

## MATERIAL SAFETY DATA SHEET

Date Printed: 03/20/2005

Date Updated: 05/03/2004

Version 1.4

## Section 1 - Product and Company Information

Product Name	CITRIC ACID, 99.5+%, A.C.S. REAGENT
Product Number	251275
Brand	ALDRICH
Company	Sigma-Aldrich
Street Address	3050 Spruce Street
City, State, Zip, Country	SAINT LOUIS MO 63103 US
Technical Phone:	314 771 5765
Emergency Phone:	414 273 3850 Ext. 5996
Fax:	800 325 5052

## Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
CITRIC ACID ANHYDROUS	77-92-9	No
Formula	C6H8O7	
Synonyms	Aciletten * Anhydrous citric acid * Citretten * Citric acid, anhydrous * Citro * 2-Hydroxy-1,2,3-propanetricarboxylic acid * beta-Hydroxytricarballylic acid * Kyselina citronova (Czech) * Kyselina 2-hydroxy-1,2,3-propantrikarbonova (Czech) * NSC 30279 * 1,2,3-Propanetricarboxylic acid, 2-hydroxy-	
RTECS Number:	GE7350000	

## Section 3 - Hazards Identification

## EMERGENCY OVERVIEW

Irritant.  
Risk of serious damage to eyes.  
Possible sensitizer.

## HMIS RATING

HEALTH: 2  
FLAMMABILITY: 0  
REACTIVITY: 0

## NFPA RATING

HEALTH: 2  
FLAMMABILITY: 0  
REACTIVITY: 0

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

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

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### Section 5 - Fire Fighting Measures

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#### FLASH POINT

N/A

#### EXPLOSION LIMITS

Lower: 8 %

#### AUTOIGNITION TEMP

N/A

#### FLAMMABILITY

N/A

#### EXTINGUISHING MEDIA

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

#### FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.  
Specific Hazard(s): Emits toxic fumes under fire conditions.

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### Section 6 - Accidental Release Measures

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#### 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.

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### Section 7 - Handling and Storage

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#### HANDLING

User Exposure: Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

#### STORAGE

Suitable: Keep tightly closed.

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### Section 8 - Exposure Controls / PPE

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#### 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.

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#### Section 9 - Physical/Chemical Properties

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Appearance	Physical State: Solid	
Property	Value	At Temperature or Pressure
Molecular Weight	192.12 AMU	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	155 - 157 °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	Lower: 8 %	
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

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#### Section 10 - Stability and Reactivity

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##### STABILITY

Stable: Stable.

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

##### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

##### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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#### Section 11 - Toxicological Information

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##### ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

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

Eye Contact: Causes severe eye irritation.  
Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.  
Ingestion: May be harmful if swallowed.

#### SENSITIZATION

Sensitization: Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

#### SIGNS AND SYMPTOMS OF EXPOSURE

Exposure can cause: Vomiting. Diarrhea. Damage to tooth enamel. Dermatitis. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

#### TOXICITY DATA

Oral  
Rat  
3000 mg/kg  
LD50

Intraperitoneal  
Rat  
290 MG/KG  
LD50

Subcutaneous  
Rat  
5500 MG/KG  
LD50  
Remarks: Lungs, Thorax, or Respiration:Other changes. Other changes

Oral  
Mouse  
5040 mg/kg  
LD50  
Remarks: Lungs, Thorax, or Respiration:Other changes. Other changes

Intraperitoneal  
Mouse  
903 MG/KG  
LD50

Subcutaneous  
Mouse  
2700 MG/KG  
LD50  
Remarks: Lungs, Thorax, or Respiration:Other changes. Other changes

Intravenous  
Mouse  
42 MG/KG  
LD50  
Remarks: Behavioral:Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration:Cyanosis. Gastrointestinal:Changes in structure or function of salivary glands.

Intravenous

Rabbit  
330 MG/KG  
LD50

Remarks: Behavioral:Convulsions or effect on seizure threshold.  
Lungs, Thorax, or Respiration:Cyanosis. Gastrointestinal:Changes  
in structure or function of salivary glands.

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#### IRRITATION DATA

Skin  
Rabbit  
500 mg  
24H  
Remarks: Mild irritation effect

Eyes  
Rabbit  
0.75 mg  
24H  
Remarks: Severe irritation effect

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#### Section 12 - Ecological Information

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No data available.

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#### Section 13 - Disposal Considerations

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##### APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. 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.

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#### Section 14 - Transport Information

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##### 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.

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#### Section 15 - Regulatory Information

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##### EU ADDITIONAL CLASSIFICATION

Symbol of Danger: Xi  
Indication of Danger: Irritant.  
R: 41  
Risk Statements: Risk of serious damage to eyes.  
S: 26 39  
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear eye/face protection.

##### US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Irritant.  
Risk Statements: Risk of serious damage to eyes.  
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear

suitable protective clothing.  
US Statements: Possible sensitizer.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

TSCA INVENTORY ITEM: Yes

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

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Section 16 - Other Information

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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.