

## MATERIAL SAFETY DATA SHEET

Date Printed: 11/22/2007

Date Updated: 01/28/2006

Version 1.4

## Section 1 - Product and Company Information

Product Name	CITRIC ACID, ANHYDROUS, MEETS USP TESTING SPECIFICATIONS
Product Number	C1857
Brand	SIGMA
Company	Sigma-Aldrich
Address	3050 Spruce Street SAINT LOUIS MO 63103 US
Technical Phone:	800-325-5832
Fax:	800-325-5052
Emergency Phone:	314-776-6555

## Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
CITRIC ACID, MEETS USP TESTING SPECS.	77-92-9	No

Formula	C6H8O7
Synonyms	Aciletten * Anhydrous citric acid * Citretten * Citric acid, anhydrous * Citro * 2-Hydroxy-1,2,3-propanetricarboxylic acid * beta-Hydroxytricarballic 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. Irritating to respiratory system and skin.

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.

---

### 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

#### 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.

---

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

#### STORAGE

Suitable: Keep tightly closed.

---

## Section 8 - Exposure Controls / PPE

---

### ENGINEERING CONTROLS

Safety shower and eye bath. Mechanical exhaust required.

### PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

### GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

---

## Section 9 - Physical/Chemical Properties

---

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	155.0 - 157.0 °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

---

## Section 10 - Stability and Reactivity

---

### 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

---

## Section 11 - Toxicological Information

---

### ROUTE OF EXPOSURE

Skin Contact: Causes 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 is 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

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Dermatitis. Damage to tooth enamel. Diarrhea. Vomiting. Exposure can cause:

### TOXICITY DATA

Oral

Rat

3000 mg/kg

LD50

Intraperitoneal

Rat

290 MG/KG

LD50

Subcutaneous

Rat

5500 MG/KG

LD50

Remarks: Other changes Lungs, Thorax, or Respiration: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: Other changes Lungs, Thorax, or Respiration: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.

#### IRRITATION DATA

Skin

Rabbit

500 mg

24H

Remarks: Mild irritation effect

Eyes

Rabbit

0.75 mg

24H

Remarks: Severe irritation effect

---

#### Section 12 - Ecological Information

No data available.

---

#### Section 13 - Disposal Considerations

---

##### 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.

---

#### 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: Xi

Indication of Danger: Irritant.

R: 37/38-41

Risk Statements: Irritating to respiratory system and skin. Risk of serious damage to eyes.

S: 26-36/37/39

Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection.

#### US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Irritant.

Risk Statements: Risk of serious damage to eyes. Irritating to respiratory system and skin.

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

---

#### Section 16 - Other Information

---

#### DISCLAIMER

For R&D or manufacturing use. Not for prescription compound 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 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.