Jungbunzlauer

Nutritional Data US

L(+)-Lactic Acid

88 % aqueous solution, food grade (EC, FCC)

Product name	L(+)-lactic acid 88% food grade	$C_3H_6O_3$
EC No.	201-196-2 (general 200-018-0)	
CAS No.	79-33-4 (general 50-21-5)	
E-No.	E 270	

Nutrition declaration according to US FDA
Basis: weight of dry nutrients per 100 g

Nutrient (Unit)	Amount
Labeling Requirements	
Calories (kcal)	320
Total Fat (g)	0
Saturated Fat (g)	0
Trans Fat (g)	0
Polyunsaturated Fat (g)	0
Monounsaturated Fat (g)	0
Cholesterol (mg)	0
Sodium (mg)	< 2.0
Total Carbohydrate (g)	88.5
FDA Approved Dietary Fiber (g)	0
Soluble Fiber (g)	0
Insoluble Fiber (g)	0
Other Soluble Fiber (g)	0
Other Insoluble Fiber (g)	0
Total Sugars (g)	< 0.5 (as glucose)
Added Sugars (g)	0
Sugar Alcohol (g)	0
Protein (g)	0
Vitamin D (mcg)	0
Calcium (mg)	< 0.3
Iron (mg)	< 0.05
Potassium (mg)	< 3.0
Vitamin A (mcg RAE)	0
Vitamin A (IU)	0
Vitamin C (mg)	0

Contributing Analytes	
Ash (g)	0
Minerals	
Phosphorus (mg)	< 0.3
Iodine (mg)	< 0.02
Magnesium (mg)	< 0.05
Zinc (mg)	< 0.05

Jungbunzlauer

Pesticides

The following Jungbunzlauer products

- **Calcium Lactate Gluconate**
- **Citric Acid**
- **Citric Acid DC**
- **CITROCOAT® EP**
- **CITROCOAT® N**
- **CITROFOL® AI Extra**
- **Encapsulated Glucono-delta-Lactone eGdL**
- **ERYLITE®**
- **ERYLITE® Bronze**
- **ERYLITE® Stevia**
- **ERYLITE® Monkfruit**
- **Gluconic Acid**
- **Glucono-delta-Lactone**
- **L(+)-Lactic Acid**
- **L(+)-Lactic Acid Buffered**
- **LIQUINAT®**
- **Magnesium Lactate**
- **Monomagnesium Citrate**
- **Monosodium Citrate**
- **Potassium Gluconate**
- **Potassium L(+)-Lactate**
- **Potassium L(+)-Lactate/Potassium Acetate**
- **Potassium L(+)-Lactate/Potassium Diacetate**
- **Potassium L(+)-Lactate/Sodium Acetate**
- **Potassium L(+)-Lactate/Sodium Diacetate**
- **Potassium L(+)-Lactate/Vinegar**
- **Sodium Gluconate**
- **Sodium L(+)-Lactate**
- **Sodium L(+)-Lactate/Sodium Diacetate**
- **sub4salt®**
- **TayaGel®**
- **Tricalcium Citrate**
- **Trimagnesium Citrate**
- **Tripotassium Citrate**
- **Trisodium Citrate**
- **Xanthan Gum**
- **Xanthan Gum Blends**
- **Zinc Citrate**
- **Zinc Gluconate**
- **Zinc Lactate**

are either manufactured by fermentation of glucose syrup derived from corn or further processing (e.g. neutralisation, esterification, agglomeration, coating, blending etc.). The products undergo several purification steps and are finally obtained in their highly pure form.

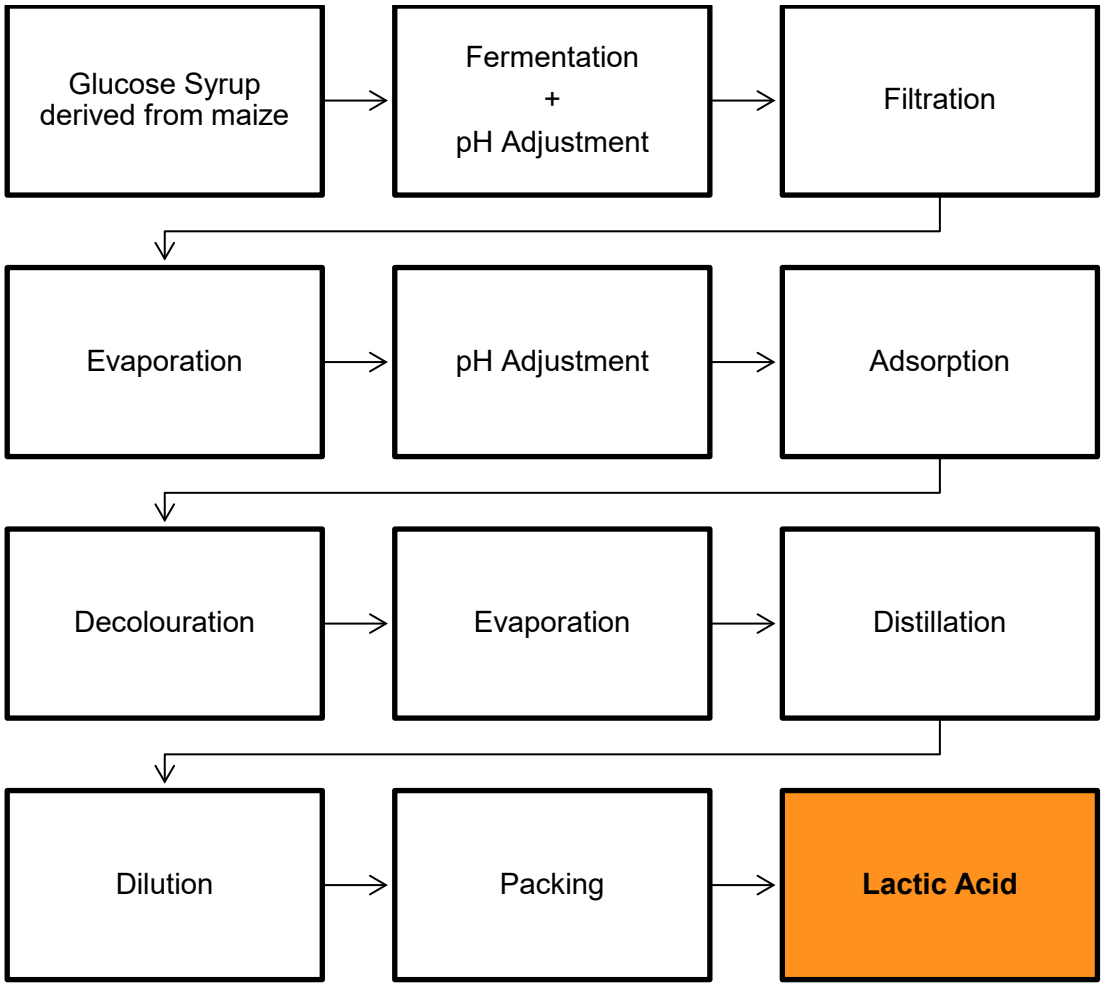
Corn/maize is regularly tested on pesticide residues according to Commission Regulation (EU) No. 396/2005 and all its amendments.

Based on these tests and on the production process, we can exclude that possible traces of substances which are currently authorized for the intended use as pesticides are transferred from our raw material corn into our final products.
For more details or other specific contaminants, please do not hesitate to contact us.

Please note that the above-mentioned products do not fall into the scope of Commission Regulation (EU) No. 396/2005.

Jungbunzlauer

Production Flow Chart
Lactic Acid



Fermentation Process
Jungbunzlauer L(+)-lactic acid is manufactured by the natural process of fermentation of glucose syrup derived from maize by enzymatic conversion, using a bacterial strain. Since fermentation requires a specific pH, the fermentation step includes pH adjustment. No other solvents than water nor catalysts are used during the complete process.

Downstream Process
After completion of the fermentation, the broth is filtered to separate the buffered lactic acid from biomass and concentrated by evaporation of water. After a second pH adjustment step, the lactic acid is purified by adsorption and decolourized with activated carbon. Thereafter, the lactic acid concentration is further increased by evaporation of water. The final purification step is a distillation which leads to a high purity concentrated lactic acid. Pure concentrated lactic acid solution is then diluted with water to the targeted concentrations.

Jungbunzlauer

National Bioengineered Food Disclosure Standard
European Manufacturing Sites

This statement is valid for the Jungbunzlauer manufacturing sites Pernhofen (Austria), Ladenburg (Germany) and Marckolsheim (France).

The following Jungbunzlauer products

- **Calcium Lactate Gluconate**
- **Citric Acid**
- **Citric Acid DC**
- **CITROCOAT® N**
- **CITROFOL® AI Extra**
- **Encapsulated Glucono-delta-Lactone eGdL**
- **ERYLITE®**
- **ERYLITE® Bronze**
- **ERYLITE® Stevia**
- **ERYLITE® Monk Fruit**
- **Gluconic Acid**
- **Glucono-delta-Lactone**
- **L(+)-Lactic Acid**
- **L(+)-Lactic Acid Buffered**
- **LIQUINAT®**
- **Magnesium Lactate**
- **Monomagnesium Citrate**
- **Monosodium Citrate**
- **Potassium Gluconate**
- **Potassium L(+)-Lactate**
- **Potassium L(+)-Lactate/Potassium Acetate**
- **Potassium L(+)-Lactate/Potassium Diacetate**
- **Potassium L(+)-Lactate/Sodium Acetate**
- **Potassium L(+)-Lactate/Sodium Diacetate**
- **Potassium L(+)-Lactate/Vinegar**
- **Sodium Gluconate**
- **Sodium L(+)-Lactate**
- **Sodium L(+)-Lactate/Sodium Diacetate**
- **sub4salt®**
- **TayaGel®**
- **Tricalcium Citrate**
- **Trimagnesium Citrate**
- **Tripotassium Citrate**
- **Trisodium Citrate**
- **Xanthan Gum Food Grade**
- **Xanthan Gum Blends**
- **Zinc Citrate**
- **Zinc Gluconate**
- **Zinc Lactate**

are manufactured by fermentation or are based on fermentation-derived products.

Microorganisms – production strains
Jungbunzlauer does not use genetically modified production strains

Fermentation Raw Materials Identity Preserved
Jungbunzlauer works solely with raw material suppliers who can exclude the processing of genetically modified organisms (GMO).

Jungbunzlauer purchases raw materials (example: glucose syrup) upon a NON-GMO agreement, if they are derived from crops for which genetically modified varieties exist (example: corn).

Glucose syrup from corn is manufactured in dedicated plants at our production sites Pernhofen (Austria) and Marckolsheim (France). We have agreements with all suppliers that only GMO free corn is delivered. Suppliers of corn need to have a traceability system in place.

We confirm that Jungbunzlauer products meet all applicable requirements of the U.S. Department of Agriculture (USDA) National Bioengineered Food Disclosure Standard (7 CFR Part 66) and are exempt from disclosure requirements.

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Palm Oil

Jungbunzlauer

Basel, 24 August 2023

Dear customers

The following Jungbunzlauer products

- **L(+)-lactic acid**
- **L(+)-lactic acid buffered**
- **Sodium L(+)-lactate**
- **Potassium L(+)-lactate**
- **Sodium L(+)-lactate/sodium diacetate**
- **Potassium L(+)-lactate/sodium diacetate**
- **Potassium L(+)-lactate/sodium acetate**
- **Potassium L(+)-lactate/potassium diacetate**
- **Potassium L(+)-lactate/potassium acetate**
- **Potassium L(+)-lactate/vinegar**

are manufactured by fermentation of carbohydrates containing raw materials like glucose syrup. The products undergo several purification steps and are finally obtained in their highly pure form.

Based on the production process as well as on the type of raw materials used, we can exclude that the above mentioned products contain palm oil, Glycidyl fatty acid esters (GE) as well as 3-monochlorpropandiol (3-MCPD), 2-monochlorpropandiol (2-MCPD) and their fatty acid esters. Moreover, we herewith confirm that no palm oil, GE, 3-MCPD and 2-MCPD are added to the above mentioned products.

With best regards

L. Gödtke

Lisa Gödtke
Junior Technical Service Manager

Jungbunzlauer

Elemental Analysis
L(+)-Lactic Acid

Product name	L(+)-lactic acid	$C_3H_6O_3$
EC No.	201-196-2 (general 200-018-0)	
CAS No.	79-33-4 (general 50-21-5)	

Typical Values

Microelements:

Aluminium	Al	< 0.5 mg/kg
Arsenic	As	< 0.1 mg/kg
Bismuth	Bi	< 0.2 mg/kg
Boron	B	< 0.2 mg/kg
Cadmium	Cd	< 0.01 mg/kg
Chromium	Cr	< 0.2 mg/kg
Cobalt	Co	< 0.2 mg/kg
Copper	Cu	< 0.1 mg/kg
Fluorine	F	< 10 mg/kg
Iodine	I	< 0.2 mg/kg
Iron	Fe	< 0.5 mg/kg
Lead	Pb	< 0.05 mg/kg
Manganese	Mn	< 0.1 mg/kg
Mercury	Hg	< 0.005 mg/kg
Molybdenum	Mo	< 0.2 mg/kg
Nickel	Ni	< 0.1 mg/kg
Selenium	Se	< 0.5 mg/kg
Titanium	Ti	< 0.5 mg/kg
Zinc	Zn	< 1 mg/kg

Macroelements:

Calcium	Ca	< 5 mg/kg
Magnesium	Mg	< 0.5 mg/kg
Phosphorus	P	< 3 mg/kg
Potassium	K	< 9 mg/kg
Sodium	Na	< 3 mg/kg

Jungbunzlauer

Use in Vegetarian and Vegan Products

The following Jungbunzlauer products

- **Calcium Lactate Gluconate**
- **Citric Acid**
- **Citric Acid DC**
- **CITROCOAT® EP**
- **CITROCOAT® N**
- **CITROFOL® AI Extra**
- **Encapsulated Glucono-delta-Lactone eGdL**
- **ERYLITE®**
- **ERYLITE® Bronze**
- **ERYLITE® Stevia**
- **ERYLITE® Monkfruit**
- **Gluconic Acid**
- **Glucono-delta-Lactone**
- **L(+)-Lactic Acid**
- **L(+)-Lactic Acid Buffered**
- **LIQUINAT®**
- **Magnesium Lactate**
- **Monomagnesium Citrate**
- **Monosodium Citrate**
- **Potassium Gluconate**
- **Potassium L(+)-Lactate**
- **Potassium L(+)-Lactate/Potassium Acetate**
- **Potassium L(+)-Lactate/Potassium Diacetate**
- **Potassium L(+)-Lactate/Sodium Acetate**
- **Potassium L(+)-Lactate/Sodium Diacetate**
- **Potassium L(+)-Lactate/Vinegar**
- **Sodium Gluconate**
- **Sodium L(+)-Lactate**
- **Sodium L(+)-Lactate/Sodium Diacetate**
- **sub4salt®**
- **TayaGel®**
- **Tricalcium Citrate**
- **Trimagnesium Citrate**
- **Tripotassium Citrate**
- **Trisodium Citrate**
- **Xanthan Gum**
- **Xanthan Gum Blends**
- **Zinc Citrate**
- **Zinc Gluconate**
- **Zinc Lactate**

are manufactured by fermentation, extraction or synthesis.

Above-mentioned products do not contain animal derivatives and have never been exposed to animal derivatives.

Furthermore, Jungbunzlauer does not use any ingredients or additives in the manufacture of its products that originate from animal sources or that have been in contact with animals.

Therefore, the above-mentioned products are suitable to be used in vegetarian or vegan products, for vegetarian or vegan diet and for vegetarian or vegan cosmetic products.

Jungbunzlauer

FDA Food Facility Registration

We herewith confirm that Jungbunzlauer complies with the registration requirements of the FDA Food Safety Modernization Act. The Jungbunzlauer plants listed below have completed the 2022 Biennial Registration Renewal.

Jungbunzlauer Facility	**Registration Number**	**Products produced in this Facility**
Jungbunzlauer Austria AG Factory Pernhofen AT-2064 Wulzeshofen	14442755812	Citric Acid LIQUINAT® Magnesium Lactate Monomagnesium Citrate TayaGel® Trisodium Citrate Xanthan Gum and blends thereof Zinc Lactate
Jungbunzlauer Canada 1555 Elm Street CA-Port Colborne, Ontario L3K 5V5	12339535456	Citric Acid Anhydrous LIQUINAT® Tripotassium Citrate Trisodium Citrate Dihydrate
Jungbunzlauer S.A. Z.I. et Portuaire, B.P. 32 FR-67390 Marckolsheim	14037543444	encapsulated Glucono-delta-Lactone (eGdL) ERYLITE® and blends thereof Gluconic Acid Glucono-delta-Lactone GLUCOSET S300 L(+)-Lactic Acid L(+)-Lactic Acid Buffered NAGLUSOL® Potassium L(+)-Lactate and blends thereof Sodium Gluconate Sodium Gluconate EMF Sodium L(+)-Lactate and blends thereof
Jungbunzlauer Ladenburg GmbH Am Hafen 18 DE-68526 Ladenburg	16654759028	Calcium Lactate Gluconate Citric Acid Anhydrous Citric Acid DC Citric Acid S40 CITROCOAT® N and EP CITROFOL® LIQUINAT® Monosodium Citrate Potassium Gluconate sub4salt® Tricalcium Citrate Trimagnesium Citrate Tripotassium Citrate Trisodium Citrate Dihydrate Zinc Citrate Zinc Gluconate

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Certificate of Ingredient List

Jungbunzlauer

Basel, 17 October 2019

Dear customers

We herewith confirm that the Jungbunzlauer products

- **L(+)-lactic acid 88%food grade**
- **L(+)-lactic acid 88%heat stable food grade**

consist of 88% lactic acid and 12% water. They do not contain any other ingredients.

With best regards

Lena Martinez da Silva
Technical Service Manager

Jungbunzlauer

Allergen Safety
Jungbunzlauer S.A.

The Jungbunzlauer products

- **ERYLITE®**
- **Gluconic Acid**
- **Glucono-delta-Lactone**
- **Sodium Gluconate**
- **L(+)-Lactic Acid**
- **L(+)-Lactic Acid Buffered**
- **Potassium L(+)-Lactate**
- **Potassium L(+)-Lactate/Potassium Acetate**
- **Potassium L(+)-Lactate/Potassium Diacetate**
- **Potassium L(+)-Lactate/Sodium Acetate**
- **Potassium L(+)-Lactate/Sodium Diacetate**
- **Potassium L(+)-Lactate/Vinegar**
- **Sodium L(+)-Lactate**
- **Sodium L(+)-Lactate/Sodium Diacetate**

are manufactured in the following production plant:

- **Jungbunzlauer S.A.**
  Z.I. et Portuaire, B.P. 32
  FR-67390 Marckolsheim

The above mentioned products do not contain allergenic ingredients according to European law.

- Annex II of Regulation (EU) No 1169/2011 (supersedes Annex IIIa of Directive 2000/13/EC)
- Current ALBA-list

Risk of allergens in our products
Our products are manufactured by fermentation of the raw material glucose syrup which is a carbohydrate source derived from maize. Depending on the production line, either highly purified or “raw” glucose syrup, which may contain low amounts of allergenic proteins, is used. However, glucose syrup is solely used in the substrate for fermentation and not as a direct ingredient for any of the above mentioned products. In the course of our production, the final products additionally undergo several purification steps. Therefore, we confirm that the fermentation and the purification process are able to reduce the presence of allergens to a level below the detection limit in the final product, which is confirmed by annual testing.

Cross contamination of allergens on manufacturing lines
The “raw” glucose syrup is produced on a dedicate line and subsequently transferred to the production lines where it is used as a fermentation raw material. As mentioned above, allergenic proteins can be present in this raw material. However, this risk is mitigated by the fact that the glucose syrup is produced in a different building and then transported in closed lines to the fermenters. There is no concern for cross contamination of allergens to our final products in our manufacturing lines as our products are manufactured on dedicated production lines in mainly closed systems and the final purified products do not come in contact with the fermentation raw materials.

Cross contamination of allergens on production site

As previously indicated, there are areas on the production site where allergenic proteins may be present, however the risk is controlled by corresponding measures and the end products are regularly tested.

Glucose syrup derived from maize is manufactured in a dedicated plant at our production site or purchased from approved suppliers. All raw materials are stored in dedicated areas. Eating is only allowed in authorised areas. Therefore, contamination of our end products with allergens is well controlled in production areas.

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January 1, 2024

Jungbunzlauer

To Jungbunzlauer Customers,

Please be advised that each and every article as described in Appendix "A" hereafter shipped or otherwise delivered by Jungbunzlauer Inc. ("Jungbunzlauer") including any of its affiliated companies, is hereby guaranteed to be (1) not adulterated or misbranded within the meaning of the Federal Food, Drug and Cosmetic Act, as amended ("the Act"), and not an article which may not, under the provisions of Section 404 or Section 505 of that Act, be introduced into interstate commerce, and (2) not adulterated or misbranded within the meaning of the Federal Insecticide, Fungicide and Rodenticide Act, the Federal Hazardous Substances Labeling Act, or any applicable State pure foods act or any other applicable Federal, State or Local Law, and not an article which cannot be legally transported or sold under the provisions of any Federal or any applicable State or Local Law, and (3) not misbranded within the meaning of any Federal or any applicable State or Local Law when bearing labels furnished by the seller and affixed to such articles on repacking by the buyer in accordance with instructions furnished by the seller.

This guarantee shall be applicable to all valid state laws or municipal ordinances in which, both in express terms and as judicially and administratively interpreted, the definitions of adulteration and misbranding are the same as, or substantially similar to, the definitions of the Act.

This guarantee is executed by Jungbunzlauer subject to the condition that if an item or article is delivered under a label designed or furnished by the buyer, Jungbunzlauer's liability for misbranding shall be limited to that resulting from the failure of the item or article to conform to the standard, if any, for the product, the purchase specifications or the statements contained on such label.

This guarantee shall be void and of no effect in any instance where the particular use or sale of any article to which this guarantee would otherwise apply, results in a use which in not in compliance with the requirements of the Act, and any regulations promulgated there under.

Jungbunzlauer does not guarantee against adulteration or misbranding due to circumstances or causes beyond its control.

This guarantee shall continue in effect from the date hereof, until such date as Jungbunzlauer notifies in writing of its revocation.

Dan Rainville

President
Jungbunzlauer Inc.

Appendix "A"

Biogums	TayaGel® (gellan gum) Xanthan Gum Xanthan Gum Blends
Citrics	Citric Acid LIQUINAT® (citric acid solution) Trisodium Citrate
Gluconates	Encapsulated Glucono-delta-Lactone eGdL Gluconic Acid Glucono-delta-Lactone NAGLUSOL® Sodium Gluconate sub4salt®
Lactics	L(+)-Lactic Acid L(+)-Lactic Acid Buffered Potassium L(+)-Lactate Potassium L(+)-Lactate/Potassium Acetate Potassium L(+)-Lactate/Potassium Diacetate Potassium L(+)-Lactate/Sodium Acetate Potassium L(+)-Lactate/Sodium Diacetate Potassium L(+)-Lactate/Vinegar Sodium L(+)-Lactate Sodium L(+)-Lactate/Sodium Diacetate
Specialties	Citric Acid DC CITROCOAT® N (coated citric acid) CITROFOL® (citrate esters)
Special Salts	Calcium Lactate Gluconate Magnesium Lactate Monomagnesium Citrate Monosodium Citrate Potassium Gluconate Tricalcium Citrate Trimagnesium Citrate Tripotassium Citrate Zinc Citrate Zinc Gluconate Zinc Lactate
Sweeteners	ERYLITE® (erythritol) ERYLITE® Bronze ERYLITE® Stevia ERYLITE® Monkfruit

Jungbunzlauer

Organic Statement

The following Jungbunzlauer products:

Citric Acid
Glucono-delta-Lactone
TayaGel® (gellan gum)
Lactic Acid
Potassium Lactate
Sodium Lactate
Tricalcium Citrate
Tripotassium Citrate
Trisodium Citrate
Xanthan Gum

are manufactured by fermentation of carbohydrates. The products undergo several purification steps and are finally obtained in their highly pure form.

Jungbunzlauer confirms that neither the raw materials we use for the manufacture of our products, nor the products themselves, are treated with ionizing radiation. Also, sewage sludge is not used in our production process and handling.

The National Organic Program specifies a “National List of Approved and Prohibited Substances“. Relevant excerpts of the National Organic Program are below which indicate that the above mentioned products are allowed substances when meeting the requirements of the sections.

Please refer to the National Organic Program for further clarification. We advise companies using this information to discuss this matter with their own regulatory and label experts.

*Excerpts from Title 7 - Part 205 - National Organic Program

§205.105 Allowed and prohibited substances, methods, and ingredients in organic production and handling.

To be sold or labeled as “100 percent organic,” “organic,” or “made with organic (specified ingredients or food group(s)),” the product must be produced and handled without the use of:

(a) Synthetic substances and ingredients, except as provided in §205.601 or §205.603;

(b) Nonsynthetic substances prohibited in §205.602 or §205.604;

(c) Nonagricultural substances used in or on processed products, except as otherwise provided in §205.605;

(d) Nonorganic agricultural substances used in or on processed products, except as otherwise provided in §205.606;

(e) Excluded methods, except for vaccines: Provided, That, the vaccines are approved in accordance with §205.600(a);

(f) Ionizing radiation, as described in Food and Drug Administration regulation, 21 CFR 179.26; and

(g) Sewage sludge.

§205.605 Nonagricultural (nonorganic) substances allowed as ingredients in or on processed products labeled as "organic" or "made with organic (specified ingredients or food group(s)).

The following nonagricultural substances may be used as ingredients in or on processed products labeled as "organic" or "made with organic (specified ingredients or food group(s))" only in accordance with any restrictions specified in this section.

(a) Nonsynthetics allowed:

Acids (Citric—produced by microbial fermentation of carbohydrate substances; and Lactic).
Gellan gum—high-acyl form only
Glucono delta-lactone—production by the oxidation of D-glucose with bromine water is prohibited.

(a) Synthetics allowed:

Calcium citrate.
Potassium citrate.
Potassium lactate – for use as an antimicrobial agent and pH regulator only.
Sodium citrate.
Sodium lactate – for use as an antimicrobial agent and pH regulator only.
Xanthan gum.

Jungbunzlauer

Recall Procedure
Jungbunzlauer Inc.

In the event of product or products necessitating a recall or market withdrawal, the following Jungbunzlauer Inc. contacts are to be notified:

Recall Committee	
Dan Rainville, President Carlos Torres, Sales Director Kendall Tyler, Head of Order Processing	Tze-Mai Wong, Technical Service Manager Anne Wimette, Financial Controller

If none of the above are available, contact Head Finance and Administration.
In case of personal injury, contact Corporate Council.

Definitions (US Food and Drug Administration)

Recalls are actions taken by a firm to remove a product from the market. Recalls may be conducted on a firm's own initiative, by FDA request, or by FDA order under statutory authority.

Class I
A Class I recall is a situation in which there is a reasonable probability that the use of or exposure to a violative product will cause serious adverse health consequences or death.

Class II
A Class II recall is a situation in which use of or exposure to a violative product may cause temporary or medically reversible adverse health consequences or where the probability of serious adverse health consequences is remote.

Class III
A Class III recall is a situation in which use of or exposure to a violative product is not likely to cause adverse health consequences.

Market withdrawal
A market withdrawal occurs when a product has a minor violation that would not be subject to FDA legal action. The firm removes the product from the market or corrects the violation. For example, a product removed from the market due to tampering, without evidence of manufacturing or distribution problems, would be a market withdrawal.

Information Gathering
The nature of the problem or cause for recall, the product, lot numbers in question must be identified and recorded. All other relevant information such as the person reporting the emergency, their phone numbers, location and affiliation should also be taken.

Management Notification
The Recall Committee shall be immediately notified.

Determination of Recall Class
If possible, the class of recall is I, II, III or market withdrawal as defined is determined.

Determination of the location and distribution of the product(s)
Using our business system and any other available information, all customers and warehouses to whom the lot was sent will be immediately identified.

Notification, Quarantine and Containment
Using fax and phone, each customer and warehouse will be personally contacted and shall be requested to immediately determine the status of the inventory of the material and quarantine any of the product in question.

Third Party Notification
If the product has been subject to further distribution, the customer will be asked to contact subsequent customers to do likewise.

Advisory of Containment and Quarantine
Warehouses and customers will notify Jungbunzlauer of their success and/or failure to locate and quarantine the recall material. If the product has been incorporated into another product, this should also be noted. Based on the situation, subsequent products may need to be recalled.

Reporting
Jungbunzlauer personnel will report to the recall committee the status of the quarantined materials and or subsequent usage thereof.

Resolution and/or Retrieval
As necessary, arrangements will be made to retrieve the quarantined product and handle appropriately.

Investigation and Corrective Actions
Investigation into the cause of the problem will be made and corrective actions taken. Preventative actions will be taken to minimize the possibilities of future occurrences.

Customer Notifications
Customers involved will be notified of the results of the investigation and the corrective actions to be taken. If there are liability issues and or financal considerations, information releases should be approved by corporate council.

Conclusion
A follow-up meeting of the Recall Committee will be held to de the efficiency of the Recall, review the results, and if necessary institute any changes needed in recall procedures.

Questions, comment, suggestions, etc. regarding this recall procedure should be directed to the Technical Service Manager.

Any liability issues will be referred to Corporate Council.

Emergency Contact List

National Chemical Emergency Centre 24 Hour Emergency Phone Number **NCEC 1 202 464 2554**	**President** **(24/7 Emergency Contact)** Dan Rainville Phone: 781 532 8607 Mobile: 508 400 7575 dan.rainville@jungbunzlauer.com
Sales Director Carlos Torres Phone: 781 532 8605 Mobile: 774 278 3758 carlos.torres@jungbunzlauer.com	**Head of Order Processing** **(24/7 Emergency Contact)** Kendall Tyler Phone: 781 532 8615 Mobile: 617 417 3763 kendall.tyler@jungbunzlauer.com
Financial Controller Anne Wimette Phone: 781 532 8604 Mobile: 774 573 9549 anne.wimette@jungbunzlauer.com	**Technical Contact** Tze-Mai Wong Phone: 781 532 8624 tze-mai.wong@jungbunzlauer.com

Jungbunzlauer

Shelf Life and Storage Conditions
Lactic Acid, Lactates and Blends

This information refers to following Jungbunzlauer products:

Lactic Acid	Food Grade, Feed Grade, Personal Care Grade, Biocidal Grade, Technical Grade, Starting Material Grade
Lactic Acid Buffered	Food Grade
Sodium Lactate	Food Grade, Personal Care Grade
Potassium Lactate	Food Grade, Personal Care Grade
Sodium Lactate/Sodium Diacetate	Food Grade
Potassium Lactate/Sodium Acetate	Food Grade
Potassium Lactate/Sodium Diacetate	Food Grade
Potassium Lactate/Potassium Acetate	Food Grade
Potassium Lactate/Potassium Diacetate	Food Grade
Potassium Lactate/Vinegar	Food Grade

Storage conditions
Jungbunzlauer lactic acid, lactates and lactate blends should be stored in their original packaging or in tight containers.

Recommended storage temperature: 5 – 30 °C. Please avoid exposure to direct sunlight.

Lactic acid incl. lactic acid buffered has to be stored as corrosive material. The relevant regulations for storing hazardous materials are not harmonised but defined individually by each country (e.g. Code de l'Environnement/ICPE in France, GefStoffVO/TRGS 510 in Germany, PGS15 in the Netherlands, MIEAPQ in Spain, COSHH in the UK). Please check your local requirements.
This does not apply to lactates and lactate blends.

We recommend not to triple stack the pallets.

Shelf life
A shelf life of **X** years (till end of the month) from the date of manufacturing has been defined for above mentioned products (please see Table: Overview of Shelf Life).

This shelf life is guaranteed if the product is stored in original packaging under storage conditions as mentioned above. In the calculation of the shelf life, short-term deviation from the recommended storage conditions during transport of the product have been taken into consideration. The shelf-life is conditional upon compliance at all times by the customer with the above mentioned storage conditions.
Physical properties may change on prolonged storage, thus a retest is recommended after the mentioned shelf life period.

Table: Overview of Shelf Life

Product	**Shelf life (X, in years)**
Lactic Acid (all grades except L(+)-lactic acid 80% feed grade)	3
L(+)-lactic acid 80% feed grade	1
Lactic Acid Buffered	3
Sodium Lactate (all grades)	3
Potassium Lactate (all grades)	3
Sodium Lactate/Sodium Diacetate	3
Potassium Lactate/Sodium Acetate	3
Potassium Lactate/Sodium Diacetate	3
Potassium Lactate/Potassium Acetate	3
Potassium Lactate/Potassium Diacetate	3
Potassium Lactate/Vinegar	3

Expiry date
The expiry date is consequently **X** years (till end of the month) after the production date.

On the packaging, the production and expiry dates are indicated as follows:

Production date: DD/MM/YYYY
Expiry date: MM/YYYY

Jungbunzlauer

Residual Solvents
L(+)-Lactic Acid

Product name	L(+)-lactic acid	$C_3H_6O_3$
EC No.	201-196-2 (general 200-018-0)	
CAS No.	79-33-4 (general 50-21-5)	
E-No.	E 270	

The content of this document is based on the requirements as defined in:
ICH Q3C Impurities: Guideline for Residual Solvents
USP General Chapter <467> Residual Solvents
Ph. Eur. Chapter 5.4 Residual Solvents

According to the above mentioned guidelines, residual solvents were evaluated for their possible risk to human health and placed into one of three classes as follows:

Class 1 solvents: Solvents to be avoided
Known human carcinogens, strongly suspected human carcinogens, and environmental hazards.

Class 2 solvents: Solvents to be limited
Non-genotoxic animal carcinogens or possible causative agents of other irreversible toxicity such as neurotoxicity or teratogenicity. Solvents suspected of other significant but reversible toxicities.

Class 3 solvents: Solvents with low toxic potential
Solvents with low toxic potential to humans; no health-based exposure limit is needed. Class 3 solvents have "permitted daily exposures" (PDE's) of 50 mg or more per day.

Class 1 Solvents

Are class 1 solvents:

- **used in the manufacture or purification of the Product**
- **likely to be produced during manufacture of the Product**
- **impurities of the starting materials used to manufacture the Product**

Yes [ ] **No [X]**

Benzene		1,1-Dichloroethene	
Carbon tetrachloride		1,1,1-Trichloroethane	
1,2-Dichloroethane			

Class 2 Solvents

Are class 2 solvents:

- **used in the manufacture or purification of the Product**
- **likely to be produced during manufacture of the Product**
- **impurities of the starting materials used to manufacture the Product**

Yes [ ] No [X]

Acetonitrile		2-Methoxyethanol	
Chlorobenzene		Methylbutylketone	
Chloroform		Methylcyclohexane	
Cumene		Methylisobutylketone (acc. to ICH Q3C)	
Cyclohexane		Methylen chloride (acc. to USP)	
Cyclopentyl methyl ether (acc. to ICH Q3C)		N-Methylpyrrolidone	
1,2-Dichloroethene		Nitromethane	
Dichloromethane (acc. to ICH Q3C and Ph. Eur.)		Pyridine	
1,2-Dimethoxyethane		Tertiary-butyl alcohol (acc. to ICH Q3C)	
N,N-Dimethylacetamide		Sulfolane	
N,N-Dimethylformamide		Tetrahydrofuran	
1,4-Dioxane		Tetralin	
2-Ethoxyethanol		Toluene	
Ethylene glycol		1,1,2-Trichloroethene (acc. to ICH Q3C and Ph. Eur.)	
Formamide		Trichloroethylene (acc. to USP)	
Hexane		Xylene	
Methanol			

Class 3 Solvents

Are class 3 solvents:

- **used in the manufacture or purification of the Product**
- **likely to be produced during manufacture of the Product**
- **impurities of the starting materials used to manufacture the Product**

Yes [ ] No [X]

Acetic acid		Isobutyl acetate	
Acetone		Isopropyl acetate	

Anisole		Methyl acetate	
1-Butanol		3-Methyl-1-butanol	
2-Butanol		Methylethylketone	
Butyl acetate		Methylisobutylketone (acc. to Ph. Eur. and USP)	
tert-Butylmethyl ether		2-Methyl-1-propanol	
Dimethyl sulfoxide		2-Methyltetrahydrofuran (acc. to ICH Q3C)	
Ethanol		Pentane	
Ethyl acetate		1-Pentanol	
Ethyl ether		1-Propanol	
Ethyl formate		2-Propanol	
Formic acid		Propyl acetate	
Heptane		Triethylamine (acc. to ICH Q3C)	

Other Solvents

Are the following solvents [Solvents for which no adequate toxicological data was found]:

- **used in the manufacture or purification of the Product**
- **likely to be produced during manufacture of the Product**
- **impurities of the starting materials used to manufacture the Product**

Yes [ ] No [X]

1,1-Diethoxypropane		Methyltetrahydrofuran	
1,1-Dimethoxymethane		Petroleum ether (acc. to ICH Q3C and Ph. Eur.)	
2,2-Dimethoxypropane		Solvent hexane (acc. to USP)	
Isooctane		Trichloroacetic acid	
Isopropyl ether		Trifluoroacetic acid	
Methyl isopropyl ketone			

If any of the above mentioned solvents are likely to be present, please state the corresponding acceptance limit(s) in the Product as defined by your company.

Substance	**Acceptance limit**	**JBL Specification**

Comments

The above mentioned product is manufactured by fermentation of carbohydrates. During its production process the product does not get into contact with solvents listed above.

Jungbunzlauer
Technical Service

Certificat

Certificate

N° 2019/82468.4

AFNOR Certification certifie que le système de management mis en place par :
AFNOR Certification certifies that the management system implemented by:

JUNGBUNZLAUER SA

pour les activités suivantes :
for the following activities:

PRODUCTION PAR FERMENTATION ET VENTE D'ADDITIFS ALIMENTAIRES : ERYTHRITOL, ERYTHRITOL STEVIA, ERYTHRITOL BRONZE, eGDL, GLUCONATE DE SODIUM, GLUCONO-DELTA-LACTONE, ACIDE GLUCONIQUE, ACIDE LACTIQUE, LACTATE DE SODIUM, LACTATE DE POTASSIUM, AINSI QUE LEURS MELANGES. PRODUCTION DE GLUCOSE A PARTIR DE CEREALES POUR LES UNITES DE FERMENTATION AINSI QUE DE MATIERES PREMIERES POUR L'ALIMENTATION ANIMALE.

PRODUCTION BY FERMENTATION AND SALE OF FOOD ADDITIVES: ERYTHRITOL, ERYTHRITOL STEVIA, ERYTHRITOL BRONZE, eGDL, SODIUM GLUCONATES, GLUCONO-DELTA-LACTONE, GLUCONIC ACID, LACTIC ACID, SODIUM LACTATE, POTASSIUM LACTATE, AS WELL AS RELATED MIXTURES. PRODUCTION OF GLUCOSE FROM CORN FOR FERMENTATION UNITS, AS WELL AS FEED MATERIALS.

a été évalué et jugé conforme aux exigences requises par :
has been assessed and found to meet the requirements of:

ISO 9001 : 2015

et est déployé sur les sites suivants :
and is developed on the following locations:

ZI ET PORTUAIRE FR-67390 MARCKOLSHEIM

Ce certificat est valable à compter du (année/mois/jour) *This certificate is valid from (year/month/day)*	**2024-06-21**	Jusqu'au *Until*	**2027-06-20**

Ce document est signé électroniquement. Il constitue un original électronique à valeur probatoire.
This document is electronically signed. It stands for an electronic original with probationary value.

Julien NIZRI
Directeur Général d'AFNOR Certification
Managing Director of AFNOR Certification

Flashez ce QR Code pour vérifier la validité du certificat

Halal Quality Control

شهادة حلال

Scan to verify

HALAL CERTIFICATE

Awarded to:

JUNGBUNZLAUER S.A.

Z.I. et Portuaire BP 32, 67390 Marckolsheim, France

Halal Quality Control BV Netherlands hereby awards this Halal Certificate to the above mentioned company which has been found in compliance with the following criteria:

Reference Halal Standards:	GSO 2055-1:2015 I HAS 23000-1 I OIC/SMIIC 1: 2019
Scope of Certification:	Production of biodegradable ingredients of natural origin
Product Category:	C
For the Products:	See the Annex for the approved products

This Halal Certificate is the sole property of the Halal approved company and is not to be shared with unauthorized parties.

Chief Executive Officer:
Dr. A.M. ALCHAMAN

Control Office of Halal Slaughtering and Halal Quality Control B.V.
Laan van Meerdervoort 53d I 2517 AE Den Haag I The Hague I Netherlands
Tel or WhatsApp: +31 70 3469795 I info@halalqualitycontrol.com I www.halalqualitycontrol.com
Legal Registration Nr: 85104019 I VAT Nr: NL863510486B01

Client ID:	DE10410405290
Issue Date:	22/07/2024
Expiry Date:	22/07/2025
Cert. No:	DE10410401673

Scan to verify

Control Office Of Halal Slaughtering and Halal Quality Control BV Netherlands

مكتب مراقبة الذبح حسب الشريعة الإسلامية
مكتب مراقبة جودة الحلال في هولندا

Annex to Halal Certificate: DE10410401673

Halal Quality Control confirms that the below mentioned items fully meet the Halal Requirements criteria of the Halal Standards to which it is applied for:

Nr	Product name
1	Sodium gluconate
2	Gluconic acid
3	Glucono delta Lactone
4	Erylite®: Erythritol
5	Erythritol Mother liquor
6	Naglusol®
7	Lactic acid
8	Sodium lactate
9	Potassium lactate
10	Lactic acid - Sodium lactate mixtures
11	Sodium lactate - Sodium diacetate mixtures
12	Potassium lactate - Sodium diacetate mixtures
13	Potasssium lactate - Sodium acetate mixtures
14	Citrofeed 40®
15	Ammonium sulphate crystals
16	Lacti Vinasse
17	Potassium lactate - Potassium diacetate mixtures
18	Potassium lactate - Potassium acetate mixtures
19	Potassium Lactate - Vinegar mixtures
20	ERYLITE STEVIA
21	ERYLITE BRONZE
22	ERYLITE MONK FRUIT
23	eGdL

Scan to verify

Control Office Of Halal Slaughtering and Halal Quality Control BV Netherlands

مكتب مراقبة الذبح حسب الشريعة الإسلامية
مكتب مراقبة جودة الحلال في هولندا

Certificate No:	DE10410401673	**Annex number:**	01
Date of Issue:	22/07/2024	**Revision number:**	1.0
Date of Expiry:	22/07/2025	**Revision date:**	22/07/2024

Signature of the Chief Executive Officer and Stamp:
Dr. A.M. ALCHAMAN

KOSHER CERTIFICATION SERVICE

ORTHODOX UNION

UNION OF ORTHODOX JEWISH CONGREGATIONS OF AMERICA איחוד קהילות האורתודוקסים באמריקה

FORTY RECTOR STREET / NEW YORK, NY 10006 / 212-613-8241 / KOSHERLETTER@OU.ORG / OUKOSHER.ORG

בס״ד

LETTER OF KOSHER CERTIFICATION

March 01, 2024

This is to certify that the following product(s) prepared by

Jungbunzlauer S.A., ZI et Portuaire - B.P. 32, Marckolsheim, 67390 FRANCE

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
Brand: Jungbunzlauer			
• Encapsulated Glucono-delta-Lactone eGdL	OUV3-D25D51F	Pareve	Ⓤ Symbol required.
• ERYLITE® (Erythritol)	OUV3-D16DA8B	Pareve	Ⓤ Symbol required.
• ERYLITE® Bronze *Approved with either Rabbi's signature or lot certificate.*	OUV2-3972756	Pareve	Symbol not required. Packaging/letter bears Rabbi's signature/stamp or OU numbered seal/sticker.
• ERYLITE® Monkfruit	OUV2-7C72EBB	Pareve	Symbol not required.
• ERYLITE® Stevia 100 *Approved with either Rabbi's signature or lot certificate*	OUV2-6B4C3EE	Pareve	Symbol not required. Packaging/letter bears Rabbi's signature/stamp or OU numbered seal/sticker.
• ERYLITE® Stevia 200 *Approved with either Rabbi's signature or lot certificate*	OUV2-267749E	Pareve	Symbol not required. Packaging/letter bears Rabbi's signature/stamp or OU numbered seal/sticker.

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.

This certification is valid through 3/31/2025

Rabbi Menachem Genack, *Rabbinic Adminstrator, CEO*

March 01, 2024

Jungbunzlauer S.A. (continued)

This is to certify that the following product(s) prepared by this company 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
Brand: Jungbunzlauer (continued)			
• ERYLITE® Stevia 400 *Approved with either Rabbi's signature or lot certificate*	OUV2-AF1365E	Pareve	Symbol not required. Packaging/letter bears Rabbi's signature/stamp or OU numbered seal/sticker.
• Gluconic Acid	OUV3-E9302C9	Pareve	Ⓤ Symbol required.
• Glucono Delta Lactone	OUV3-F372710	Pareve	Ⓤ Symbol required.
• Lactic Acid	OUV3-2E25EAE	Pareve	Ⓤ Symbol required.
• Lactic Acid	OUV4-8E8DF9B	Pareve	Certified when bulk shipped in OU approved carriers.
• Lactic Acid Buffered	OUV3-611B4BC	Pareve	Ⓤ Symbol required.
• Lactic Acid Buffered	OUV4-BC45E38	Pareve	Certified when bulk shipped in OU approved carriers.
• Potassium L (+) - Lactate/Potassium Acetate Food Grade	OUV3-4D6C641	Pareve	Ⓤ Symbol required.

Rabbi Menachem Genack, *Rabbinic Adminstrator, CEO*

This certification is valid through 3/31/2025

KOSHER CERTIFICATION SERVICE

ORTHODOX UNION

LETTER OF KOSHER CERTIFICATION

UNION OF ORTHODOX JEWISH CONGREGATIONS OF AMERICA איחוד קהילות האורתודוקסים באמריקה
FORTY RECTOR STREET / NEW YORK, NY 10006 / 212-613-8241 / KOSHERLETTER@OU.ORG / OUKOSHER.ORG

בס״ד

March 01, 2024

Jungbunzlauer S.A. (continued)

This is to certify that the following product(s) prepared by this company 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
Brand: Jungbunzlauer (continued)			
• Potassium L (+) - Lactate/Potassium Diacetate Food Grade	OUV3-6F43B0A	Pareve	Ⓤ Symbol required.
• Potassium L (+) - Lactate/Sodium Acetate Food Grade	OUV3-7B2DA51	Pareve	Ⓤ Symbol required.
• Potassium L (+) - Lactate/Sodium Diacetate Food Grade	OUV3-191C118	Pareve	Ⓤ Symbol required.
• Potassium L (+) - Lactate/Vinegar Food Grade	OUV3-177687C	Pareve	Ⓤ Symbol required.
• Potassium Lactate	OUV3-F07B821	Pareve	Ⓤ Symbol required.
• Potassium Lactate	OUV4-AE65DCE	Pareve	Certified when bulk shipped in OU approved carriers.
• Sodium Gluconate	OUV3-1F4084D	Pareve	Ⓤ Symbol required.
• Sodium L (+) - Lactate/Sodium Diacetate Food Grade	OUV3-0AC009D	Pareve	Ⓤ Symbol required.
• Sodium Lactate	OUV3-8165211	Pareve	Ⓤ Symbol required.
• Sodium Lactate	OUV4-9283A8C	Pareve	Certified when bulk shipped in OU approved carriers.

This certification is valid through 3/31/2025

Rabbi Menachem Genack, *Rabbinic Adminstrator, CEO*