

ROQUETTE® GLUCONO DELTA LACTONE SG - E575

DEFINITION :

GLUCONO DELTA-LACTONE.

CAS n°: 90-80-2

EINECS: 202-016-5

SPECIFICATIONS :

* PHYSICO-CHEMICAL VALUES

APPEARANCE	MCL	Crystalline powder, white and odourless
TASTE		Sweet then acid.
LOSS ON DRYING	MCL	0.2 % max.
GLUCONO DELTA-LACTONE	MCL	99 - 100,5 %
REDUCING SUGARS	MCL	0.5 % max.
MELTING POINT	MCL	150 - 154° C
SULPHATED ASH	MCL	0.1 % max.
HEAVY METALS	MCL	10 ppm max.
ARSENIC	MCL	1 ppm max.
SODIUM	MCL	50 ppm max
LEAD	MCL	1 ppm max
PARTICLE SIZE	MCL	
- RESIDUE ON 250 MIC.		50 % min.

* MICROBIOLOGICAL VALUES

- TOTAL COUNT	MMC	50/g max.
- YEASTS	MMC	10/g max.
- MOULDS	MMC	10/g max.
- E. COLI	MMC	Absent in 10 g
- SALMONELLAE	MMC	Absent in 25 g

MCL,MMC : ROQUETTE Methods



Orthodox Union

Letter of Certification

Union of Orthodox Jewish Congregations of America
איחוד קהילות האורתודוקסים באמריקה

בס"ד

December 07, 2017

Roquette France (continued)

This is to certify that the following product(s) prepared by this company at the facilitie(s) listed above are under the supervision of the Kashruth Division of the Orthodox Union and are kosher as indicated below.

Product Name	UKD-ID	Status	Certification Requirements
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Brand: Roquette (continued)

- | | | | |
|---|--------------|--------|----------------------|
| • Glucono-Delta-Lactone
<i>Certified with batch number beginning with S</i> | OUV2-MDUZX0N | Pareve | Symbol not required. |
| • Huile de maïs brute / crude corn oil
<i>Certified with batch number beginning with S</i> | OUV2-VVNSQXK | Pareve | Symbol not required. |

Brand: Roquette Amidon d'Amylo maïs M-400G (ex EURYLON G)

- | | | | |
|--|--------------|--------|----------------------|
| • Amidon modifié / Modified starch
<i>Certified as chometz free with batch number beginning with S.</i> | OUV2-SNNT7H5 | Pareve | Symbol not required. |
|--|--------------|--------|----------------------|

Brand: Roquette Amidon d'Amylo maïs N-4... (ex EURYLON)

- | | | | |
|---|--------------|--------|----------------------|
| • Amidon de maïs amylose / Amylose starch
<i>Certified as chometz free with batch number beginning with S.</i> | OUV2-GWYHYBL | Pareve | Symbol not required. |
|---|--------------|--------|----------------------|

Brand: Roquette Amidon de waxy maïs N-2..

Placing the OU logo on products not listed above constitutes an unauthorized use of the OU symbol, which is a federally registered trademark.

Rabbi Menachem Genack, *Rabbinic Administrator, CEO*

This certification is valid through 12/31/2018

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ROQUETTE® GLUCONO DELTA LACTONE SG - E575

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TYPICAL VALUES :

ENERGY VALUE

calculated, on 100g commercial product 1698 kj (400 kcal)
- Ref. regulation (EU) nr.1169/2011 of 25 october 2011 -Annex XIV.

CONFORMITY :

- Food additive E575.
- Current Monograph JECFA on Food additives.
- Current JAPANESE STANDARDS FOR FOOD ADDITIVES.
- Current FOOD CHEMICALS CODEX.
- US GRAS Status - 21 CFR, 1995 § 184.1318.
- Commission Regulation (EU) nr.231/2012 of 9 Mars 2012 (OJ EC L-83/1 dated 22.03.2012.

STORAGE :

Standard packaging : 25 kg polythene bags.

Minimum durability date of the packaged product: Manufacturing date
+ 24 months.

Shelf life: manufacturing date + 5 years.

MCL,MMC : ROQUETTE Methods

SAFETY DATA SHEET
GLUCONO DELTA LATTONE SG G - E575

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

1.1 Product identifier:

Product name: GLUCONO DELTA LATTONE SG G - E575

Synonyms: Glucono-Delta-Lactone

Chemical name:

D-Glucono-1,5-lactone

REACH Registration No.:

01-2119451153-49-0001

CAS-No.:

90-80-2

EC No.:

202-016-5

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: ORFILA (INRS) : + 33 (0)1 45 42 59 59

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture:

The product has not been classified as dangerous according to the legislation in force : CLP Regulation (EC) No 1272/2008.

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.	EC No.	REACH Registration No.
D-Glucono-1,5-lactone	>=99%	90-80-2	202-016-5	01-2119451153-49-0001

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:

France. Code du travail, Article R 4222-10, non specific total dusts : AEL $\leq 10 \text{ mg/m}^3$
respirable dust fractions : STEL $\leq 5 \text{ mg/m}^3$

DNEL-Values:

Exposure		Value	Specific effects	Remarks
Long-term : Inhalation	Workers	59 mg/m ³	Systemic Toxicity	
Long-term : Dermal	Workers	11,9 mg/kg	Systemic Toxicity	
Long-term : Inhalation	General Population	14,6 mg/m ³	Systemic Toxicity	
Long-term : Oral	General Population	5,9 mg/kg	Systemic Toxicity	
Long-term : Dermal	General Population	5,9 mg/kg	Systemic Toxicity	

PNEC-Values:

Compartment	Value	Method
Freshwater	0,1 mg/l	Assessment Factor
Seawater	0,01 mg/l	Assessment Factor
Intermittent release	1 mg/l	Assessment Factor
Sewage Treatment Plant	6,498 mg/l	Assessment Factor
Freshwater Sediment	0,36 mg/kg	Partition Coefficient
Saltwater Sediment	0,36 mg/kg	Partition Coefficient
Soil	0,0135 mg/kg	Partition Coefficient

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.

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).

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:	~ 3 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)

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.
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 > 2.000 mg/kg Non toxic.	14 h	- ECHA Database - Data from similar product.
OECD 402	Rat	LD50 - Dermal > 2.000 mg/kg Non toxic.	24 h	- ECHA Database - Data from similar product.

Skin irritation. :

Test / Substance	Species	Result	Exposure	Remarks
OECD 404 Data from similar product.	Rabbit	Non Irritating	72 h	- ECHA Database -

Serious eye irritation :

Test / Substance	Species	Result	Exposure	Remarks
OECD 405 Data from similar product.	Rabbit	Non 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: No data available.

Carcinogenicity: No data available.

Reproductive toxicity :

Test / Substance	Species	Route of Exposure / Exposure	Result	Remarks
OECD 414	Mouse	Oral 20 day(s)	No treatment related effects. NOAEL : 695 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 -

12.2 Persistence and degradability:

Test / Substance	Result	Remarks
EU.C4-E	89 % / 28 d The product is easily 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: Not 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

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.5 Environmental hazards: Not regulated.

14.6 Special precautions for user: No special precautions.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.

SECTION 15: Regulatory information

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

This Safety Data Sheet complies with regulation (EU) No 453/2010 amending annex II of regulation (EC) No 1907/2006 (REACH).

15.2 Chemical safety assessment: Not Available

SECTION 16: Other information

Revision Information: Not relevant.

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

Disclaimer: The information provided in this Safety Date 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.



PMP FERMENTATION PRODUCTS, INC.

900 N.E. Adams • Peoria, Illinois 61603 • (309) 637-0400 • Fax (309) 637-9302

BSE ATTESTATION

For the manufacture of the whole range of its products, ROQUETTE only uses vegetable raw materials like wheat, maize, potatoes or pea.

No additive or ingredient from animal origin is added to ROQUETTE products.

No processing aid from animal origin is used for the manufacture of ROQUETTE products.

Therefore, there is no objective reason to suspect the presence of the Bovine Spongiform Encephalopathy infectious agent in the products delivered.

Application date: January 2010

Customer Quality Department

Scott Whetsell
QC Mgr



PMP FERMENTATION PRODUCTS, INC.

900 N.E. Adams • Peoria, Illinois 61603 • (309) 637-0400 • Fax (309) 637-9302

June 11, 2002

Dear Valued Customer:

Shelf-life for Glucono Delta Lactone (GDL)

We hereby certify that the shelf life of our Glucono Delta Lactone is two (2) years after manufacturing date subject to the following provisions:

- Material is stored in a cool place.
- Material is stored in low humidity conditions
- Packaging remains intact.
- As storage time increases, discoloration of material may happen.
- Extended storage may cause the material to become hard.

PMP Fermentation Products, Inc.

Michael S. Bussell
Michael S. Bussell
Quality Assurance Manager



PMP FERMENTATION PRODUCTS, INC.

900 N.E. Adams • Peoria, Illinois 61603 • (309) 637-0400 • Fax (309) 637-9302

December 1, 2004

To Whom It May Concern:

Lot numbers for glucono-delta-lactone (GDL) are made up of ten (10) digits. The first two (2) digits indicate the year of manufacture. The next two- (2) digits indicate the month of manufacture. The final six (6) digits identifies the unique batch number of the production run.

Lot 0408001342

04 – Produced in 2004

08 – Produced in August

001342 – Is the 1,342 batch of this production run.

If you have further questions dealing with how PMP codes its products, please feel free to contact me at (309) 637-0400 Ext. 231.

Regards,

Michael S. Bussell
Quality Assurance Manager



Chemical Co. Inc.

501 Chesapeake Park Plaza

Baltimore MD 21220

410-547-4500 Fax: 410-391-6665





Maize supplies to the Roquette Group in Europe

In response to the demands of its customers, Roquette has implemented procedures to ensure that all its European factories are supplied with conventional maize (i.e. non-GMO according to the European regulation 1829/2003 and 1830/2003), in agreement with its raw material purchasing policy.

Roquette's purchasing policy is based on a process of approval of its maize suppliers.

- This approval depends on the supplier's ability to deliver conventional maize. Exceptionally, for economic reasons, Roquette may need to obtain maize originating from outside the European Union but for which guarantees of conventional status have been obtained.
- In all cases, Roquette provides an additional guarantee to its customers and users by sampling the maize and testing it by PCR before it is used. The PCR tests are carried out by independent laboratories approved by Roquette.
- This control over supply and procedures allows us to deliver products derived from **conventional maize** to our customers. Therefore, according to the EU regulations 1829/2003 and 1830/2003, the adventitious or technically unavoidable presence of authorized GMO is no more than 0.9 %.

This policy applies to **all Roquette European sites** (France, Spain, Italy, Romania) and is backed by the Quality Management Policy established according to the ISO 9001 standard. Roquette is committed to maintain this policy until such time as concerns over GMOs have been resolved satisfactorily.

Application date: May 2015.
Corporate Quality Department

INTOLERANCE AGENTS

Product: ROQUETTE® Glucono-Delta-Lactone

Intolerance agents according to the current European regulation

AGENTS	Presence in the product	Presence in the processing line / workshop	Presence in the factory	Is the risk of cross contamination controlled ?
	“-“ for absence, “+“ for presence			Y, N, or N/A
Wheat, gluten and products thereof	-	-	-	N/A
Other cereals containing gluten ¹ and products thereof	-	-	-	N/A
Crustaceans and products thereof	-	-	-	N/A
Eggs and products thereof	-	-	-	N/A
Fish and products thereof	-	-	-	N/A
Peanuts and products thereof	-	-	-	N/A
Soya and products thereof	-	-	-	N/A
Milk, constituents ² and products thereof	-	-	-	N/A
Nuts ³ and products thereof	-	-	-	N/A
Celery and products thereof	-	-	-	N/A
Mustard and products thereof	-	-	-	N/A
Sesame seeds and products thereof	-	-	-	N/A
Sulphur dioxide and sulphites in concentration higher than 10ppm	-	-	+	Y
Lupin and products thereof	-	-	-	N/A
Molluscs and products thereof	-	-	-	N/A

¹ Cereals (i.e. rye, barley, oat, spelt, kamut, rice and wild rice, sorghum, buckwheat, millet, quinoa).

² Constituents (i.e. cow's milk proteins, lactose...)

³ Nuts (i.e. Almond [*Amygdalus communis L.*], Hazelnut [*Corylus avellana*], Walnut [*Juglans regia*], Cashew nut [*Anacardium occidentale*], Pecan nut [*Carya illinoensis* (Wangenh.) K. Koch], Brazil nut [*Bertholletia excelsa*], Pistachio nut [*Pistacia vera*], Macadamia nut, Queensland nut [*Macadamia ternifolia*]).

Intolerance agents (ALBA list, ...)

AGENTS	Presence in the product	Presence in the processing line / workshop	Presence in the factory	Is the risk of cross contamination controlled ?
	“-“ for absence, “+“ for presence			Y, N, or N/A
Vegetable origin				
Maize and products thereof	+	+	+	N/A ¹
Pea and products thereof	-	-	-	N/A
Potato and products thereof	-	-	-	N/A
Caffeine	-	-	-	N/A
Cocoa	-	-	-	N/A
Coconut	-	-	-	N/A
Colza	-	-	-	N/A
Ethanol	-	-	-	N/A
Fruits (dried and fresh fruits) and products thereof	-	-	-	N/A
Fructose	-	-	-	N/A
Other legumes, pulses and beans	-	-	-	N/A
Latex	-	-	-	N/A
Latex group (as banana, avocado, kiwi...)	-	-	-	N/A
Liliaceae (as garlic, onion...)	-	-	-	N/A
Mushrooms	-	-	-	N/A
Other prunoids	-	-	-	N/A
Saccharose (added)	-	-	-	N/A
Seeds (as poppy, sunflower, cottonseed...)	-	-	-	N/A
Other Solanaceae (as tomato...)	-	-	-	N/A
Spices ² and products thereof	-	-	-	N/A
Tree nuts and products thereof (Pine nut, Chestnut, Hickory...)	-	-	-	N/A
Umbellifereae (as carrot, coriander, parsley, parsnip...)	-	-	-	N/A
Other vegetables and products thereof	-	-	-	N/A
Animal origin				
Honey	-	-	-	N/A
Meat (beef, chicken, lamb / mutton, pork)	-	-	-	N/A
Propolis	-	-	-	N/A
Royal jelly	-	-	-	N/A
Phenylalanine	-	-	-	N/A
Yam and products thereof	-	-	-	N/A

¹ Produced with maize based dextrose.

² Spices (i.e cardamom, cinnamon, cumin, curcuma, nutmeg, paprika, pepper...)

AGENTS	Presence in the product	Presence in the processing line / workshop	Presence in the factory	Is the risk of cross contamination controlled ?
	“-” for absence, “+” for presence			Y, N, or N/A
Others				
AZO colorants (E102 / E104 / E110 / E122 / E123 / E124 / E129 / E151)	-	-	-	N/A
Benzoic acid and PHB (E210 to E219)	-	-	-	N/A
BHA / BHT (E320 / E321)	-	-	-	N/A
Flavour components	-	-	-	N/A
Gallates (E310 / E312)	-	-	-	N/A
Gelatin	-	-	-	N/A
Glutamate, ribonucleic inosinates and derivatives	-	-	-	N/A
Histamine	-	-	-	N/A
Nitrates / Nitrites	-	-	-	N/A
Propionates	-	-	-	N/A
Propylene oxide	-	-	-	N/A
Rennet	-	-	-	N/A
Vanillin / vanilla	-	-	-	N/A
Yeast	-	-	-	N/A

Application Date: August 2012
Customer Quality Department

Ref. H21 – 511 / Vers. 7



PMP FERMENTATION PRODUCTS, INC.


900 N.E. Adams • Peoria, Illinois 61603 • (309) 637-0400 • Fax (309) 637-9302

Manufactured at: Roquette Italia S. p. A, Via Serravalle, 26, I5063 Cassano Spinola. Italy

Nutritional Data

Product	Glucono Delta Lactone	
Supplier	FUSO / PMP Fermentation Products	
Product Code	82113 and 82114	
Nutritional Information		
	Typical Per 100 g	
Proximates		
Calories (Energy) (Kcal)	400	
Calories from Fat	0	
Fat (g)	0	
SAFA Fat, (g)	0	
TRANS Fat, (g)	0	
MUFA Fat, (g)	0	
PUFA Fat, (g)	0	
Cholesterol (mg)	0	
Total Carbohydrate (g)	100	
Dietary Fiber (g)	0	
Soluble Fiber (g)	0	
Insoluble Fiber (g)	0	
Total Sugars(g)	<0.5	
Added Sugars	0	
Sugar Alcohol (g)	0	
Protein (g)	0	
Organic acids (g)	0	
Other non-nutritive solids (g)	0	
Ash (g)	0	
Moisture (g)	<0.2	
Minerals		
Sodium (mg)	0	
Calcium (mg)	0	
Iron (mg)	0	
Potassium (mg)	0	
Phosphorus (mg)	0	
Iodine (mcg)	0	
Magnesium (mg)	0	
Zinc (mg)	0	
Selenium (mcg)	0	
Copper (mg)	0	
Manganese (mg)	0	
Chromium (mcg)	0	
Chloride (mg)	0	
Molybdenum (mcg)	0	

Product	Glucono Delta Lactone
Supplier	FUSO / PMP Fermentation Products
Product Code	82113 and 82114
Nutritional Information	
	Typical Per 100 g
Chloride (mg)	0
Vitamins	
Vitamin A (mcg RAE) *	0
Vitamin C (Ascorbic Acid) mg	0
Vitamin D (mcg) *	0
Vitamin E (mg) *	0
Vitamin K (mcg)	0
Thiamine (Vitamin B ₁) (mg)	0
Riboflavin (Vitamin B ₂) (mg)	0
Niacin (mg NE)	0
Vitamin B ₆ (mg)	0
Folate (mcg DFE)	0
Folic Acid (mcg)	0
Vitamin B ₁₂ (mcg)	0
Biotin (mcg)	0
Pantothenic Acid (mg)	0
Choline (mg)	0

Company:	PMP Fermentation Products	Signature: 
Name:	Michael S. Bussell	
Title:	QA Manager	Date: September 12, 2016



PMP FERMENTATION PRODUCTS, INC.

900 N.E. Adams • Peoria, Illinois 61603 • (309) 637-0400 • Fax (309) 637-9302

Glucono delta lactone (GDL) is widely used as an acidulant in various food systems. It is Generally Recognized As Safe (GRAS) by the FDA when its use is based on good manufacturing practices in the following applications: a) curing and pickling agent, b) leavening agent, c) pH control agent and d) sequestrant.

GDL is a carbohydrate and does not contain any fats or minerals. Nor does GDL contribute any vitamin activity. The caloric value is calculated using the Atwater constant (4.0 kcal/g).

	<u>UNIT</u>	<u>Glucono Delta Lactone</u>
Calories	kcal/100g	400
Carbohydrates	g/100g	100
Protein	g/100g	0
Fat (sat and +unsat)	g/100g	0
Sodium	mg/100g	0
Potassium	mg/100g	0
Cholesterol	mg/100g	0

If you have any questions concerning this data, please do not hesitate calling at (800) 558-1031.

Thank you for distributing Glucono Delta Lactone from PMP Fermentation Products, Inc.

Sincerely,
PMP Fermentation Products, Inc.



PMP FERMENTATION PRODUCTS, INC.

900 N.E. Adams • Peoria, Illinois 61603 • (309) 637-0400 • Fax (309) 637-9302

Microbiological Guarantee for Roquette Produced GDL

PMP Fermentation Products, Inc., guarantees the GDL produced by Roquette under the FUSO label and distributed by PMP, will comply with these microbiological standards:

Total Plate Count	Maximum of 100 cfu / gram
Yeasts	Maximum of 10 cfu / gram
Molds	Maximum of 10 cfu / gram
Coliform	0 cfu / 10 grams
<u>E coli</u>	0 cfu / 10 grams
Salmonellae	0 cfu / 25 grams

PMP Fermentation Products, Inc., issues this guarantee based on documentation supplied by Roquette. Further, this guarantee is only valid when test results are generated from a freshly opened bag of GDL that is sampled and tested using methods that conform to those practices as listed in the latest version of the B.A.M.

Michael S. Bussell

11/3/2010

Quality Assurance Manager CQM (ASQ)

PMP Fermentation Products, Inc., liability from this guarantee is limited to the value of the GDL sold. PMP reserves the right to have customer test results verified by an independent accredited lab.



**BUREAU
VERITAS**

ATTESTATION de RECOGNITION

BUREAU VERITAS attests that it has been carried out at :

ROQUETTE ITALIA S.p.A
Via Serravalle, 26
15063 CASSANO SPINOLA

for an evaluation the 05th june 2015 in order to recognize with following documents :

Principle of supply in conventional maize - Roquette Italy : version June 2012
and its appendix
Audit's questionnaire conventional maize : revision 1 dated June 11, 2012


for :

**System of the control of the supply and identity preservation of maize used in
Cassano plant, in order to guarantee that finish products delivered are
manufactured using conventional maize**

The result of this evaluation being satisfactory, the Attestation of Recognition :

N° BV/013/RE

valid until June 30th, 2016 has been delivered *

Rennes, July 15th, 2015	For Bureau Veritas  François-Charles LINDEMANN Agro-Industry Manager
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* Subject to compliance of keeping conditions of the present attestation



Lloyd's Register
LRQA

CERTIFICATE OF APPROVAL

This is to certify that the Food Safety Management System of:

ROQUETTE ITALIA S.p.A.

at

Via Serravalle, 26

15063 Cassano Spinola (Alessandria) - Italia

has been assessed by Lloyd's Register Quality Assurance and complies with the requirements of:

FSSC 22000 : version 3, 2013

Certification scheme for food safety systems including:
ISO 22000:2005, ISO/TS 22002-1:2009, and additional FSSC 22000 requirements.

This certificate is applicable to:

**Production, storage and delivery of native, pregelatinized and modified starches, glucose syrups, glucose fructose syrups, high dextrose glucose syrups, isoglucose and glucono delta-lactone.
Category: L**

This certificate is provided on the basis of the FSSC 22000 certification scheme. The certification system consists of an annual audit of the food safety management system and an annual verification of the PRP elements and additional requirements as included in the scheme and ISO/TS 22002-1.

Approval Certificate
No: 0170316/FSS/U/EN

Original Approval: 21st January 2008

Current Certificate: 3rd November 2014

Certificate Expiry: 20th January 2017

Vincenzo Patti
Operations Manager:

Issued by: Lloyd's Register Quality Assurance Italy Srl
For and on behalf of Lloyd's Register Quality Assurance Limited



001



This document is subject to the provision below
Via Cadorna, 69 20090 Vimodrone (MI)

For and on behalf of Hiramford, Middlemarch Office Village, Siskin Drive, Coventry, CV3 4FJ, United Kingdom.
This approval is carried out in line with the LRQA assessment and certification procedures and monitored by LRQA.

The use of the UKAS Accreditation Mark indicates Accreditation in respect of those activities covered by the Accreditation Certificate Number 001



PMP FERMENTATION PRODUCTS, INC.

900 N.E. Adams • Peoria, Illinois 61603 • (309) 637-0400 • Fax (309) 637-9302

Glucono-Delta-Lactone (GDL) Letter of Guarantee

This Letter of Guarantee is being issued to any location of Tilley Chemical Company that receives GDL with the FUSO label. This guarantee is VOID for any package, at the time of receipt, that is open, damaged or has been altered.

PMP Fermentation Products, Inc., hereby guarantees that for the purpose of Section 303 (c) of the Federal Food, Drug and Cosmetic Act, GDL produced with the FUSO label between the dates of April 1, 2015 – March 31, 2016 and distributed by PMP, **will not** be adulterated or misbranded within the meaning of said Act, and **may be** introduced into interstate commerce subsequent to the provision of Section 404 and 505 of said Act.

GDL produced with the FUSO label and between the dates of April 1, 2015 – March 31, 2016 and distributed by PMP, complies with all appropriate requirements of the Food Additives Amendment of 1958.

This guarantee supersedes any previous guarantee and will expire at midnight of March 31, 2016 or until it is revoked in writing, which ever comes first.

Dated this 31st of March 2015

PMP FERMENTATION PRODUCTS, INC.

By: Michael S. Bussell
Quality Assurance Manager CQM (ASQ)

STATEMENT

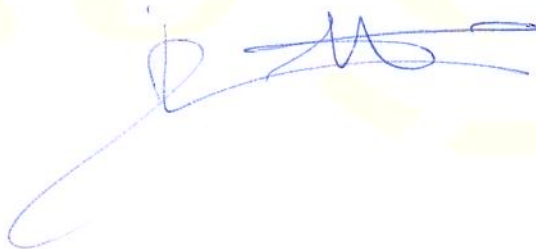
This letter attests that Roquette Frères, located in Lestrem FRANCE, made an agreement with Fuso Chemical Company Ltd. Located in Osaka Japan.

Roquette Frères sell GDL, manufactured at Roquette's Italian factory located in Cassano Alessandria, to PMP Fermentation Products. Inc. As Fuso's subsidiary.

This GDL is packed in 25 kg bags with the Fuso label in our Italian factory.

Lestrem, April 16th, 2013

B. DOULLE for C. CHAINER
Director of Strategy Marketing





ORTHODOX UNION

LETTER OF KOSHER CERTIFICATION

נס"ד

UNION OF ORTHODOX JEWISH CONGREGATIONS OF AMERICA איחוד קהילות האורתודוקסים באמריקה
ELEVEN BROADWAY / NEW YORK, NY 10004 / 212-613-8241 / KOSHERLETTER@OU.ORG / OUKOSHER.ORG

January 23, 2019

This is to certify that the following product prepared by this company is under the supervision of the Kashruth Division of the Orthodox Union and is kosher as indicated below.

Roquette France

1 Rue de la Haute Loge, Lestrem, 62136 FRANCE

UKD-ID: OUV2-MDUZX0N

Product Name: Glucono-Delta-Lactone

Brand: Roquette

Status: Pareve

Certification Requirements: Symbol not required. Certified with batch number beginning with S

Use of the OU trademark must comply with the terms set forth in a written agreement with the Orthodox Union. Any other use of the OU trademark is not authorized.

A handwritten signature in cursive script, reading 'Menachem Genack'.

Rabbi Menachem Genack,
Rabbinic Administrator, CEO

**This certification is valid
through 12/31/2019**