Table of Contents

1. Chemical Product ................................................. 2
2. Composition and Information on Ingredients .................. 2
3. Hazards Identification ........................................... 2
4. First Aid Measures ............................................... 3
5. Fire and Explosion Data ......................................... 3
6. Accidental Release Measures .................................... 4
7. Handling and Storage ............................................ 4
8. Exposure Controls/ Personal Protection ....................... 4
9. Physical and Chemical Properties ............................. 5
10. Stability and Reactivity Data ................................. 5
11. Toxicological Information ..................................... 6
12. Ecological Information ........................................ 6
13. Disposal Considerations ........................................ 6
14. References ..................................................... 6
15. Appendices ..................................................... 7
16. Revision History ................................................ 7

Written by: Caroline Spiteri  
Reviewed by: Nicolette Sammut  
Approved by: Lilian M. Airoldi

Signature/Date:  
Signature/Date:  
Signature/Date:
1. Chemical Product

**Product Name:** Lactose

**Chemical name:** Lactose Monohydrate, 4-O-β-D-Galactopyranosyl-D-glucose hydrate

**Synonyms:** Milk Sugar; Alpha Lactose; (beta)-Lactose; D-Glucose; 4-O-(beta)-D-galactopyranosyl-; (+)-Lactose; D-(+)-Lactose; Lactin; Lactose anhydrous

**Chemical Formula:** $C_{12}H_{22}O_{11} \cdot H_2O$

2. Composition and Information on Ingredients

**Composition:** Disaccharide sugar (lactose)

**Toxicological Data on Ingredients:** LD50 oral, rat = > 10 gmk kg$^{-1}$

3. Hazards Identification

**Potential Acute Health Effects:** Irritating to the skin and eyes on contact, resulting in reddening, scaling, and itching due to skin inflammation, and watering and redness of the eyes. Also irritating to the lungs and mucus membrane when inhaled.

**Potential Chronic Health Effects:** Not applicable

- **CARCINOGENIC EFFECTS:** Not applicable
- **MUTAGENIC EFFECTS:** Not applicable
- **TERATOGENIC EFFECTS:** Not applicable
- **DEVELOPMENTAL TOXICITY:** Not applicable
## 4. First Aid Measures

**General measures:**

- **Skin contact:** Flush skin with water, and wash clothing before reuse if came in contact with lactose.

- **Serious skin contact:** Not applicable

- **Eye contact:** Immediately flush eyes with plenty of water for at least 15 minutes.

- **Ingestion:** Seek medical attention immediately.

- **Serious ingestion:** Not applicable

- **Inhalation:** Remove to fresh air. If not breathing, give artificial respiration, and if breathing is difficult give oxygen.

- **Serious inhalation:** Not applicable

## 5. Fire and Explosion Data

- **Flammability of the Product:** Non-flammable

- **Auto-Ignition Temperature:** Not applicable

- **Flash points:** Not applicable

- **Flammable limits:** Not applicable

- **Products of Combustion:** Carbon dioxide and carbon monoxide may form when heated to decomposition.

- **Fire Hazards in Presence of Various Substances:** Fire is possible at elevated temperatures or by contact with an ignition source.

- **Explosion Hazards in Presence of Various Substances:** Fine dust dispersed in air in sufficient concentrations and in the presence of an ignition source is a potential dust explosion hazard.
**Fire fighting media and Instructions:** Dry chemical, alcohol foam or carbon dioxide is used as extinguishing media and it is important to wear full protective clothing and self-contained breathing apparatus.

**Special Remarks on Fire Hazards:** Lactose itself does not burn.

**Special Remarks on Explosion Hazards:** Lower explosive limit: 0.125 g/l in air.

### 6. Accidental Release Measures

**NB:** Wear appropriate protective equipment/clothing including gloves before removing any spills.

**Spills:** Can be washed with water in a way that dust is not dispersed into the air. It is important to remove all sources of ignition and ventilate area of spill.

### 7. Handling and Storage

**Precautions:** Prevent dust formation and/or avoid breathing dust, avoid getting in eyes or on the skin, and wash thoroughly after handling.

**Storage:** Store at ambient temperature, in an area which is dry and well ventilated, in a tightly closed container.

### 8. Exposure Controls/Personal Protection

**Airborne Exposure Limits:** Not available

**Engineering Controls:** Proper ventilation, safety shower, and eye bath required.

**Personal Protection:** Safety glasses or goggles for the eyes, PVC gloves and impervious boots and coveralls must be worn to prevent skin exposure. An approved dust respirator must be worn if the recommended exposure limit is exceeded. Face and hands must be thoroughly washed after handling lactose.
### 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state and appearance</td>
<td>Free flowing uniform white crystalline powder</td>
</tr>
<tr>
<td>Odour</td>
<td>Faint sweet</td>
</tr>
<tr>
<td>Taste</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>342.30g (360.30g with Water)</td>
</tr>
<tr>
<td>pH (1% solution/water)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting Point</td>
<td>202°C</td>
</tr>
<tr>
<td>Critical Temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Specific Gravity (Water = 1)</td>
<td>1.53</td>
</tr>
<tr>
<td>Vapour Pressure (mmHg)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour Density</td>
<td>1.525 @ 20°C</td>
</tr>
<tr>
<td>Volatility</td>
<td>0</td>
</tr>
<tr>
<td>Odour Threshold</td>
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</tr>
<tr>
<td>Water/Oil Distribution Coefficient</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Ionicity (in Water)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Dispersion Properties</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility</td>
<td>20g/100ml at ambient temperatures</td>
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</table>

### 10. Stability and Reactivity Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable</td>
</tr>
<tr>
<td>Corrosivity</td>
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</tr>
<tr>
<td>Instability temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Conditions of Instability</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Incompatibles</td>
<td>Strong oxidising agents</td>
</tr>
<tr>
<td>Polymerization</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
11. Toxicological Information

**Toxicity to animals:**
LD50 oral, rat = > 10 gmkg⁻¹

**Effects on humans:**
**Acute potential health effects:** Not expected to be a health hazard via inhalation, ingestion and from skin and eye exposure, but irritation might result from high concentrations.

**Chronic potential health effects:**

*MUTAGENIC EFFECTS:* Not applicable

*TERATOGENIC EFFECTS:* Not applicable

*DEVELOPMENTAL TOXICITY:* Not applicable

**Other information:** Not applicable

12. Ecological Information

**Ecotoxicity:** Not applicable

13. Disposal Considerations

**Waste Disposal:** What is not recycled must be handled as hazardous waste and sent to an approved incinerator or disposed in an approved waste facility. Dispose in the container marked NON-HAZARDOUS WASTE.

14. References


15. Appendices

Not applicable

16. Revision History

<table>
<thead>
<tr>
<th>Version Number</th>
<th>Amendments/ Reasons for change</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Initial Release</td>
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