SAFETY DATA SHEET
GLUCONO DELTA LACTONE S.G

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

1.1 Product identifier:

Product name: **GLUCONO DELTA LACTONE S.G**
Product No.: 000000200045
Synonyms: Glucono-Delta-Lactone.
Chemical name: D-Glucono-1,5-lactone
CAS-No.: 90-80-2

1.2 Relevant identified uses of the substance or mixture and uses advised against:

Identified uses:	Uses advised against:
Food., Chemical Additive, Formulation and Packaging., Fabrics, textiles and apparel., Paper treatment.,	No data available.

1.3 Details of the supplier of the safety data sheet:

Supplier:
ROQUETTE FRERES
1 Rue de la Haute Loge
62136 LESTREM - France

Telephone: +33 3 21 63 36 00
Fax: +33 3 21 63 38 50
E-mail: sds@roquette.com

1.4 Emergency telephone number:

National Capital Poison Center: 1 800 222 1222 (24/24)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture:

This product is not hazardous according to OSHA 29CFR 1910.1200.

2.2 Label elements:

Not applicable

2.3 Other hazards:

Dust may form an explosive mixture in the atmosphere.

SECTION 3: Composition/information on ingredients

3.1 Substance:

Chemical name	Concentration	CAS-No.
D-Glucono-1,5-lactone	>=99%	90-80-2

SECTION 4: First aid measures

4.1 Description of first aid measures:

Inhalation: Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.

Eye contact: Flush thoroughly with water. If irritation occurs, get medical assistance.

Skin contact:	Wash with soap and water. Contact physician if irritation continues.
Ingestion:	Drink plenty of water. Do not induce vomiting. Get medical attention if symptoms occur.

4.2 Most important symptoms and effects, both acute and delayed: None known.

4.3 Indication of any immediate medical attention and special treatment needed:

Treatment:	Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media:

Suitable extinguishing media:	Water spray.
Unsuitable extinguishing media:	Dry chemicals or foams.

5.2 Special hazards arising from the substance or mixture: Fire or excessive heat may produce hazardous decomposition products. Dust may form an explosive mixture in the atmosphere. See Section 10.

5.3 Advice for firefighters:

Special Fire Fighting Procedures:	Prevent dust cloud.
Special protective equipment for fire-fighters:	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures: See Section 8 of the SDS for Personal Protective Equipment.

6.2 Environmental precautions: Not regarded as dangerous for the environment.

6.3 Methods and material for containment and cleaning up: Remove material, as much as possible, using mechanical equipment. Prevent dust cloud. Collect and dispose of spillage as indicated in section 13 of the SDS.

6.4 Reference to other sections: For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1 Precautions for safe handling: See Section 8 of the SDS for Personal Protective Equipment.

7.2 Conditions for safe storage, including any incompatibilities: Store in a cool, dry place out of direct sunlight.

7.3 Specific end use(s): Formulation and Packaging., Fabrics, textiles and apparel., Paper treatment., Chemical Additive, Feedstock,

SECTION 8: Exposure controls/personal protection

8.1 Control parameters:

Occupational exposure limits:

This product does not contain any components >1% with specific occupational exposure limits.

Chemical name	Type	Exposure Limit Values	Source
Dust - Inhalable particles.	TWA	10 mg/m3	US. ACGIH Threshold Limit Values (01 2010)
Dust - Respirable particles.	TWA	3 mg/m3	US. ACGIH Threshold Limit Values (01 2010)
Dust - Respirable fraction.	PEL	5 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Dust - Total dust.	PEL	15 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Dust - Total dust.	TWA	15 mg/m3	US. OSHA Table Z-3 (29 CFR 1910.1000) (2000)
Dust - Respirable fraction.	TWA	5 mg/m3	US. OSHA Table Z-3 (29 CFR 1910.1000) (2000)

8.2 Exposure controls:

Appropriate engineering controls: Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of dust.

Individual protection measures, such as personal protective equipment:

Eye/face protection: Wear dust-resistant safety goggles where there is danger of eye contact. (EN 166)

Skin protection:

Hand Protection: Gloves are recommended for prolonged use.

Other: Wear suitable protective clothing.

Respiratory Protection: In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter (type P1). (EN 143)

Hygiene measures: Handle the product in accordance with the good hygiene practices and safety instructions.

Environmental exposure controls: Not regarded as dangerous for the environment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties:

Physical State:	solid
Form:	Powder
Color:	White
Odor:	Odorless
pH:	~ 2.7 at 1 %
Melting Point:	~ 153 °C
Boiling Point:	Not Applicable
Flash Point:	Not Applicable
Vapor pressure:	Not Applicable
Vapor density (air=1):	Not Applicable
Relative density:	~ 0.8
Solubility in Water:	~ 500 g/l at 20 °C
Partition coefficient (n-octanol/water):	-2.38 (Calculated)

Explosive properties: - INERIS -Data from similar product.

Ignition Temperature:	~ 440 °C (EN 50281-2-1) MIT in Cloud. ~ 400 °C (EN 50281-2-1) 5 mm layer (Glowing Temperature). ~ 500 °C product in deposit.
MIE (Minimum Ignition Energy):	> 1,200 mJ (EN 13821)
dP/dtmax (Maximum Rate of explosion Pressure rise):	~ 338 bar/s (EN 14034-2)
Pmax (Maximum Explosion OverPressure) ±10%:	~ 5.4 bar (EN 14034-1)
Kst value (±20%):	~ 92 barm/s (EN 14034-2)
Dust Explosion Class:	st 1 (VDI 3673)
Volume resistivity:	> 10^9 Ω.m (IEC 61241-2-2 / Group IIIB non-conductive dust.)
Moisture:	< 0.5 % (ISO 589)
Mv (Median value):	~ 228 µm (NFX 11-666)

9.2 Other information:

SECTION 10: Stability and reactivity

10.1 Reactivity: Oxidizing agents.

10.2 Chemical stability: Material is stable under normal conditions.

10.3 Possibility of hazardous reactions: No hazardous reactions under ordinary conditions of use and storage.

10.4 Conditions to avoid: Prevent dust cloud. Dust clouds may be explosive under certain conditions. Avoid dust close to ignition sources.

10.5 Incompatible materials: Strong oxidizing substances.

10.6 Hazardous decomposition products: Carbon Dioxide. Carbon Monoxide.

SECTION 11: Toxicological information

11.1 Information on toxicological effects:

Acute toxicity :

Test / Substance	Species	Type / Result	Exposure	Remarks
OECD 401	Rat	LD50 - Oral : >2000 mg/kg Not classified	14 h	- ECHA Database - Data from similar product.
OECD 402	Rat	LD50 - Dermal : >2000 mg/kg Not classified	24 h	- ECHA Database - Data from similar product.
Other Guideline.	Rabbit	LD50 - Not available. : >2000 mg/kg Not classified		- ECHA Database -

Skin irritation. :

Test / Substance	Species	Result	Exposure	Remarks
OECD 404 Data from similar product.	Rabbit	Not Irritating	72 h	- ECHA Database -

Serious eye irritation :

Test / Substance	Species	Result	Exposure	Remarks
OECD 405 Data from similar product.	Rabbit	Not Irritating	72 h	- ECHA Database -

Sensitization :

Test / Substance	Type	Species	Result	Remarks
OECD 429 Data from similar product.	In vivo	Mouse	Non-Sensitising	- ECHA Database -

Repeated dose toxicity :

Test / Substance	Species	Result	Exposure	Remarks
OECD 408	Rat	No treatment related effects.	90 day(s)	- ECHA Database - Data from similar product.

Mutagenesis :

Test / Substance	Type	Species	Result	Remarks
OECD 471 (Ames)		S. typhimurium	Negative	- ECHA Database -

Carcinogenicity: No data available.

Reproductive toxicity :

Test / Substance	Species	Route of Exposure / Exposure	Result	Remarks
OECD 414	Rat	Oral 20 day(s)	No treatment related effects. NOAEL : 594 mg/kg	- ECHA Database -
OECD 414	Mouse	Oral 20 day(s)	No treatment related effects. NOAEL : 695 mg/kg	- ECHA Database -
OECD 414	Hamster	Oral 20 day(s)	No treatment related effects. NOAEL : 560 mg/kg	- ECHA Database -
OECD 414	Rabbit	Oral 20 day(s)	No treatment related effects. NOAEL : 780 mg/kg	- ECHA Database -

SECTION 12: Ecological information

12.1 Toxicity:

Acute toxicity:

Test / Substance	Species	Type/Result	Exposure	Remarks
OECD 203	Fish	LC50 : 360 mg/l Non toxic.	96 h	- ECHA Database -
OECD 202	Daphnia magna	LC50 : 305 mg/l Non toxic.	24 h	- ECHA Database -
OECD 201	Desmodesmus subspicatus	EC50 : > 100 mg/l Non toxic.	72 h	- ECHA Database -
OECD 209	Activated Sludge.	EC50 : 649.8 mg/l Non toxic.	3 h	- ECHA Database -

Chronic Toxicity: No data available.

12.2 Persistence and degradability:

Test / Substance	Result	Remarks
EU.C4-E	89 % / 28 d The product is readily biodegradable.	- ECHA Database - Data from similar product.
OECD 302b	98.3 % / 19 d Inherently biodegradable	- ECHA Database - Data from similar product.

12.3 Bioaccumulative potential:

Test / Substance	Log Pow (n-Octanol/Water Partition Coefficient)	Bioconcentration Factor (BCF) / Bioaccumulation	Remarks
Calculated	-2.38	~ 3	Will not bio-accumulate. - Literature Reference -

12.4 Mobility in soil:

Test / Substance	Medium	Organic Carbon Partition Coefficient (Koc)	Remarks
Calculated	soil	~ 10	This material is readily biodegraded and is not likely to bioconcentrate. - Literature Reference -

12.5 Results of PBT and vPvB assessment: No data available.

12.6 Other adverse effects: None known.

SECTION 13: Disposal considerations

13.1 Waste treatment methods:

Product: Dispose of waste in an appropriate authorised treatment facility in accordance with regulations in force and product characteristics at time of disposal.

Packaging material: Single use packaging. Collect for salvage or disposal.

SECTION 14: Transport information

This material is not subject to transport regulations (DOT, IMDG, IATA).'

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

This Safety Data Sheet is in conformity with appendix D of the OSHA Hazard Communication Standard 29CFR 1910.1200.

SECTION 16: Other information

Revision Information: Not relevant.

Key literature references and sources for data: ECHA registered substances database.
ToxNet Database.

Abbreviations and acronyms used in the SDS.:

LD50: lethal dose 50%
LC50 : lethal concentration 50%
EC50 : The effective concentration of substance that causes 50% of the maximum response.
CAS: Chemical Abstracts Service (division of the American Chemical Society)

Disclaimer:

The information provided in this Safety Data Sheet (SDS) relates only to the specific product designated and may not be applicable when such product is used in combination with other materials or in any process. 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.
The information given is designed only as a guidance and is not to be considered a warranty or quality specification.
All information and instructions provided in this SDS are based on the current state of our knowledge at the latest revision date indicated.