



**SAFETY DATA SHEET**  
**L-Ascorbate-2-Phosphate**

**SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION**

**1.1 Product identifier**

**Product name:** L-Ascorbate-2-Phosphate

**SDS number:** TL007-02

**Synonym(s):** Ascorbyl monophosphate; Ascorbyl-2-monophosphate; Ascorbyl-2-phosphate; L-Ascorbic acid 2-phosphate

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

**General use:** For use as a source of stabilized ascorbic acid for animal feed

**Uses advised against:** None known

**1.3 Details of the supplier and of the safety data sheet**

**Distributor**

Shandong Tianli Pharmaceutical Co., Ltd.

Chenming Industrial Park, Shouguang

Shandong, China

+1-86-536-2238606

**1.4 Emergency telephone number**

+1-15069678200

**SECTION 2 - HAZARDS IDENTIFICATION**

**2.1 Classification of substance or mixture**

**Product definition:** Substance

**Classification in accordance with 29 CFR 1910 (OSHA HCS) and Regulation EC No. 1272/2008**

Not a dangerous substance according to OSHA or to European Union Legislation

**2.2 Label elements**

Not classified as dangerous according to GHS

**2.3 Hazards not otherwise classified (HNOC) or not covered by GHS**

May form combustible dust concentrations in air

**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

**3.1 Substances**

% by Weight	Ingredient	CAS Number	EC Number	Index Number	GHS Classification
98 - 100	L-Ascorbate-2-Phosphate	23313-12-4	-----	-----	-----

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence, require reporting in this section.

**3.2 Mixtures**

Not applicable

**SECTION 4 - FIRST AID MEASURES**

**4.1 Description of first aid measures**

**Inhalation:** If exposure to product dust causes respiratory irritation or distress, move the exposed person to fresh air immediately. If breathing is difficult or irregular, administer oxygen; if respiratory arrest occurs, start artificial respiration by trained personnel. Loosen tight fitting clothing such as a collar, tie, belt or waistband. If symptoms persist, seek medical attention.

**Eyes:** Do not rub eyes. Immediately flush eyes with large amounts of water for 15 minutes, occasionally lifting the upper and lower lids. Remove contact lenses, if present and easy to do, after the first 2 minutes and continue rinsing. If irritation persists seek medical attention, preferably from an ophthalmologist.

**Skin:** Flush skin with water while removing contaminated clothing. Wash affected area with soap and water followed by thorough rinsing. Wash contaminated clothing and shoes before reuse. If irritation persists or if rash develops, seek medical attention.

**Ingestion:** Rinse mouth thoroughly with water if the victim is conscious. Remove dentures, if present. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious or convulsing person. Do not leave the victim unattended. Obtain medical attention, especially if a large amount is swallowed.

**4.2 Most important symptoms and effects, both acute and delayed**

**Potential health symptoms and effects**

**Eyes:** Dust may cause eye irritation with redness, swelling, discomfort and tearing. Particulates can cause mechanical irritation of the eye and surrounding tissue.

**Skin:** May cause mild, transient skin irritation. Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

**Inhalation:** Inhalation of dust or particulates may cause irritation of the upper respiratory system.

**Ingestion:** May cause gastrointestinal irritation with nausea, vomiting, abdominal cramping and diarrhea.

**Chronic:** Chronic ingestion of large doses may cause gastrointestinal disturbances including nausea, diarrhea, urinary effects involving urine

acidification, oxalate and uric crystallization in the bladder and kidneys, tooth erosion and decreased reaction times and psychomotor coordination. Prolonged or repeated exposure may cause dermatitis or allergic reactions in certain sensitive individuals.

#### 4.3 Indication of any immediate medical attention and special treatment needed

**Advice to doctor and hospital personnel:** Treat symptomatically and supportively.

## SECTION 5 - FIRE FIGHTING MEASURES

### 5.1 Extinguishable media

**Suitable methods of extinction:** Use extinguishing media suitable for surrounding fire.

**Unsuitable methods of extinction:** None known

### 5.2 Special hazards arising from the substance or mixture

Closed containers may rupture due to the buildup of pressure when exposed to extreme heat. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent or may be delayed. Obtain medical attention.

**Explosion hazards:** May form explosive dust concentrations in the air, especially in confined spaces.

### 5.3 Advice for firefighters

Full protective equipment including self-contained breathing apparatus should be used. Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion when exposed to extreme heat. If possible, water contaminated by this material should be contained from being discharged to any waterway, sewer or drain to prevent environmental contamination.

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

Evacuate non-essential personnel. Wear appropriate protective clothing designated in Section 8.2. Do not inhale dust. Ventilate the area.

Remove all sources of ignition. No smoking. Clean up spills immediately.

### 6.2 Environmental precautions

Avoid dispersal of spilled material or runoff and prevent contact with soil and entry into drains, sewers or waterways.

### 6.3 Methods and materials for containment and cleaning up

Approach spill from upwind direction. Cover drains and contain spill. Avoid dust generation during cleanup. Collect material and place into an approved container for proper disposal. Observe possible material restrictions (Sections 7.2 and 10.5). Dispose of in accordance with federal, state and local regulations.

### 6.4 Reference to other sections

See Section 13 for additional waste treatment information.

## SECTION 7 - HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Wear all appropriate personal protective equipment specified in Section 8.2. Do not get in eyes or on skin or clothing. Do not breathe dust. No smoking. If normal use of material presents a respiratory hazard, use only adequate ventilation or wear an appropriate respirator. Wash contaminated clothing and shoes before reuse.

#### **Advice on protection against fire and explosion**

Avoid dust generation and accumulation. May form explosive dust concentrations in the air, especially in confined spaces.

### 7.2 Conditions for safe storage, including any incompatibilities

Store in dry, cool, well-ventilated areas away from incompatible materials (see Section 10.5), food and drink. Light sensitive. Do not store in direct sunlight. Transfer only to approved containers having correct labeling. Keep container tightly closed when not in use. Protect containers against physical damage. Containers that have been opened must be carefully resealed and kept upright to prevent spillage. Containers are hazardous when empty as they contain product residues. Use appropriate containment to avoid environmental contamination. Ventilate closed areas. Do not take internally. Keep out of reach of children.

### 7.3 Specific end uses

Apart from the uses mentioned in Section 1.2, no other specific uses are stipulated.

## SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 Control parameters

Contains no substances with occupational exposure limits.

### 8.2 Exposure controls

**Engineering measures:** Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Use adequate ventilation. Local exhaust is preferable. Refer to Section 7.1.

**Individual protection measures:** Wear protective clothing to prevent repeated or prolonged contact with product. Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the representative supplier.

**Hygiene measures:** Facilities storing or using this material should be equipped with an eyewash station and safety shower. Change contaminated clothing. Preventive skin protection is recommended. Wash hands thoroughly after use, before eating, drinking, smoking or using the lavatory.

**Eye/face protection:** Wear protective goggles or safety glasses with non-perforated side shields. Refer to 29 CFR 1910.133, ANSI Z87.4 or Standard EN 166.

**Hand protection:** Wear gloves recommended by glove supplier for protection against materials in Section 3. Gloves should be impermeable to chemicals and oil. Breakthrough time of gloves must be greater than the intended use period.

**Other protective equipment:** Wear protective clothing. Wear protective boots if the situation requires.

**Respiratory Protection:** Wear an approved filter type dust respirator when handling this product. Where risk assessment shows air-purifying respirators are appropriate use a half-mask respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Environmental exposure controls:** Do not empty into drains.

*Personal Protective Equipment (PPE) must not be considered a long-term solution to exposure control. PPE usage must be accompanied by employer programs to properly select, maintain, clean fit and use. Consult a competent industrial hygiene resource to determine hazard potential and/or the PPE manufacturers to ensure adequate protection.*



Safety Glasses



Gloves



Dust Respirator

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

<b>Appearance</b>	White crystalline solid
<b>Odor</b>	Mild
<b>Odor Threshold</b>	No data available
<b>Molecular Weight</b>	256.10 g/mol
<b>Chemical Formula</b>	C <sub>6</sub> H <sub>9</sub> O <sub>9</sub> P
<b>pH</b>	No data available
<b>Freezing/Melting Point, Range</b>	No data available
<b>Initial Boiling Point</b>	No data available
<b>Evaporation Rate</b>	Not applicable
<b>Flammability (solid, gas)</b>	Non-flammable. May form combustible dust concentrations in the air
<b>Flash Point</b>	No data available
<b>Autoignition Temperature</b>	No data available
<b>Decomposition Temperature</b>	No data available
<b>Lower Explosive Limit (LEL)</b>	No data available
<b>Upper Explosive Limit (UEL)</b>	No data available
<b>Vapor Pressure</b>	No data available
<b>Vapor Density</b>	No data available
<b>Specific Gravity</b>	No data available
<b>Viscosity</b>	No data available
<b>Solubility in Water</b>	Soluble
<b>Partition Coefficient: n-octanol/water</b>	No data available
<b>Oxidizing Properties</b>	Not applicable
<b>Explosive Properties</b>	Not applicable
<b>Volatiles by Weight @ 21 °C</b>	0%

### 9.2 Other data

No data available

## SECTION 10 - STABILITY AND REACTIVITY

### 10.1 Reactivity

No special reactivity has been reported.

### 10.2 Chemical stability

This product is stable under recommended storage conditions, handling and use.

On prolonged storage, yellow discoloration may occur through slow decomposition, which does not noticeably diminish biological activity.

### 10.3 Possibility of hazardous reactions

Hazardous polymerization does not occur.

### 10.4 Conditions to avoid

Contact with incompatible materials; exposure to light, heat and humidity; dust generation and accumulation

### 10.5 Incompatible materials

Strong oxidizing agents, bases, metals, metal salts

### 10.6 Hazardous decomposition products

Thermal decomposition products include oxides of carbon.

## SECTION 11 - TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute oral toxicity

Expected to have low acute oral

#### Acute inhalation toxicity

Expected to have low acute inhalation toxicity

#### Acute dermal toxicity

Expected to have low acute dermal toxicity

#### Skin irritation/corrosion

May cause mild, transient skin irritation.

**Eye irritation/corrosion**

May cause eye irritation.

**Sensitization**

May cause an allergic skin reaction in sensitive individuals.

**Genotoxicity in vitro**

No data available

**Mutagenicity**

No data available

**Specific organ toxicity - single exposure**

No data available

**Specific organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**11.2 Further information**

No component of this product present at levels greater than or equal to the 0.1% threshold (de minimis) is identified as a probable, possible, potential or confirmed carcinogen by ACGIH, IARC, NTP or OSHA. No data is available regarding the mutagenicity or teratogenicity of this product, nor is there any available data that indicates that it causes adverse developmental or fertility effects.

Handle in accordance with good industrial hygiene and safety practice.

**SECTION 12 - ECOLOGICAL INFORMATION****12.1 Toxicity**

This substance is practically non-toxic to aquatic organisms on an acute basis.

**12.2 Persistence and degradability**

This material is readily biodegradable.

**12.3 Bioaccumulation potential**

The bioaccumulation potential for this substance is low.

**12.4 Mobility in soil**

No data available

**12.5 Results of PBT and vPvB assessment**

No data available

**12.6 Other adverse effects****Additional ecological information**

Do not allow material to run into surface waters, wastewater or soil.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

**SECTION 13 - DISPOSAL CONSIDERATIONS****13.1 Waste treatment methods**

**Methods of disposal:** The generation of waste should be avoided or minimized whenever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Disposal of surplus and non-recyclable product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional and local authority requirements. Avoid dispersal of spilt material or runoff and contact with soil, waterways, drains and sewers.

**RCRA P-Series:** No listing

**RCRA U-Series:** No listing

**SECTION 14 - TRANSPORT INFORMATION**

**Note:** Transportation information provided is for reference only. Customer is urged to consult 49 CFR 100 - 177, IMDG, IATA, EC, United Nations Transportation of Dangerous Goods (TDG) and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

**NOT REGULATED FOR TRANSPORT**

**SECTION 15 - REGULATORY INFORMATION****15.1 Safety, health and environmental regulations/legislation specific for substance or mixture****U. S. Federal Regulations**

**OSHA Hazard Communication Standard:** This material is not classified as highly hazardous in accordance with OSHA 29 CFR 1910.1200.

**OSHA Process Safety Management Standard:** This product is not regulated under OSHA PSM Standard 29 CFR 1910.119.

**EPA Risk Management Planning Standard:** This product is not regulated under EPA RMP Standard (RMP) 40 CFR Part 68.

**EPA Federal Insecticide, Fungicide and Rodenticide Act:** This substance is not a registered Pesticide under the FIFRA, 40 CFR Part 150.

**Toxic Substance Control Act (TSCA) Inventory:** L-Ascorbate-2-Phosphate (CAS #23313-12-4) is exempt from listing on the TSCA Inventory because it is intended for use in applications regulated by the Food and Drug Administration in the United States. This product is not subject to TSCA 12(b) Export Notification.

**Drug Enforcement Administration (DEA) List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.4(f)(2)) and Chemical Code Number**  
Not listed

**Drug Enforcement Administration (DEA) Lists 1 & 2, Exempt Chemical Mixtures (21 CFR 1310.12(c)) and Code Number**  
Not listed

**Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) Chemicals**  
Not listed

**Superfund Amendments and Reauthorization Act (SARA)**

**SARA 313 Information:** None of the chemicals in this product are subject to reporting requirements of Section 313 of the Emergency Planning and Community Right-to Know Act of 1986.

**SARA Section 311/312 Hazard Categories:** None known

**SARA 302/304 Extremely Hazardous Substance:** None of the chemicals in this product are subject to reporting requirements of these sections of Title III of SARA.

**SARA 302/304 Emergency Planning & Notification:** None of the chemicals in this product are subject to reporting requirements of these sections of Title III of SARA.

**Comprehensive Response Compensation and Liability Act (CERCLA):** This product contains no CERCLA reportable substances.

**Clean Air Act (CAA)**

This product does not contain any substances that listed as Hazardous Air Pollutants (HAPs) designated in CAA Section 112 (b).

This product does not contain any Class 1 Ozone depletors.

This product does not contain any Class 2 Ozone depletors.

**Clean Water Act (CWA)**

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**U.S. State Regulations**

**California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986**

This product contains no chemical(s) known to the State of California to cause cancer, birth defects or reproductive harm.

**Other U.S. State Inventories**

L-Ascorbate-2-Phosphate (CAS #23313-12-4) is not listed on any State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists.

**Canada**

**WHMIS Hazard Symbol and Classification:** No data available

**Canadian National Pollutant Release Inventory (NPRI):** None of the substances in this product are listed on the NPRI.

**European Economic Community**

**WGK, Germany (Water danger/protection):** 1 (low hazard to waters)

**Global Chemical Inventory Lists**

Country	Inventory Name	Inventory Listing*
Canada	Domestic Substance List (DSL)	No
Canada	Non-Domestic Substance List (NDSL)	No
Europe	Inventory of New and Existing Chemicals (EINECS)	No
United States	Toxic Substance Control Act (TSCA)	No
Australia	Australian Inventory of Chemical Substances (AICS)	No
New Zealand	New Zealand Inventory of Chemicals (NZIoC)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (KECI)	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No

\*Yes - All components of this product are in compliance with the inventory requirements administered by the governing country.

No - One or more components of this product are not on the inventory or are exempt from listing.

## 15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

## SECTION 16 - OTHER INFORMATION

### Hazardous Material Information System (HMIS)

Health	2
Flammability	0
Physical Hazard	0
Personal Protection	E

E= safety glasses and gloves and a dust mask

### HMIS Hazard Rating Legend

0 = Minimal 1 = Slight 2 = Moderate 3 = Serious  
4 = Severe \* = Chronic Health Hazard

### NFPA Hazard Rating Legend

0 = Insignificant 1 = Slight 2 = Moderate  
3 = High 4 = Extreme

### National Fire Protection Association (NFPA)

Flammability



Special

### Abbreviation Key

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	Accord Dangereux Routier (European regulations concerning the international transport of dangerous goods by road)
CAS	Chemical Abstract Services

<b>CFR</b>	Code of Federal Regulations
<b>DOT</b>	Department of Transportation
<b>EC<sub>50</sub></b>	Half Maximal Effective Concentration
<b>EMS Guide</b>	Emergency Response Procedures for Ships Carrying Dangerous Goods
<b>EPA</b>	Environmental Protection Agency
<b>ErC<sub>50</sub></b>	Reduction of Growth Rate
<b>ERG</b>	Emergency Response Guide Book
<b>FDA</b>	Food and Drug Administration
<b>GHS</b>	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
<b>HCS</b>	Hazard Communication Standard
<b>IARC</b>	International Agency for Research on Cancer
<b>IATA</b>	International Air Transport Association
<b>IC<sub>50</sub></b>	Half Maximal Inhibitory Concentration
<b>ICAO</b>	International Civil Aviation Organization
<b>IDLH</b>	Immediately Dangerous to Life and Health
<b>IMDG</b>	International Maritime Dangerous Goods
<b>IMO</b>	International Maritime Organization
<b>LC<sub>50</sub></b>	50% Lethal Concentration
<b>LD<sub>50</sub></b>	50% Lethal Dose
<b>LD<sub>Lo</sub></b>	Lowest Lethal Dose
<b>mppcf</b>	Millions of Particles Per Cubic Foot
<b>NA</b>	North America
<b>NAERG</b>	North American Emergency Response Guide Book
<b>NIOSH</b>	National Institute for Occupational Safety
<b>NTP</b>	National Toxicology Program
<b>OSHA</b>	Occupational Safety and Health Administration
<b>PBT</b>	Persistent, Bioaccumulating and Toxic
<b>PEL</b>	Permissible Exposure Limit
<b>PMCC</b>	Pensky-Martens Closed Cup
<b>ppm</b>	Parts Per Million
<b>RCRA</b>	Resource Conservation and Recovery Act
<b>RID</b>	Dangerous Goods by Rail
<b>RQ</b>	Reportable Quantity
<b>TCC/Tag</b>	Tagliabue Closed Cup
<b>TLV</b>	Threshold Limit Value
<b>TSCA</b>	Toxic Substance Control Act
<b>TWA</b>	Time-Weighted Average
<b>UN</b>	United Nations
<b>VOC</b>	Volatile Organic Compounds
<b>vPvB</b>	Very Persistent and Very Bioaccumulating
<b>WHMIS</b>	Workplace Hazardous Materials Information System

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Shandong Tianli be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Shandong Tianli has been advised of the possibility of such damages.*

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