

# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
  	<p>Corrosive to eyes and skin on contact.                      Toxic compound, do not ingest or inhale. Avoid all contact with this material.                      This compound is a possible skin sensitizer.</p>	   

## Section I. Chemical Product and Company Identification

Chemical Name	<b>Mucochloric Acid</b>		
Catalog Number	M0472	Supplier	TCI America 9211 N. Harborage St. Portland OR 1-800-423-8616
Synonym	2-Butenoic Acid, 2,3-Dichloro-4-oxo-, (Z)- (9 Cl)		
Chemical Formula	C <sub>4</sub> H <sub>2</sub> Cl <sub>2</sub> O <sub>3</sub>		
CAS Number	87-56-9	In case of Emergency Call	<b>Chemtrec®</b> <b>(800) 424-9300 (U.S.)</b> <b>(703) 527-3887 (International)</b>

## Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Mucochloric Acid	87-56-9	Min. 98.0 (GC,T)	Not available.	Rat LD <sub>50</sub> (oral) 100mg/kg Rat LD <sub>50</sub> (intraperitoneal) 10mg/kg Mouse LD <sub>50</sub> (oral) 84mg/kg

## Section III. Hazards Identification

Acute Health Effects	<p>Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested.</p> <p>Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Skin contact may result in sensitization. Always cover all exposed skin with an impermeable layer and use proper eye protection. A OSHA/MSHA approved dust and vapor respirator is required when working with this material. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.</p>
Chronic Health Effects	<p><b>CARCINOGENIC EFFECTS</b> : Not available.  <b>MUTAGENIC EFFECTS</b> : Not available.  <b>TERATOGENIC EFFECTS</b> : TUMORIGENIC EFFECTS:                      Mouse TDLo (oral) 6100mg/kg/78 Weeks, intermittent.                      Toxic Effects:                      Tumorigenic- Equivocal tumorigenic agent by RTECS criteria.                      Lung, Thorax, or Respiration- Tumors.                      Blood- Tumors.  <b>DEVELOPMENTAL TOXICITY</b>: Not available.                      Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.</p>

## Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	DO NOT INDUCE VOMITING. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

## Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	100°C (212°F).	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ), halogenated compounds. WARNING: Highly toxic HCl gas is produced during combustion.		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		

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Emergency phone number (800) 424-9300

Fire Fighting Media  
and Instructions

SMALL FIRE: Use DRY chemical powder.  
LARGE FIRE: Use carbon dioxide, fog or foam. DO NOT use water jet.  
Consult with local fire authorities before attempting large scale fire-fighting operations.

**Section VI. Accidental Release Measures**Spill Cleanup  
Instructions

Corrosive solid. Toxic solid. Possible sensitizing material.  
Stop leak if without risk. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal.

**Section VII. Handling and Storage**Handling and Storage  
Information

CORROSIVE. TOXIC. POSSIBLE SENSITIZER. Keep container dry. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. DO NOT ingest. Do not breathe dust. Never add water to this product. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively.  
Always store away from incompatible compounds such as oxidizing agents, alkalis (bases).

**Section VIII. Exposure Controls/Personal Protection**

## Engineering Controls

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

## Personal Protection

Splash goggles. Lab coat. Dust respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.



## Exposure Limits

Not available.

**Section IX. Physical and Chemical Properties**

## Physical state @ 20°C

Solid. (White to off-white crystalline powder.)

## Solubility

Slightly soluble in cold water.  
Soluble in hot water, hot benzene, alcohol.

## Specific Gravity

Not available.

## Molecular Weight

168.96

## Partition Coefficient

Not available.

## Boiling Point

Not available.

## Vapor Pressure

Not applicable.

## Melting Point

125 to 128 °C (257 to 262.4 °F)

## Vapor Density

Not available.

## Refractive Index

Not available.

## Volatility

Not available.

## Critical Temperature

Not available.

## Odor

Not available.

## Viscosity

Not available.

## Taste

Not available.

**Section X. Stability and Reactivity Data**

## Stability

This material is stable if stored under proper conditions. (See Section VII for instructions)

## Conditions of Instability

Avoid excessive heat and light.

## Incompatibilities

Reactive with strong oxidizing agents, strong alkalis (bases).

**Section XI. Toxicological Information**

## RTECS Number

AS7700000

## Routes of Exposure

Eye Contact. Ingestion. Inhalation. Skin contact.

## Toxicity Data

Rat LD<sub>50</sub> (oral) 100mg/kg  
Rat LD<sub>50</sub> (intraperitoneal) 10mg/kg  
Mouse LD<sub>50</sub> (oral) 84mg/kg

## Chronic Toxic Effects

**CARCINOGENIC EFFECTS** : Not available.  
**MUTAGENIC EFFECTS** : Not available.  
**TERATOGENIC EFFECTS** : TUMORIGENIC EFFECTS:  
Mouse TDLo (oral) 6100mg/kg/78 Weeks, intermittent.  
Toxic Effects:  
Tumorigenic- Equivocal tumorigenic agent by RTECS criteria.  
Lung, Thorax, or Respiration- Tumors.  
Blood- Tumors.  
**DEVELOPMENTAL TOXICITY**: Not available.  
Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

Acute Toxic Effects	Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Skin contact may result in sensitization. Always cover all exposed skin with an impermeable layer and use proper eye protection. A OSHA/MSHA approved dust and vapor respirator is required when working with this material. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
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## Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Not available.

## Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.
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## Section XIV. Transport Information

DOT Classification	Class 8: Corrosive material CLASS 6.1: Toxic material.
PIN Number	UN2923
Proper Shipping Name	Corrosive solids, toxic, n.o.s.
Packing Group (PG)	III
DOT Pictograms	



## Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is <b>ON</b> the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS E: Corrosive solid.
EINECS Number (EEC)	201-752-4
EEC Risk Statements	R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R34- Causes burns. R42/43- May cause sensitization by inhalation and skin contact.
Japanese Regulatory Data	Not available.

## Section XVI. Other Information

**Version 1.0**  
**Validated on 8/11/2009.**  
**Printed 8/11/2009.**

### Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.