

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Glucono-delta-Lactone

Version 1.2

Revision Date 12.09.2016

Print Date 12.09.2016

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : Glucono-delta-Lactone
Substance name : Glucono-delta-Lactone
Product name : Glucono-delta-Lactone
Molecular formula : C6-H10-O6
Chemical identity : Pentahydroxycaproic acid 1,5-lactone
CAS-No. : 90-80-2
EC-No. : 202-016-5
REACH No. : 01-2119451153-49-0000

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

Use of the Sub- : Food additive, Cosmetic additive, Medical aids, Industrial use
stance/Mixture
Recommended restrictions : None known.
on use

1.3 Details of the supplier of the safety data sheet

Gracefruit Limited
209 Glasgow Road
Longcroft
Bonnybridge
FK4 1QQ

01324 841353

1.4 Emergency telephone number

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

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2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.3 Other hazards

This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical nature : Substance

Chemical name	CAS-No. EC-No.	Concentration [%]
Non-hazardous ingredients :		
Glucono-delta-lactone	90-80-2 202-016-5	100

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Get medical advice/ attention if you feel unwell.
Show this safety data sheet to the doctor in attendance.
- If inhaled : If breathed in, move person into fresh air.
- In case of skin contact : Wash off with soap and water.
- In case of eye contact : If easy to do, remove contact lens, if worn.
Immediately flush eye(s) with plenty of water.
- If swallowed : Clean mouth with water and drink afterwards plenty of water.

4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : No information available.
- Risks : None known.

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media : Water
Water spray

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Dry chemical
Foam
Carbon dioxide (CO₂)

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Do not use a solid water stream as it may scatter and spread fire.
Hazardous decomposition products formed under fire conditions.

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Wear fire resistant or flame retardant clothing.

Further information : Standard procedure for chemical fires.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
In the event of fire and/or explosion do not breathe fumes.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Avoid dust formation.
Avoid breathing dust.
Ensure adequate ventilation, especially in confined areas.
Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Environmental precautions : Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Use mechanical handling equipment.
Keep in suitable, closed containers for disposal.
Clean contaminated surface thoroughly.

6.4 Reference to other sections

For personal protection see section 8.
For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : For personal protection see section 8.
Avoid creating dust.
Do not breathe dust.
Avoid contact with skin and eyes.

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Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
General industrial hygiene practice.
Do not breathe dust.
Avoid contact with skin, eyes and clothing.

Dust explosion class : St1

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep containers tightly closed in a dry, cool and well-ventilated place.
Keep in an area equipped with acid resistant flooring.
Store in original container.

Further information on storage conditions : Do not store at temperatures above 30 °C / 86 °F.

Advice on common storage : Never allow product to get in contact with water during storage.

Other data : No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s) : none

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with national occupational exposure limit values.

8.2 Exposure controls

Engineering measures

Provide adequate ventilation.

Personal protective equipment

Eye protection : Safety glasses

Hand protection

Material : Rubber gloves

Break through time : > 480 min

Skin and body protection : Lightweight protective clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

Half mask with a particle filter P2 (EN 143)

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	: Crystalline powder
Colour	: white
Odour	: slight, none
Odour Threshold	: Not relevant
pH	: ca. 2,6, 1 % Method: 2h (as aqueous solution)
Melting point/range	: 153 - 155 °C Decomposition
Boiling point/boiling range	: 153 - 155 °C Decomposition
Flash point	: Not applicable
Evaporation rate	: Not applicable
Flammability (solid, gas)	: not auto-flammable
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Vapour pressure	: < 0,00001 hPa (25 °C)
Vapour density	: Not applicable
Relative density	: 1.720 (20 °C)
Density	: 1.720 g/cm ³ (20 °C)
Bulk density	: 600 - 1.000 kg/m ³
Water solubility	: ca. 587 g/l soluble (20 °C)
Partition coefficient: n-octanol/water	: log Pow: = -1,98 Calculation
Auto-ignition temperature	: > 200 °C
Ignition temperature	: No data available
Thermal decomposition	: > 150 °C
Viscosity, dynamic	: Not applicable
Explosive properties	: No data available

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9.2 Other information

Molecular weight : 178,15 g/mol

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : None known.

10.4 Conditions to avoid

Conditions to avoid : Protect from moisture.

10.5 Incompatible materials

Materials to avoid : Oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products : No decomposition if stored normally.
Thermal decomposition can lead to release of irritating gases and vapours.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Components:

Glucono-delta-lactone:

Acute oral toxicity : LD50 Rat, male and female: 6.060 mg/kg
Method: OECD Test Guideline 401
Test substance: Potassium Gluconate

Acute dermal toxicity : LD50 Rat, male and female: > 2.000 mg/kg
Method: OECD Test Guideline 402
Test substance: Gluconic Acid
GLP: yes

Skin corrosion/irritation

Components:

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Glucono-delta-lactone:

: Species: Rabbit
Result: No skin irritation
Method: OECD Test Guideline 404
GLP: yes
Test substance:Gluconic Acid

Serious eye damage/eye irritation

Components:

Glucono-delta-lactone:

: Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405
GLP: yes
Test substance: Gluconic Acid

Respiratory or skin sensitisation

Components:

Glucono-delta-lactone:

: Species: Mouse
Result: Did not cause sensitisation on laboratory animals.
Method: OECD Test Guideline 429
GLP: yes
Test substance: Gluconic Acid

Germ cell mutagenicity

Components:

Glucono-delta-lactone:

Germ cell mutagenicity- Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity

Components:

Glucono-delta-lactone:

Carcinogenicity - Assessment : Did not show carcinogenic or teratogenic effects in animal experiments.

Reproductive toxicity

Components:

Glucono-delta-lactone:

Reproductive toxicity - Assessment : No toxicity to reproduction

STOT - single exposure

No data available

STOT - repeated exposure

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No data available

Repeated dose toxicity

Components:

Glucono-delta-lactone:

: Rat:
LOAEL: 250 mg/kg
Application Route: Oral
Method: OECD Test Guideline 408
Test substance: Glucono-delta-lactone

Aspiration hazard

No data available

SECTION 12: Ecological information

12.1 Toxicity

Components:

Glucono-delta-lactone:

Toxicity to fish : NOEC (Oryzias latipes (Orange-red killifish)): = 100 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Sodium gluconate
Method: OECD Test Guideline 203

LC50 (Oryzias latipes (Orange-red killifish)): > 100 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Sodium gluconate
Method: OECD Test Guideline 203

LC50 (Fish): 360 mg/l
Exposure time: 48 h
Test substance: Glucono-delta-lactone
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1.000 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Sodium gluconate
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae : EC0 (Desmodesmus subspicatus (green algae)): <= 100 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Sodium gluconate
Method: OECD Test Guideline 201

Toxicity to bacteria : NOEC : 100 mg/l

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Exposure time: 3 h
Test Type: Respiration inhibition of activated sludge
Test substance: Glucono-delta-lactone
Method: OECD Test Guideline 209

EC50 : 649,8 mg/l
Exposure time: 3 h
Test Type: Respiration inhibition of activated sludge
Test substance: Glucono-delta-lactone
Method: OECD Test Guideline 209

12.2 Persistence and degradability

Components:

Glucono-delta-lactone:

Biodegradability : Test Type: Zahn-Wellens Test
Inoculum: activated sludge
Result: Inherently biodegradable
Exposure time: 3 d
Kinetic:
: 98,3 %
Method: OECD Test Guideline 302
Test substance: Sodium gluconate

Test Type: aerobic
Result: Readily biodegradable.
Exposure time: 28 d
Kinetic:
: 89 %
Method: OECD Test Guideline 301D
Test substance: Sodium gluconate

Test Type: anaerobic
Result: 100% anaerobically biodegradable
Exposure time: 35 d
Kinetic:
: 100 %
Method: OECD Test Guideline 311
Test substance: Sodium gluconate

Biochemical Oxygen Demand (BOD) : Biochemical oxygen demand within 5 days
698 mg/g

Chemical Oxygen Demand (COD) : 987 mg/g

12.3 Bioaccumulative potential

Product:

Bioaccumulation : The product is miscible in water and readily biodegradable in both water and soil. Accumulation is not expected.

Partition coefficient: n- : log Pow: = -1,98

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octanol/water

Calculation

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

12.6 Other adverse effects

Product:

Additional ecological information : Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Where possible recycling is preferred to disposal or incineration.
Can be landfilled, when in compliance with local regulations.
Waste codes should be assigned by the user based on the application for which the product was used.
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADR : Not dangerous goods
RID : Not dangerous goods
IMDG : Not dangerous goods
IATA : Not dangerous goods

14.2 Proper shipping name

ADR : Not dangerous goods
RID : Not dangerous goods
IMDG : Not dangerous goods
IATA : Not dangerous goods

14.3 Transport hazard class

ADR : Not dangerous goods
RID : Not dangerous goods

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IMDG : Not dangerous goods
IATA : Not dangerous goods

14.4 Packing group

ADR : Not dangerous goods
RID : Not dangerous goods
IMDG : Not dangerous goods
IATA : Not dangerous goods

14.5 Environmental hazards

ADR : Not dangerous goods
RID : Not dangerous goods
IMDG : Not dangerous goods
IATA : Not dangerous goods

14.6 Special precautions for user

Remarks : Not classified as dangerous in the meaning of transport regulations.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Not applicable

The components of this product are reported in the following inventories:

EINECS : On the inventory, or in compliance with the inventory
TSCA : On TSCA Inventory
AICS : On the inventory, or in compliance with the inventory
DSL : All components of this product are on the Canadian DSL
NZIoC : On the inventory, or in compliance with the inventory
KECI : On the inventory, or in compliance with the inventory
ENCS : On the inventory, or in compliance with the inventory
PICCS : On the inventory, or in compliance with the inventory
IECSC : On the inventory, or in compliance with the inventory
REACH : Notification number: 01-2119451153-49

15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

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This safety datasheet only contains information relating to safety and does not replace any product information or product specification.