

Chrisin

Product Information

Version: 3 PI GLOB EN 08-23-2019

Description

Chrisin is a natural preservative used in the biopreservation of foods. The active component is nisin, a peptide produced by fermentation of *Lactococcus lactis* subsp *lactis*. Nisin is an antimicrobial compound that inhibits the growth of a wide range of Gram-positive bacteria including spore-forming bacteria. Important spores that are inhibited include *Clostridium botulinum*, the causative organism of botulism, and heat-resistant spoilage organisms such as *Bacillus stearothermophilus*, *Clostridium sporogenes* and *Clostridium thermosaccharolyticum*. This activity against heat-resistant spores is an important property of nisin. Nisin is also active against non-spore forming bacteria including Staphylococcus, Micrococcus and lactic acid bacteria. Furthermore, nisin restricts the growth of the pathogenic organism *Listeria monocytogenes*. Nisin does not inhibit Gram-negative organisms, yeast or fungi. The product is standardized by addition of sodium chloride. For restricted use in foods.

Material No: 502095

Size 1 kg

Type Can/Tin

Storage temp: 0 - 15 °C / 32 - 59 °F

Conditions: Dry . Keep closed in the original container.

Shelf life

24 months from date of production when stored according to the recommended storage conditions.

Transport condition

Ambient temperature.

Application

Chrisin is approved in over 50 countries for use in foods and is regulated as a preservative with restricted use in certain dairy products, such as ripened and processed cheese and clotted cream (European Parliament and Council Directive 1995). Some applications authorized by Directive 95/2/EC and maximum dosages are listed in the table below. Outside of the EU, nisin has also been approved for use in meat products such as frankfurters, tomato products, liquid egg products, etc. Please confirm adherence to local food regulations before use as regulatory status varies from country to country.

Applications	Max dosage
	mg of nisin/kg of food
Ripened cheese (except AOP cheese)	12.5
Processed cheese	12.5
Clotted cream	10
Tapioca cakes and related products	3

Dosage

0.5-5g /100l milk

Nisin in finished cheese mg nisin/kg cheese	Addition g Chrisin/kg cheese	Addition g Chrisin/100 l milk
1.25	0.05	0.50
2.50	0.10	1.00
5.00	0.20	2.00
12.50	0.50	5.00

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Directions for use

This product can often be added directly as a powder. However, if a solution is required, it is recommended to dissolve nisin in high-purity water adjusted to pH to 2 - 4 through the addition of 0.02 N HCl. The freshly prepared solution may then be added according to the desired concentration of nisin in the final food. This product is insoluble in non-polar solvents.

Composition

Sodium chloride, Nisin (E234)

Specification

Properties

Average activity: 1000 UI/mg

Guaranteed activity is the minimum activity at best-before date.

Content

Nisin IU / mg: 1.000 IU Moisture: <= 3,0 %

Enzyme type: Nisin

Physical Properties

Color: Off-white to brownish Form: Powder

Solubility: Water soluble Odor: Characteristic

The product may exhibit batch-to-batch color variations. This has no influence on the activity.

Formulation

Sodium chloride (w/v): >= 50,0 %

Microbiological quality

Total count: <= 10 cfu/g Escherichia coli: Absent in 25g

Salmonella spp.: Absent in 25g Coagulase-positive staphylococci: Absent in 25g

Comments

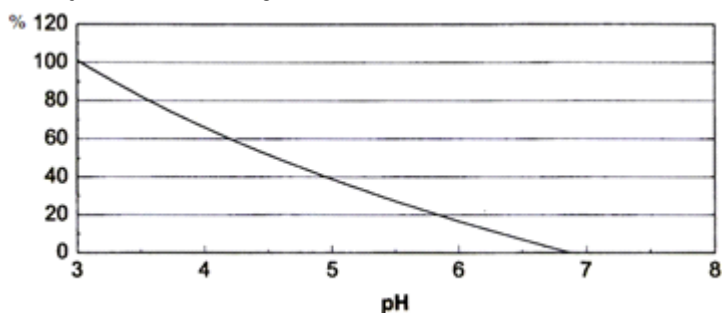
Methods are available on request.

This product complies with the recommended purity specifications for the E234 Nisin outlined in Commission Regulation (EU) No 231/2012 of 9 March 2012 laying down specification for food additives for Arsenic (≤ 1 mg/kg), Lead (≤ 1 mg/kg) and Mercury (≤ 1 mg/kg).

Technical Data

Temperature

Activity of nisin following heat treatment at 121°C / 250°F for 15 min (Delves-Broughton, 1990).



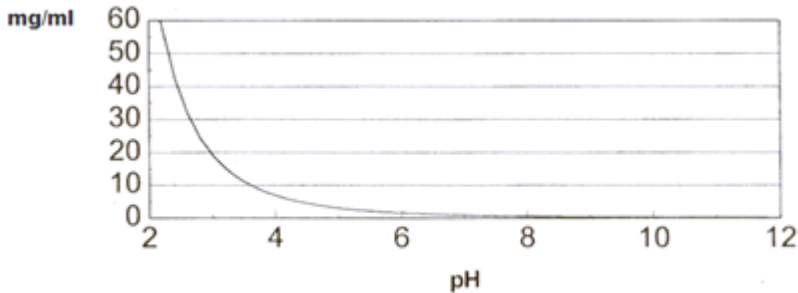
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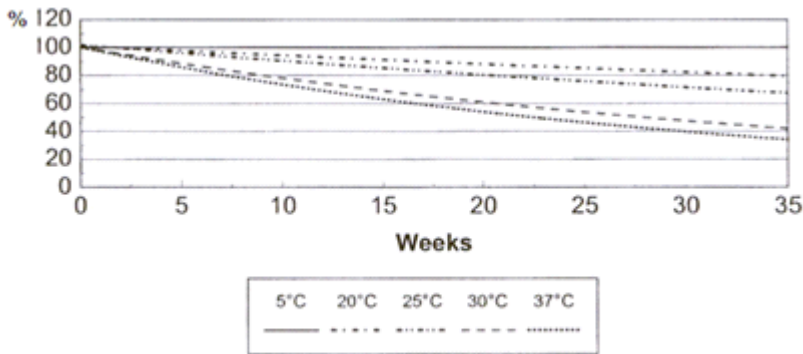
pH

Influence of pH on nisin solubility in buffer at 25 °C (Liu, 1990).



Stability

Stability of nisin in processed cheese



Technical support

Chr. Hansen's Application and Product Development Laboratories and personnel are available if you need further information.

Dietary Information

Kosher: Kosher Pareve Excl. Passover
 Halal: Certified

Handling precautions

For detailed handling information, please refer to the appropriate Safety Data Sheet. Enzymes may cause sensitization upon inhalation and irritation upon skin contact. The use of personal protection equipment such as gloves, goggles and respiratory protection can prevent sensitization. For additional guidelines refer to 'Guide to the safe handling of microbial enzymes preparations' published by the Association of Manufacturers and Formulators of Enzyme Products (AMFEP) and 'Working Safely With Enzymes' by the Enzyme Technical Association (ETA).

Packaging material of this product can be disposed of as normal waste.

Legislation

This product is a permitted additive according to EU legislation. Please refer to current EU regulations for details on the conditions of use. Outside the EU, please check for local/national rules or regulations. Nisin has the E-number E234. In the Codex Alimentarius system, it is known as INS234. This product complies with EU, JECFA and FCC specifications.

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The product is intended for use in food.

Labeling

Labeling on final food products: "E234".

Trademarks

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Non spore formers*	Spore formers (spores and cells)*
<i>Lactococcus lactis subsp cremoris</i>	<i>Bacillus coagulans</i>
<i>Streptococcus agalactia</i>	<i>Bacillus cereus</i>
<i>Streptococcus pyogenes</i>	<i>Bacillus subtilis</i>
<i>Staphylococcus aureus</i>	<i>Bacillus stearothermophilus</i>
<i>Micrococcus luteus</i>	<i>Bacillus lichiniformis</i>
<i>Lactobacillus brevis</i>	<i>Clostridium botulinum</i>
<i>Lactobacillus bulgaricus</i>	<i>Clostridium sporogenes</i>
<i>Lactobacillus casei</i>	<i>Clostridium butyricum</i>
<i>Lactobacillus plantarum</i>	<i>Clostridium bifermentum</i>
<i>Lactobacillus buchneri</i>	<i>Clostridium perfringens</i>
<i>Leuconostoc mesenteroides</i>	<i>Clostridium pasteurinicum</i>
<i>Leuconostoc oenos</i>	<i>Clostridium thermosaccharolyticum</i>
<i>Pediococcus acidilactici</i>	<i>Clostridium tyrobutyricum</i>
<i>Pediococcus damnosus</i>	
<i>Pediococcus pentosaceus</i>	
<i>Listeria monocytogenes</i>	
<i>Listeria ivanovii</i>	
* Strain(s) within a species can be resistant. Also, in a sensitive strain some cells can be resistant to bactericidal action of nisin.	

References

"Bibek, R. (1992). Nisin of *Lactococcus lactis* ssp. *lactis* as a food biopreservative p. 209-257. In: Food biopreservatives of microbial origin ed. Bibek, R. & Daeschel, M. CRC Press.

Delves-Broughton, J. (1990). Nisin and its application as a food preservative. *Journal of the Society of Dairy Technology* 43, 73-76.

Liu, W. and Hansen, N. (1990). Some Chemical and Physical Properties of Nisin, a Small-Protein Antibiotic produced by *Lactococcus lactis*. *Applied and Environmental Microbiology* 58 (8) 2551-2558.

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GMO Information

In accordance with the below mentioned legislation of the European Union we can inform that:

Chrisin is not a GM (genetically modified) food *.

As such GM labelling is not required for Chrisin or the food it is used to produce**. Moreover, the product does not contain any GM labelled raw materials.

* Regulation (EC) No 1829/2003 of the European Parliament and of the Council of 22 September 2003 on genetically modified food and feed.

** Regulation (EC) No 1830/2003 of the European Parliament and of the Council of 22 September 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.

Please note the information presented here does not imply that the product can either be used in, or is externally certified to be used in, food or feed labelled as 'organic' or 'GMO free'. Requirements to make these claims vary per country, please contact us for more information.

Allergen Information

List of common allergens in accordance with the US Food Allergen Labeling and Consumer Protection Act of 2004 (FALCPA) and EU Regulation 1169/2011/EC with later amendments	Present as an ingredient in the product
Cereals containing gluten* and products thereof	No
Crustaceans and products thereof	No
Eggs and products thereof	No
Fish and products thereof	No
Peanuts and products thereof	No
Soybeans and products thereof	No
Milk and products thereof (including lactose)	No
Nuts* and products thereof	No
List of allergens in accordance with EU Regulation 1169/2011/EC only	
Celery and products thereof	No
Mustard and products thereof	No
Sesame seeds and products thereof	No
Lupine and products thereof	No
Mollusks and products thereof	No
Sulphur dioxide and sulphites (added) at concentrations of more than 10 mg/kg or 10 mg/litre expressed as SO ₂	No

* Please consult the EU Regulation 1169/2011 Annex II for a legal definition of common allergens, see European Union law at: www.eur-lex.europa.eu