Material Safety Data Sheet
Ascorbic acid

Section 1 - Chemical Product and Company Identification

MSDS Name:
Ascorbic acid

Catalog Numbers:
LC11530

Synonyms:
3-Keto-L-glucofuranolactone; Vitamin C; L-3-keto-threo-hexuronic acid lactone

Company Identification:
LabChem, Inc.
200 William Pitt Way
Pittsburgh, PA 15238

Company Phone Number:
(412) 826-5230

Emergency Phone Number:
(800) 424-9300

CHEMTREC Phone Number:
(800) 424-9300

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name:</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-81-7</td>
<td>Ascorbic acid</td>
<td>100%</td>
</tr>
</tbody>
</table>

Section 3 - Hazards Identification

Emergency Overview

Appearance: *White powder*

Target Organs: None.

Potential Health Effects

Eye:
May cause eye irritation.

Skin:
May cause skin irritation.

Ingestion:
Ingestion of large amounts may cause gastrointestinal irritation. Low hazard for usual industrial handling. Large doses may cause diarrhea and acidification of the urine which may cause stones in the urinary tract.

Inhalation:
May cause respiratory tract irritation.

Chronic:
No information found.
Section 4 - First Aid Measures

Eyes:
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids until no evidence of chemical remains. Get medical aid if irritation develops.

Skin:
Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops.

Ingestion:
Do not induce vomiting. If victim is conscious, give 2-4 glasses of water or milk. Get medical aid at once.

Inhalation:
Give artificial respiration if necessary. Move victim to fresh air. Keep victim warm and at rest. Get medical aid at once.

Notes to Physician:
Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. This material in sufficient quantity and reduced particle size is capable of creating a dust explosion. Powerful reducing agent.

Extinguishing Media:
Use extinguishing media most appropriate for the surrounding fire.

Autoignition Temperature:
1220°F (660°C).

Flash Point:
No information found.

NFPA Rating:
Health-1; flammability-1; reactivity-1

Explosion Limits:
Lower: n/a  Upper: n/a

Section 6 - Accidental Release Measures

General Information:
Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:
Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately. Avoid creating airborne particles. Provide ventilation.
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Section 7 - Handling and Storage

Handling:
Wash thoroughly after handling. Avoid breathing dust, vapor, mist, or gas. Avoid contact with eyes, skin, and clothing.

Storage:
Store capped at room temperature. Protect from light, heat and incompatibles.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits:

<table>
<thead>
<tr>
<th>Chemical Name:</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ascorbic acid</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

OSHA Vacated PELs:
Ascorbic acid: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes:
Do not wear contact lenses when working with chemicals. An eye wash fountain should be available in the immediate work area. Wear appropriate protective eyeglasses or chemical safety goggles as described in 29 CFR 1910.133.

Skin:
Wear appropriate protective gloves to prevent skin exposure.

Clothing:
Wear appropriate protective clothing to prevent skin exposure.

Respirators:
Follow the OSHA respirator regulations found in 29 CFR 1910.134. Use a NIOSH/MSHA approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Physical State:</th>
<th>Crystals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color:</td>
<td>White to yellow</td>
</tr>
<tr>
<td>Odor:</td>
<td>Odorless</td>
</tr>
<tr>
<td>pH:</td>
<td>2.1-2.6 (5% solution)</td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor Density:</td>
<td>Not available</td>
</tr>
<tr>
<td>Evaporation Rate:</td>
<td>Negligible</td>
</tr>
<tr>
<td>Viscosity:</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>Not available</td>
</tr>
</tbody>
</table>
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Freezing/Melting Point: 190°C (decomposes)
Decomposition Temperature: 190°C
Solubility in water: Soluble
Specific Gravity/Density: 1.65 (Water = 1)
Molecular Formula: C6H8O6
Molecular Weight: 171.13

Section 10 - Stability and Reactivity

Chemical Stability:
Stable at room temperature in closed containers under normal storage and handling conditions.
Stable to air when dry; aqueous solutions are rapidly oxidized by air.

Conditions to Avoid:
Excess heat, dust generation, exposure to light, moist air or water.

Incompatibilities with Other Materials:
Strong oxidizing agents.

Hazardous Decomposition Products:
Carbon monoxide, carbon dioxide.

Hazardous Polymerization:
Has not been reported.

Section 11 - Toxicological Information

RTECS:
CAS# 50-81-7: CI7650000
LD50/LC50:
CAS# 50-81-7:
Oral, mouse: LD50 = 3367 mg/Kg;
Oral, rat: LD50 = 11900 mg/Kg

Carcinogenicity:
CAS# 50-81-7: Not listed by ACGIH, IARC, NTP, or CA Proposition 65.

Epidemiology:
No information available.

Teratogenicity:
No information available.

Reproductive:
No information available.

Mutagenicity:
No information available.

Neurotoxicity:
No information available.

Section 12 - Ecological Information

No information available.
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Section 13 - Disposal Considerations

Dispose of in accordance with Federal, State, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: Not regulated.
Hazard Class:
UN Number:
Packing Group:

Section 15 - Regulatory Information

US Federal
TSCA:
CAS# 50-81-7 is listed on the TSCA inventory. Does not have a Significant New Use Rule.
SARA Reportable Quantities (RQ):
CAS# 50-81-7 does not have a RQ.
CERCLA/SARA Section 313:
Not reportable under Section 313.
OSHA - Highly Hazardous:
Not considered highly hazardous by OSHA.

US State
State Right to Know:
CAS# 50-81-7 is not listed on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts, Florida.
California Regulations:
Not listed.

European/International Regulations
Canadian DSL/NDSL:
CAS# 50-81-7 is listed on Canada’s DSL List.
Canada Ingredient Disclosure List:
CAS# 50-81-7 is not listed on the Ingredient Disclosure List.

Section 16 - Other Information

MSDS Creation Date: March 6, 2007
Revision Date: None
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