

## Material Safety Data Sheet Gluconic Acid

### Section 1 - Product Identification

Product Name : Gluconic Acid  
Company Identification : Tradeasia International Pte. Limited  
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### 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

#### 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 [%]
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.

If swallowed : Immediately flush eye(s) with plenty of water.  
: 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 – Fire Fighting Measures

#### 5.1 Extinguishing media

Suitable extinguishing media : Water  
Water spray  
Dry chemical  
Foam  
Carbon dioxide (CO<sub>2</sub>)

Unsuitable extinguishing media : High volume water jet

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

Specific hazards during firefighting : 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

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 workplace.

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)

## 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 <sup>3</sup> (20 °C)
Bulk density	: 600 - 1.000 kg/m <sup>3</sup>
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

## 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 : No decomposition if stored normally.

Products : Thermal decomposition can lead to release of irritating gases and vapours.

## Section 11 – Toxicological Information

### 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:

##### 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 : Tests on bacterial or mammalian cell cultures did not show

- Assessment mutagenic effects.

### **Carcinogenicity**

#### **Components:**

#### **Glucono-delta-lactone:**

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

### **Reproductive toxicity**

#### **Components:**

#### **Glucono-delta-lactone:**

Reproductive toxicity : No toxicity to reproduction  
- Assessment

### **STOT - single exposure**

No data available

### **STOT - repeated exposure**

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  
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-octanol/water : log Pow: = -1,98  
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  
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.
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#### 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 : Additional Information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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