

## Material Safety Data Sheet

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Version 1.1

According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

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1 - Product and Company Information

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Product Name	TRI(ETHYLENE GLYCOL), REAGENTPLUS(TM), 99%
Product Number	T59455
Company	Sigma-Aldrich Pty, Ltd Unit 2, 14 Anella Avenue Castle Hill NSW 1765 Australia
Technical Phone #	+61 2 9841 0555
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2 - Composition/Information on Ingredients

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Product Name	CAS #	EC no	Annex I Index Number
TRI(ETHYLENE GLYCOL), 99%	112-27-6	203-953-2	None
Formula	C6H14O4		
Molecular Weight	150.17 AMU		
Synonyms	1,2-Bis(2-hydroxyethoxy)ethane *		
	Di-beta-hydroxyethoxyethane *		
	3,6-Dioxaoctane-1,8-diol *		
	2,2'-(1,2-Ethanediylobis(oxy))bisethanol *		
	Ethanol, 2,2'-(ethylenedioxy)di- *		
	2,2'-Ethylenedioxybis(ethanol) *		
	2,2'-Ethylenedioxydiethanol *		
	2,2'-Ethylenedioxyethanol *		
	Ethylene glycol-bis-(2-hydroxyethyl ether) *		
	Ethylene glycol dihydroxydiethyl ether *		
	Glycol bis(hydroxyethyl) ether *		
	TEG * Triethylenglykol (Czech) *		
	Trigen * Triglycol		

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3 - Hazards Identification

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SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT  
Irritating to eyes, respiratory system and skin.

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4 - First Aid Measures

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## AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

## AFTER SKIN CONTACT

In case of contact, immediately wash skin with soap and copious amounts of water.

#### AFTER EYE CONTACT

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

#### AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

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### 5 - Fire Fighting Measures

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#### EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

#### SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

#### SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

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### 6 - Accidental Release Measures

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#### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

#### ENVIRONMENTAL PRECAUTION(S)

Do not allow material to enter drains or water courses.

#### METHODS FOR CLEANING UP

Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

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### 7 - Handling and Storage

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#### HANDLING

Directions for Safe Handling: Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

#### STORAGE

Conditions of Storage: Keep tightly closed.

SPECIAL REQUIREMENTS: Hygroscopic.

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### 8 - Exposure Controls / Personal Protection

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#### ENGINEERING CONTROLS

Mechanical exhaust required. Safety shower and eye bath.

#### GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

#### PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

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### 9 - Physical and Chemical Properties

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Appearance	Color: Colorless Form: Clear viscous liquid	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	125 - 127 °C	0.1 mmHg
MP/MP Range	-7 °C	
Flash Point	166 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	371 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 0.9 % Upper: 9.2 %	
Vapor Pressure	< 1 mmHg	20 °C
SG/Density	1.125 g/cm3	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	5.2 g/l	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	< 0.08 %	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water: Complete Soluble.	

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## 10 - Stability and Reactivity

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### STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents, Strong acids.

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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## 11 - Toxicological Information

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RTECS NUMBER: YE4550000

### ACUTE TOXICITY

LDLO  
Oral  
Human  
5000 mg/kg

LD50  
Oral  
Rat  
17000 mg/kg

LD50  
Intravenous

Rat  
11700 MG/KG

LD50  
Intraperitoneal  
Mouse

8141 MG/KG

Remarks: Lungs, Thorax, or Respiration:Chronic pulmonary edema.  
Kidney, Ureter, Bladder:Changes in both tubules and glomeruli.  
Blood:Changes in spleen.

LD50  
Subcutaneous  
Mouse  
8750 MG/KG

LD50  
Intravenous  
Mouse  
6500 MG/KG

LD50  
Intravenous  
Dog  
>4500 MG/KG

LD50  
Oral  
Rabbit  
8400 mg/kg

LD50  
Skin  
Rabbit  
>20 ML/KG

LD50  
Intravenous  
Rabbit  
1900 MG/KG

LD50  
Oral  
Guinea pig  
7900 mg/kg

LD50  
Intravenous  
Guinea pig  
10600 MG/KG

LD50  
Oral  
Mammal  
8150 mg/kg

#### IRRITATION DATA

Skin  
Rabbit  
500 mg  
24H

Remarks: Mild irritation effect

Eyes

Rabbit

500 mg

Remarks: Mild irritation effect

#### SIGNS AND SYMPTOMS OF EXPOSURE

Prolonged exposure can cause: Nausea, headache, and vomiting. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

#### ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes eye irritation.

Inhalation: Material is irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion: May be harmful if swallowed.

#### CHRONIC EXPOSURE - TERATOGEN

Species: Rat

Dose: 103 GM/KG

Route of Application: Oral

Exposure Time: (6-15D PREG)

Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mouse

Dose: 56370 MG/KG

Route of Application: Oral

Exposure Time: (6-15D PREG)

Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

#### CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Mouse

Dose: 90160 MG/KG

Route of Application: Oral

Exposure Time: (7-14D PREG)

Result: Effects on Newborn: Growth statistics (e.g., reduced weight gain).

Species: Mouse

Dose: 323 GM/KG

Route of Application: Oral

Exposure Time: (MULTIGENERATION)

Result: Effects on Newborn: Growth statistics (e.g., reduced weight gain).

Species: Mouse

Dose: 57820 MG/KG

Route of Application: Oral

Exposure Time: (MULTIGENERATION)

Result: Effects on Newborn: Physical.

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## 12 - Ecological Information

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## ELIMINATION

Elimination: > 70 %

## ECOTOXICOLOGICAL EFFECTS

Test Type: LC50 Fish

Species: Leuciscus idus

Time: 96 h

Value: > 100 mg/l

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## 13 - Disposal Considerations

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### SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

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## 14 - Transport Information

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### RID/ADR

Non-hazardous for road transport.

### IMDG

Non-hazardous for sea transport.

### IATA

Non-hazardous for air transport.

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## 15 - Regulatory Information

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### CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

INDICATION OF DANGER: Xi

Irritant.

R-PHRASES: 36/37/38

Irritating to eyes, respiratory system and skin.

S-PHRASES: 26 36

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.

### COUNTRY SPECIFIC INFORMATION

#### Germany

WGK: 1

#### SWITZERLAND

SWISS POISON CLASS: FREI

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## 16 - Other Information

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### WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

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