Material Safety Data Sheets

Revision 2

1. IDENTIFICATION

Product Name	**Ethylene Glycol Extra pure**
Other Names	1,2-Dihydroxyethane; 1,2-Ethanediol; Ethylene glycol; Glycol; Monoethylene glycol
Code No	100-EG-2
Uses	Coolant and antifreeze; heat-transfer agent; brake fluids; solvent; humectant.
Chemical Family	No Data Available
Chemical Formula	$C_2H_6O_2$
Chemical Name	Mono Ethylene Glycol
Company	Arman sina.co
Contact Information	info@armansina.com www.armansina.com

2. HAZARD IDENTIFICATION

Hazard Categories	Harmful
Risk Phrases	Harmful if swallowed.
Safety Phrases	Keep away from food, drink and animal feeding stuffs. Keep out of reach of children. Wear suitable protective clothing.

Symbol

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Ethylene Glycol	$C_2H_6O_2$	107-21-1	100.00 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	Rinse mouth with water. Give plenty of water to drink. If vomiting occurs give further water. Seek medical advice.
Eye	Irrigate with copious quantities of water for at least 15 minutes. Eyelids to be held open. In all cases of eye contamination it is a sensible precaution to seek medical attention.
Skin	If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. If irritation occurs seek medical attention. Wash contaminated clothing before re-use.
Inhaled	Remove victim from exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If breathing laboured and patient cyanotic (blue), ensure airways are clear and have qualified person give oxygen through a face mask. If breathing has stopped apply artificial respiration at once. In event of cardiac arrest, apply external cardiac massage. Seek immediate medical attention.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of patient. Following ingestion admission to hospital should be the first priority. Gastric lavage or emesis should be performed as soon as possible to minimise absorption and is recommended within four hours of ingestion. Adsorbents such as activated charcoal may also be of value. Ethanol may be given intravenously as an antidote to prevent build-up of toxic metabolites and increase excretion of unchanged ethylene glycol by the kidneys. Uraemia, pulmonary oedema and metabolic acidosis can occur and dialysis, preferably haemodialysis, may be employed to treat these complications and to remove ethylene glycol and its metabolites from the blood.
Medical Conditions Aggravated by Exposure	No information available on medical conditions aggravated by exposure to this product.

5. FIRE FIGHTING MEASURES

General Measures	Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk.
Flammability Conditions	Product is a combustible liquid.
Extinguishing Media	For large fires use water fog, fine water spray or foam. For small fires use foam, dry chemical, carbon dioxide or water spray. Do NOTuse water jets. Keep containers cool with water spray.
Fire and Explosion Hazard	Heating can cause expansion or decomposition leading to violent rupture of containers.
Hazardous Products of Combustion	On burning will emit toxic fumes including those of carbon monoxide and carbon dioxide.
Special Fire Fighting Instructions	Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.
Personal Protective Equipment	Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves) or chemical splash suit.
Flash Point	111ºC
Lower Explosion Limit	3.2 %
Upper Explosion Limit	12.8 (ethylene glycol vapour in air) %
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Avoid accidents, clean up immediately. Eliminate all sources of ignition. Increase ventilation. Do not touch or walk through spilled material. Use clean, non-sparking tools and equipment. Wear protective equipment to prevent skin and eye contamination and inhalation of vapours.

Clean Up Procedures	Contain - prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). Collect and seal in properly labelled drums for disposal.
Containment	Stop leak if safe to do so.
Decontamination	Wash area down with excess water to remove residual material.
Environmental Precautionary Measures	Do not allow product to reach drains, sewers or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Authority.
Evacuation Criteria	Evacuate all unnecessary personnel.

7. HANDLING AND STORAGE

Handling	Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Do not inhale product vapours. Use with local exhaust ventilation. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use. Do not dispose of material to sewers or waterways.
Storage	Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. Store out of direct sunlight. Store away from oxidising agents and foodstuffs. This product is classified as a 'C1' Combustible Liquid for the purpose of storage and handling in accordance with the requirements of AS1940.
Container	Store in original packaging as approved by manufacturer.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	The following exposure standard has been established by The Australian Safety and Compensation Council (ASCC); Ethylene glycol (vapour) CAS number 107-21-1 TWA = 20ppm (52mg/m3) STEL = 40ppm (104mg/m3) Ethylene glycol (particulate) CAS number 107-21-1 TWA = 10mg/m3 Skin Absorption Notice - absorption through the skin may be a significant source of exposure. The exposure standard is invalidated if such contact should occur. NOTE: The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. These exposure standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.
Exposure Limits	No Data Available
Biological Limits	No information available on biological limit values for this product.
Engineering Measures	Ensure ventilation is adequate to maintain air concentrations below Exposure Standard. If material is used at elevated temperatures or as an aerosol, use with local exhaust ventilation or while wearing respirator. Vapour heavier than air - prevent concentration in hollows or sumps. DO NOT enter confined spaces where vapour may have collected. Keep containers closed when not in use.
Personal Protection Equipment	RESPIRATOR: Wear an approved respirator with suitable filter for organic gases and vapours if engineering controls are inadequate (AS1715/1716). EYES: Chemical splash goggles and face shield (AS1336/1337). HANDS: Available information (2) suggests that gloves made from laminated LCP(TM) film, Nitrile, unsupported Neoprene, supported PVC, natural rubber latex or Neoprene latex blend should be suitable for intermittent contact. (AS2161). CLOTHING: Chemical-resistant coveralls and safety footwear (AS3765/2210).
Work Hygienic Practices	No Data Available

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	**Liquid**
Appearance	**Slightly viscous liquid.**
Odour	**Odourless**
Colour	**Colourless**
pH	**No Data Available**
Vapour Pressure	**No Data Available**
Relative Vapour Density	**2.2 Air = 1**
Boiling Point	**1.12**
Melting Point	**1.12**
Freezing Point	**No Data Available**
Solubility	**Miscible**
Specific Gravity	**1.12**
Flash Point	**No Data Available**
Auto Ignition Temp	**No Data Available**
Evaporation Rate	**No Data Available**
Bulk Density	**No Data Available**
Corrosion Rate	**No Data Available**
Decomposition Temperature	**No Data Available**
Density	**No Data Available**
Specific Heat	**No Data Available**
Molecular Weight	**No Data Available**
Net Propellant Weight	**No Data Available**
Octanol Water Coefficient	**No Data Available**
Particle Size	**No Data Available**
Partition Coefficient	**No Data Available**
Saturated Vapour Concentration	**No Data Available**
Vapour Temperature	**No Data Available**
Viscosity	**No Data Available**
Volatile Percent	**nil**
VOC Volume	**No Data Available**
Additional Characteristics	**No Data Available**
Potential for Dust Explosion	**Product is a liquid.**
Fast or Intensely Burning Characteristics	**No Data Available**
Flame Propagation or Burning Rate of Solid Materials	**No Data Available**
Non-Flammables That Could Contribute Unusual Hazards to a Fire	**No Data Available**
Properties That May Initiate or Contribute to Fire Intensity	**Heating can cause expansion or decomposition leading to violent rupture of containers.**
Reactions That Release Gases or Vapours	**No Data Available**
Release of Invisible Flammable Vapours and Gases	**No Data Available**

10. STABILITY AND REACTIVITY

General Information	**Combustible liquid.**
Chemical Stability	**Product is stable under normal conditions of use, storage and temperature.**

Conditions to Avoid	Excessive heat will lead to accelerated oxidative degradation.
Materials to Avoid	Reacts with strong oxidising agents.
Hazardous Decomposition Products	Carbon monoxide and carbon dioxide.
Hazardous Polymerisation	No Data Available

11. TOXICOLOGICAL INFORMATION

General Information	Acute toxicity / Chronic toxicity Estimated minimum lethal dose (human) following ingestion of ethylene glycol is thought to be greater than 1 mL/kg. Skin Irritation (rabbit, Draize): Mild irritant Eye Irritation: (rabbit, Draize): Mild irritant High doses of ethylene glycol in rats and mice have resulted in reproductive and developmental toxicity following exposure by the oral and inhalation (respirable aerosol) routes. These particular data sets are not considered relevant to normal industrial use but do emphasise the need for care in handling. Data from animal and human studies to date do not provide evidence that exposure to ethylene glycol has mutagenic or carcinogenic effects. Long Term Effects: Repeated exposure may produce adverse effects on the central nervous system, liver and kidneys.
EyeIrritant	May be an eye irritant.
Ingestion	Harmful if swallowed. Initial symptoms following a large dose (>100 mL) are those of alcohol intoxication (without the odour of ethanol) progressing to vomiting, headache, stupor, convulsions and unconsciousness. Respiratory system involvement may occur 12 - 24 hours after ingestion. Symptoms may include hyperventilation and rapid shallow breathing. From 24 - 72 hours the patient may experience a decrease in urine output, flank pain progressing to renal failure which may be permanent. Death may occur from respiratory failure or pulmonary oedema.
Inhalation	Inhalation of vapours (from heating), mists or aerosols can produce respiratory irritation and may result in headaches, dizziness and possible nausea.
SkinIrritant	Contact with skin may result in irritation. Will have a degreasing action on the skin. Repeated or prolonged skin contact may lead to irritant contact dermatitis. Can be absorbed through the skin but not readily absorbed in toxic amounts (symptoms may be similar to those described for "INGESTION").
Carcinogen Category	No Data Available

12. ECOLOGICAL INFORMATION

Ecotoxicity	Ecotoxicity 96 hr LC50 (fish species, marine water): >10000 mg/L. 96 hr LC50 (fish species, fresh water): 8050 mg/L. Non hazardous to aquatic organisms
Persistence/Degradability	The substance is expected to be readily biodegradable according to the AS 4351 Part 2 test method.
Mobility	Log Pow: -1.36. Low bioaccumulation potential. Miscible with water.
Environmental Fate	Avoid contaminating waterways, drains and sewers.
Bioaccumulation Potential	Low bioaccumulation potential.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of in accordance with all local regulations. All empty packaging should be disposed of in accordance with Local Regulations or recycled/reconditioned at an approved facility.
Special Precautions for Land Fill	Contact a specialist disposal company or the local waste regulator for advice. Incinerate at an approved site following all local regulations. This material may be suitable for approved landfill.

14. TRANSPORT INFORMATION

Land Transport

Proper Shipping Name	Mono Ethylene Glycol
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Sea Transport
IMDG

Proper Shipping Name	Mono Ethylene Glycol
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
EMS	No Data Available
Marine Pollutant	No

Air Transport
IATA

Proper Shipping Name	Mono Ethylene Glycol
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

15. OTHER INFORMATION

Revision	2
Key/Legend	< Less Than > Greater Than atm Atmosphere CAS Chemical Abstracts Service (Registry Number) cm Square Centimetres CO2 Carbon Dioxide COD Chemical Oxygen Demand Degrees Celcius Degrees Farenheit g Grams g/cm Grams per Cubic Centimetre g/l Grams per Litre HSNO Hazardous Substance and New Organism IDLH Immediately Dangerous to Life and Health immiscible Liquids are insoluable in each other. inHg Inch of Mercury inH2O Inch of Water K Kelvin

kg Kilogram
kg/m Kilograms per Cubic Metre
lb Pound
LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.
LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.
ltr or L Litre
m Cubic Metre
mbar Millibar
mg Milligram
mg/24H Milligrams per 24 Hours
mg/kg Milligrams per Kilogram
mg/m Milligrams per Cubic Metre
Misc or Miscible Liquids form one homogeneous liquid phase regardless of the amount of either component present.
mm Millimetre
mmH2O Millimetres of Water
mPa.s Millipascals per Second
N/A Not Applicable
NIOSH National Institute for Occupational Safety and Health
NOHSC National Occupational Heath and Safety Commission
OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight