Propiolic acid

sc-255449

Material Safety Data Sheet

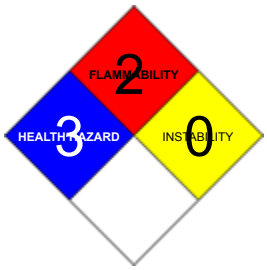
Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Propiolic 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-H2-O2, "acetylenecarboxylic acid", carboxyacetylene, "propargylic acid", "propynoic acid", "2-propynoic acid"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability	3		
Toxicity	3		
Body Contact	3		
Reactivity	1		
Chronic	2		

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

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

RISK

Causes burns.
Risk of serious damage to eyes.
Toxic in contact with skin and if swallowed.
Highly flammable.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.
■ The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.
■ Ingestion of low-molecular organic acid solutions may produce spontaneous hemorrhaging, production of blood clots, gastrointestinal damage and narrowing of the esophagus and stomach entry.
■ Ingestion of acidic corrosives may produce burns around and in the mouth.
the throat and esophagus.

EYE

■ The material can produce 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.
■ Irritation of the eyes may produce a heavy secretion of tears (lachrymation).
■ Solutions of low-molecular weight organic acids cause pain and injuryto the eyes.
■ 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

■ Skin contact with the material may produce toxic effects; systemic effectsmay result following absorption.
■ The material can produce chemical burns following direct contactwith the skin.
■ Open cuts, abraded or irritated skin should not be exposed to this material.
■ 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.
■ 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

■ If inhaled, this material can irritate the throat andlungs of some persons.
■ Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may produce serious damage to the health of the individual.
■ Inhalation hazard is increased at higher temperatures.
■ Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage.
There may be dizziness, headache, nausea and weakness.

CHRONIC HEALTH EFFECTS

■ Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
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.
2-Alkynoic CoA derivatives inactivate pig kidney acyl-CoA dehydrogenase.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
propiolic acid	471-25-0	>98

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

■ Treat symptomatically.

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

Depending on the degree of exposure, periodic medical examination is indicated. The symptoms of lung edema often do not manifest until a few hours have passed and they are aggravated by physical effort.

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG)	Not available
Upper Explosive Limit (%)	Not available
Specific Gravity (water=1)	1.138
Lower Explosive Limit (%)	Not available

EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder.

FIRE FIGHTING

- Alert Emergency Responders and tell them location and nature of hazard.
- May be violently or explosively reactive.

When any large container (including road and rail tankers) is involved in a fire,
consider evacuation by 1000 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

Combustion products include carbon dioxide (CO_2), other pyrolysis products typical of burning organic material.

- Highly flammable.
- Severe hazard when exposed to heat, flame or oxidizers.

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

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

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

- Containers, even those that have been emptied, may contain explosive vapours.
- Do NOT cut, drill, grind, weld or perform similar operations on or near containers.
- 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.
Packing as supplied by manufacturer. Plastic containers may only be used if approved for flammable liquid.

- For low viscosity materials (i) Drums and jerricans must be of the non-removable head type. (ii) Where a can is to be used as an inner package, the can must have a screwed enclosure.
- For materials with a viscosity of at least 2680 cSt. (23 deg. C)

STORAGE REQUIREMENTS

- Store in original containers in approved flame-proof area.
- No smoking, naked lights, heat or ignition sources.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

• propiolic acid CAS471-25-0

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

Wear chemical protective gloves, eg. PVC.

- 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.
- Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
- For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets), non sparking safety footwear.

ENGINEERING CONTROLS

For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Mixes with water.
Corrosive.
Acid.
Toxic or noxious vapours/gas.

State	LIQUID	Molecular Weight	70.05
Melting Range (°F)	Not available	Viscosity	Not Available
Boiling Range (°F)	216(200 mm Hg)	Solubility in water (g/L)	Miscible

Flash Point (°F)	138	pH (1% solution)	Not available
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)	1.138
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	>1
Volatile Component (%vol)	Not available	Evaporation Rate	Not available

APPEARANCE
Viscous liquid; mixes with water.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY
- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY
¦ Avoid storage with reducing agents.
- Avoid strong bases.

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

Section 11 - TOXICOLOGICAL INFORMATION

propiolic acid

TOXICITY AND IRRITATION
PROPIOLIC ACID
unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Oral (rat) LD50 100 mg/kg	Nil Reported
Intraperitoneal (rat) LD50 25 mg/kg	
Oral (mouse) LD50 100 mg/kg	
Intraperitoneal (mouse) LD50 25 mg/kg	
Dermal (guinea pig) LD50 100 mg/kg	

The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
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 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.

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
Ignitability characteristic: use EPA hazardous waste number D001 (waste code I)
Corrosivity characteristic: use EPA hazardous waste number D002 (waste code C)
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:	None	Hazard class or Division:	3
Identification Numbers:	UN3286	PG:	II
Label Codes:	3, 6.1, 8	Special provisions:	IB2, T11, TP2, TP13, TP27
Packaging: Exceptions:	150	Packaging: Non-bulk:	202
Packaging: Exceptions:	150	Quantity limitations: Passenger aircraft/rail:	1 L
Quantity Limitations: Cargo aircraft only:	5 L	Vessel stowage: Location:	B
Vessel stowage: Other:	21, 40, 100		

Hazardous materials descriptions and proper shipping names:
Flammable liquid, toxic, corrosive, n.o.s.
Air Transport IATA:

ICAO/IATA Subrisk:	None	UN/ID Number:	3286
Packing Group:	II	Special provisions:	None
		Cargo Only	
		Packing Instructions:	363
Maximum Qty/Pack:	5 L	Passenger and Cargo	
Passenger and Cargo		Packing Instructions:	352

Maximum Qty/Pack:	1 L	Passenger and Cargo Limited Quantity	
Passenger and Cargo Limited Quantity		Packing Instructions:	Y340
Maximum Qty/Pack:	0.5 L		

Shipping Name: FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. *(CONTAINS PROPIOLIC ACID)

Maritime Transport IMDG:

IMDG Class:	3	IMDG Subrisk:	6.1, 8
UN Number:	3286	Packing Group:	II
EMS Number:	F-E,S-C	Special provisions:	274
Limited Quantities:	1 L		

Shipping Name: FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.(contains propiolic acid)

Section 15 - REGULATORY INFORMATION

propiolic acid (CAS: 471-25-0) is found on the following regulatory lists;
"Canada Non-Domestic Substances List (NDSL)","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

■ Inhalation may produce serious health damage*.
■ Cumulative effects may result following exposure*.
* (limited evidence).

Denmark Advisory list for selfclassification of dangerous substances

Substance	CAS	Suggested codes
propiolic acid	471- 25- 0	T; R25

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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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