





# Safety Data Sheet

## Glucono Delta Lactone (GDL)

Complies with 29 CFR 1910.1200

### Section 4: First Aid Measures

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**Notable Exposure symptoms:** None known.

**If ingested:** Wash out mouth with water. Drink plenty of water.

**If inhaled:** Move to fresh air.

**Eye contact:** If easy to do so, remove contact lens, if worn. Immediately flush eyes with plenty of water.

**Skin contact:** Flush contaminated skin with plenty of water.

### Section 5: Fire Fighting Measures

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**General Information:** Wear self-contained breathing apparatus and protective clothing if necessary. In the event of fire and/or explosion, do not breathe fumes.

**Extinguishing Method / Equipment:** Water spray, carbon dioxide, dry chemical powder, or an appropriate foam. Do not use a solid water stream as it may scatter and spread fire.

**Hazardous Decomposition Info:** Hazardous decomposition products formed under fire conditions. Exposure to these may be a hazard to health.

### Section 6: Accidental Release Measures

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

**Environmental Precautions:** Prevent further leakage or spillage if safe to do so. No special environmental precautions required.

**Containment/Cleanup:** Use mechanical handling equipment.

**Equipment and Procedures:** Keep in suitable, closed containers for disposal. Clean contaminated surface thoroughly. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

### Section 7: Handling and Storage

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**Safe Handling Precautions:** Wear appropriate personal protective equipment (see Section 8). Follow good industrial hygiene procedures. Avoid contact with skin and eyes. Risk of dust explosion. Avoid creating dust. Do not breathe dust. May form combustible dust concentrations in air (during processing).

**Recommendations for Storage:** Keep containers tightly closed in a dry, cool and well-ventilated place. No special restrictions on storage with other products. Take measures to prevent the build up of electrostatic charge.

**Other information:** Dust explosion class: St1  
No decomposition if stored and applied as directed.



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### Section 8: Exposure Control / Personal Protection

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**Control Parameters:** Contains no substances with occupational exposure limit values.

**General / Engineering Controls:** Provide adequate ventilation.

**Controls:**

**Eye/face protection:** Safety glasses.

**Hand Protection:** Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

**Body Protection:** Personal protective equipment for the body should be selected based on the task being performed and the risks involved.

**Respiratory Protection:** In the case of dust or aerosol formation use respirator with an approved filter. Use NIOSH approved respiratory protection.

**Other:** Observe good chemical hygiene practices, washing exposed areas of the skin after handling chemical products, before eating, smoking, and using the lavatory at the end of the working period. Launder contaminated clothing before re-use. Ensure that eye wash stations and showers are available.

### Section 9: Physical and Chemical Properties

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**Physical State:** Solid

**Appearance:** Crystalline powder

**Color:** White

**Odor:** Slight, none

**pH:** ca. 2.6, 1%, 2 hours (as aqueous solution)

**Melting Point:** 150 - 154°C

**Flash Point:** Not applicable

**Bulk Density:** 600 - 1,000 kg/m<sup>3</sup>

**Water Solubility:** ca. 587 g/l (20°C)

**Partition coefficient: n-  
octanol/water:** log Pow: = 1.98 Calculation

**Auto-ignition Temperature:** Not available

**Decomposition Temperature:** > 150°C

**Molecular Weight:** 178.15 g/mol

### Section 10: Stability and Reactivity

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**Reactivity:** No decomposition if stored and applied as directed.

**Chemical Stability:** Stable under normal conditions

**Possibility of Hazardous Reactions:** None known.

**Reactions:**

**Conditions to Avoid:** Avoid dust formation.

**Incompatible Materials:** No data available.

**Hazardous Decomposition Products:** Build-up of dangerous/toxic fumes possible in cases of fire/high temperature.

**Products:**



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### Section 11: Toxicological Information

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**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:** Not available

**Respiratory or Skin** Species: Mouse

**Sensitisation:** Result: Did not cause sensitisation on laboratory animals.  
Method: OECD Test Guideline 429  
Test Substance: Gluconic Acid  
GLP: yes

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

**Germ Cell Mutagenicity:** Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

**Toxicity for reproduction:** No toxicity to reproduction.

**STOT - Single Exposure:** No data available

**STOT - Repeated Exposure:** No data available

**Repeated Dose Toxicity:** Species: Rat  
LOAEL: 250 mg/kg  
Application Route: Oral  
Method: OECD Test Guideline 408  
Test Substance: Glucono-delta-lactone

**Aspiration Toxicity:** No data available

**NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC.

**OSHA:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by OSHA.

**ACGIH:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or potential carcinogen by ACGIH.

**Other:** This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.



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### Section 12: Ecological Information

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#### Ectotoxicity:

**Toxicity to fish:** NOEC (Oryzias latipes (Orange-red killifish)): = 100 mg/l

Exposure time: 96 h

Test Method: 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 Method: 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** EC50 (Daphnia magna (Water flea)): > 1,000 mg/l

**Aquatic Invertebrates:** Exposure time: 48 h

Test Method: 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 Method: 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 Method: Respiration inhibition of activated sludge

Test substance: Glucono-delta-lactone

Method: OECD Test Guideline 209



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### Section 12: Ecological Information (continued)

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#### Persistence and Degradability:

**Biodegradability:** Zahn-Wellens Test  
Inoculum: activated sludge  
Result: Inherently biodegradable  
Exposure time: 3 d  
Method: OECD Test Guideline 302  
Test substance: Sodium gluconate

Result: Readily biodegradable  
Exposure time: 28 d  
Method: OECD Test Guideline 301D  
Test substance: Sodium gluconate

anaerobic  
Result: 100% anaerobically biodegradable  
Exposure time: 35 d  
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

#### Bioaccumulative Potential:

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

**Partition Coefficient:** log Pow: = -1.98  
**n-octanol/water:** Remarks: Calculation

**Mobility in Soil:** No data available

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

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

### Section 13: Disposal Information

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**Waste From Residues:** Where possible recycling is preferred to disposal or incineration.  
Can be landfilled or incinerated, when in compliance with local regulations.

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



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### Section 14: Transport Information

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**DOT:** Not dangerous goods  
**IATA:** Not dangerous goods  
**IMDG:** Not dangerous goods

### Section 15: Regulatory Information

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**SARA 311/312 Hazards:** No SARA hazards

**SARA 302:** No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

**SARA 313:** This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**California Prop 65:** This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

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

**REACH:** On the inventory, or in compliance with the inventory.

**EINECS:** On the inventory, or in compliance with the inventory.

**TSCA:** On TSCA Inventory

**DSL:** All components of this product are on the Canadian DSL.

**Inventories:** AICS (Australia), DSL (Canada), IECSC (China), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

### Section 16: Other Information

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**Indication of Changes:** Version 1 created May 28, 2015

#### Legal Disclaimer:

Since the user's working conditions are not known to us, the information supplied on this safety data sheet is based on our current level of knowledge and on national and community regulations. The product must not be used for any purposes other than those specified under heading 1 without first obtaining written handling instructions.

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