SAFETY DATA SHEET

Section 1: Identification

Product Name: Ascorbic Acid, Vitamin C
Company: Arndale Ingredients
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Email: Sales@Arndale.co.uk
Telephone: 0191 455 6086
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Section 2: Hazard(s) Identification

Hazard Classification: Not applicable.
Hazard Statements: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Section 3: 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_6H_8O_6
Molecular mass: 176.13 g/mol
Structure formula:

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.
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.

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**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 and not easy to corrosion material by acid and alkali.

**Unsuitable materials:** Aluminum, copper, zinc, iron and so on.

**Storage:** -

**Storage conditions:** Store in a non-metallic and sealed container, keep in a dry place and away from light.

**Packaging materials:** Tightly closing; material: coated steel (protective lacquer), glass, polyethylene, polypropylene, PVC and so on.

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**Section 8: Exposure Controls/Personal Protection**

**Engineering measures:** Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended 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:** -

**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.

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**Section 9: Physical and Chemical Properties**

**Color:** White to almost white.

**Form:** Crystalline powder or colorless crystals.

**Odor:** Almost odorless, with sharp acidic, pleasant taste.

**Solubility:** Free soluble in water; soluble in ethanol (96 percent); virtually insoluble in ethyl ether; virtually insoluble in chloroform.

**PH value:** 2.1-2.6 (5 % aqueous solution).

**Dissociation constant:** $\text{pK}_1 = 4.17$; $\text{pK}_2 = 11.57$ (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; 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)

**Local effects:** -

**Eye:** may cause irritations

**Mucous membranes:** may cause irritations

**Skin:** may cause irritations; particularly in conjunction with humidity (perspiration)

**Chronic toxicity:** In predisposed individuals 4-12 g/d may cause urinary calculus

**Mutagenicity:** No suspicion of human mutagenicity

**Carcinogenicity:** Not carcinogenic (several species)

**Reproduction toxicity:** Not teratogenic, not embryo toxic

**Note:** Oral uptake of up to 9 g per day does not produce any serious toxic effects, however, even lesser quantities may cause diarrhea; RDA (recommended daily allowance): 60 mg.

### Section 12: Ecological Information (non-mandatory)

**Inherent biodegradability:** Well inherently biodegradable; 97 %, 5 d; 100 %, 15 d

**Ecotoxicity:** Barely toxic for fish (rainbow trout) LC50 (96 h) 1020 mg/l; the inhibitory concentration relates to re-attachment to substrate (Dreissena polymorpha) MIC (48 h) > 50 mg/l (nominal concentration).

**Air pollution:** Observe local/national regulations.

### Section 13: Disposal Considerations (non-mandatory)

**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 (non-mandatory)

**Note:** Not classified by transport regulations

### Section 15: Regulatory Information (non-mandatory)

**Note:** No classification and labeling according to EU directives; this product is on the European Inventory of Existing Commercial Chemical Substances.
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<thead>
<tr>
<th>Section 16: Other Information</th>
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<tr>
<td><strong>Use:</strong> Additive for use in food and pharmaceuticals; feed additive.</td>
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<td><strong>Biological activity:</strong> 1 I.U. (international unit) of vitamin C corresponds to the activity of 50 μg of pure ascorbic acid.</td>
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<tr>
<td><strong>Reference literature:</strong> ISO11014-1; General rules for preparation of chemical safety data sheet (CSDS); CLP Regulation (EC).</td>
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<td><strong>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.</strong></td>
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