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

1.1. Product Identifier

Product Name: Glucono Delta Lactone
REACH Registered Name: Glucono Delta Lactone
REACH registered number: Exemption under Annex V
CAS #: 90-80-2
EC#: 202-016-5
Product Code: 82113, 82114
Synonyms: Glucono Delta Lactone
INCI Name: Glucono Delta Lactone

1.2. Relevant Identified Uses of the Substance/Mixture and Uses Advised Against

Acidulant in foods

1.3. Details of the Supplier of the Safety Data Sheet

Company Name: PMP Fermentation Products, Inc.
900 NE Adams Street
Peoria, Illinois 61603, USA

Telephone: 1-309-637-0400 8 am – 4 pm CST M-F
Fax: 1-309-637-9302
E mail: sales@pmpinc.com

1.4. Emergency Contact

Chemtrec: 1-(800) 424-9300

Section 2: Hazards Identification

2.1. Classification of the Substance or Mixture

Classification under CLP: This product has no classification under CLP

2.2. Label Elements

Label elements: This product has no label elements
2.3. Other Hazards

PBT: This product is not identified as a PBT substance

Section 3: Composition/Information on Ingredients

3.1. Substances

Chemical Identity: Glucono Delta Lactone

Section 4: First Aid Measures

4.1. Description of First Aid Measures

Skin: Wash thoroughly with soap and water.

Eyes: Flush immediately with water 15 minutes. Get prompt medical attention.

Ingestion: Get medical attention if adverse effects occur.

Inhalation: Remove to fresh air. If adverse effects occur, get medical attention.

4.2. Most Important Symptoms and Effects, Both Acute and Delayed

Skin: May cause irritation and redness for susceptible individuals.

Eyes: May cause mild irritation. Eyes may water profusely.

Ingestion: May cause irritation if large amounts are swallowed. Nausea and stomach pain may occur. There may be vomiting and diarrhea.

Inhalation: May cause respiratory irritation in susceptible individuals. May cause shortness of breath, sneezing and coughing.

Delayed/Immediate effects: Long-term inhalation of excessive dust may cause delayed lung injury.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Need

Immediate/Special Treatment: Eye wash stations should be available
Section 5: Fire Fighting Measures

5.1. Extinguishing Media

Extinguishing Media: Water spray
Non-Suitable Extinguishing Media: CO2 inactive
Powder: hazards of dust cloud formation

5.2. Special Hazards Arising from the Substance or Mixture

Exposure Hazards: Dust in air can be an explosion hazard.

5.3. Advice for Fire Fighters

Advice for Fire Fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental Release Measures

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions: Wear suitable protective clothing. Refer to section 8. Do not create dust.

6.2. Environmental Precautions

Environmental Precautions: Generally no or weak hazard for water

6.3. Methods and Material for Containment and Cleaning up

Clean-Up Procedures: Collect as much as possible for use or disposal in a properly labeled container. Flush remainder into normal drainage with copious amounts of water.

6.4. Reference to Other Sections

Reference to Other Sections: Refer to sections 8 and 13
Section 7: Handling and Storage

7.1. Precautions for Safe Handling

Handling Requirements: Wear suitable protective clothing. Ensure there is sufficient ventilation in the area. Avoid generating dust.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Storage Conditions: Store in a cool, well-ventilated area. Keep away from direct sunlight. Avoid contact with water and humidity.

Suitable Packaging: Paper, plastic or poly lined bags or drums.

7.3. Specific End Use(s)

Specific End Use(s): No special requirement

Section 8: Exposure Controls/Personal Protection

8.1. Control Parameters

<table>
<thead>
<tr>
<th>State</th>
<th>8 hour TWA</th>
<th>15 min. STEL</th>
<th>8 hour TWA</th>
<th>15 min. STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>-</td>
<td>-</td>
<td>&lt;10 mg/m³</td>
<td>-</td>
</tr>
</tbody>
</table>

8.2. Exposure Controls

Engineering measures: Provide sufficient ventilation of the area
Respiratory protection: Respirator with particle filter
Hand protection: Protective gloves
Eye protection: Safety goggles. Provide eye wash stations
Skin protection: Protective clothing. Provide safety shower
Environmental: No special requirement
Section 9: Physical and Chemical Properties

9.1. Information on Basic Physical and Chemical Properties

State: Granular powder
Color: White
Odor: Odorless
pH: 4 (1% aq. Solution); ~2.6 after 2 hours
Melting Point/Range: 153°C
Boiling Point: Not applicable
Flash Point: Not applicable
Evaporation Rate: Not applicable
Flammability: Not applicable
Upper Explosion Limit: Not applicable
Lower Explosion Limit: 30-60 g/m³
Vapor Pressure: Not applicable
Vapor Density: Not applicable
Relative Density: ~ 0.80 kg/L
Solubility in Water: Highly soluble, 5.9 x 10⁵ mg/L @ 25°C
Auto-Ignition Temperature: 400°C
Decomposition Temperature: Unknown
Viscosity: Not applicable
Oxidizing: Non-oxidizing
Molecular Weight: 178.14

9.2. Other Information

Other Information: Not applicable

Section 10: Stability and Reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport and storage conditions

10.2. Chemical Stability

Chemical Stability: Stable under normal conditions

10.3. Possibility of Hazardous Reactions

Hazardous Reactions: Hazardous reactions will not occur under normal conditions
SAFETY DATA SHEET
GLUCONO DELTA LACTONE

10.4. Conditions to Avoid
Conditions to Avoid: Direct sunlight, moist air and humidity

10.5. Incompatible Materials
Materials to Avoid: Strong Oxidizers

10.6. Hazardous Decomposition Products
Hazardous Decomposition Products: In combustion, emits toxic fumes of carbon dioxide/carbon monoxide.

Section 11: Toxicological Information

11.1. Information of Toxicological Effects

Toxicity Values:

<table>
<thead>
<tr>
<th>Route</th>
<th>Species</th>
<th>Test</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>Rat</td>
<td>LD50</td>
<td>&gt;2000</td>
<td>mg/kg</td>
</tr>
<tr>
<td>Intravenous</td>
<td>Rabbit</td>
<td>LD50</td>
<td>7630</td>
<td>mg/kg</td>
</tr>
</tbody>
</table>

Symptoms/Routes of Exposure

Skin Contact: May cause irritation and redness for susceptible individuals.

Eyes: May cause mild irritation. Eyes may water profusely.

Ingestion: May cause irritation if large amounts are swallowed. Nausea and stomach pain may occur. There may be vomiting and diarrhea.

Inhalation: May cause respiratory irritation in susceptible individuals. May cause shortness of breath, sneezing and coughing.

Delayed/Immediate effects: Long-term inhalation of excessive dust may cause delayed lung injury.

Carcinogenicity: Not applicable
Mutagenicity: Not applicable
Teratogenicity: Not applicable
Reproductive Toxicity: Not applicable
Section 12: Ecological Information

12.1. Toxicity

Ecotoxicity Values:

<table>
<thead>
<tr>
<th>Species</th>
<th>Test</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish</td>
<td>96H LC50</td>
<td>&gt; 1000.0</td>
<td>mg/L</td>
</tr>
<tr>
<td>Daphnid</td>
<td>48H LC50</td>
<td>&gt; 1000.0</td>
<td>mg/L</td>
</tr>
<tr>
<td>Green Algal</td>
<td>96H EC50</td>
<td>&gt; 1000.0</td>
<td>mg/L</td>
</tr>
<tr>
<td>Fish</td>
<td>ChV*</td>
<td>&gt; 100.0</td>
<td>mg/L</td>
</tr>
<tr>
<td>Daphnid</td>
<td>ChV</td>
<td>&gt; 100.0</td>
<td>mg/L</td>
</tr>
<tr>
<td>Algal</td>
<td>ChV</td>
<td>&gt; 100.0</td>
<td>mg/L</td>
</tr>
<tr>
<td>Bacteria</td>
<td>EC50</td>
<td>&gt; 5000.0</td>
<td>mg/L</td>
</tr>
</tbody>
</table>

- Chronic Value

12.2. Persistence and Degradability

Persistence and Degradability: Readily and rapidly biodegradable

12.3. Bioaccumulative Potential

Bioaccumulative Potential: Product does not bioaccumulate

12.4. Mobility in Soil

Mobility: Soluble in water

12.5. Results of PBT and vPvB Assessment

PBT Identification: This substance is not identified as a PBT substance.

12.6. Other Adverse Effects

Other Adverse Effects: Not expected to cause significant environmental impact.

Section 13: Disposal Considerations

13.1. Waste Treatment Methods

Disposal Operations: In accordance with applicable regulations. Normally can be flushed down sewers.
Recovery Operations: No information available
Disposal of Packaging: Contaminated containers must not be treated as household waste. Where practical, containers and packaging should be recycled by a licensed contractor.

Section 14: Transport Information

Transport Class: This product does not require a classification for transport.

Section 15: Regulatory Information

15.1. Safety, Health and Environmental Regulations/Legislation Specific for the Substance/Mixture


Directive 96/82/EC does not apply

Europe Risk Phrases not classified in Europe

Europe Safety Phrases not classified in Europe

15.2. Chemical Safety Assessment

Chemical Safety Assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

Section 16: Other Information

Other Information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010
There are no exposure levels set for the specific product. The following levels should be adhered to based on US regulations:

Total inhalable dust (8 hour TWA): 15 mg/m³

Legal Disclaimer: The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, PMP Fermentation Products, Inc. cannot give any guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

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