to cool fire-exposed surfaces and to protect personnel. Sealed containers may be cooled with water spray**SECTION 6: ACCIDENTAL RELEASE MEASURES****LAND SPILL**

Eliminate sources of ignition. Prevent additional discharge of material, if possible to do so without hazard. Material poses a slipping hazard; use caution when cleaning up spills. For small spills implement cleanup procedures; for large spills implement cleanup procedures and, if in a public area, keep the public away and advise authorities. Also, if this product is subject to CERCLA reporting (see Section 14 & 15) notify the National Response Center. Prevent liquid from entering sewers, watercourses, or low areas. Contain spilled liquid with sand or earth. Recover by pumping or with a suitable absorbent. If the liquid is too viscous for pumping, scrape it up. Consult an expert on disposal of recovered material and ensure conformity to local, State, or Federal disposal regulations.

WATER SPILL

Remove from surface by skimming or with suitable absorbent. If allowed by local authorities and environmental agencies, sinking and/or suitable dispersants may be used in non-confined waters. Consult an expert on disposal of recovered material and ensure conformity to local, State and Federal disposal regulations.

SECTION 7: STORAGE AND HANDLING**Handling:** Keep containers closed when not in use. Hands should be washed thoroughly after handling material. Do not store or handle near open flame, heat or other sources of ignition.**EMPTY CONTAINER WARNING:** Empty containers retain product residue (liquid and/or vapor), which may exhibit the hazards of the material. DO NOT pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death. Empty drums should be completely drained, properly bunged, and promptly returned to a drum reconditioner, or properly disposed of.**Electrostatic accumulation hazard:** Use proper bonding and/or grounding procedure.**Storage:** Store containers in a cool, dry, ventilated, fire resistant area, away from sources of ignition and incompatible materials.**Storage temperature:** Ambient**Storage/Transport pressure mmHg:** Atmospheric**Loading/Unloading Temperature:** Ambient**SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION****EXPOSURE CONTROLS**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.

PERSONAL PROTECTION**Eye Protection:** Safety glasses with side shields are recommended for normal use. Goggles and a face shield should be used if there is a chance of liquid splashing or spray.**Skin Protection:** Recommend the use of chemical resistant gloves such as rubber, neoprene or vinyl. Long sleeve shirt is also recommended.**Respiratory Protection:** Use a NIOSH/MSHA approved respirator that provides adequate protection if the recommended exposure limit is exceeded. The ACGIH and OSHA recommended Exposure Limits: for Ethylene Glycol - ACGIH TLV-127 mg/kg, OSHA PEL- 125 mg/m³; Sodium Hydroxide - OSHA TWA 2 mg/m³; Methyl Alcohol - OSHA TWA 200 ppm, 260 mg/m³, ACGIH TWA 200 ppm, STEL 250 ppm.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Clear, green with a mild odor
PH (50%): 10.6
RESERVE ALKALINITY: 10.8 min
VAPOR DENSITY (AIR=1): N/A
EVAPORATION RATE: N/A
SOLUBILITY IN WATER: Soluble
FLASH POINT: 116°C, 241°F (Ethylene glycol), ASTM D93

SPECIFIC GRAVITY (H₂O=1): 1.127
VAPOR PRESSURE (mmHg): N/A
MELTING POINT: N/A
VISCOSITY: N/A
BOILING POINT: N/A

SECTION 10: STABILITY AND REACTIVITY

Stability: This product is stable
Incompatible materials: Oxidizing agents, Acids, Bases

SECTION 10: STABILITY AND REACTIVITY (cont)

Hazardous polymerization: Hazardous polymerization will not occur under normal working conditions
Conditions to avoid (instability): None

SECTION 11: TOXICOLOGICAL INFORMATION

Oral Toxicity: The LD50 for 1,2-ethanediol (rat) is 4700mg/kg; 2,2'-oxybis-ethanol (rat) is 12.6 g/kg based on component data.
Eye Irritation: May be a mild eye irritant, based on component data.
Skin Irritation: May cause skin irritation, based on component data. Prolonged or repeated contact of large amounts may result in the absorption of harmful amounts of ethylene glycol. Persons with skin conditions should limit contact with this material.
Inhalation Effects: Minimal evidence for birth defects were detected in the offspring of mice exposed to aerosol concentration up to 2500mg/m3. 6-hrs/ day during gestation. Based on component data.
Carcinogenicity: No data.
Mutagenicity: No data
Reproductive Effects: Ingestion of large amounts of ethylene glycol has been shown to interfere with reproduction in animals.

SECTION 12: ECOLOGICAL INFORMATION

Environmental Fate: Due care should be taken to avoid accidental releases of this material to aquatic and terrestrial environments. Ethylene glycol biodegrades rapidly in soil and water and will not persist in the environment. Ethylene glycol is highly soluble in water. Based on component data.
Bioaccumulation: It is unlikely that ethylene glycol will bioaccumulate in aquatic or terrestrial systems, based on component data.

SECTION 13: DISPOSAL CONSIDERATIONS

To determine the proper method of disposal, refer to RCRA (40 CFR 261) as well as federal EPA and state and local regulations. Conditions of use may cause this material to become a "Hazardous Waste", as defined by state or federal laws. Use approved treatment, transporters and disposal sites in compliance with all applicable laws.

SECTION 14: TRANSPORT INFORMATION

-(Not meant to be all inclusive):
 -The following DOT shipping description applies when shipping quantities greater than 5000 pounds per container:
 -*RQ Environmentally Hazardous Substance, Liquid, N.O.S., 9, UN3082, III (Ethylene Glycol)*
 -Non regulated when shipping less than 5000 pounds per container.
 -*NFPA/HMIS Rating: Health 2, Flammability 1, Reactivity 0*

SECTION 15: REGULATORY INFORMATION

TSCA: Components of this product are listed on the TSCA Inventory.
 TSCA 8(b) Ethylene Glycol
 TSCA 12(b) Section 4

SARA III, Section 313: The following chemicals in this product exceed the de minimus reporting level established: Ethylene Glycol 90-95%
SARA III, Section 311/312: This product is classified into following hazard categories: delayed hazard.

CERCLA: Stationary Reportable Quantities

Component	Reportable Quantity (RQ)	Units	Reportable Quantity (RQ)	Units
Ethylene glycol	5000	Lbs	2268	Kilograms
Phosphoric acid	5000	Lbs	2268	Kilograms
Potassium hydroxide	1000	Lbs	454	Kilograms
Sodium hydroxide	1000	Lbs	454	Kilograms

SECTION 16: OTHER INFORMATION**HAZARD RATING SYSTEMS**

This information is for people trained in:
 National Paint & Coatings Association's (NPCA)
 Hazardous Materials Identification System (HMIS)
 National Fire Protection Association (NFPA 704)

	NPCA-HMIS	Identification of the Fire Hazards of Materials NFPA 704	KEYS
HEALTH	2	1	4 = Severe
FLAMMABILITY	1	1	3 = Serious
REACTIVITY	0	0	2 = Moderate
			1 = Slight
			0 = Minimal

NOTATIONS

The information and recommendations contained herein are to the best of Delta's knowledge and belief, accurate and reliable as of the date issued. Delta does not warrant or guarantee their accuracy or reliability, and Delta shall not be liable for any loss or damage arising out of the use thereof.

The information and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use. If the buyer repackages this product, legal council should be consulted to ensure that proper health, safety and other necessary information is included on the container.

The Hazardous Materials Identification System (HMIS) and National Fire Protection Association (NFPA) ratings have been included by Delta to provide additional health and hazard classification information. The ratings recommended are based upon the criteria supplied by the developers of these rating systems, together with Delta's interpretation of the available data.

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Supersedes: None