SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name	ETHYLENE GLYCOL
CAS-No.	107-21-1
Product code	AR1294

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Chemical for analysis and production.

1.3 Details of the supplier of the safety data sheet

Company	RCI LABSCAN LIMITED. 24 Rama 1 Road, Pathumwan, Bangkok 10330 Thailand
Telephone number	(662) 613-7911-4
Fax number	(662) 613-7915

1.4 Emergency Telephone Number

Emergency phone	(662) 613-7911-4

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Oral (Category 4), H302

Specific target organ toxicity - repeated exposure (Category 2), Oral, Kidney, H373

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal word	Warning

Hazard statement(s)

H302	Harmful if swallowed.
H373	May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.

Precautionary statement(s)

P260	Do not breathe vapours.
P264	Wash hand thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P301 + P312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P314	Get medical advice/attention if you feel unwell
P330	Rinse mouth.

2.3 Other hazards None

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms 1,2-Dihydroxyethane, Ethane-1,2-diol, Glycol, Ethylene alcohol, Monoethylene glycol.

CAS-No	EC-No	EC-Index-No	Formula	Molecular Weight	Weight %
107-21-1	203-473-3	603-027-00-1	$C_2H_6O_2$	62.07 g/mol	99.5

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Concentration	Classification
Ethylene glycol		
CAS-No 107-21-1 EC-No 203-473-3 EC-Index-No 603-027-00-1	99.5%	Acute toxicity, Oral (Category 4), H302 Specific target organ toxicity - repeated exposure (Category 2), Oral, Kidney, H373

For the full text of the H-Statements mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Move to fresh air in case of accidental inhalation of vapors. Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus.
Skin contact	Remove contaminated clothing and wash affected skin with soap and water. If signs of poisoning appear, treat as for inhalation. Obtain medical attention. Wash contaminated clothing before reuse. Contaminated combustible material, e.g. clothing ignites more readily and burns fiercely.
Eye contact	If the substance has got into the eyes, immediately wash out with plenty of water at least 15 minutes. Obtain medical attention.
Ingestion	Rinse mouth. Immediately make victim drink water (two glasses at the most). Do not induce vomiting. Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus. Obtain medical attention. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in section 2.2 and section 11

4.3 Indication of any immediate medical attention and special treatment needed

Not Available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Extinguish with carbon dioxide, dry chemical or foam. In the event of fire, cool tanks with water spray.

5.2 Special hazards arising from the substance or mixture

Vapors may form explosive mixture with air. Flash back possible over considerable distance.

5.3 Advice for firefighters

Wear self-contained breathing apparatus and protective suit.

5.4 Further information

Standard procedure for chemical fires. Take measures to prevent electrostatic charging. Prevent firefighting water from entering surface water or groundwater.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Do not breathe vapors or spray mist. Wear a positive-pressure supplied-air respirator, flame retardant antistatic protective clothing. Shut off leaks if without risk. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Contain or absorb leaking liquid with sand or earth, consults an expert. Prevent liquid entering sewers, basements and workpits. If substance has entered a water course or sewer or contaminated soil, advise police.

6.3 Methods and materials for containment and cleaning up

Spillage: May react with combustible substances creating fire or explosion hazard and formation of toxic fumes. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Soak up with inert absorbent material (e.g. sand, silica gel). Prevent liquid entering sewers, basements and workpits; vapor may create explosive atmosphere. Transfer to covered steel drums. Dispose of promptly.

6.4 Reference to other sections

For disposal see **Section 13**.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Keep container tightly closed. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only in area provided with appropriate exhaust ventilation. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing. Do not empty into drains.

7.2 Conditions for safe storage, including any incompatibilities

Keep tightly closed in a dry, cool and well ventilated place. Keep away from heat and sources of ignition. Keep out of direct sunlight and away from incompatible materials. Store in original container. Electrical equipment should be protected to the appropriate standard.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)

Application Area	Health Effects	Exposure	Value
Worker	Long-term Local effects	Inhalation	35 mg/m³
Worker	Long-term Systemic effects	Skin contact	106 mg/kg Body weight
Consumer	Long-term Local effects	Inhalation	7 mg/m³
Consumer	Long-term Systemic effects	Skin contact	53 mg/kg Body weight

Predicted No Effect Concentration (PNEC)

Compartment	Value
Aquatic intermittent release	10 mg/l
Fresh water	10 mg/l
Fresh water sediment	20.9 mg/kg
Marine water	1 mg/l

Sewage treatment plant	199.5 mg/kg
Soil	1.53 mg/kg

8.2 Exposure controls

Appropriate engineering controls

The product should only be used in ventilation hoods and fans.

Individual protection measures (Personal protective equipment, PPE)

Eye/face protection

Goggles giving complete protection to eyes.

Skin protection

Chemical resistant apron / corrosive protective clothing, heavy duty work shoes.

Handle with gloves

- Full contact wears gloves from nitrile rubber material.
- Splash contact wears gloves from nitrile rubber material.

The select protective gloves have to satisfy the specifications of EU Directive 89/686 EEC and standard EN 374 derived from it.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. Required when vapor/aerosols are generated filter A (EN 141 or EN 14387).

Environmental exposure controls

Prevent liquid entering sewers, basements and workpits.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance: Form	Liquid
: Color	Colorless
Odour	Odourless
Odour Threshold	Not Available
pH	6.5-7.5 at 100 g/l at 20ºC
Melting point/range	-13 ºC
Boiling point/range	197.6 ºC at 1013 hPa
Flash point	111 ºC (closed cup)
Evaporation rate	Not Available
Flammability (solid, gas)	Not Available
Explosion limits: lower	3.2 % (V)
upper	15.3 % (V)
Vapor Pressure	0.053 hPa at 20ºC
Relative Vapor Density	2.14
Density	1.11 g/ml at 20ºC
Water solubility	Soluble at 20ºC
Partition coefficient (n-octanol/water)	log Pow; -1.36
Auto-Ignition temperature	410 °C
Decomposition Temperature	> 200 - 250 °C
Viscosity	21 mPa.s at 20ºC
Explosive properties	Not Explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.

SECTION 10: Stability and reactivity

10.1 Reactivity

Explosible with air in a vaporous/ gaseous state.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Risk of explosion in contact with perchloric acid.

The substance can react dangerously with aluminium, sodium hydroxide, oxidizing agents, sulfuric acid, chlorosulphuric acid, chromium trioxide, chromyl chloride, potassium dichromate, potassium permanganate, sodium hypochlorite, sodium peroxide, phosphorus pentasulfide, silver chlorate.

10.4 Conditions to avoid

Strong heating.

10.5 Incompatible materials

Aluminium, oxidizing agents, strong acids and strong bases.
Unsuitable working materials: various plastics**.**

10.6 Hazardous decomposition products

Carbon monoxides, Carbon dioxides (Hazardous decomposition products from under fire condition).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD_{LO} (oral, human): 786 mg/kg
LC_{50} (inhalation, rat): >2.5 mg/l / 6 h

Acute oral toxicity

Symptoms: nausea and vomiting.

Acute inhalation toxicity

Not Available.

Skin corrosion/irritation

Not Available.

Serious eye damage/eye irritation

Slight irritant.

Respiratory or skin sensitization

Sensitisation test: Patch test is negative.

Germ cell mutagenicity

Not Available

Carcinogenicity

Not Available

Reproductive toxicity

Not Available

Teratogenicity
Not Available

Specific target organ toxicity (STOT) - single exposure
Not Available

Specific target organ toxicity (STOT) - repeated exposure
Causes damage to organs (Kidney).

Aspiration hazard
Not Available

Further information
After absorption of large quantities: agitation, CNS disorders.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC_{50} Oncorhynchus mykiss: > 18,500 mg/l/96 h
Toxicity to daphnia and other aquatic invertebrates	EC_{50} Daphnia magna: > 100 mg/l/48h
Toxicity to algae	IC_5 Sc.quadricauda: >10,000 mg/l /7d
Toxicity to bacteria	EC_5 Ps. Putida: >10,000 mg/l /16h.

12.2 Persistence and degradability

Biodegradability	100% /10d, Readily biodegradable

12.3 Bioaccumulative potential

Partition coefficient (n-octanol/water)	log Pow: -1.36 (experimental). No bioaccumulation is to be expected (log P o/w <1)

12.4 Mobility in soil
Not Available

12.5 Other adverse effects
Do not allow to enter waters, waste water or soil.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding law and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste or burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Contaminated packaging
Disposal in compliance with official regulations. Handle contaminated packaging as hazardous waste in the same way of the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

SECTION 14: Transport information

Not subject to transport regulations.

SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Not Available

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3

H302	Harmful if swallowed.
H373	May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.

Recommended restrictions

Take notice of labels and safety data sheets for the working.

Reference

Globally Harmonized System of Classification and Labelling of Chemicals (GHS).
Labelling according to EC Directives 67/548 EEC and Regulation (EC) No 1272/2008.
Transportation information according to Recommendations on the Transport of Dangerous Goods, Model Regulations. Twelfth revised edition. United Nations.
Institute for Occupational Safety and Health of the German Social Accident Insurance in Sankt Augustin/Germany, Source: IFA for Databases on hazardous substances (GESTIS).

Further information

Contact to RCI Labscan Limited.

Revision Date

01/07/2018