

Data Packet Trisodium Citrate Dihydrate

Attached documents:

- Product Information
- International Registry Numbers and Classifications
- Microbiological Data
- SDS
- Nutritional Data
- Description of Production Process
- Shelf Life Data Sheet
- Allergen Statement – Food Safety and Suitability
- BSE Statement
- California Proposition 65
- Certificate of Origin
- FSSC 22000 Certificate
- GMO Statement
- Halal Certificate
- ISO 9001 Certificate
- Kosher Certificate

The information contained herein has been compiled carefully to the best of our knowledge. We do not accept any responsibility or liability for the information given in respect to the described product. Our product has to be applied under full and own responsibility of the user, especially in respect to any patent rights of others and any law or government regulation.

Product Information

Trisodium Citrate Dihydrate

General Information

Trisodium citrate dihydrate is a tribasic salt of citric acid. It is produced by complete neutralisation of citric acid with high purity sodium hydroxide or carbonate and subsequent crystallisation. Citric acid is the product of a microbial fermentation using carbohydrate substrates.

Trisodium citrate dihydrate is widely used in foods, beverages and various technical applications mainly as buffering, sequestering or emulsifying agent.

Chemical Data

Chemical Name	Trisodium 2-hydroxypropane-1,2,3-tricarboxylate dihydrate
Chem. Formula	$C_6H_5O_7Na_3 \cdot 2H_2O$
Molecular Weight	294.1
pH (5% solution)	7.5 – 9.0
Bulk Density	750 - 1100 kg/m ³
REACH Nr.	01-2119457027-40-0000
EC No.	200-675-3
CAS No.	6132-04-3
E-No.	E 331

Specification

Jungbunzlauer trisodium citrate dihydrate is specified according to the latest editions of the European Pharmacopoeia (Ph. Eur.), the United States Pharmacopeia (USP), the Food Chemicals Codex (FCC), and of Commission Regulation (EU) No 231/2012.

Parameters	Jungbunzlauer Limits
Odour	typical, practically odourless
Identification	conforms
Appearance of solution	clear and colourless
Acidity or alkalinity	conforms
pH-value (5% solution)	7.5 - 9.0
Readily carbonisable substances	conforms
Chloride	max. 50 mg/kg
Oxalic acid / oxalate	max. 100 mg/kg
Sulphate	max. 100 mg/kg
Tartrate	conforms
Arsenic	max. 1 mg/kg
Lead	max. 0.5 mg/kg
Mercury	max. 0.5 mg/kg
Water (Loss on drying)	11.0 – 13.0 %
Assay	99.0 – 100.5 %

Characteristics

Trisodium citrate dihydrate occurs as white, granular crystals or as white, crystalline powder with a pleasant, salty taste. It is slightly deliquescent in moist air, freely soluble in water and practically insoluble in ethanol (96%).

Trisodium citrate dihydrate is a non-toxic, neutral salt with low reactivity. It is chemically stable if stored at ambient temperatures.

Trisodium citrate dihydrate is fully biodegradable and can be disposed of with regular waste or sewage.

Standard Granulations

Type	Particle size	Limits
N1560	> 1.25 mm	max. 5%
	< 0.40 mm	max. 20%
N1500	> 1.25 mm	max. 5%
	< 0.20 mm	max. 15%
F6000	> 0.63 mm	max. 10%
	< 0.20 mm	max. 15%
F3500	> 0.355 mm	max. 5%

Legal Aspects

In Europe, trisodium citrate is listed as generally permitted food additive (E 331) and may be added to all food, following the “quantum satis” principle, as long as no special regulations restrict the use.

The US Food and Drug Administration (FDA) affirmed trisodium citrate as GRAS (generally recognized as safe) and permitted the use in food according to current GMP (CFR § 184.1751), without setting an upper limit.

Standard Packaging and Storage

Jungbunzlauer trisodium citrate dihydrate is available in 25 kg net PE bags, or in 1000 kg net big bags with inner PE lining.

Trisodium citrate may be stored for at least 3 years in original or tightly closed containers. Prolonged storage at temperatures higher than 30°C and/or humidity higher than 70% should be avoided in order to prevent caking.

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International Registry Numbers and Classifications

Trisodium Citrate Dihydrate

Customs Tariff Number 29181500
according to harmonised system

DUNS No.
Jungbunzlauer Austria AG (Pernhofen) 300076861
Jungbunzlauer Canada Inc. (Port Colborne) 251464236

Chemicals Inventory Listing

EINECS No. (EC No.) 200-675-3
European Inventory of Existing Chemical Substances

CAS No. 6132-04-3
Chemical Abstracts Service, USA

AICS listed
Australian Inventory of Chemical Substances, Australia

NZIoC listed
New Zealand Inventory of Chemicals

DSL 68-04-2
Domestic Substances List, Canada (listed under CAS No. of TSC Anhydrous)

KECI KE-20843
Existing Chemicals List (ECL), Korea (No. of TSC Anhydrous)

ENCS No. (MITI No.) 2- 1320
Existing and New Chemical Substances, Japan (listed as TSC anhydrous)

PICCS listed
Philippine Inventory of Chemicals and Chemical Substances, Philippines

IECSC listed (=CAS No.)
Inventory of Existing Chemical Substances in China

REACH
Registration number (plant Pernhofen) 01-2119457027-40-0000

Food Additive Listing

EU Food additive

E 331

FDA (Food and Drug Administration, USA)

21 CFR § 184.1751

Code of Federal Regulations

Cosmetic Listing

PCPC, INCI

listed as sodium citrate

Personal Care Products Council, USA
International Cosmetic Ingredients (INCI)

US Environmental Listing - Environmental Protection Agency (EPA)

TSCA No.

68-04-2

Toxic Substances Control Act, USA

(listed under CAS No. of TSC Anhydrous)

CERCLA

not listed

Comprehensive Environmental Response, Compensation, and Liability Act

SARA

not listed

Superfund Amendments and Reauthorization Act
Section 302 Extremely Hazardous Substances
Section 313 Toxic Chemical Release

California Proposition 65

not listed

Proposition 65 State Drinking Water and Toxic Enforcement Act

OSHA

not considered highly hazardous by OSHA

EC Environmental Listing - European Environment Agency (EEA)

EC Pictograms

not classified as hazardous

EC Hazard and Precautionary Statements

not classified as hazardous

WGK

1 (identification number 2203)

Water Hazard Classes, Germany

Microbiological Data

Trisodium Citrate Dihydrate

Food & Pharmaceutical Grade

Product name	Trisodium citrate dihydrate	$C_6H_5O_7Na_3 \cdot 2H_2O$
EC No.	200-675-3	
CAS No.	6132-04-3	
E-No.	E 331	

Total Aerobic Microbial Count (TAMC)	max. 10^3 CFU / g
Total Combined Yeasts / Moulds Count (TYMC)	max. 10^2 CFU / g
Staphylococcus Aureus	negative / 1 g
Escherichia Coli	negative / 5 g
Salmonella	negative / 10 g
Bile-Tolerant Gram-Negative Bacteria	negative / 5 g

Jungbunzlauer has voluntarily set a microbiological specification for trisodium citrate dihydrate in order to comply with the Ph. Eur. Requirements on the Microbiological Quality of Non-Sterile Pharmaceutical Preparations and Substances for Pharmaceutical use. Jungbunzlauer guarantees to meet the limits of the corresponding Ph. Eur. Monograph 5.1.4. The test methods have been adopted and validated for our products according to Ph. Eur. 7.0:2011. The microbiological testing is performed once per quarter by an external accredited laboratory. However, these parameters are not release criteria and they do not appear on the Certificate of Analysis of our standard materials.

Nutritional Data

Trisodium Citrate Dihydrate

Product name	Trisodium citrate dihydrate	$C_6H_5O_7Na_3 \cdot 2H_2O$
EC No.	200-675-3	
CAS No.	6132-04-3	
E-No.	E 331	

Nutrition declaration according Regulation (EU) No. 1169/2011
 Typical values based on 100 g of Trisodium Citrate Dihydrate

Energy:	836 kJ / 193 kcal
Fat:	- g
of which	
- saturates	- g
- mono-unsaturates	- g
- polyunsaturates	- g
Carbohydrate:	- g
of which	
- sugars	- g
- polyols	- g
- starch	- g
Fibre:	- g
Protein:	- g
Salt:	
- sodium	~ 23.4 g
Organic acid:	~ 64.3 g
Moisture content:	~ 12.3 g
Vitamins:	none
Minerals:	
- Potassium	< 10 mg
- Chloride	< 5 mg
- Calcium	< 5 mg
- Phosphorus	< 0.5 mg
- Magnesium	< 0.05 mg
- Iron	< 0.2 mg
- Zinc	< 0.05 mg
- Copper	< 0.05 mg
- Manganese	< 0.01 mg
- Fluoride	< 1 mg
- Selenium	< 0.05 mg
- Chromium	< 0.05 mg
- Molybdenum	< 0.01 mg
- Iodine	- µg

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Date of first issue: 06/16/2017

SECTION 1. IDENTIFICATION

Product name : Trisodium Citrate Dihydrate
Substance name : Trisodium citrate dihydrate
Molecular formula : $C_6H_5O_7Na_3 \cdot 2H_2O$
Chemical identity : Trisodium 2-hydroxypropane-1,2,3-tricarboxylate dihydrate
CAS-No. : 6132-04-3
Chemical nature : Solid

Manufacturer or supplier's details**Details of the supplier of the safety data sheet**

Company : Jungbunzlauer Inc.
95 Wells Avenue, Suite 150
Newton, Massachusetts 02459
USA
www.jungbunzlauer.com
Telephone : +1 617 969-0900
Telefax : +1 617 964-2921
E-mail address : msds@jungbunzlauer.com
Responsible/issuing person

Emergency telephone number

National Chemical Emergency Centre (NCEC)
+1 202 464 2554

Recommended use of the chemical and restrictions on use

Recommended use : Formulation of preparations
Industrial use
Manufacture of chemical products
Chemical intermediate
Washing and cleaning products
Cosmetics, personal care products
Manufacture of pulp, paper and paper products
Polymer preparations and compounds
Plastic articles
Extraction of crude petroleum
Coatings and paints, thinners, paint removers
Water treatment chemicals
Laboratory chemicals
Manufacture of basic pharmaceutical products
Food/ feedstuff additives
Restrictions on use : None known.

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SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Not a hazardous substance or mixture.

GHS label elements

Not a hazardous substance or mixture.

Hazards Not Otherwise Classified

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Pure substance
Chemical nature : Solid
Substance name : Trisodium citrate dihydrate
CAS-No. : 6132-04-3

SECTION 4. FIRST AID MEASURES

General advice : Do not leave the victim unattended.

If inhaled : If breathed in, move person into fresh air.
If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : Wash off immediately with soap and plenty of water.

In case of eye contact : Remove contact lenses.
Protect unharmed eye.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

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

Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

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- Suitable extinguishing media : Water spray
Dry powder
Carbon dioxide (CO₂)
Foam
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : Exposure to decomposition products may be a hazard to health.
- Hazardous combustion products : Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).
- Further information : Standard procedure for chemical fires.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Avoid dust formation.
Avoid breathing dust.
Use personal protective equipment.
- Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Pick up and arrange disposal without creating dust.
Sweep up and shovel.
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Provide appropriate exhaust ventilation at places where dust is formed.
- Advice on safe handling : Avoid creating dust.

For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
- Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.

Electrical installations / working materials must comply with the technological safety standards.
- Materials to avoid : No materials to be especially mentioned.

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Further information on storage stability : Keep in a dry place.
No decomposition if stored and applied as directed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

Engineering measures : Provide adequate ventilation.

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.

In the case of dust or aerosol formation use respirator with an approved filter.

Hand protection
Remarks : Wear suitable gloves.

Eye protection : Safety glasses

Skin and body protection : Protective suit

Hygiene measures : General industrial hygiene practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : crystalline

Colour : white

Odour : odourless

Odour Threshold : Not relevant

pH : 7.5 - 9.0 (77 °F / 25 °C)
Concentration: 5 %

Melting point/freezing point : > 302 °F / > 150 °C
Decomposition

Boiling point/boiling range : Decomposes below the boiling point.

Flash point : Not applicable

Flammability (solid, gas) : does not ignite

Upper explosion limit / Upper flammability limit : No data available

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Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	Not applicable
Relative vapour density	:	Not applicable
Relative density	:	1.86 (68 °F / 20 °C)
Density	:	No data available
Solubility(ies) Water solubility	:	400 - 700 g/l (68 - 77 °F / 20 - 25 °C)
Partition coefficient: n-octanol/water	:	log Pow: -1.8 - -0.2 Calculation
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	Decomposes before melting.
Viscosity Viscosity, kinematic	:	Not applicable
Explosive properties	:	Not explosive
Oxidizing properties	:	No oxidising effect.
Molecular weight	:	294.1 g/mol
Particle size	:	ca. 0.2 - 1.25 mm

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	Stable under recommended storage conditions. No hazards to be specially mentioned.
Conditions to avoid	:	No data available
Incompatible materials	:	Not applicable
Hazardous decomposition products	:	Build-up of dangerous/toxic fumes possible in cases of fire/high temperature. Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).

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SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity**

Not classified based on available information.

Non-hazardous ingredients:**Trisodium Citrate Dihydrate:**

Acute oral toxicity : LD50 Oral (Mouse): 5,400 mg/kg
Method: OECD Test Guideline 401
Test substance: Non neutralised product
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : No data available

Acute dermal toxicity : LD50 Dermal (Rat): > 2,000 mg/kg
Test substance: Non neutralised product
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Not classified based on available information.

Non-hazardous ingredients:**Trisodium Citrate Dihydrate:**

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Non-hazardous ingredients:**Trisodium Citrate Dihydrate:**

Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405

Respiratory or skin sensitisation**Skin sensitisation**

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Non-hazardous ingredients:**Trisodium Citrate Dihydrate:**

Test Type : Maximisation Test

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Species : Guinea pig
Method : OECD Test Guideline 406
Result : Does not cause skin sensitisation.
Remarks : No human information is available.

Germ cell mutagenicity

Not classified based on available information.

Non-hazardous ingredients:**Trisodium Citrate Dihydrate:**

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Concentration: 0 - 10 mg/plate
Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)
Result: negative
Remarks: Information given is based on data obtained from similar substances.

Genotoxicity in vivo : Test Type: Chromosomal aberration
Species: Rat
Cell type: Bone marrow
Application Route: Oral
Dose: 0,3 mg/kg bw
Method: OECD Test Guideline 475
Result: negative
Test substance: Non neutralised product
Remarks: Not classified

Carcinogenicity

Not classified based on available information.

Non-hazardous ingredients:**Trisodium Citrate Dihydrate:**

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

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Non-hazardous ingredients:**Trisodium Citrate Dihydrate:**

Reproductive toxicity - Assessment : No toxicity to reproduction

STOT - single exposure

Not classified based on available information.

Non-hazardous ingredients:**Trisodium Citrate Dihydrate:**

Remarks : No data available

STOT - repeated exposure

Not classified based on available information.

Non-hazardous ingredients:**Trisodium Citrate Dihydrate:**

Remarks : No data available

Repeated dose toxicity**Non-hazardous ingredients:****Trisodium Citrate Dihydrate:**

Species : Rat
NOAEL : 8,000 mg/kg
LOAEL : 16,000 mg/kg
Application Route : Oral
Exposure time : 10 d
Dose : 2, 4, 8, 16 g/kg bw/day

Aspiration toxicity

Not classified based on available information.

Non-hazardous ingredients:**Trisodium Citrate Dihydrate:**

No aspiration toxicity classification

Further information**Product:**

Remarks : No data available

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SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Non-hazardous ingredients:****Trisodium Citrate Dihydrate:**

- Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 440 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Non neutralised product
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 1,535 mg/l
Exposure time: 24 h
Test Type: static test
Test substance: Non neutralised product
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : NOEC (Scenedesmus quadricauda (Green algae)): 425 mg/l
Exposure time: 8 d
Test Type: static test
Test substance: Non neutralised product
- Toxicity to microorganisms : TT (Pseudomonas putida): > 10,000 mg/l
Exposure time: 16 h
Test substance: Non neutralised product

Persistence and degradability**Components:****Trisodium Citrate Dihydrate:**

- Biodegradability : Biodegradation: 97 %
Testing period: 28 d
Method: OECD Test Guideline 301B
Test substance: Non neutralised product
Remarks: Readily biodegradable.
- Biodegradation: 100 %
Testing period: 19 d
Method: OECD Test Guideline 301E
Test substance: Non neutralised product
Remarks: Readily biodegradable.
- Physico-chemical removability : Readily biodegradable.

Bioaccumulative potential**Components:****Trisodium Citrate Dihydrate:**

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Bioaccumulation : Remarks: The product is miscible in water and readily biodegradable in both water and soil. Accumulation is not expected.

Partition coefficient: n-octanol/water : log Pow: -1.8 - -0.2

Mobility in soil**Components:****Trisodium Citrate Dihydrate:**

Stability in soil : Remarks: Readily biodegradable.

Other adverse effects**Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : In accordance with local and national regulations. Where possible recycling is preferred to disposal or incineration.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION**International Regulations****IATA-DGR**

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

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DOT

Not regulated as a hazardous material

TDG

Not regulated as a dangerous good

Special precautions for user

Not applicable

SECTION 15. REGULATORY INFORMATION**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : No SARA Hazards

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

US State Regulations**Massachusetts Right To Know**

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know

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Maine Chemicals of High Concern

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Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The components of this product are reported in the following inventories:

TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	All substances listed as active on the TSCA inventory
AIIC	:	On the inventory, or in compliance with the inventory
DSL	:	All components of this product are on the Canadian DSL
ENCS	:	On the inventory, or in compliance with the inventory
ISHL	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
NZIoC	:	On the inventory, or in compliance with the inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION**Full text of other abbreviations**

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical

Trisodium Citrate Dihydrate

Version 1.3 Revision Date:
US / EN 10/28/2022

SDS Number:
100000000010

Date of last issue: 07/21/2020
Date of first issue: 06/16/2017

Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Items where relevant changes have been made to the previous version are highlighted in the body of this document by two vertical lines, red letters and grey shading.

Revision Date : 10/28/2022

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

US / EN

Production of Trisodium Citrate Dihydrate Port Colborne, Canada

Jungbunzlauer trisodium citrate dihydrate is a salt of citric acid. Jungbunzlauer citric acid is produced by a submerged fermentation process which employs a strain of the micro-organism *Aspergillus niger* to convert sugar into citric acid. The salt of citric acid is obtained by neutralisation with a sodium source. This leaflet describes the manufacturing process currently operated by Jungbunzlauer.

Process description

The substrate (glucose syrup) is heat-treated and inoculated with *Aspergillus niger*. After the fermentation the biological solids (mycelium) are removed.

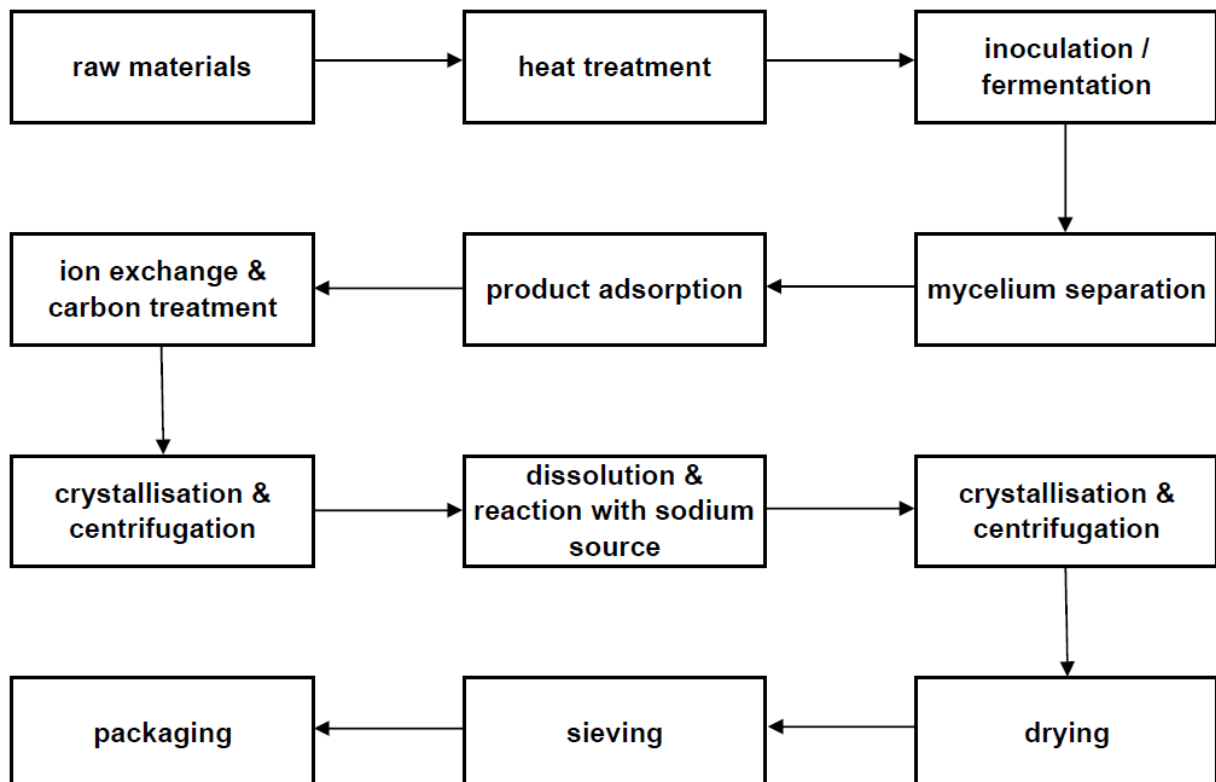
Then citric acid is recovered from the remaining broth by an adsorption process. The resulting citric acid solution is purified by ion exchange and carbon treatment.

After the ion exchange and carbon treatment the citric acid solution is evaporated, and citric acid is crystallised. Then the crystals are redissolved in water. Through addition of a sodium source citric acid is converted to its sodium salt.

Finally the sodium citrate solution is evaporated, and trisodium citrate dihydrate is crystallised, dried, sieved and packaged.

Process flowchart

The following flowchart covers the single steps of our trisodium citrate manufacturing process.



Shelf Life and Storage Conditions Citric Acid, Trisodium Citrate

This information refers to following Jungbunzlauer products:

- Citric Acid Anhydrous
- Citric Acid Monohydrate
- Trisodium Citrate Anhydrous
- Trisodium Citrate Dihydrate

Storage Conditions

Citric acid and trisodium citrate should be stored in original packaging or tight containers in a cool and dry place.

Recommended temperature: max. 30°C
Recommended relative humidity: max. 70 %

Prolonged storage at higher temperatures and/or higher humidity should be avoided in order to prevent caking.

Shelf Life

A shelf life of 3 years (till end of the month) from the date of manufacturing has been defined for above mentioned products. This shelf life is guaranteed if the product is stored in the originally closed bag or tight containers under the above described storage conditions.

In the calculation of the shelf life, short-term excursions 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.

Expiry Date

The expiry date is consequently 3 years (till end of the month) after the date of production.

On the packaging of citric acid anhydrous, citric acid monohydrate, trisodium citrate dihydrate and trisodium citrate anhydrous the production and expiry date are mentioned as follows:

- Production date (YY/MM/DD)
- Expiry date (YY/MM)

Food Safety and Suitability

Citric Acid and Citrates

- Citric Acid Anhydrous
- Citric Acid Monohydrate
- Trimagnesium Citrate Anhydrous
- Trimagnesium Citrate Nonahydrate
- Trisodium Citrate Anhydrous
- Trisodium Citrate Dihydrate
- LIQUINAT® Citric Acid Solution
- Monosodium Citrate
- Tricalcium Citrate
- Tripotassium Citrate
- Zinc Citrate

Statement with regard to the Annex II of Regulation (EU) 1169/2011* (substances or products causing allergies or intolerances), the ALBA-list, other (allergenic) substances and dietetic suitability.

***supersedes Annex IIIa of Directive 2000/13/EC on 13 December 2014**

Do above mentioned products contain allergenic or other substances, respectively possible traces thereof (cross-contamination)?

Products of animal origin	Yes	No	Comments
Beef and products thereof		X	BSE free
Chicken and products thereof		X	
Crustaceans and products thereof		X	
Dairy products and products thereof (incl. milk constituents, caseinate, whey etc.)		X	
Eggs (chicken's egg) and products thereof (albumin, yolk etc.)		X	
Fish and products thereof		X	
Gelatine		X	
Hydrolysed animal protein (HAP)		X	
Insect derivatives		X	
Milk (cow's milk protein) and products thereof (incl. lactose, milk powder etc.)		X	
Molluscs and products thereof		X	
Pork and products thereof		X	
Royal jelly		X	
Seafood		X	
Shellfish		X	
Other products of animal origin		X	

Seeds	Yes	No	Comments
Cotton		X	
Poppy		X	
Rape		X	
Sesame seeds and products thereof		X	
Sesame oil		X	
Sunflower kernels		X	
Other seeds		X	

Fruits and vegetables	Yes	No	Comments
Almond and products thereof (<i>Amygdalus communis</i> L.)		X	
Brazil nut and products thereof (<i>Bertholletia excelsa</i>)		X	
Carrot		X	
Cashew and products thereof (<i>Anacardium occidentale</i>)		X	
Celery and products thereof		X	
Chestnut		X	
Cocoa		X	
Coconut		X	
Hazelnut and products thereof (<i>Corylus avellana</i>)		X	
Hydrolysed vegetable protein (HVP)		X	
Macadamia nut, queensland nut and products thereof (<i>Macadamia ternifolia</i>)		X	
Mustard and products thereof		X	
Nuts or nut oil		X	
Peanuts and products thereof (incl. peanut oil etc.)		X	
Pecan nut and products thereof (<i>Carya illinoiesis</i> (Wangenh.) K. Koch)		X	
Pistachio nut and products thereof (<i>Pistacia vera</i>)		X	
Sugar beet		X	1)
Walnut and products thereof (<i>Juglans regia</i>)		X	
Other fruits and products thereof		X	
Other vegetables and products thereof		X	

Spices and herbs	Yes	No	Comments
Anise		X	
Caraway		X	
Chervil		X	
Cinnamon		X	
Coriander		X	
Curry		X	
Dill		X	
Fennel		X	
Garlic		X	
Lovage		X	
Myrrh		X	
Paprika		X	
Parsley		X	
Rosemary extract		X	
Umbelliferea		X	
Vanillin		X	
Other spices or herbs		X	

1) Sugar from sugar beet is a fermentation raw material, but is not contained in the end product anymore.

Legumes/pulses	Yes	No	Comments
Beans		X	
Guar gum		X	
Gum tragacant		X	
Locust bean gum		X	
Lupin and products thereof		X	
Peas		X	
Soybeans and products thereof (incl. soy oil, soy flour, soy meal, soy protein, soy lecithin etc.)		X	
Tofu		X	
Other legumes/pulses		X	

Cereals and cereal products	Yes	No	Comments
Barley or its hybridised strains		X	
Bakery products (bread crumb)		X	
Cereals containing gluten		X	
Gluten (gliadin, avenin, hordein)		X	
Kamut or its hybridised strains		X	
Maize		X	2)
Millet		X	
Oats or its hybridised strains		X	
Rice		X	
Rye or its hybridised strains		X	
Spelt or its hybridised strains		X	
Starch		X	
Wheat or its hybridised strains		X	
Wheat flour, wheat meal or wheat starch		X	
Other cereals or cereal products		X	

Starch, sugars and sweeteners	Yes	No	Comments
Aspartame		X	
Cyclamate		X	
Dextrin		X	
Fructose		X	
Galactose		X	
Glucose		X	2)
Invert sugar		X	
Lactose		X	
Maltodextrin		X	
Maltose		X	
Mannitol		X	
Saccharose		X	
Sorbitol		X	
Starch		X	
Sucrose		X	
Other starches, sugars or sweeteners		X	

2) Glucose syrup from maize is a fermentation raw material, but is not contained in the end product anymore.

Preservatives	Yes	No	Comments
Benzoic acid and salts (E210 – E213)		X	
Parabenes, hydroxybenzoic acid and salts (E214 – E219)		X	
Sorbic acid and salts (E200, E202, E203)		X	
Sulphur dioxide and sulphites at concentrations of more than 10 mg/kg or 10 mg/litre expressed as SO ₂		X	No added SO ₂
Sulfite (E220 – E228)		X	
Other preservatives		X	
Antioxidants	Yes	No	Comments
BHA (E320)		X	
BHT (E321)		X	
Gallate (E310 – E312)		X	
Other antioxidants		X	
Colours, flavours and flavour enhancers	Yes	No	Comments
Artificial or natural colours		X	
Azo dye		X	
Flavours or flavour enhancers		X	
Disodium inosinate		X	
Disodium ribonucleotide		X	
Glutamate and glutamic acid (E 620 - 632)		X	
Others	Yes	No	Comments
Biogenic amines		X	
Caffeine		X	
Cholesterol		X	
Latex		X	
Lecithin		X	
Peru balsam		X	
Phenylalanin		X	
Purin and purin derivates		X	
Yeast		X	No added yeast
Suitability for dietetic food	Yes	No	Comments
Baby/infant food	X		
Patients with celiac disease	X		
Diabetics	X		
Patients with fructose-intolerance	X		
Patients with galactosemia	X		
Patients with phenylketonuria	X		
Vegetarism	Yes	No	Comments
Suitable for vegans	X		
Suitable for vegetarians	X		

BSE / TSE

The following Jungbunzlauer products

- **Calcium Lactate Gluconate**
- **Citric Acid**
- **Citric Acid DC**
- **Citric Acid S40**
- **CITROCOAT® EP**
- **CITROCOAT® N**
- **CITROFOL®**
- **Encapsulated Glucono-delta-Lactone eGdL**
- **ERYLITE®**
- **ERYLITE® Bronze**
- **ERYLITE® Stevia**
- **ERYLITE® Monkfruit**
- **Gluconic Acid**
- **Glucono-delta-Lactone**
- **GLUCOSET**
- **L(+)-Lactic Acid**
- **L(+)-Lactic Acid Buffered**
- **LIQUINAT®**
- **Magnesium Lactate**
- **Monomagnesium Citrate**
- **Monosodium Citrate**
- **NAGLUSOL®**
- **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 Gluconate EMF**
- **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.

Due to the fact that Jungbunzlauer does not use animal derived substances in the manufacturing process of above mentioned products, existing EC regulations and directives concerning BSE / TSE do not apply.

The information contained herein has been compiled carefully and reflects the current status. We do not accept any responsibility or liability for the information given. Jungbunzlauer may not automatically notify about information updates or minor changes. This document was electronically issued and is therefore valid without a signature.

California Proposition 65

The following Jungbunzlauer products

- **Calcium Lactate Gluconate**
- **Citric Acid**
- **Citric Acid DC**
- **Citric Acid S40**
- **CITROCOAT® EP**
- **CITROCOAT® N**
- **CITROFOL®**
- **Encapsulated Glucono-delta-Lactone eGdL**
- **ERYLITE®**
- **ERYLITE® Bronze**
- **ERYLITE® Stevia**
- **Gluconic Acid**
- **Glucono-delta-Lactone**
- **GLUCOSET**
- **L(+)-Lactic Acid**
- **L(+)-Lactic Acid Buffered**
- **LIQUINAT®**
- **Magnesium Lactate**
- **Monomagnesium Citrate**
- **Monosodium Citrate**
- **NAGLUSOL®**
- **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 Gluconate EMF**
- **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.

Based on the production process as well as on the type of raw materials used, we can exclude to the best of our knowledge that the above-mentioned products contain substances listed under Proposition 65 State Drinking Water and Toxic Enforcement Act (last update 29 December 2023). However, we do not specially test for these substances, except for heavy metals.

Heavy metals are regularly tested. Typical data are available on request.

Certificate of Origin

Jungbunzlauer

Basel, 2 August 2023

Dear customers

The following Jungbunzlauer products

- **Citric Acid Anhydrous**
- **Tripotassium Citrate**
- **Trisodium Citrate Dihydrate**

are manufactured by fermentation of the raw material glucose syrup which is a carbohydrate source derived from corn.

The above mentioned products are manufactured in the following Jungbunzlauer production facilities:

- **Jungbunzlauer Canada Inc.**
1555 Elm Street
Port Colborne, Ontario L3K 5V5
CANADA

Kind regards
Jungbunzlauer International AG



Thomas von Känel
Junior Technical Service Manager



MANAGEMENT SYSTEM CERTIFICATE

Certificate no.:
C620849
COID:
CAN-1-2080-762505

Initial certification date:
13 February, 2012

Valid:
13 February, 2024 – 12 February, 2027

This is to certify that the management system of
Jungbunzlauer Canada Inc.
1555 Elm St., Port Colborne, Ontario, L3K 5V5, Canada

has been assessed and determined to comply with the requirements of
FOOD SAFETY SYSTEM CERTIFICATION 22000

Certification scheme for food safety management systems consisting of the following elements:
ISO 22000:2018, ISO/TS 22002-1:2009 and additional FSSC 22000 requirements (Version 5.1).

This certificate is applicable for the scope of:
Manufacture of corn derivatives, citric acid, and citrates. Category CIV, K

The certification system consists of a minimum annual audit of the food safety management systems and a minimum annual verification of the PRP elements and additional requirements as included in the scheme and applicable technical specification for sector PRPs. Validity of this certificate can be verified in the FSSC 22000 database of certified organizations available on www.fssc22000.com.

Date of Certification Decision:
28 December, 2023
Place and date:
Vimercate (MB), 29 December, 2023



For the issuing office:
DNV Business Assurance Italy S.r.l.
Via Energy Park, 14, - 20871 Vimercate (MB) - Italy



MS N°0003
Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC. Signatory of EA, IAF and ILAC Mutual Recognition Agreements

Sabrina Bianchini
Management Representative



GMO Position Manufacturing Site Port Colborne, Canada

This position paper is valid for the Jungbunzlauer manufacturing site Port Colborne, Canada.

The following Jungbunzlauer products

- Citric Acid Anhydrous
- LIQUINAT® (Citric Acid Solution)
- Tripotassium Citrate
- Trisodium Citrate Dihydrate

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

Micro-organisms – production strains

Jungbunzlauer does not use genetically modified production strains.

Fermentation media

The fermentation raw material, glucose syrup is derived from corn. Possible intermixing of genetically modified and non-genetically modified varieties of corn cannot be excluded. However, Jungbunzlauer works solely with raw material suppliers who process corn that meets all Canadian and US guidelines for usage of transgenic grains.

Absence of genetically modified DNA in the end product

During the production of glucose syrup, genetically modified DNA from corn is denatured, degraded, or removed through successive processing steps including physical separation, heating, purification and filtration. For this reason, DNA from genetically modified corn is not present in measurable amounts in glucose syrup. Consequently, it is not found in the above-mentioned Jungbunzlauer products.

Regulatory items – labelling requirements

US and Canada:

The existing guidelines on the labelling of novel foods derived from genetic engineering do not apply to the above-mentioned Jungbunzlauer products.

Europe:

None of the existing EC Directives and Regulations concerning GMO and the labelling of GMO's apply to the above-mentioned Jungbunzlauer products.

- **Regulation (EC) No 1829/2003** on genetically modified food and feed
- **Regulation (EC) No 1830/2003** concerning the traceability and labelling of genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms and amending Directive 2001/18/EC
- **Directive 2009/41/EC** on the contained use of genetically modified micro-organisms

The information contained herein has been compiled carefully and reflects the current status. We do not accept any responsibility or liability for the information given. Jungbunzlauer may not automatically notify about information updates or minor changes. This document was electronically issued and is therefore valid without a signature.



المجلس الإسلامي الأمريكي للغذاء و التغذية
THE ISLAMIC FOOD AND NUTRITION COUNCIL OF AMERICA
IFANCA HALAL PRODUCT CERTIFICATE شهادة حلال

This is to certify that the following product(s) have been produced under the supervision of the Islamic Food and Nutrition Council of America (IFANCA). The production facility as well as component ingredients have been reviewed and approved. The product(s) are in compliance with the halal requirements under Islamic laws.

Date: **March 12, 2024**

Document #: **5932.10862.II240024**

Company Name & Address: **Jungbunzlauer Canada Inc.** 1555 Elm St. Port Colborne, Ontario L3K 5V4 Canada

Plant Name & Address: **Jungbunzlauer Canada Inc.** 1555 Elm St. Port Colborne, Ontario L3K 5V5 Canada

Product Name	Product Code	Halal-ID	Product Certificate #
1. Citric Acid Anhydrous	-	B10244	HC-24JUMR38
2. Citric Acid Liquid	-	A69417	HC-24JUMR39
3. Tripotassium Citrate Monohydrate	-	A76300	HC-24JUM440
4. Trisodium Citrate Dihydrate	-	B26073	HC-24JUM641

Muhammad Munir Chaudry

Muhammad Munir Chaudry, Ph.D.
President



This certificate is valid until **April 30, 2025** and subject to renewal at that time.





MANAGEMENT SYSTEM CERTIFICATE

Certificate no.:
10000459424-MSC-ANAB-USA

Initial certification date:
21 September, 2016

Valid:
13 February, 2024 – 12 February, 2027

This is to certify that the management system of
Jungbunzlauer Canada Inc.
1555 Elm St, Port Colborne, ON, L3K 5V5, Canada

has been found to conform to the Quality Management System standard:
ISO 9001:2015

This certificate is valid for the following scope:
Manufacture of Corn Derivatives, Citric Acid and Citrates

Place and date:
Katy, TX, 18 January, 2024



For the issuing office:
DNV - Business Assurance
1400 Ravello Drive, Katy, TX, 77449-5164, USA

Sherif Mekkawy
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.

ACCREDITED UNIT: DNV Business Assurance USA Inc., 1400 Ravello Drive, Katy, TX, 77449, USA - TEL: +1 281-396-1000. www.dnv.com



ORTHODOX UNION

LETTER OF KOSHER CERTIFICATION

UNION OF FORTHODOX 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

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

Jungbunzlauer Canada, 1555 Elm St., Port Colborne, ON L3K 5V5 CANADA

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 Canada			
• Citric Acid Anhydrous	OUW3-AFDBC9	Pareve	Ⓢ Symbol required. Certified for Passover and year-round use.
• Citric Acid Liquid	OUW3-13A4785	Pareve	Ⓢ Symbol required. Certified for Passover and year-round use.
• Citric Acid Liquid	OUW4-65AA53B	Pareve	Certified when bulk shipped in OU approved carriers. Certified for Passover and year-round use.
• Tripotassium Citrate Monohydrate	OUW3-H4RSA9C	Pareve	Ⓢ Symbol required. Certified for Passover and year-round use.

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.

Rabbi Menachem Genack, *Rabbinic Administrator, CEO*

This certification is valid through 3/31/2025

Page 1 of 2



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 Canada (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 Canada (continued) • Trisodium Citrate Dihydrate	OUW3-7E0B45A	Pareve	Ⓢ Symbol required. Certified for Passover and year-round use.

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.

Rabbi Menachem Genack, *Rabbinic Administrator, CEO*

This certification is valid through 3/31/2025

Page 2 of 2