

MATERIAL SAFETY DATA SHEET

Date Printed: 08/05/2005

Date Updated: 04/07/2004

Version 1.2

Section 1 - Product and Company Information

Product Name CITRACONIC ACID, 98%
Product Number C82604
Brand ALDRICH

Company Sigma-Aldrich Canada, Ltd
Street Address 2149 Winston Park Drive
City, State, Zip, Country Oakville ON L6H 6J8 CA
Technical Phone: 9058299500
Emergency Phone: 800-424-9300
Fax: 9058299292

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
CITRACONIC ACID	498-23-7	No

Formula C5H6O4
Synonyms 2-Butenedioic acid, 2-methyl-, (Z)- (9CI) *
Kyselina citrakonova (Czech) * Maleic acid,
methyl- * cis-Methylbutenedioic acid *
2-Methyl-2-butenedioic acid *
(Z)-2-Methyl-2-butenedioic acid * Methylmaleic
acid
RTECS Number: GE6650000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Harmful.
Harmful if swallowed.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

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

INHALATION EXPOSURE

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

DERMAL EXPOSURE

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

EYE EXPOSURE

Contamination of the eyes should be treated by immediate and prolonged irrigation with copious amounts of water.

INFORMATION FOR PHYSICIAN

Contamination of the eyes should be treated by immediate and prolonged irrigation with copious amounts of water.

Section 5 - Fire Fighting Measures

EXPLOSION DATA

Dust Potential: This material, like most materials in powder form, is capable of creating a dust explosion.

FLASH POINT

N/A

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

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

FIREFIGHTING

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

Section 6 - Accidental Release Measures

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

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

METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Avoid contact and inhalation.

STORAGE

Suitable: Keep container closed. Store in a cool dry place.

SPECIAL REQUIREMENTS

Hygroscopic.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Mechanical exhaust required.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Government approved respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Wash contaminated clothing before

reuse.

Section 9 - Physical/Chemical Properties

Appearance	Color: White Form: Fine crystals	
Property	Value	At Temperature or Pressure
Molecular Weight	130.1 AMU	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	91 °C	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	N/A	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Materials to Avoid: Bases, Oxidizing agents, Reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

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

Eye Contact: May cause eye irritation.

Inhalation: May be harmful if inhaled.

Ingestion: Harmful if swallowed.

TOXICITY DATA

Oral

Rat

1320 mg/kg

LD50

Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Tremor. Gastrointestinal:Ulceration or bleeding from
stomach.

Oral

Mouse

2260 mg/kg

LD50

Remarks: Behavioral:Somnolence (general depressed activity).
Lungs, Thorax, or Respiration:Dyspnea. Gastrointestinal:Other
changes.

Oral

Guinea pig

1350 mg/kg

LD50

Remarks: Gastrointestinal:Gastritis.

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

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.

Section 14 - Transport Information

DOT

Proper Shipping Name: None

Non-Hazardous for Transport: This substance is
considered to be non-hazardous for transport.

IATA

Non-Hazardous for Air Transport: Non-hazardous for air
transport.

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION

Symbol of Danger: Xn

Indication of Danger: Harmful.

R: 22

Risk Statements: Harmful if swallowed.

S: 36

Safety Statements: Wear suitable protective clothing.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Harmful.

Risk Statements: Harmful if swallowed.

Safety Statements: Wear suitable protective clothing.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in

accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

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. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.