

# 1,3-Propanediol

sc-320321



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key: **EXTREME** **HIGH** **MODERATE** **LOW**

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

1,3-Propanediol

### STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

### NFPA



### SUPPLIER

Santa Cruz Biotechnology, Inc.  
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800.457.3801 or 831.457.3800

### EMERGENCY:

ChemWatch  
Within the US & Canada: 877-715-9305  
Outside the US & Canada: +800 2436 2255  
(1-800-CHEMCALL) or call +613 9573 3112

### SYNONYMS

C3-H8-O2, CH<sub>2</sub>OHCH<sub>2</sub>CH<sub>2</sub>OH, "1, 3-propandiol", "1, 3-propanediol", 2-deoxyglycerol, "1, 3-dihydroxypropane", 2-(hydroxymethyl)ethanol, "propane-1, 3-diol", "propan-1, 3-diol", "beta-propylene glycol", "1, 3-propylene glycol", PG

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	1	
Toxicity:	2	
Body Contact:	2	
Reactivity:	1	
Chronic:	0	

Min/Nil=0  
Low=1  
Moderate=2  
High=3  
Extreme=4



### CANADIAN WHMIS SYMBOLS



## EMERGENCY OVERVIEW

### RISK

HARMFUL - May cause lung damage if swallowed.

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

#### SWALLOWED

■ Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. (ICSC13733).

■ Accidental ingestion of the material may be damaging to the health of the individual.

■ Overexposure to non-ring alcohols causes nervous system symptoms.

These include headache, muscle weakness and inco-ordination, giddiness, confusion, delirium and coma.

#### EYE

■ Although the liquid is not thought to be an irritant, direct contact with the eye may produce transient discomfort characterized by tearing or conjunctival redness (as with windburn).

#### SKIN

■ Skin contact is not thought to have harmful health effects, however the material may still produce health damage following entry through wounds, lesions or abrasions.

■ Repeated exposure may cause skin cracking, flaking or drying following normal handling and use.

■ There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons.

■ Most liquid alcohols appear to act as primary skin irritants in humans.

Significant percutaneous absorption occurs in rabbits but not apparently in man.

■ Open cuts, abraded or irritated skin should not be exposed to this material.

■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.

Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

#### INHALED

■ Inhalation of vapours may cause drowsiness and dizziness.

This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.

■ Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

■ There is some evidence to suggest that the material can cause respiratory irritation in some persons.

The body's response to such irritation can cause further lung damage.

■ Aliphatic alcohols with more than 3-carbons cause headache, dizziness, drowsiness, muscle weakness and delirium, central depression, coma, seizures and behavioral changes.

Secondary respiratory depression and failure, as well as low blood pressure and irregular heart rhythms, may follow.

■ Inhalation of high concentrations of gas/vapor causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination.

#### CHRONIC HEALTH EFFECTS

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
trimethylene glycol	504-63-2	> 99

## Section 4 - FIRST AID MEASURES

#### SWALLOWED

· If swallowed do NOT induce vomiting. · If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. · If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

#### EYE

■ If this product comes in contact with the eyes: · Wash out immediately with fresh running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

#### SKIN

■ If skin contact occurs: · Immediately remove all contaminated clothing, including footwear · Flush skin and hair with running water (and

soap if available).

#### **INHALED**

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

#### **NOTES TO PHYSICIAN**

■ Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or pharmacologically.

To treat poisoning by the higher aliphatic alcohols:

- Gastric lavage with copious amounts of water.
- It may be beneficial to instill 60 ml of mineral oil into the stomach.

### **Section 5 - FIRE FIGHTING MEASURES**

Vapor Pressure (mmHg):	0.975 @ 59 C.
Upper Explosive Limit (%):	Not available.
Specific Gravity (water=1):	1.05
Lower Explosive Limit (%):	Not available.

#### **EXTINGUISHING MEDIA**

- Alcohol stable foam.
- Dry chemical powder.

#### **FIRE FIGHTING**

- Alert Emergency Responders and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.

#### **GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS**

- Combustible.
  - Slight fire hazard when exposed to heat or flame.
- Combustion products include: carbon dioxide (CO<sub>2</sub>), other pyrolysis products typical of burning organic material.  
May emit poisonous fumes.  
May emit corrosive fumes.

#### **FIRE INCOMPATIBILITY**

■ Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

#### **PERSONAL PROTECTION**

- Glasses:  
Chemical goggles.
- Gloves:
- Respirator:  
Type A-P Filter of sufficient capacity

### **Section 6 - ACCIDENTAL RELEASE MEASURES**

#### **MINOR SPILLS**

- Remove all ignition sources.
- Clean up all spills immediately.

#### **MAJOR SPILLS**

- Moderate hazard.
- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.

### **Section 7 - HANDLING AND STORAGE**

#### **PROCEDURE FOR HANDLING**

- DO NOT allow clothing wet with material to stay in contact with skin.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.

#### **RECOMMENDED STORAGE METHODS**

- Glass container.
- Metal can or drum
- Packing as recommended by manufacturer.

#### **STORAGE REQUIREMENTS**

- Store in original containers.
- Store at RT.

- Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

The following materials had no OELs on our records

- trimethylene glycol: CAS:504-63-2

### PERSONAL PROTECTION



### RESPIRATOR

- Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

### EYE

- Safety glasses with side shields.
- Chemical goggles.

### HANDS/FEET

- Wear chemical protective gloves, eg. PVC.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.

· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.

· Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

### OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

### ENGINEERING CONTROLS

- Local exhaust ventilation usually required. If risk of overexposure exists, wear an approved respirator.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### PHYSICAL PROPERTIES

Liquid.

Mixes with water.

State	Liquid	Molecular Weight	76.11
Melting Range (°F)	Not available.	Viscosity	Not Available
Boiling Range (°F)	410- 412	Solubility in water (g/L)	Miscible
Flash Point (°F)	174	pH (1% solution)	7
Decomposition Temp (°F)	Not available.	pH (as supplied)	Not available

Autoignition Temp (°F)	752	Vapor Pressure (mmHg)	0.975 @ 59 C.
Upper Explosive Limit (%)	Not available.	Specific Gravity (water=1)	1.05
Lower Explosive Limit (%)	Not available.	Relative Vapor Density (air=1)	2.62
Volatile Component (%vol)	100	Evaporation Rate	Not available

## APPEARANCE

Colourless to pale yellow odourless viscous liquid; mixes with water, alcohol and ether. Hygroscopic.

## Section 10 - CHEMICAL STABILITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

### STORAGE INCOMPATIBILITY

■ Avoid storage with strong acids, acid chlorides, acid anhydrides, oxidizing agents.

For incompatible materials - refer to Section 7 - Handling and Storage.

## Section 11 - TOXICOLOGICAL INFORMATION

trimethylene glycol

### TOXICITY AND IRRITATION

TRIMETHYLENE GLYCOL:

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Oral (mouse) LD50: 4773 mg/kg	Nil Reported
Oral (rat) LDLo: 10000 mg/kg	
Dermal (rabbit) LD50: >20000 mg/kg	
Rat cell mutagen	

### CARCINOGEN

VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	CA Prop 65; IARC; NTP 11th ROC
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## Section 12 - ECOLOGICAL INFORMATION

No data

### Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
trimethylene glycol	LOW	No Data Available	LOW	HIGH

### GESAMP/EHS COMPOSITE LIST - GESAMP Hazard Profiles

Name / EHS TRN A1a A1b A1 A2 B1 B2 C1 C2 C3 D1 D2 D3 E1 E2 E3 Cas No / RTECS No \_\_\_\_\_  
 \_\_\_\_\_ Alcoholic 293 85 0 0 R 0 0 0 0 0 1 D 1 beverages / CAS:504- 63- 2 /

Legend: EHS=EHS Number (EHS=GESAMP Working Group on the Evaluation of the Hazards of Harmful Substances Carried by Ships)  
 NRT=Net Register Tonnage, A1a=Bioaccumulation log Pow, A1b=Bioaccumulation BCF, A1=Bioaccumulation, A2=Biodegradation,  
 B1=Acuteaquatic toxicity LC/EC150 (mg/l), B2=Chronic aquatic toxicity NOEC (mg/l), C1=Acute mammalian oral toxicity LD50 (mg/kg),  
 C2=Acute mammalian dermal toxicity LD50 (mg/kg), C3=Acute mammalian inhalation toxicity LC50 (mg/kg), D1=Skin irritation &  
 corrosion, D2=Eye irritation & corrosion, D3=Long-term health effects, E1=Tainting, E2=Physical effects on wildlife & benthic habitats,  
 E3=Interference with coastal amenities, For column A2: R=Readily biodegradable, NR=Not readily biodegradable. For column D3:  
 C=Carcinogen, M=Mutagenic, R=Reprotoxic, S=Sensitising, A=Aspiration hazard, T=Target organ systemic toxicity, L=Lunginjury,  
 N=Neurotoxic, I=Immunotoxic. For column E1: NT=Not tainting (tested), T=Tainting test positive. For column E2: Fp=Persistent floater,  
 F=Floater, S=Sinking substances. The numerical scales start from 0 (no hazard), while higher numbers reflect increasing hazard.  
 (GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships)

## Section 13 - DISPOSAL CONSIDERATIONS

## Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

‡ Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult Waste Management Authority for disposal.

## Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

## Section 15 - REGULATORY INFORMATION

**trimethylene glycol (CAS: 504-63-2) is found on the following regulatory lists;**

"Canada Domestic Substances List (DSL)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

## Section 16 - OTHER INFORMATION

### LIMITED EVIDENCE

- Inhalation and/or ingestion may produce health damage\*.
- May produce discomfort of the respiratory system and skin\*.
- Repeated exposure potentially causes skin dryness and cracking\*.
- Vapours potentially cause drowsiness and dizziness\*.

\* (limited evidence).

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■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

[www.chemwatch.net/references](http://www.chemwatch.net/references).

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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