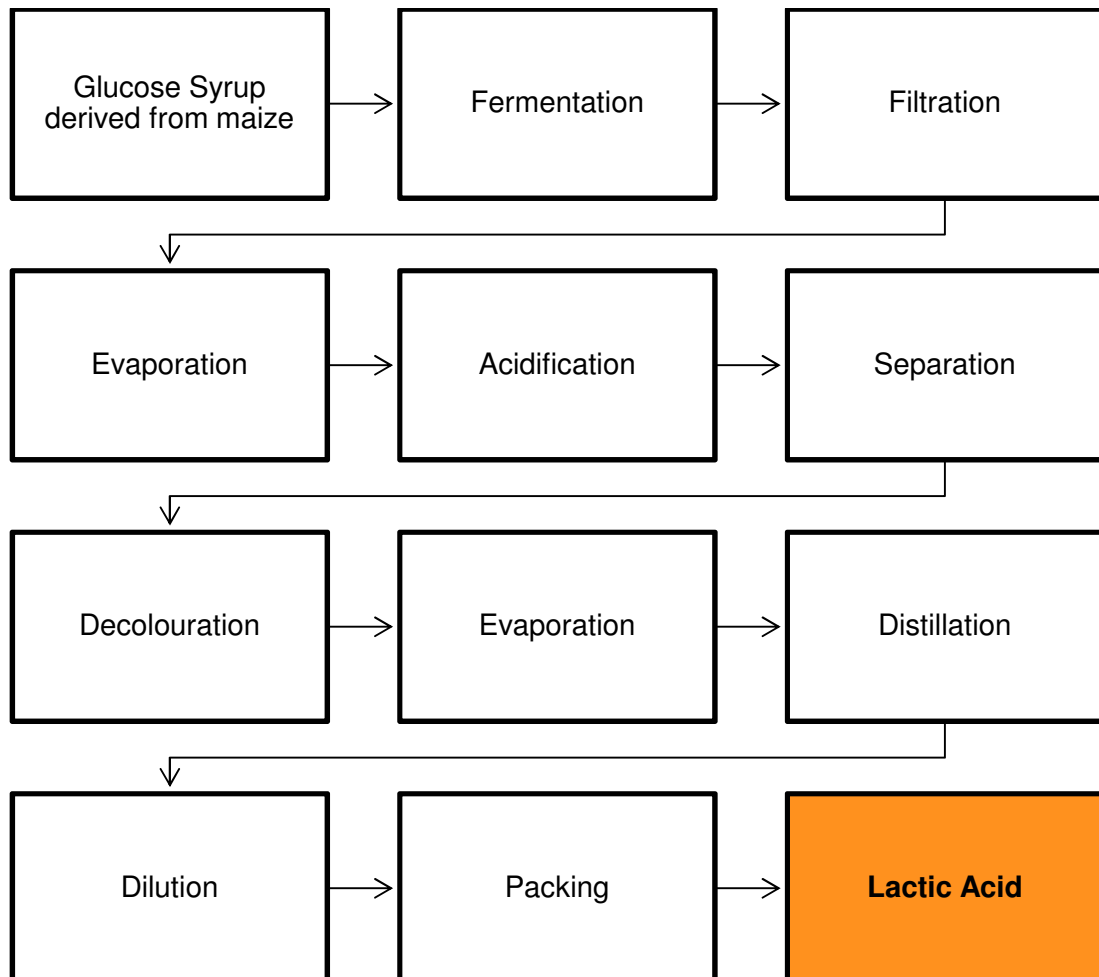


Production Flow Chart Lactic Acid



Fermentation Process

Lactic acid is produced by fermentation of glucose syrup out of maize by using a bacterial strain. A base is used during fermentation in order to maintain a neutral pH. No further solvents or catalysts are used during the complete process.

Downstream Process

After the fermentation is complete, the broth is purified through filtration in order to remove the biomass. The filtrate is then concentrated through evaporation and acidified to gain pure lactic acid. Then the lactic acid is separated from the byproduct and decolourized with activated carbon. Thereafter the lactic acid concentration is increased again by evaporation. The final purification step is a distillation which leads to a high concentrated lactic acid. The last step before packing is the customisation where the acid is diluted into the final concentrations with demineralised water.



Lloyd's Register
LRQA

CERTIFICATE OF APPROVAL

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

JUNGBUNZLAUER SA

at

**Zone Industrielle et Portuaire - BP 32
67390 MARCKOLSHEIM, France**

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

FOOD SAFETY SYSTEM CERTIFICATION 22000

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 by fermentation of Food additives:
Erythritol, Erythritol Stevia, Sodium Gluconates,
Glucono-Delta-Lactone, Gluconic Acid, Lactic Acid,
Sodium Lactate, Potassium Lactate, as well as their blends.**

Category: L

This certificate is provided on the basis of the FSSC 22000 certification scheme version 3, published 10 April 2013. The certification system consists of a minimal annual audit of the food safety management system and a minimal annual verification of the PRP elements and additional requirements as included in the scheme and ISO/TS 22002-1:2009.

Approval
Certificate
No: 9912718/C

Initial Certification Date: 27 January 2012
Current Certificate: 01 April 2016
Certificate Expiry: 31 March 2019

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



LRQA 1 Trinity Park, Bickenhill Lane, Birmingham B37 7ES, United Kingdom.

Jungbunzlauer

Change Control

Basel, December 21st, 2016

Dear customers

The parameters of the following Jungbunzlauer products

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

are specified according to the latest respective monographs of the United States Pharmacopoeia (USP), the Food Chemicals Codex (FCC) and/or the Commission Regulation (EU) No 231/2012. Should any change affect the specified quality of our products, we inform our customers accordingly.

Furthermore, we inform our customers about relevant changes regarding packaging materials, labelling or planned changes of manufacturing site.

Changes are notified as early as possible before their implementation resp. immediately after their evaluation and approval. We cannot specify a certain timeframe, because compendia, laws etc. might change in a short time, and some changes cannot be planned a long time in advance.

Please note that Jungbunzlauer is not able to wait for the written approval of customers before implementing any changes.

Kind regards
Jungbunzlauer International AG



Frithjof Raab
Technical Service Manager Quality Assurance