

CERTIFICATE OF ANALYSIS

Name of Commodity: Vitamin C L-Ascorbic Acid BP2014/USP38/E300

Batch No.: 4325902

Best Before End: June 2020

Test Items:	Specification	Results
•Characteristics:	White or almost white, crystalline powder or colourless crystals	White crystalline powder
Identification:	Corresponds	Corresponds
Melting point:	189 ° C ~ 193 ° C	191 ° C
pH(5%.W/V)	2.1~2.6	2.30
pH(2%.W/V)	2.4~2.8	2.49
Specific optical rotation:	+20.5 ° ~ +21.5 °	+20.9 °
Appearance of solution	Solution is clear and not more intensely coloured than reference solution BY7	up to standard
Heavy Metals:	<10 ppm	<10ppm
Assay:	99.0%- 100.5%	99.2%
Copper:	<5ppm	0.09 ppm
Iron:	<2ppm	0.19ppm
Mercury:	<1 ppm	0.04ppm
Arsenic:	<3 ppm	<3ppm
Lead:	<2ppm	0.04ppm
Oxalic acid(impurity)	<0.2%	<0.2%
Loss on drying:	<0.4%	0.02%
Sulphated ash:	<0.1%	0.02%
Related Substances:		
Impurity C:	<0.15%	<0.01%
Impurity D:	<0.15%	<0.01%
Unspecified impurities	<0.10%	ND
Total impurities:	<0.2%	ND
Residual solvent:		
Methanol:	<3000 ppm	89ppm
Microbiological examination:		
TAMC:	10 ³ cfu/g	Corresponds
TYMC:	10 ² cfu/g	Corresponds
E.coli:	Absence	Corresponds



Statement

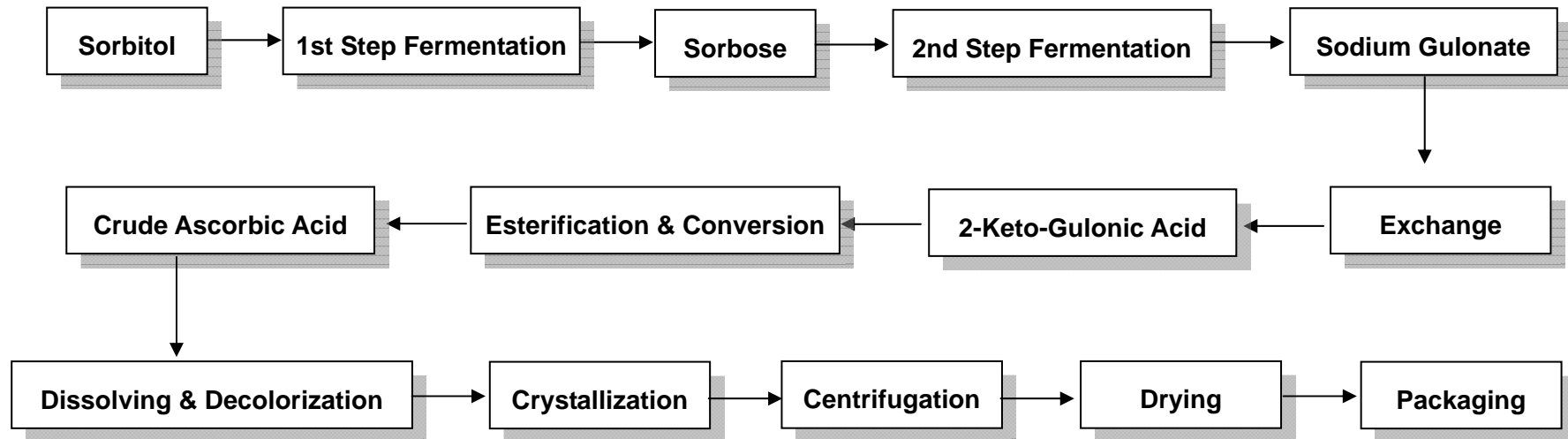
Date: July 30, 2014

To whom it may concern:

We, MADAR Corporation Ltd. herewith certify that the product Vitamin C that we supply is allergen free.



Process Flow Chart for Vitamin C/ Ascorbic Acid





Material Safety Data Sheet

Vitamin C/ Ascorbic Acid

Section 1-----Chemical Product and Company Identification

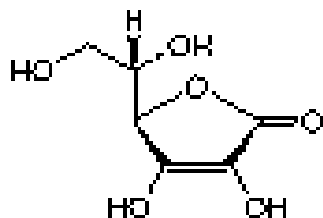
Product name	Ascorbic Acid, Vitamin C
Company information	Name: MADAR Corporation Ltd. Add: 19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA Email: sales@madarcorporation.co.uk Company's Phone: +44 1425 655555 Approved Sellers: Cosmetic Butters, Mystic Moments, New Directions, World of Moulds

Section 2----Composition/Information on Ingredients

Characterization	Water soluble vitamin; pharmaceuticals, food and feed additive
Synonyms	Vitamin C L-Ascorbic acid (5R)-5-[(1S)-1,2-dihydroxyethyl]-3,4-dihydroxyfuran-2(5H)-one
CAS number	50-81-7
EINECS number	200-066-2
Chemical formula	C ₆ H ₈ O ₆
Molecular weight	176.13 g/mol

Material Safety Data Sheet

Structure formula



Section 3----Hazards Identification

- Most important hazards -No particular hazards known.
- Potential Acute Health Effects -Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Section 4----First-aid Measures

- Eye contact - Rinse immediately with tap water for 10 minutes - open eyelids forcibly
- Skin contact - Remove contaminated clothes, wash affected skin with water and soap
- do not use any solvents
- Inhalation - Remove the casualty to fresh air and keep him/her calm
- In the event of symptoms get medical treatment
- Note to physician - Treat symptomatically

Section 5----Fire-fighting Measures

- Suitable extinguishing media - Water spray jet, dry powder, foam, carbon dioxide



Material Safety Data Sheet

Specific hazards - Severe dust explosion hazard
Protection of fire-fighters - Precipitate gases/vapors/mists with water spray

Section 6----Accidental Release Measures

Methods for cleaning up - Collect solids (avoid dust formation) and hand over to waste removal
- Rinse with plenty of water

Section 7----Handling and Storage

Handling

Technical measures - Processing in closed systems, if possible superposed by inert gas (e.g. nitrogen)
- Local exhaust ventilation necessary
- Take precautionary measures against electrostatic charging
- Avoid dust formation; high dust explosion hazard

Suitable materials - Stainless steel, coated steel (protective lacquer), glass, polyethylene, polypropylene, enamel

Unsuitable materials - Aluminum, copper, zinc, Iron

Storage

Storage conditions - In closed containers
- Protected from humidity
- Below 30 °C

Packaging materials - Tightly closing; material: coated steel (protective lacquer), glass, polyethylene, polypropylene, PVC



Material Safety Data Sheet

Section 8----Exposure Controls/Personal Protection

Engineering Measures Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits.

Monitoring

Threshold value air - IOEL: 10 mg/m³ (defined as 8-hour time-weighted average)

Analytics - Sampling on glass fibre filter and gravimetric or chemical determination

Personal protective equipment

Respiratory protection - In case of high dust concentrations: particle mask or respirator with independent air supply

Hand protection - Protective gloves (e.g. made of Natural Rubber)

Eye protection - Safety glasses

Section 9----Physical and Chemical Properties

Color White to almost white

Form Crystalline powder or colorless crystals

Odour Almost odorless, with sharp acidic, pleasant taste

Density 0.9-1.2 g/ml

Sieve analysis Retained on 40 meshes NMT 20%, between 40-80mesh
NLT 50%.

Solubility Free soluble in water
Soluble in ethanol (96 percent)



Material Safety Data Sheet

	Virtually insoluble in ethyl ether
	Virtually insoluble in chloroform
PH value	2.1-2.6 (5 % aqueous solution)
Dissociation constant	pK ₁ = 4.17
	pK ₂ = 11.57 (water)
Melting temperature	About 190°C (with decomposition)

Section 10---- Stability and Reactivity

Stability	- Stable at room temperature under exclusion of humidity
Conditions to avoid	- Humidity - Warming
Materials to avoid	- Oxidizing agents, atmospheric oxygen, bases, metals, metal salts
Note	- On prolonged storage, a yellow discoloration may occur - Through slow decomposition, which does not noticeably diminish biological activity, however - In aqueous solutions ascorbic acid is very susceptible to oxidative decomposition, particularly in the presence of alkali resp. heavy metal ions

Section 11---- Toxicological Information

Acute toxicity	- LD50 11'900 mg/kg (oral, rat) - LD50 8'000 mg/kg (oral, mouse) - LD50 518 mg/kg (i.v., mouse)
Local effects	- Eye: may cause irritations



Material Safety Data Sheet

	<ul style="list-style-type: none">- Mucous membranes: may cause irritations- Skin: may cause irritations; particularly in conjunction with humidity (perspiration)
Chronic toxicity	<ul style="list-style-type: none">- In predisposed individuals 4-12 g/d may cause urinary calculus
Mutagenicity	<ul style="list-style-type: none">- No suspicion of human mutagenicity
Carcinogenicity	<ul style="list-style-type: none">- Not carcinogenic (several species)
Reproduction toxicity	<ul style="list-style-type: none">- Not teratogenic, not embryotoxic
Note	<ul style="list-style-type: none">- Oral uptake of up to 9 g per day does not produce any serious toxic effects, however, even lesser quantities may cause diarrhoea- RDA (recommended daily allowance): 60 mg

Section 12----Ecological Information

Inherent biodegradability	<ul style="list-style-type: none">- Well inherently biodegradable-97 %, 5 d-100 %, 15 d
Ecotoxicity	<ul style="list-style-type: none">-Barely toxic for fish (rainbow trout)-LC50 (96 h) 1020 mg/l-The inhibitory concentration relates to re-attachment to substrate (<i>Dreissena polymorpha</i>)-MIC (48 h) > 50 mg/l (nominal concentration)
Air pollution	<ul style="list-style-type: none">- Observe local/national regulations



Material Safety Data Sheet

Section 13----Disposal Considerations

- Waste from residues
- Observe local/national regulations regarding waste disposal
 - Drain very small quantities into wastewater treatment plant
 - Large amounts: incinerate in qualified installation.

Section 14----Transport Information

- Note
- Not classified by transport regulations

Section 15----Regulatory Information

- Note
- No classification and labeling according to EU directives.
 - This product is on the European Inventory of Existing Commercial Chemical Substances.

Section 16----Other Information

- Use
- Additive for use in food and pharmaceuticals
 - Feed additive
- Biological activity
- 1 I.U. (international unit) of vitamin C corresponds to the activity of 50 µg of pure ascorbic acid
- Reference literature
- ISO11014-1
- General rules for preparation of chemical safety data sheet (CSDS)

The information in this safety data sheet is based on current scientific knowledge. It should not be taken as expressing or implying any warranty concerning product characteristics.



SPECIFICATION

VITAMIN C/ ASCORBIC ACID

DESCRIPTION

A white or almost white, crystalline powder or colorless crystals, becoming discolours on exposure to air and moisture.

PROPERTIES

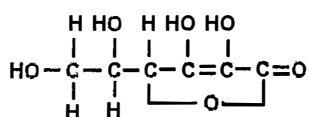
Molecular Formula

Relative Molecular Mass 176.13

Chemical Name L-2, 3, 5, 6-hydroxy-2-hexenic acid- γ -lactone

CAS Number 50-81-7

Structural Formula





COMPENDIAL REQUIREMENTS

Ascorbic Acid meets all requirements of USP/BP/JP/FCC/EP when tested according to these compendia.

Characteristics	White or almost white crystalline powder or colorless crystals
Identification	Positive Reaction
Melting Point	About 190°C
Specific Rotation	+20.5°~+21.5°
pH	2.1~2.6
Residue on Ignition	≤0.1%
Assay	99.5~100.5%
Loss on Drying	≤0.15%
Heavy Metal	≤0.001%
Lead	≤2ppm
Clarity of Solution	Pass
Color of Solution	≤BY ₇
Impurity E	≤0.2%
Copper Salt	≤0.0005%
Ferrite	≤0.0002%
Arsenic	≤0.0003%
Residual Solvents	Pass
Particle Size	100% through 20 mesh NLT 25% through 40 mesh NLT 50% retain between 40~80 mesh



STABILITY

Ascorbic acid powder is nonvolatile stable in the dry state, however, upon exposure to atmospheric moisture; it can deteriorate, and oxidizes readily to aqueous solution. Contact with iron, copper or nickel salts should be avoided.

SHELF-LIFE

At least 36 months from date of manufacturing provided the container is unopened and stored under the above mentioned conditions.

STORAGE

Store in sealed containers and keep in a dry place away from light.



Vegan Statement

Our Vitamin C Ascorbic Acid is **VEGAN SUITABLE** as per our manufacturer's confirmation.