



SAFETY DATA SHEET TRIETHYLENE GLYCOL REVISION 4, DATE 04 JUL 19

1. IDENTIFICATION

Product Name	Triethylene Glycol
Other Names	1,2-Bis(2-hydroxyethoxy)ethane; Ethylene glycol dihydroxydiethyl ether; Glycol bis(hydroxyethyl) ether; TEG
Uses	Desiccants; solvent and polyols applications.
Chemical Family	No Data Available
Chemical Formula	C ₆ H ₁₄ O ₄
Chemical Name	Ethanol, 2,2'-[1,2-ethanediylbis(oxy)]bis-
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust)

Not Scheduled



Globally Harmonised System

Hazard Classification	Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
Hazard Categories	Acute Toxicity (Oral) - Category 5 Serious Eye Damage/Irritation - Category 2B Specific Target Organ Toxicity (Repeated Exposure) - Category 2

Pictograms



Signal Word	Warning
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Hazard Statements	H303	May be harmful if swallowed.
	H320	Causes eye irritation.
	H373	May cause damage to organs through prolonged or repeated exposure.
Precautionary Statements	Prevention P264	Wash hands thoroughly after handling.
	P260	Do not breathe mist/vapour/spray.
	Response P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P337 + P313	If eye irritation persists: Get medical advice.
	P314	Get medical advice if you feel unwell.
	Disposal P501	Dispose of contents/container in accordance with local / regional / national / international regulations.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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Safe Work Australia

National Guide for Classifying Hazardous Chemicals under the Model WHS Regulations

Hazard Classification	Hazardous according to the criteria of Safe Work Australia under Model WHS Regulations
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3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Triethylene glycol	C6H14O4	112-27-6	<=100 %

4. FIRST AID MEASURES**Description of necessary measures according to routes of exposure**

Swallowed	IF SWALLOWED: Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. Do not induce vomiting. Call a Poison Centre or doctor/physician for advice. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
Eye	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention. *Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin	IF ON SKIN: Remove contaminated clothing and shoes immediately. Wash skin with plenty of soap and running water/shower. If skin irritation occurs, get medical advice/attention. If skin irritation occurs, get medical advice/attention. Wash contaminated clothing and shoes before reuse.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice/attention. Apply resuscitation if victim is not breathing - Administer oxygen if breathing is difficult.
Advice to Doctor	Treat symptomatically.
Medical Conditions Aggravated by Exposure	The material may accentuate any pre-existing dermatitis condition.

5. FIRE FIGHTING MEASURES

General Measures	If safe to do so, move undamaged containers from fire area. Do not approach containers suspected to be hot. Cool containers with water spray until well after fire is out. Avoid spraying water onto liquid pools.
Flammability Conditions	May burn but does not ignite readily. Slight fire hazard when exposed to heat or flame.
Extinguishing Media	Use dry chemical, Carbon dioxide (CO ₂), foam or water spray for extinction - Do not use water jets.
Fire and Explosion Hazard	Heating may cause expansion or decomposition leading to violent rupture of containers. Mists containing combustible materials may be explosive.
Hazardous Products of Combustion	Fire may produce irritating, toxic and/or corrosive fumes, including carbon monoxide, carbon dioxide, other pyrolysis products typical of burning organic material. May emit acrid smoke.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may pollute waterways.
Personal Protective Equipment	Wear self-contained breathing apparatus (SCBA) and chemical splash suit. SCBA and structural firefighter's uniform may provide limited protection.
Flash Point	154 - 177 °C [Closed cup]
Lower Explosion Limit	0.9 %
Upper Explosion Limit	9.2 %
Auto Ignition Temperature	371 °C
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation. ELIMINATE all ignition sources. Do not touch or walk through spilled material - Slippery when spilt. Clean up all spills immediately. Do not breathe vapours and prevent contact with eyes, skin and clothing.
Clean Up Procedures	Collect recoverable product into labelled containers for recycling. Absorb remaining product with earth, sand or other non-combustible material and transfer to labelled containers for disposal (see SECTION 13).
Containment	Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas.
Decontamination	Wash area and prevent runoff into drains.

Environmental Precautionary Measures	Prevent, by any means available, spillage from entering drains or watercourse. If contamination of drains or waterways occurs, advise emergency services.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away.
Personal Precautionary Measures	Control personal contact by using protective equipment (see SECTION 8). Large spill: Wear SCBA and chemical splash suit.

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Do not breathe mist/vapours/aerosols and avoid contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8). Avoid contact with incompatible materials. No smoking, naked lights or ignition sources. Prevent concentration in hollows and sumps. Do NOT enter confined spaces until atmosphere has been checked.
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep containers securely sealed. when not in use. Protect containers against physical damage and check regularly for leaks. Keep away from heat and sources of ignition - No smoking. Keep away from foodstuffs and incompatible materials (see SECTION 10).
Container	Keep in the original container. Check all containers are clearly labelled and free from leaks.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No specific exposure standards are available for this product.
Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	<ul style="list-style-type: none">- Respiratory protection: If risk of overexposure exists, wear an approved respirator. Recommended: Organic vapour/particulate filter respirator (refer to AS/NZS 1715 & 1716).- Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Safety glasses with side shields; Chemical goggles. Do NOT wear contact lenses.- Hand protection: Handle with gloves. Recommended: Wear chemical protective gloves, e.g. PVC.- Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Overalls; PVC apron; Barrier cream. Wear safety footwear or safety gumboots, e.g. Rubber.
Special Hazards Precautions	Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Do NOT allow clothing wet with material to stay in contact with skin. Always wash hands with soap and water after handling. Work clothes should be laundered separately.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Clear liquid
Odour	Odourless or very mild, sweet
Colour	Colourless
pH	7 - 8
Vapour Pressure	1 mmHg (@ 114 °C)
Relative Vapour Density	5.2 Air = 1

Boiling Point	278 - 286 °C
Melting Point	No Data Available
Freezing Point	No Data Available
Solubility	Miscible with water
Specific Gravity	1.13 (Water = 1)
Flash Point	154 - 177 °C [Closed cup]
Auto Ignition Temp	371 °C
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	150.20
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	No Data Available
VOC Volume	No Data Available
Additional Characteristics	Material is hygroscopic, i.e. absorbs moisture from the air.
Potential for Dust Explosion	Not applicable.
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	May burn but does not ignite readily. Slight fire hazard when exposed to heat or flame.
Reactions That Release Gases or Vapours	Fire/decomposition may produce irritating, toxic and/or corrosive fumes, including carbon monoxide, carbon dioxide, other pyrolysis products typical of burning organic material. May emit acrid smoke.
Release of Invisible Flammable Vapours and Gases	Mists containing combustible materials may be explosive.

10. STABILITY AND REACTIVITY

General Information	No information available.
Chemical Stability	Product is considered stable.
Conditions to Avoid	No smoking, naked lights or ignition sources. Avoid contact with incompatible materials.
Materials to Avoid	Incompatible/reactive with strong acids and bases, acid chlorides, acid anhydrides, oxidising agents.
Hazardous Decomposition Products	Fire/decomposition may produce irritating, toxic and/or corrosive fumes, including carbon monoxide, carbon dioxide, other pyrolysis products typical of burning organic material. May emit acrid smoke.
Hazardous Polymerisation	Hazardous polymerisation will not occur.

11. TOXICOLOGICAL INFORMATION**General Information**

- Acute toxicity: May be harmful if swallowed. Overexposure causes nervous system symptoms; These include headache, muscle weakness and in-coordination, giddiness, confusion, delirium and coma. Digestive symptoms may include nausea, vomiting and diarrhoea.
- Skin corrosion/irritation: May cause mild inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.
- Eye damage/irritation: Causes eye irritation. Prolonged eye contact may cause inflammation, characterised by a temporary redness of the conjunctiva.
- Respiratory/skin sensitisation: No information available.
- Germ cell mutagenicity: No adverse mutagenic effects are anticipated.
- Carcinogenicity: No information available.
- Reproductive toxicity: Reproductive toxicity tests in animals have been negative.
- STOT (single exposure): Prolonged overexposure to vapours can cause respiratory irritation and may cause drowsiness and dizziness; This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo. Inhalation hazard is increased at higher temperatures.
- STOT (repeated exposure): May cause damage to organs through prolonged or repeated exposure (kidneys, nervous system).
- Aspiration toxicity: No information available.

Carcinogen Category

None

12. ECOLOGICAL INFORMATION**Ecotoxicity**

No information available.

Persistence/Degradability

Readily biodegradable.

Mobility

Adsorption to solid soil phase is not expected. The substance will not evaporate into the atmosphere from the water surface. The substance is predicted to be primarily present in water.

Environmental Fate

Prevent entry into drains and waterways.

Bioaccumulation Potential

No potential for bioaccumulation.

Environmental Impact

No Data Available

13. DISPOSAL CONSIDERATIONS**General Information**

Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal 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. Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility.

14. TRANSPORT INFORMATION**Land Transport (Australia)**

ADG Code

Proper Shipping Name

Triethylene Glycol

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Class	C2 Combustible Liquids - Flash Point >93°C, Closed Cup, Not Excluded Flammable
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
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (Malaysia)

ADR Code

Proper Shipping Name	Triethylene 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
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (New Zealand)

NZS5433

Proper Shipping Name	Triethylene 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
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (Papua New Guinea)

Proper Shipping Name	Triethylene 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
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (Singapore)

Proper Shipping Name	Triethylene Glycol
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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
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (United States of America)

US DOT

Proper Shipping Name	Triethylene 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
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Sea Transport

IMDG Code

Proper Shipping Name	Triethylene 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
Comments	NON-DANGEROUS GOODS: Not regulated for SEA transport.

Air Transport

IATA DGR

Proper Shipping Name	Triethylene 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
Comments	NON-DANGEROUS GOODS: Not regulated for AIR transport.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification

NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

15. REGULATORY INFORMATION

General Information

No Data Available

Poisons Schedule (Aust)

Not Scheduled

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code

HSR002503 - Additives Process Chemicals and Raw Materials (Subsidiary Hazard) Group Standard 2020

National/Regional Inventories

Australia (AIIIC)

Listed

Canada (DSL)

Listed

Canada (NDSL)

Not Determined

China (IECSC)

Listed

Europe (EINECS)

Listed

Europe (REACH)

Not Determined

Japan (ENCS/METI)

Listed

Korea (KECI)

Listed

Malaysia (EHS Register)

Not Determined

New Zealand (NZIoC)

Listed

Philippines (PICCS)

Listed

Switzerland (Giftliste 1)

Not Determined

Switzerland (Inventory of Notified Substances)

Not Determined

Taiwan (NCSR)

Listed

USA (TSCA)

Listed

16. OTHER INFORMATION

Related Product Codes

TRETGL0703, TRETGL0704, TRETGL0900, TRETGL1000, TRETGL1001, TRETGL1002, TRETGL1003, TRETGL1004, TRETGL1005, TRETGL1006, TRETGL1007, TRETGL1008, TRETGL1011, TRETGL1500, TRETGL1900, TRETGL2000, TRETGL2001, TRETGL2010, TRETGL2020, TRETGL2030, TRETGL2500, TRETGL2700, TRETGL3000, TRETGL3001, TRETGL3010, TRETGL3100, TRETGL3300, TRETGL3400, TRETGL3600, TRETGL3700, TRETGL3710, TRETGL3720, TRETGL3730, TRETGL3800, TRETGL4000, TRETGL4001, TRETGL4100, TRETGL4200, TRETGL4400, TRETGL4600,

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TRETGL4700, TRETGL4800, TRETGL4850, TRETGL4900, TRETGL5000, TRETGL5001, TRETGL5500, TRETGL5800, TRETGL5805, TRETGL5810, TRETGL5815, TRETGL5820, TRETGL5830, TRETGL5840, TRETGL5910, TRETGL6000, TRETGL6100, TRETGL6200, TRETGL6600, TRETGL6650, TRETGL7000, TRETGL7500, TRETGL7600, TRETGL7700, TRETGL7800, TRETGL7900, TRETGL8000, TRETGL8100, TRETGL8900, TRETGL9000, TRETGL9001, TRETGL9020, TRETGL9050, TRETGL9100, TRETGL9110, TRETGL9500, TRETGL9501, TRETGL9900, TRETGL9980, TRETGL9990

Revision

4

Revision Date

04 Jul 2019

Key/Legend

< Less Than

> Greater Than

AICS Australian Inventory of Chemical Substances

atm Atmosphere

CAS Chemical Abstracts Service (Registry Number)

cm² Square Centimetres

CO₂ Carbon Dioxide

COD Chemical Oxygen Demand

deg C (°C) Degrees Celcius

EPA (New Zealand) Environmental Protection Authority of New Zealand

deg F (°F) Degrees Farenheit

g Grams

g/cm³ 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/m³ 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

m³ Cubic Metre

mbar Millibar

mg Milligram

mg/24H Milligrams per 24 Hours

mg/kg Milligrams per Kilogram

mg/m³ 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 Health 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