

3-Hydroxypropane-1-sulfonic acid

sc-254493



The Power is Question

Material Safety Data Sheet

Hazard Alert Code
Key:

EXTREME

HIGH

MODERATE

LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

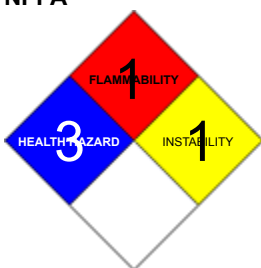
PRODUCT NAME

3-Hydroxypropane-1-sulfonic acid

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
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-O4-S, HO(CH₂)₃SO₃H, "3-hydroxypropane-1-sulfonic acid"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

		Min	Max	
Flammability	1			
Toxicity	2			
Body Contact	4			
Reactivity	1			
Chronic	2			

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



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Causes severe burns.

Risk of serious damage to eyes.

Limited evidence of a carcinogenic effect.

Harmful in contact with skin and if swallowed.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ The material can produce severe chemical burns within the oral cavity and gastrointestinal tract following ingestion.

■ Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

■ Ingestion of acidic corrosives may produce burns around and in the mouth, the throat and esophagus.

EYE

■ The material can produce severe chemical burns to the eye following direct contact. Vapors or mists may be extremely irritating.

■ If applied to the eyes, this material causes severe eye damage.

■ Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns.

Mild burns of the epithelia generally recover rapidly and completely.

SKIN

■ The material can produce severe chemical burns following direct contact with the skin.

■ Skin contact with the material may be harmful; systemic effects may result following absorption.

■ Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue.

■ 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

■ The material can cause respiratory irritation in some persons.

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

■ Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage.

There may be dizziness, headache, nausea and weakness.

■ Inhalation of quantities of liquid mist may be extremely hazardous, even lethal due to spasm, extreme irritation of larynx and bronchi, chemical pneumonitis and pulmonary edema.

■ Not normally a hazard due to non-volatile nature of product.

CHRONIC HEALTH EFFECTS

■ Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs.

Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Alkyl-substituted sulfonates are thought to induce genetic mutations in cells.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
3-hydroxy-1-propanesulfonic acid	15909-83-8	80
water	7732-18-5	<20
commercial product may contain		
propane sulfone	1120-71-4	<0.1
3,3'-oxydi(propanesulfonic acid)		<40

Section 4 - FIRST AID MEASURES

SWALLOWED

- For advice, contact a Poisons Information Center or a doctor at once.
- Urgent hospital treatment is likely to be needed.

EYE

If this product comes in contact with the eyes

- Immediately hold eyelids apart and flush the eye continuously with 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 or hair contact occurs

- Immediately flush body and clothes with large amounts of water, using safety shower if available.
- Quickly remove all contaminated clothing, including footwear.

INHALED

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

Inhalation of vapors or aerosols (mists, fumes) may cause lung edema. Corrosive substances may cause lung damage (e.g.

NOTES TO PHYSICIAN

- For acute or short term repeated exposures to strong acids
- Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially.
- Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG)	Not available
Upper Explosive Limit (%)	Not available
Specific Gravity (water=1)	1.364
Lower Explosive Limit (%)	Not available

EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.

FIRE FIGHTING

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

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

- Combustible.

- Slight fire hazard when exposed to heat or flame.

Combustion products include carbon monoxide (CO), carbon dioxide (CO₂), sulfur oxides (SO_x), other pyrolysis products typical of burning organic material.

FIRE INCOMPATIBILITY

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

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Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.
- Check regularly for spills and leaks.
- Clean up all spills immediately.
- Avoid breathing vapors and contact with skin and eyes.

MAJOR SPILLS

- 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

DO NOT use aluminum or galvanized containers.

Check regularly for spills and leaks.

Glass container.

- Lined metal can, Lined metal pail/drum
- Plastic pail

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
Canada - British Columbia Occupational Exposure Limits	propane sulfone (Propane sulfone)	(L)							2B
Canada - Alberta Occupational Exposure Limits	propane sulfone (Kerosene/Jet fuels, as total hydrocarbon vapour)		200						
Canada - Alberta Occupational Exposure Limits	propane sulfone (Diesel fuel, as total hydrocarbons)		100						
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	propane sulfone (Diesel fuel as total hydrocarbons, (vapour))		100		150				Skin

The following materials had no OELs on our records

- 3-hydroxy-1-propanesulfonic acid CAS15909-83-8
- water CAS7732-18-5

PERSONAL PROTECTION



RESPIRATOR

• Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 1432000 & 1492001, ANSI Z88 or national equivalent)

EYE

- Chemical goggles.
- Full face shield.

HANDS/FEET

Elbow length PVC gloves.

- When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.

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

- 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.
- PVC Apron.

ENGINEERING CONTROLS

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

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Mixes with water.

Corrosive.

Acid.

State	LIQUID	Molecular Weight	140.16
Melting Range (°F)	Not available	Viscosity	Not Available
Boiling Range (°F)	>212	Solubility in water (g/L)	Miscible
Flash Point (°F)	>230	pH (1% solution)	1 (2% soln)
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapour Pressure (mmHG)	Not available
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	1.364
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	Not available.
Volatile Component (%vol)	Not available	Evaporation Rate	Not available

APPEARANCE

Viscous liquid; mixes with water.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Contact with alkaline material liberates heat
- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY

‡ Reacts with mild steel, galvanized steel / zinc producing hydrogen gas which may form an explosive mixture with air.

Segregate from alkalis, oxidizing agents and chemicals readily decomposed by acids, i.e. cyanides, sulfides, carbonates.

- Avoid strong bases.

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

Section 11 - TOXICOLOGICAL INFORMATION

3-hydroxy-1-propanesulfonic acid

TOXICITY AND IRRITATION

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

WATER

3-HYDROXY-1-PROPANESULFONIC ACID

No significant acute toxicological data identified in literature search.

3-HYDROXY-1-PROPANESULFONIC ACID

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

WATER

PROPANE SULTONE

TOXICITY	IRRITATION
Subcutaneous (rat) LD50 135 mg/kg	Skin (rabbit) 500 mg - Mild
Intraperitoneal (mouse) LD50 467 mg/kg * [Sigma/Aldrich]	
Oral (rat) LD50 100-200 mg/kg*	Skin (guinea) pig LD50 0.5-1.0 ml/kg*

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

WARNING This substance has been classified by the IARC as Group 2B Possibly Carcinogenic to Humans.

Tenth Annual Report on Carcinogens Substance anticipated to be Carcinogen

[National Toxicology Program U.S. Dep. of Health & Human Services 2002].

Tumours of brain, peripheral nerves, lungs, skin, and lymphoma (including Hodgkin's disease, foetal death, transplacental tumorigenesis recorded.

CARCINOGEN

propane sultone	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	2B
Propane sultone	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	A3
propane sultone	US - Rhode Island Hazardous Substance List	IARC	
PROPANE SULTONE	US Environmental Defense Scorecard Recognized Carcinogens	Reference(s)	P65
PROPANE SULTONE	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65
1,3-Propane sultone	US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors	IARC Class	2B
Propane sultone	US NIOSH Recommended Exposure Limits (RELs) - Carcinogens	Carcinogen	Ca

TWAPPM~	US - Maine Chemicals of High Concern List	Carcinogen	A3
VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	CA Prop 65; NTP 11th ROC
TWAPPM~	Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens	Notes	TLV Basis cancer. Exposure by all routes should be carefully controlled to levels as low as possible.

SKIN

propane sultone	Canada - British Columbia Occupational Exposure Limits - Skin	Notation	Skin
propane sultone	Canada - Alberta Occupational Exposure Limits - Skin	Substance Interaction	1

Section 12 - ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information

Corrosivity characteristic: use EPA hazardous waste number D002 (waste code C)

B. Component Waste Numbers

When propane sultone is present as a solid waste as a discarded commercial chemical product, off-specification species, as a container residue, or a spill residue, use EPA waste number U193 (waste code T).

Disposal Instructions

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

! Puncture containers to prevent re-use and bury at an authorized landfill.

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.
- Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION

DOT:

Symbols:	G	Hazard class or Division:	8
Identification Numbers:	UN3265	PG:	I
Label Codes:	8	Special provisions:	A6, B10, T14, TP2, TP27
Packaging: Exceptions:	None	Packaging: Non-bulk:	201
Packaging: Exceptions:	None	Quantity limitations: Passenger aircraft/rail:	0.5 L

Quantity Limitations: Cargo 2.5 L
aircraft only:

Vessel stowage: Location: B

Vessel stowage: Other: 40

Hazardous materials descriptions and proper shipping names:

Corrosive liquid, acidic, organic, n.o.s.

Air Transport IATA:

ICAO/IATA Subrisk:	None	UN/ID Number:	3265
Packing Group:	I	Special provisions:	A3
		Cargo Only	
		Packing Instructions:	854
Maximum Qty/Pack:	2.5 L	Passenger and Cargo	
Passenger and Cargo		Packing Instructions:	850
Maximum Qty/Pack:	0.5 L	Passenger and Cargo	
		Limited Quantity	
Passenger and Cargo		Packing Instructions:	Forbidden
Limited Quantity			
Maximum Qty/Pack:	Forbidden		

Shipping Name: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.

*(CONTAINS 3-HYDROXY-1-PROPANESULFONIC ACID)

Maritime Transport IMDG:

IMDG Class:	8	IMDG Subrisk:	None
UN Number:	3265	Packing Group:	I
EMS Number:	F-A,S-B	Special provisions:	274
Limited Quantities:	0		

Shipping Name: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(contains 3-hydroxy-1-propanesulfonic acid)

Section 15 - REGULATORY INFORMATION

3-hydroxy-1-propanesulfonic acid (CAS: 15909-83-8) is found on the following regulatory lists;

"Canada Domestic Substances List (DSL)", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

Regulations for ingredients

water (CAS: 7732-18-5) is found on the following regulatory lists;

"Canada Domestic Substances List (DSL)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "IMO IBC Code Chapter 18: List of products to which the Code does not apply", "International Fragrance Association (IFRA) Survey: Transparency List", "US - Pennsylvania - Hazardous Substance List", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US NFPA 30B Manufacture and Storage of Aerosol Products - Chemical Heat of Combustion", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory", "US TSCA Section 8 (a) Inventory Update Rule (IUR) - Partial Exemptions"

propane sultone (CAS: 1120-71-4) is found on the following regulatory lists;

"Canada - British Columbia Occupational Exposure Limits", "Canada - Nova Scotia Occupational Exposure Limits", "Canada - Prince Edward Island Occupational Exposure Limits", "Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens", "Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)", "Canada - Saskatchewan Occupational Health and Safety Regulations - Designated Chemical Substances", "Canada Domestic Substances List (DSL)", "Canada Ingredient Disclosure List (SOR/88-64)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Chemical Secretariat (ChemSec) REACH SIN* List (*Substitute It Now!) 1.1", "US - California Air Toxics ""Hot Spots"" List (Assembly Bill 2588) Substances for which emissions must be quantified", "US - California Proposition 65 - Carcinogens", "US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens", "US - California Toxic Air Contaminant List Category II", "US - Connecticut

Hazardous Air Pollutants","US - Maine Chemicals of High Concern List","US - Massachusetts Oil & Hazardous Material List","US - Minnesota Hazardous Substance List","US - New Jersey Right to Know Hazardous Substances","US - Pennsylvania - Hazardous Substance List","US - Rhode Island Hazardous Substance List","US - Vermont Hazardous Constituents","US - Vermont Hazardous wastes which are Discarded Commercial Chemical Products or Off-Specification Batches of Commercial Chemical Products or Spill Residues of Either","US - Washington Class A toxic air pollutants: Known and Probable Carcinogens","US - Washington Dangerous waste constituents list","US - Washington Discarded Chemical Products List - ""U"" Chemical Products","US ACGIH Threshold Limit Values (TLV)","US ACGIH Threshold Limit Values (TLV) - Carcinogens","US Clean Air Act - Hazardous Air Pollutants","US Department of Transportation (DOT) List of Hazardous Substances and Reportable Quantities - Hazardous Substances Other Than Radionuclides","US DOE Temporary Emergency Exposure Limits (TEELs)","US EPCRA Section 313 Chemical List","US List of Lists - Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112(r) of the Clean Air Act","US National Toxicology Program (NTP) 11th Report Part B. Reasonably Anticipated to be a Human Carcinogen","US NIOSH Recommended Exposure Limits (RELs)","US RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261","US RCRA (Resource Conservation & Recovery Act) - List of Hazardous Wastes","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

- Cumulative effects may result following exposure*.

* (limited evidence).

Denmark Advisory list for selfclassification of dangerous substances

Substance	CAS	Suggested codes
3- hydroxy- 1- propanesulfonic acid	15909- 83- 8	Xn; R22
water	7732- 18- 5	Xn; R22
propane sultone	1120- 71- 4	Xn; R22

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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.

- 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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