CERTIFICATE OF ANALYSIS

Vitamin C Ascorbic Acid Crystalline Powder

BP/USP/EP

Original Specification: DFI-743011V06 Chemical formula: $C_6H_8O_6$

Batch Number 4383605
Best Before End January 2023

TEST	SPECIFICATION	RESULT
Appearance	White crystalline powder	Conforms
Assay	99 - 100.5 %	99.74%
Colour	Clear = < BY7	Clear =< BY7
Identification	Positive reaction	Positive Reaction
pH (2% solution)	2.4 - 2.8	2.42
Heavy metals	Max 10 ppm	Max 5ppm
Cadmium	Max 1 ppm	Max 1ppm
Sulphated ash	Max 0.1 %	Max 0.1%
Arsenic	Max 1 ppm	Max 1 ppm
Loss on drying	Max 0.4 %	<0.4%
Melting point	About 190°C	190.6°C
Residual solvents	Pass	Pass
Lead	Max 2 ppm	Max 2 ppm
Iron Content	Max 2 ppm	Max 2 ppm
Oxalic Acid	Max 0.2 %	Max 0.2%
Specific Optical Rotation	+20.5° + 21.5°	+21.16°
Mercury	Max 0.1 ppm	Max 0.1ppm
Copper	Max 5 ppm	Max 5ppm
Total plate count	Max 100 cfu/g	Max 100 cfu/g
Total yeasts and moulds	Max 100 cfu/g	Max 100 cfu/g
Staphylococcus aureus	Negative	Negative
Pseudomonas aeruginosa	Negative	Negative
Salmonella	Negative	Negtaive
Escherichia Coli	Negative	Negative
pH (5% solution)	2.1 - 2.6	2.36

As provided by our supplier

BiOrigins, 19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK
Tel: 01425 655555 Email: technical@madarcorporation.co.uk

Impurity C	Max 0.15 %	Max 0.15%
Impurity D	Max 0.15 %	Max 0.15%
Unspecified Impurity	Max 0.1 %	Max 0.1%
Total Impurities	Max 0.2 %	Max 0.2%
Impurity E	Max 0.2 %	<0.2%
Zinc	Max 0.25 ppm	Max 0.25ppm

As provided by our supplier

GMO STATUS

Product Vitamin C (Ascorbic Acid)

GMO Status according to EU regulations 1829/2003 and 1830/2003

	Question	Yes / No / Details
1	Are you the manufacturer of this product?	√
2	What is the starting raw material for this product?	Sorbitol
3	If the product is derived from a botanical source please state botanical name / animal origin etc.?	Corn
4	In which country is this raw material produced/harvested?	China
5	Is your product a GMO or is your product derived from a GMO?	No
6	Has GMO been used in processing aids or additives in connection with manufacturing of the product or any of its ingredients (i.e. micro-organisms / microbial rennin / enzymes etc?)	No
7	Is your product certified to be Identity Preserved (IP) by 3rd party? If yes please attach a copy of your IP Certificate	Manufacturer is
8	Have you tested your product to guarantee PCR negative status? *If YES please attach a copy of your PCR Test Report*	Manufacture
9	If yes, please inform frequency of PCR negative testing	N/A
10	Do you have a written GMO policy? *If YES please attach a copy*	N/A
11	Do you have a written GMO procedure? *If YES please attach a copy*	N/A
12	Does any ingredient of the product trigger labelling as from GMO?	N/A

13	Is the product and/or its intermediates manufactured with the help of a micro-organism?	Yes
14	Please state species of micro-organism	Pseudomonas and Black acetic acid bacteria
15	Is the micro-organism genetically modified?	No
16	Please indicate the modification	
17	Is the product and/or its intermediates manufactured with the help of enzymes?	No
18	Is the enzyme genetically modified?	N/A
19	Please indicate the modification	

If for any reason there are any modifications/changes with this product, you are responsible for updating your records and notifying us immediately.

IRRADIATION CERTIFICATE

OUR MANUFACTURER CONFIRMS THAT THEIR VITAMIN C IS FREE FROM RADIOACTIVITY. THEY DO NOT CONTAIN ANY KIND OF RADIATION DURING THE COURSE OF PROCESS.

SAFETY DATA SHEET

Section 1 - Chemical product and company identification

MSDS name: L-(+)- the Ascorbic acid
Synonyms vitamin C

Section 2 - Hazards Identification

EMERGENCY OVERVIEW
Light sensitive Air sensitive .
2.1 classification of the substance or mixture
Classification according to regulation (EC) No.1272/2008[CLP]
Not classified
Classification according to directive 67/548/EEC or 1999/45/EC
Not classified
Adverse physicochemical,human health and environmental effects
No additional information available
2.2 label elements
Labeling according to regulation (EC) No.1272/2008[CLP]
No labeling applicable
2.3 other hazards
Other hazards not contributing to the classification
exposure may produce an allergic reaction

compliance under 29 CFR 1910.1200, OSHA's Hazard Communication Standard 2012 (HAZCOM 2012)

Section 3 - Composition, Information on Ingredients

Name	Product identifier	%	Classification according to 67/548/EEC
Ascorbic Acid	(CAS No) 50-81-7 (EC No) 200-066-2	≤100%	Not classified

Name	Product identifier	%	Classification according to (EC) No.1272/2008[CLP]
Ascorbic Acid	(CAS No) 50-81-7 (EC No) 200-066-2	≤100%	Not classified

Section 4 - First Aid Measures

Eyes	Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid.
Skin	Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if imitation develops or persists.
Ingestion	Get medical aid. Wash mouth out with water.
Inhalation	Remove from exposure to fresh air immediately, if not breathing give artificial respiration . If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.
Notes to Physician	Treat symptomatically and

Section 5 - Fire Fighting Measures

General Information	As in any fire , wear a self-contained breathing apparatus in pressure-demand, MSHA/NJOSK(approved or equivalent),and full protective gear.
Extinguishing Media	In case of fire use water spray, dry chemical, carbon dioxide, or chemical foam.
Atoignition Temperature	Not available.
Flash Point	Not available.
NFPH Rating	Not published.
Explosion Limits	Lower Not available. Upper Not available.

Section 6 - Accidental Release Measures

General Information	Use proper personal protective equipment as indicated in section
Spills/Leaks	Vacuum or sweep up material and place into a suitable disposal container.

Section 7 - Handling And Storage

Handling	Avoid breathing dust , vapor , mist ,or gas ,Avoid contact with skin and eyes.
Storage	Stored in a cool dry place ,stored in a tightly closed container.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls Use adequate ventilation to keep airborne concentrations low.

PERSONAL PROTECTIVE EQUIPMENT

Eyes	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA′ s eye and face protection regulations in 29 OPR 1910.133 or European Standard EN166.
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 0r European Standard EN149. Always use a NIOSH or European standard EN 145 spproved respirator when necessary.

Section 9 - Physical and Chemical Properties

Physical State	Powder
Appearance	White
Odor	Not available
PH	Not available
Vapor Pressure	Negligible
Viscosity	Not available
Boiling Point	Not available
Freezing/Melting Point	190 ℃
Decomposition Temperature	Not available
Solubility	333 Gs/ L water at 20 ℃
Specific Gravity /Density	1.7000g/cm^3
Molecular Formula	$C_6H_8O_6$
Molecular Weight	176.13

Section 10 - Stability and Reactivity

Chemical stability	Stable under normal temperatures and pressures
Conditions to Avoid	Incompatible materials light exposure to
Incompatibilities with Other Materials	Strong oxidizing agents
Hazardous Decomposition Products	Carbon monoxide carbon dioxide

Hazardous Polymerization Will not occur

Section 11 - Toxicological Information

RTECS #	CAS # 50-81-7: C 17650000
LD50/LC50	CAS # 50-81-7: Oral mouse; LD50 =3367mg/kg Oral rat: LD50=11900mgkg
Carcinogenicity	L-(+)-Ascorbic acid Not listed by ACGLIL IARC NIOSH NTP, or OSHA
Other	see actual entry in RTECS for complete information

POTENTIAL HEALTH EFFECTS

Eye	Contact cause transient eye imitation.
Skin	Low hazard for usual industrial handing.
Ingestion	Low hazard for usual industrial handing. May cause mild digestive tract imitation.
Inhalation	May cause respiratory tract imitation.
Chronic	Not available

Acute toxicity	Not classified
Skin corrosion/irritation	Not classified
Serious eye damage/irritation	Not classified
Respiratory or skin sensitization	Not classified
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified
Reproductive toxicity	Not classified
Specific target organ toxicity(single exposure)	Not classified
Specific target organ toxicity(repeated exposure)	Not classified
Aspiration hazard	Not classified
Potential adverse human health effects and symptoms	To our knowledge,the product does not present any particular risk,under normal conditions of use.Large amounts：Not applicable

Section 12 - Ecological Information

For further information contact Shandong Luwei Pharmaceutical Co., Ltd.

Section 13 - Disposasl Considerations

Dispose of in a manner consistent with local regulations.

Section 14 - Transport Information

	US DOT	IMO	IATA	RID/ADR	Canadian TDG
Shipping Name	N/A				N/A
Hazard Class					
UN Number:					
Packing Group:					

Section 15 - Regulatory Information

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: Not available.
Disk Phrases;
Safety Phrases;
S 24/25 Avoid contact with skin and eyes.
WGK (Water Danger/Protection)
CAS # 50-81-7:0
Canada

CAS#50-81-7 is listed on Canada ' s DSLADSL List.
CAS#50-81-7 is not listed on Canadas ingredient disclosure list.
Exposure Limits
US FEDERAL
TSCA
CAS # 50-81-7 is listed on the TSCA inventory.

Section 16 - Additional Information

The information above is believed to be accurate and represents the best informa ion 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 way shall the company 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 the company has been advised of the possibility of such damages.

NUTRITIONAL / DIETARY INFORMATION

Product Ascorbic Acid

1 CLASSIFICATION

		Yes/No
1.1	Does your product contain any animal-based products or derivatives?	NO
1.2	If "Yes", please state the source and issue BSE-TSE statement if applicable	
Please indicate whether suitable for any of the following:		Yes/No
1.3	Kosher (please attach current certificate)	Manufacturer
1.4	Halal (please attach current certificate and complete Halal Declaration if not MUI)	Manufacturer
1.5	Vegetarian (Free from animal flesh (meat, fowl, fish or shellfish), meat or bone stock, animal or carcass fats, gelatin, aspic or any other ingredients resulting from slaughter)	Yes
1.5.1	Lacto-ovo-vegetarians (eat both dairy products and eggs)	Yes
1.5.2	Lacto-vegetarians (eat dairy products but avoid eggs)	Yes
1.6	Vegan (free from food from animals)	Yes
1.7	Diabetics	Yes
1.8	Coeliacs (gluten intolerance)	Yes

Dear Sir/Madam

Re: Country of Origin

Product: Ascorbic Acid Crystalline Powder – DFI-743011

MADAR Corporation hereby certify that the above product we supply to you is made in China.

DATE:Nov.8.2017

Hazard Analysis of Ascorbic Acid

production process steps	Possible hazard (B) Biological (C)Chemical (P)Physical		Risk Assisment: Seriousness of hazard	Risk Assisment: Possibility of occurrence	Judgment of harm 1 = No harm 2-4 = Non significant harm >4= significant harm	Judgment Basis	Control Method	CCP or OPRP or PRP
	(B)	None						
	(C)	None						
Megnet	(P)	Magnetic foreign bodies	2	2	4	Magnetic attenuation, found more than 2 grams of iron filings or 1 piece of metal larger than 2mm	Test its magnetism regularly	OPRP
Straight type metal detector	(B)	None						
	(C)	None						
	(P)	Fe, Non-fe,SUS	3	2	6	The detector is not sensitive enough	Test the metal detector regularly	CCP

production process steps	Possible hazard Biological (C)Chemical (P)Physical		Risk Assisment Seriousness of hazard	Possibility of occurrence	**Judgment of harm** 1 = No harm 2-4 = Non significant harm >4= significant harm	Judgment Basis	Control Method	CCP or OPRP or PRP
Bagging sealing	(B)	None						
	(C)	None						
	(P)	None						
Tunnel type metal detector	(B)	None						
	(C)	None						
	(P)	Fe, Non-fe,SUS	3	2	6	The detector is not sensitive enough	Test the metal detector regularly	CCP
Drying	(B)	None						
	(C)	Residual solvent	3	2	6	Improper control for the drying vaccum,time and temperature	Proper control for the drying vaccum,time and temperature	CCP
	(C)	VC change color	2	2	4	High temperature, low vacuum degree, long drying time	Strictly execute the position SOP	OPRP
	(P)	None						
Sieving	(B)	None						
	(C)	None						
	(P)	Large particle foreign body, metal pollution	3	2	6	The screen is broken and the wire is off	Check the screen before,in and after the production	CCP

STABILITY DATA FOR ASCORBIC ACID

Lot No.:201209032
Manufacture Date: SEP.2012

Product Name	ASCORBIC ACID
Test Type	Long term Test
Batch Quantity	200Kgs
Test Conditions	Temperature: 25℃±2 comparative humidity:60%±5% keeping off light.
Package	plastic bag (Same package as the product for marketing)

Test Item	Appearance	PH	Melting Point	Specific Rotation	Assay
Specification	White crystalline powder	2.1-2.6	About 190℃	+20.5° ~ +21.5°	99.0%-100.5%
18-09-2012	White crystalline powder	2.47	190.4℃	21.07°	99.92%
18-12-2012	White crystalline powder	2.47	190.5℃	21.06°	99.91%
18-03-2013	White crystalline powder	2.48	190.3℃	21.08°	99.92%
18-06-2013	White crystalline powder	2.47	190.5℃	21.06°	99.90%
18-09-2013	White crystalline powder	2.49	190.6℃	21.05°	99.89%
18-03-2014	White crystalline powder	2.46	190.4℃	21.07°	99.91%
18-09-2014	White crystalline powder	2.50	190.3℃	21.05°	99.91%
18-09-2015	White crystalline powder	2.44	190.4℃	21.04°	99.92%
18-09-2016	White crystalline powder	2.45	190.6℃	21.03°	99.89%

SPECIFICATION

Vitamin C

Ascorbic Acid Crystalline Powder

BP/USP/EP

DESCRIPTION	
Appearance	White crystalline powder
CAS No.	50-81-7
BTN	29 36 27 00 000
Shelf life	36 Months from production date
Formula	$C_6H_8O_6$
Country of origin	China
E number	E300

SPECIFICATIONS	
Assay	99 - 100.5 %
Colour	Clear = < BY7
Identification	Positive reaction
pH (2% solution)	2.4 - 2.8
Heavy metals	Max 10 ppm
Cadmium	Max 1 ppm
Sulphated ash	Max 0.1 %
Arsenic	Max 1 ppm
Loss on drying	Max 0.4 %
Melting point	About 190°C
Residual solvents	Pass
Lead	Max 2 ppm
Iron Content	Max 2 ppm
Oxalic Acid	Max 0.2 %
Specific Optical Rotation	+20.5° + 21.5°
Mesh Size	40 to 80 mesh
Mercury	Max 0.1 ppm
Copper	Max 5 ppm
Packaging	25 Kg Cartons
pH (5% solution)	2.1 - 2.6
Impurity C	Max 0.15 %
Impurity D	Max 0.15 %
Unspecified Impurity	Max 0.1 %
Total Impurities	Max 0.2 %
Impurity E	Max 0.2 %
Zinc	Max 0.25 ppm

Exclusion of Liability

10/04/2019 | Version 6

BiOrigins, 19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK
Tel: 01425 655555 Email: technical@madarcorporation.co.uk

MICROBIOLOGICAL	
Total plate count	Max 100 cfu/g
Total yeasts and moulds	Max 100 cfu/g
Staphylococcus aureus	Negative
Pseudomonas aeruginosa	Negative
Salmonella	Negative
Escherichia Coli	Negative

Exclusion of Liability

BiOrigins, 19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK
Tel: 01425 655555 Email: technical@madarcorporation.co.uk