

## MATERIAL SAFETY DATA SHEET

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Version 1.3

## Section 1 - Product and Company Information

Product Name L-ASCORBIC ACID, 99%  
Product Number A92902  
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 No |
|---------------------------|---------|-------------|
| ASCORBIC ACID (VITAMIN C) | 50-81-7 | No          |

Formula C6H8O6  
Synonyms Adenex \* Allercorb \* Antiscorbic vitamin \*  
Antiscorbatic vitamin \* Arco-cee \* Ascoltin \*  
Ascorbajen \* Ascorbate \* Ascorbic acid \*  
L(+)-Ascorbic acid \* Ascor-B.I.D. \* Ascorbutina \*  
Ascorin \* Ascortéal \* Ascorvit \* Cantan \*  
Cantaxin \* Catavin C \* Cebicure \* Cebid \* Cebion  
\* Cebione \* Cecon \* Cee-caps TD \* Cee-vite \*  
Cegiolan \* Ceglion \* Celaskon \* ce lent \* Celin \*  
Cemagyl \* Ce-Mi-Lin \* Cemill \* Cenetone \* Cereon  
\* Cergona \* Cescorbat \* Cetamid \* Cetane-caps TD  
\* Cetemican \* Cevalin \* Cevatine \* Cevex \*  
Cevi-bid \* Cevimin \* CE-VI-Sol \* Cevital \*  
Cevitamic acid \* Cevitamin \* Cevitan \* Cevitex \*  
Cewin \* Ciamin \* Cipca \* Citrisorb \* C-Level \*  
C-Long \* Colascor \* Concemin \* C-Quin \* C-Span \*  
C-Vimin \* Dora-C-500 \* Davitamon C \* Duosorb \*  
L-threo-Hex-2-enonic acid, gamma-lactone \* Hicee  
\* Hybrin \* IDO-C \* 3-Keto-L-gulofuranolactone \*  
L-3-Ketothreohexuronic acid lactone \* Kyselina  
askorbova (Czech) \* Laroscorbine \* Lemascorb \*  
Liqui-Cee \* L-Lyxoascorbic acid \* NCI-C54808 \*  
NSC 33832 \* 3-Oxo-

RTECS Number: CI7650000

## Section 3 - Hazards Identification

## HMIS RATING

HEALTH: 0

FLAMMABILITY: 0

REACTIVITY: 1

## NFPA RATING

HEALTH: 0

FLAMMABILITY: 0  
REACTIVITY: 1

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

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#### Section 4 - First Aid Measures

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##### 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 breathing becomes difficult, call a physician.

##### DERMAL EXPOSURE

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

##### EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

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#### Section 5 - Fire Fighting Measures

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##### FLASH POINT

N/A

##### 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)

Exercise appropriate precautions to minimize direct contact with skin or eyes and prevent inhalation of dust.

##### 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: Avoid inhalation. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

##### STORAGE

Suitable: Keep tightly closed.

SPECIAL REQUIREMENTS

Light sensitive.

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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: Wear dust mask.

Hand: Protective 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      | 176.12 AMU                                                                |                            |
| pH                    | 1 - 2.5                                                                   |                            |
| BP/BP Range           | N/A                                                                       |                            |
| MP/MP Range           | 193 °C                                                                    |                            |
| Freezing Point        | N/A                                                                       |                            |
| Vapor Pressure        | N/A                                                                       |                            |
| Vapor Density         | N/A                                                                       |                            |
| Saturated Vapor Conc. | 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            | Solubility in Water: 1 M in H <sub>2</sub> O, 20°C<br>complete, colorless |                            |

N/A = not available

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Section 10 - Stability and Reactivity

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STABILITY

Stable: Stable.

Conditions to Avoid: Sensitive to light.

Materials to Avoid: Strong oxidizing agents.

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: May cause 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.

SIGNS AND SYMPTOMS OF EXPOSURE

Chronic ingestion of large doses may cause gastrointestinal disturbances including nausea and diarrhea, urinary effects involving urine acidification, oxalate and uric crystallization in the bladder and kidney, and decreased reaction times and psychomotor coordination.

TOXICITY DATA

Intravenous

Woman

900 MG/KG

LDLO

Remarks: Kidney, Ureter, Bladder:Changes in tubules (including acute renal failure, acute tubular necrosis).

Oral

Rat

11900 mg/kg

LD50

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Lacrimation. Behavioral:Somnolence (general depressed activity). Gastrointestinal:Hypermotility, diarrhea.

Subcutaneous

Rat

>10 GM/KG

LD50

Intravenous

Rat

>4 GM/KG

LD50

Remarks: Behavioral:Altered sleep time (including change in righting reflex). Behavioral:Somnolence (general depressed activity).

Oral

Mouse

3367 mg/kg

LD50

Intraperitoneal

Mouse

643 MG/KG

LD50

Intravenous  
Mouse  
518 MG/KG  
LD50

#### NTP CARCINOGEN LIST

Rating: No evidence.  
Species: Mouse/rat  
Route: Feed

#### CHRONIC EXPOSURE - TERATOGEN

Species: Mouse  
Dose: 6680 MG/KG  
Route of Application: Intraperitoneal  
Exposure Time: (11D PREG)  
Result: Effects on Embryo or Fetus: Fetal death.

Species: Mouse  
Dose: 800 MG/KG  
Route of Application: Intravenous  
Exposure Time: (8D PREG)  
Result: Specific Developmental Abnormalities: Central nervous system. Specific Developmental Abnormalities: Musculoskeletal system.

#### CHRONIC EXPOSURE - MUTAGEN

Species: Human  
Dose: 200 UMOL/L  
Cell Type: fibroblast  
Mutation test: DNA damage

Species: Human  
Dose: 200 UMOL/L  
Cell Type: Other cell types  
Mutation test: DNA damage

Species: Human  
Dose: 2500 UMOL/L  
Cell Type: HeLa cell  
Mutation test: DNA inhibition

Species: Human  
Dose: 200 UMOL/L  
Cell Type: Other cell types  
Mutation test: DNA inhibition

Species: Human  
Dose: 200 UMOL/L  
Cell Type: fibroblast  
Mutation test: Other mutation test systems

Species: Human  
Dose: 200 UMOL/L  
Cell Type: Other cell types  
Mutation test: Other mutation test systems

Species: Human  
Dose: 200 MG/L

Cell Type: Other cell types  
Mutation test: DNA inhibition

Species: Mouse  
Route: Intraperitoneal  
Dose: 4500 MG/KG  
Exposure Time: 3D  
Mutation test: Micronucleus test

Species: Mouse  
Dose: 500 UMOL/L  
Cell Type: liver  
Mutation test: Other mutation test systems

Species: Mouse  
Route: Intraperitoneal  
Dose: 1600 MG/KG  
Mutation test: Cytogenetic analysis

Species: Mouse  
Route: Intraperitoneal  
Dose: 1600 MG/KG  
Mutation test: Sister chromatid exchange

Species: Hamster  
Dose: 400 MG/L  
Cell Type: ovary  
Mutation test: Micronucleus test

Species: Hamster  
Dose: 300 MG/L  
Cell Type: ovary  
Mutation test: Cytogenetic analysis

Species: Hamster  
Dose: 500 MG/L  
Cell Type: ovary  
Mutation test: Sister chromatid exchange

Species: Mammal  
Dose: 500 UMOL/L  
Cell Type: lymphocyte  
Mutation test: DNA damage

#### CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat  
Dose: 2500 MG/KG  
Route of Application: Oral  
Exposure Time: (1-22D PREG)  
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Species: Guinea pig  
Dose: 19500 MG/KG  
Route of Application: Oral  
Exposure Time: (30-58D PREG/10D POST)  
Result: Effects on Newborn: Biochemical and metabolic.

Species: Guinea pig  
Dose: 5800 MG/KG  
Route of Application: Oral

Exposure Time: (1-58D PREG)  
Result: Effects on Newborn: Stillbirth. Effects on Newborn:  
Viability index (e.g., # alive at day 4 per # born alive).

Species: Guinea pig  
Dose: 2471 MG/KG  
Route of Application: Oral  
Exposure Time: (MULTIGENERATIONS)  
Result: Effects on Newborn: Growth statistics (e.g., reduced weight gain).

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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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### 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. 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 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.