SAFETY DATA SHEET

PRODUCT: GLUCONO DELTA LACTONE T

01. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION:
01.1 Chemical product name: GLUCONO DELTA LACTONE T
01.2 Supplier: ROQUETTE FRERES
   Address: 62136 LESTREM FRANCE
   Telephone/Telex: 03.21.63.36.00 / 03.21.63.38.50
   Emergency telephone USA Only: PMP Fermentation Products, Inc.
   Distributor: (309) 637-9432

02. COMPOSITION/INFORMATION ON INGREDIENTS:
02.1 Substance: yes
02.2 Common chemical name: glucono delta lactone
02.3 CAS number: 90-80-2
02.4 No EINECS: 202-016-5
02.5 Ingredients contributing to the hazard: not applicable

03. HAZARDS IDENTIFICATION:
03.1 Most important hazards: potential for formation of explosive air / dust cloud
03.2 Specific hazards: explosion hazards, see § 3.1
03.3 Other information: irritation (eyes, respiratory tracts, skin)
03.4 Not classified under CHIP regulation

04. FIRST-AID MEASURES:
04.1 Inhalation: remove to fresh air; if symptoms develop, seek medical advice
04.2 Eye contact: rinse with plenty of water, seek medical attention
04.3 Skin contact: wash with water and soap
04.4 Ingestion: seek medical attention according to symptoms
04.5 Other information: take off contaminated clothing

05. FIRE-FIGHTING MEASURES:
05.1 Extinguishing media: water spray
05.2 Non-suitable extinguishing media: CO2, inactive Powder; hazards of dust cloud formation

06. ACCIDENTAL RELEASE MEASURES:
06.1 Personal precautions: follow recommendations for protection § 8
06.2 Environmental precautions: generally no or weak hazard for water (biodegradable product)
06.3 Methods for cleaning up: collect mechanically, vacuum up, if necessary wash with water.
   to eliminate residues, see § 13

07. HANDLING AND STORAGE:
07.1 Handling:
   Technical measures: follow recommendations for personal
### 07.2 Storage

#### Technical measures
- Bulk storage silos must be compliance with the ATEX directive.

#### Storage conditions
- Store in a cool and dry area

#### Incompatible products
- Strong oxidizing agents

#### Packaging materials
- Polythene and paper bag

### 08. EXPOSURE CONTROLS/PERSONAL PROTECTION:

#### 08.1 Control parameters
- Follow the national regulation applicable to non specific total dusts
- AEL <= 10 mg/m³ (France)

#### 08.2 Personal protective equipment
- Respiratory protection: Dust mask in case of dust occurrence
- Eye protection: Appropriate goggles in case of dust occurrence
- Hand protection: Gloves
- Skin and body protection: Recommended

#### 08.3 Hygiene measures
- General hygiene practices for chemical products handling

### 09. PHYSICAL AND CHEMICAL PROPERTIES:

#### 09.1 Physical state
- Powder

#### 09.2 Colour
- White

#### 09.3 Odour
- Neutral

#### 09.4 pH (concentration)
- Approx 4 at 1 %, approx 2.6 (2 hours after)

#### 09.5 Boiling temperature
- Not applicable

#### 09.6 Melting point
- Approx 153 °C

#### 09.7 Flashpoint
- Not applicable

#### 09.8 Autoignition temperature
- 400 °C (GG - cloud)

#### 09.9 Explosion properties
- Min ignition energy: > 1200 mJ
- Max explosion pressure: Approx 6.7 bars
- KST: Approx 48 bar m/s
- Class (VDI 3673 ST): 1
- Min explosion concentration: 30 - 60 g/m³

(ref: INERIS, similar to Sodium Gluconate P)
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<th><strong>SAFETY DATA SHEET</strong></th>
<th><strong>REF : A70-007N</strong></th>
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<tr>
<td><strong>PRODUCT : GLUCONO DELTA LACTONE T</strong></td>
<td><strong>January 07 - P 3/4</strong></td>
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<td>acc 91/155/CEE and its amendments</td>
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| **10. STABILITY AND REACTIVITY:** |
| **10.1 Stability:** | stable with respect to storage conditions %? |
| **10.2 Hazardous reactions:** | air / dust mixture (explosion hazards) |
| **10.3 Materials to avoid:** | strong oxidizing agents |
| **10.4 Hazardous decomposition products:** | typical decomposition products : Carbon monoxide and dioxide, oxygen, water |

| **11. TOXICOLOGICAL INFORMATION:** |
| **11.1 Acute toxicity:** | DL50 : not available |
| **11.2 Local effects:** | rubbing may cause mechanical skin irritation for hypersensitive individuals |
| **11.3 Other information:** | no known toxicity |

| **12. ECOLOGICAL INFORMATION:** |
| **12.1 Persistence/Degradability:** | biodegradable product |
| **12.2 Bioaccumulation:** | not applicable, product metabolized by organisms |
| **12.3 Ecotoxicity:** | CL50 : not available |

| **13. DISPOSAL CONSIDERATIONS:** |
| **13.1 Waste from residues:** | can be eliminated as a solid waste (common industrial waste) or incinerated in approved treatment plant conforming with applicable regulations and legislation send to water treatment plant prior to release |
| **13.2 Contaminated packaging:** | single use packaging eliminate or recycle according to local regulations |

| **14. TRANSPORT INFORMATION:** |
| **14.1 International regulations:** | not applicable |
| **14.2 UN number:** | none |
| Class. | RTD/ADR | RTMDR | IMDG | IATA/OACI |
| Group, number or page. | na | na | na | na |
| Labelling. | | | | |
| Danger code. | | | | |
| Product code. | | | | |

| **15. REGULATORY INFORMATION:** |
| **15.1 Labelling according to BBE standards:** | not required |
| Hazard symbol. | not applicable |
15.2 Local regulations: product conforming with following regulations:
- FDA - CFR 21 : § 184.1318
- Food Additive E 575

16. OTHER INFORMATION:

Note:
This bulletin completes the Technical Directions for use but is not a substitute for them.
Attention is drawn to the risks encountered when the product is used in applications other than those for which intended.
It is the responsibility of the user to be aware of and to follow the regulations applying to our product for its possession, handling and use.
All information and instructions provided in this Safety Data Sheet (SDS) is made with no warranty; they are based on the current state of our knowledge at the latest revision date indicated.
* Updating:
The modified texts of the former versions are marked with an asterisk (*).