1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Trade name	:	ETHYLENE GLYCOL 60/40
CAS Number:	:	107-21-1
Chemical characterization	:	Ethylene Glycols
Chemical name	:	Ethylene Glycol
Synonyms	:	All Grades includes: Antifreeze, High Purity, Electronic
Identified uses	:	Monomer; Intermediate; Functional Fluids
Prohibited uses	:	Aerosol applications such as theater fogs, linen sprays, pepper sprays, air sanitizers; Chafing fuels for warming foods; Deicer applications for use on roadways and pedestrian walkways; Manufacture/Formulation of deicer or anti-icing products for use on aircraft or runways

Company Address
Alliance Chemical
204 S. Edmond St.
Taylor, Texas 76574

Company Telephone
Customer Service 512-365-6838
alliance@alliancechemical.com

Emergency telephone number
CHEMTEL (800)255-3924

2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity; Oral	Category 4
Skin irritation	Category 2
Specific target organ toxicity - single exposure; Oral Central nervous system, Kidney, Blood	Category 1
Specific target organ toxicity - repeated exposure; Oral Kidney	Category 2

Label elements

Hazard symbols :

Signal word : Danger

Hazard Statements : H302 Harmful if swallowed.
H315 Causes skin irritation.
H370 Causes damage to organs (Central nervous system, Kidney, Blood) if swallowed.
H373 May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.

Precautionary Statements : **Prevention**
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response
P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P330 Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/doctor.
P314 Get medical advice/ attention if you feel unwell.

Storage
P405 Store locked up.

Disposal
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

No additional information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Components

Chemical name	CAS-No. EC-No.	Weight %	Component Type
Ethylene glycol	107-21-1	50 - 70 %	A
Diethylene Glycol	111-46-6	<=0.5 %	C

Key:
(A) Substance
(C) Impurity

4. FIRST AID MEASURES

General advice : Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid.
Show this material safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If overcome by exposure, remove victim to fresh air immediately.
If breathing is difficult, give oxygen.

In case of skin contact : Wash thoroughly with soap and water.

In case of eye contact : Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists, seek medical attention.

If swallowed : Rinse mouth with water.
Consult a physician if necessary.

Notes to physician

Symptoms : May cause irritation to the skin. This irritation can result in redness and swelling of the skin. Repeated contact with the skin may cause it to become dry and cracked.
Kidney Damage
central nervous system effects

Hazards : Harmful if swallowed.
Causes skin irritation.

Causes damage to organs.
May cause damage to organs through prolonged or repeated exposure.

Treatment : There is no specific antidote.
Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : SMALL FIRE: Use dry chemicals, CO2, water spray or alcohol-resistant foam. LARGE FIRE: Use water spray, water fog or alcohol-resistant foam.

Unsuitable extinguishing media : Even if material is water soluble, may not be practical to extinguish fire by water dilution.

Specific hazards during fire fighting : Ethylene glycol mist in air is a moderate fire and explosion hazard.
Individuals should perform only those fire-fighting procedures for which they have been trained. Fire fighters should wear self-contained breathing apparatus in the positive pressure mode with a full face piece when there is a possibility of exposure to smoke, fumes or hazardous decomposition products. Cool tanks and containers exposed to fire with water.
Cool containers with flooding quantities of water until well after fire is out.

Special protective equipment for fire-fighters : Wear an approved positive pressure self-contained breathing apparatus and firefighter turnout gear.
Structural firefighter's protective clothing will only provide limited protection.

6. ACCIDENTAL RELEASE MEASURES

Methods for containment / Methods for cleaning up : Eliminate all sources of ignition.
All equipment used when handling this product must be grounded.
Do not touch or walk through spilled material.
Stop leak if you can do it without risk.
Prevent entry into waterways, sewers, basements or confined areas.
A vapor suppressing foam may be used to reduce vapors.
Absorb or cover with dry earth, sand or other non-combustible

material and transfer to containers.
Use clean non-sparking tools to collect absorbed material.
For large spills, dike and pump into properly labeled containers for reclamation or disposal. For small spills, soak up with absorbent material and place in properly labeled containers for disposal.
Report spills or leaks to the proper regulatory authorities.

7. Handling and storage

Precautions for safe handling

Advice on safe handling : Avoid open heating or agitation that may generate vapors or mists.
Do not handle near heat, sparks, or flame. Avoid contact with incompatible agents. Use only with adequate ventilation/personal protection. Avoid contact with eyes, skin and clothing. Do not enter storage area unless adequately ventilated. Metal containers involved in the transfer of this material should be grounded and bonded.
Containers, even those that have been emptied, will retain product residue and vapor and should be handled as if they were full. Do not eat, drink or smoke in areas where this material is used.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store containers in a cool, dry, ventilated, fire resistant area away from sources of ignition and incompatible materials.
Ground all equipment containing this material.
Keep container tightly closed and properly labeled.

Specific end use(s)

: See Section 1.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Ingredients with workplace control parameters

Consult local authorities for acceptable exposure limits.

Exposure controls

Engineering measures

General room ventilation plus local exhaust at points of emission to maintain levels of airborne contaminants below exposure limits.

Personal protective equipment

Respiratory protection	:	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Where unknown concentrations are encountered or during an emergency, use NIOSH approved supplied air respirators.
Hand protection	:	Wear chemical resistant gloves such as rubber, neoprene or vinyl.
Eye and face protection	:	Safety glasses are recommended for normal use. Use splash goggles when eye contact due to splashing or spraying liquid is possible.
Skin and body protection	:	Appropriate protective clothing should be worn to prevent skin contact. The equipment must be cleaned thoroughly after each use.
Hygiene measures	:	Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Take off contaminated clothing and wash before reuse. Shower after work using plenty of soap and water.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid at 20 °C (1,013.25 hPa)
Color	:	Clear, colorless.
Odor	:	Slight sweet odor.
Odor Threshold	:	no data available
Flash point	:	111 °C at 1,013.25 hPa (760.00 mm Hg)

Lower explosion limit	:	3.2 vol%
Upper explosion limit	:	15.3 vol%
Flammability (solid, gas)	:	Not applicable
Autoignition temperature	:	398 °C at 1,013.25 hPa
Decomposition temperature	:	not determined
Melting point/range	:	-52.8°C
Boiling point/boiling range	:	197.4 °C at 1,013 hPa
Vapor pressure	:	0.1 hPa at 25 °C
Density	:	1.11 g/cm3 at 20 °C (Water = 1)
Water solubility	:	Miscible in water.
Partition coefficient: n-octanol/water	:	log Pow: -1.36
Viscosity, kinematic	:	145 mm2/s at 25 °C
Relative vapor density	:	2.14 (Air = 1.0)
Other Information	:	No additional information available.

10. STABILITY AND REACTIVITY

Hazardous reactions	:	Hazardous polymerization will not occur. The product is stable.
Conditions to avoid	:	Heat, sparks, open flames and strong oxidizing conditions.
Materials to avoid	:	Strong oxidizer. Strong acids. Permanganates. Peroxides. Dichromates. Reactive sodium compounds. Sulfur compounds.

Alkali metals.
Nitrates.

Hazardous decomposition products	:	Carbon Monoxide and Carbon dioxide.
Thermal decomposition	:	Carbon oxides (CO, CO2)

11. TOXICOLOGICAL INFORMATION

Product Summary : The below given information is based on the assessment of the product including impurities.

Acute toxicity

Acute oral toxicity : Classified
Harmful if swallowed.
Ingestion may include inebriation, nausea and vomiting, metabolic acidosis, and CNS depression. Tachycardia, hypertension, hyperventilation, hypoxia and renal failure are also possible.

: LD50 (Oral): 7,712 mg/kg
Species: Rat

: Mean lethal dose (estimated): 1,400 - 1,600 mg/kg
Species: Humans

Acute inhalation toxicity : Based on acute toxicity values, not classified.

: LC50: > 2.5 mg/l
Exposure time: 6 HOURS
Species: Rat

Acute dermal toxicity : Based on acute toxicity values, not classified.

: LD50: > 3,500 mg/kg
Species: Mouse

Skin corrosion/irritation : Classified
Causes skin irritation.

Serious eye damage/eye irritation : Based on eye irritation values, not classified.

Respiratory or skin sensitization	:	Skin sensitization Not classified No adverse effect observed.
	:	Respiratory sensitization Not classified no data available
Chronic toxicity		
Carcinogenicity	:	Not classified Contains a substance that has a positive carcinogenicity study. Inconsistent reports of bladder tumors in rats that received chronic high oral exposure to diethylene glycol can not be attributed to diethylene glycol and are not evidence of a primary carcinogenic effect but rather due to the development of bladder stones and their mechanical damage.
Germ cell mutagenicity	:	Not classified No adverse effect observed.
Reproductive toxicity		
Effects on fertility / Effects on or via lactation	:	Not classified May cause toxicity to reproduction at high oral doses.
Effects on Development	:	Not classified May be toxic to embryo/fetal development and teratogenic at high exposure levels. (Based on Diethylene Glycol)
Target Organ Systemic Toxicant - Single exposure	:	Classified, Causes damage to organs., Ingestion may include inebriation, nausea and vomiting, metabolic acidosis, and CNS depression. Tachycardia, hypertension, hyperventilation, hypoxia and renal failure are also possible.
	:	Exposure routes: Ingestion Target Organs: Central nervous system, Kidney
Target Organ Systemic Toxicant - Repeated exposure	:	Classified, May cause damage to organs through prolonged or repeated exposure., Kidney and bladder effects due to the formation of oxalate crystals may occur following prolonged exposure to high oral doses.
	:	Exposure routes: Ingestion

Target Organs: Kidney

Aspiration hazard : Based on physico-chemical values or lack of human evidence, not classified.

12. Ecological information

Ecotoxicology Assessment

Short-term (acute) aquatic hazard : Based on acute aquatic toxicity values, not classified.

Long-term (chronic) aquatic hazard : Not classified, based on readily biodegradability and low acute toxicity.

Toxicity to fish : Low acute toxicity to fish

Toxicity to daphnia and other aquatic invertebrates : Low acute toxicity to aquatic invertebrates.

Toxicity to algae : Low toxicity to algae.

Toxicity to bacteria : Low toxicity to sewage microbes.

Toxicity to fish (Chronic toxicity) : Low chronic toxicity to fish.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Low chronic toxicity to aquatic invertebrates.

Persistence and degradability

Biodegradability : Rapidly degradable.

: Biodegradation: 90 - 100 %
Testing period: 10 d

Stability in water : no data available

Stability in soil : Low potential for soil adsorption expected

Bioaccumulative potential

Bioaccumulation : This material is not expected to bioaccumulate.

: Species: Leuciscus idus (Golden orfe)
Bioconcentration factor (BCF): 10

Mobility in soil

Distribution among environmental compartments : no data available

Other adverse effects

Environmental fate and pathways : No additional information available.

Other information

Additional ecological information : No additional information available.

13. Disposal considerations

Waste treatment methods

Product : Dispose of all waste and contaminated equipment in accordance with all applicable federal, state and local health and environmental regulations. Recovery and reuse, rather than disposal, should be the ultimate goal of handling efforts. The materials resulting from clean-up operations may be hazardous wastes and therefore, subject to specific regulations.
Comply with federal, state, or local regulations for disposal.

14. TRANSPORT INFORMATION

DOT: NOT REGULATED
TDG: NOT REGULATED
IATA: NOT REGULATED
IMDG/IMO: NOT REGULATED

15. REGULATORY INFORMATION

TSCA 12b

No substances are subject to TSCA 12(b) export notification requirements.

Significant New Use Rules (SNUR)

No substances are subject to a Significant New Use Rule.

SARA 302/304

This product contains no known chemicals regulated under SARA 302/304.

SARA 311/312

Based upon available information, this material is classified as the following health and/or physical hazards according to Section 311 & 312:

Acute toxicity (any route of exposure) Skin corrosion or irritation Specific target organ toxicity (single or repeated exposure)

SARA 313

This product contains no known chemicals regulated under SARA 313.

State Reporting

This material contains the following chemical substance which is regulated under California Proposition 65. However, it is the responsibility of the California business owner to develop his or her own regulatory compliance plan. Contact Product Safety for further information at product.lyb.com.

Substance	CASRN	Type of Toxicity			
		Carcinogen	Developmental	Repro-Male	Repro-Female
Ethylene glycol	107-21-1		X		

This product contains no known chemicals regulated by New Jersey's Worker and Community Right to Know Act.

No components are subject to the Massachusetts Right to Know Act.

This product contains no known chemicals regulated by Pennsylvania's Right to Know Act.

Other international regulations

Global Inventory Status
The ingredients of this product are compliant with the following chemical inventory requirements or exemptions.

*Additional Explanatory Status Statements follow the table, as necessary.

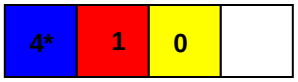
Country/Region	Inventory	Status Description
Australia	AICS	Compliant
Canada	DSL	Compliant
China	IECSC	Compliant
Europe	REACH	See REACH Compliance Statement
Japan	ENCS	Compliant
Korea	KECI	Compliant
New Zealand	NZIoC	Compliant
Philippines	PICCS	Compliant
United States of America	TSCA	Compliant
Taiwan	TCSCA	Compliant

16. OTHER INFORMATION

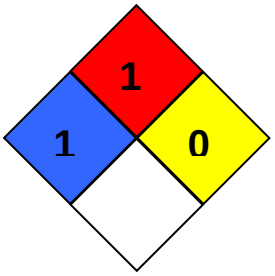
Material safety datasheet sections which have been updated:

Revised Section(s): 14 15 16

HMIS Classification : Health Hazard: 4
Chronic Health Hazard: *
Flammability: 1
Physical hazards: 0



NFPA Classification : Health Hazard: 1
Fire Hazard: 1
Instability: 0



Further information

HMIS rating scale (0 = minimal hazard; 4 = severe hazard)
NFPA rating scale (0 = minimal hazard; 4 = severe hazard)

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Numerical Data Presentation
The presentation of numerical data, such as that used for physical and chemical properties and toxicological values, is expressed using a comma (,) to separate digits into groups of three and a period (.) as the decimal marker. For example, 1,234.56 mg/kg = 1 234,56 mg/kg.

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End of Material Safety Data Sheet