No chance for listeria

Shelf-life extension and food cultures

WIBERG GEWÜRZMÜHLE NESSE Gewürzmüller

Why are listeria so dangerous

Listeria are bacteria that are found throughout the environment due to low growth requirements. Almost a survivalist, they can continue to multiply or at least survive even at refrigerator temperatures, at low oxygen levels or other adverse circumstances. The *Listeria monocytogenes* strain is of particular importance because it can cause listeriosis.

FACT BOX
Listeria monocytogenes

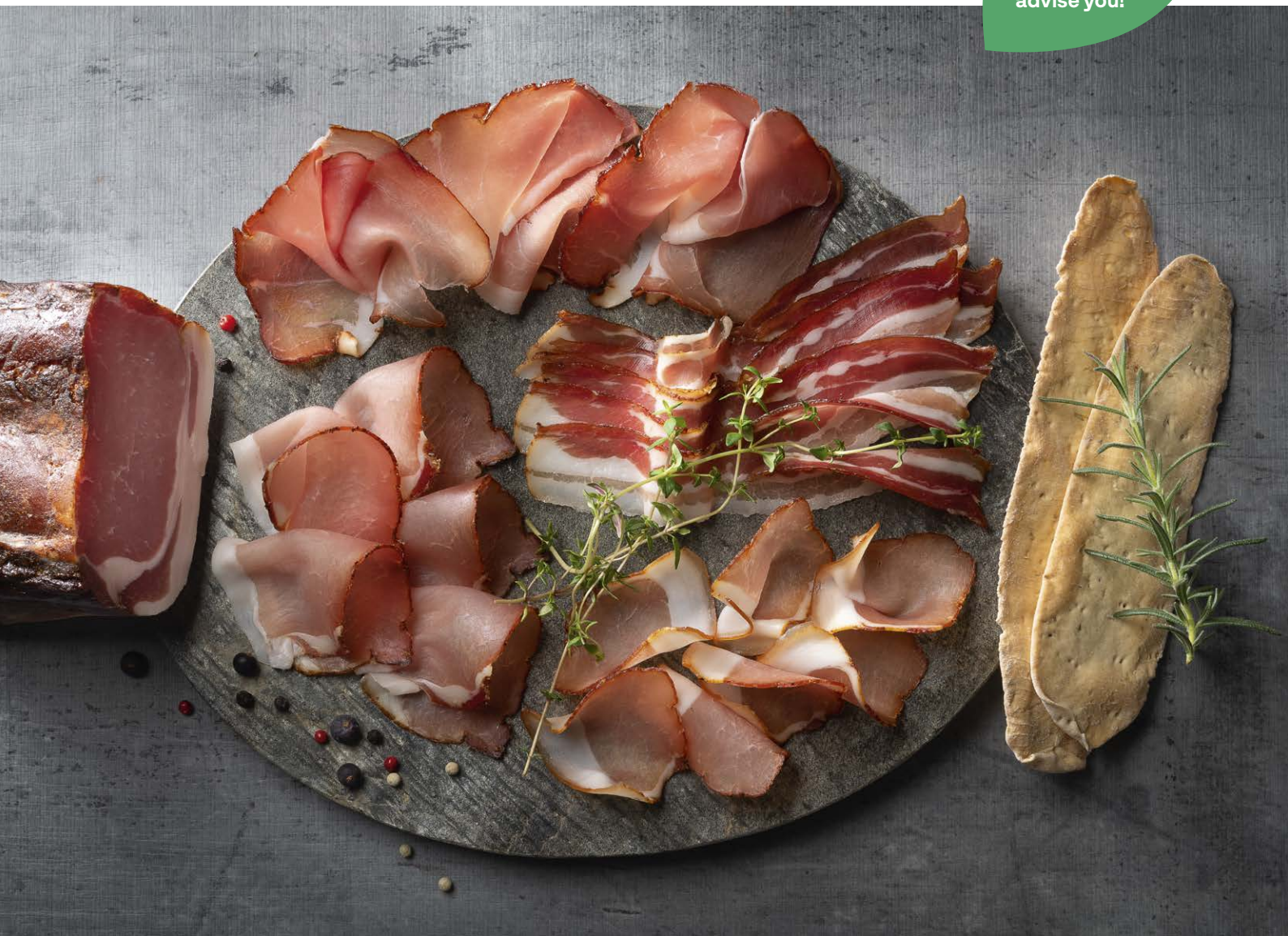
- is widespread in nature
- does not lead to spoilage and is therefore taste- and odorless
- is able to grow or at least survive at low temperatures, high salt content, reduced oxygen content and extreme pH- and water activity-values
- is deactivated by heating (at least 2 min at a core temperature of 70 °C)
- can cause dangerous diseases

Protect your meat products against pathogenic bacteria

NovaTaste offers manufacturers of meat and sausage products two different concepts, each with different advantages for a wide range of applications. Depending on the product, shelf-life extenders or food cultures with protective properties are the right solution.

Ask for the right protection concept!

We are happy to advise you!



Hurdles against *Listeria monocytogenes*

One of the biggest challenges for food manufacturers is ensuring product quality over a longer period of time. Meat and sausage products provide the perfect breeding ground for microorganisms, which – if uninhibited – can quickly lead to negative changes in appearance, taste and smell and ultimately to spoiling.

Various factors influence microbiology in food

Internal factors

- raw material
- product recipe
- pH- and water activity-value

External Factors

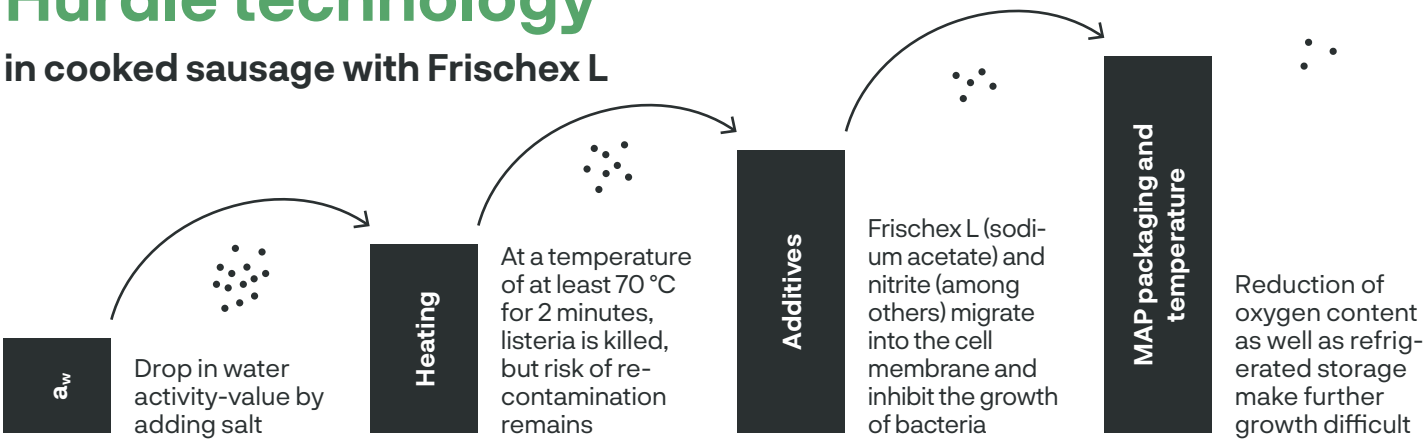
- production process and hygiene practice
- packaging
- supply chain (especially cold chain)

Hurdle technology for more product safety

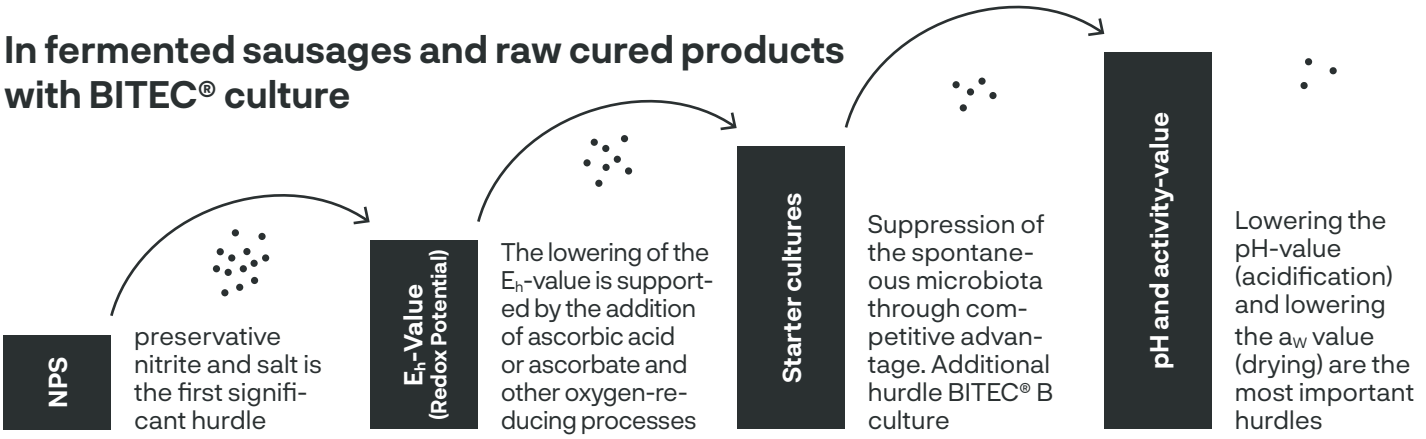
Meat and sausage products have a relatively high proportion of water and an almost neutral pH-value – thus perfect conditions for microbiological growth. In order to control unwanted microorganisms for as long as possible, it is necessary to establish an effective hurdle technology.

Hurdle technology*

in cooked sausage with Frischex L



In fermented sausages and raw cured products with BITEC® culture



The illustrations show how hurdle technology works by combining more than one approach—hurdles—the pathogen has to overcome. The result is a retardation of microbiological growth as the given conditions are changed for the worse.

*according to Leistner, 1984

Shelf-life extenders against *Listeria monocytogenes*

The selection or combination of the right shelf-life extneder is becoming increasingly challenging as consumers demand not only quality and price but also clean label products and longer storage.

Acelact (Item no. 226137), reliable protection by the combined effect of sodium acetate and calcium lactate

Frischex L (Item no. 135585), our all-rounder for all types of meat products, ensures greater safety and freshness through the use of sodium acetate

Germex Flavor (Item no. 182270) offers a comparable effect, universal application possibilities, even without E numbers

Germex V (Item no. 260227), effective protection based on buffered vinegar

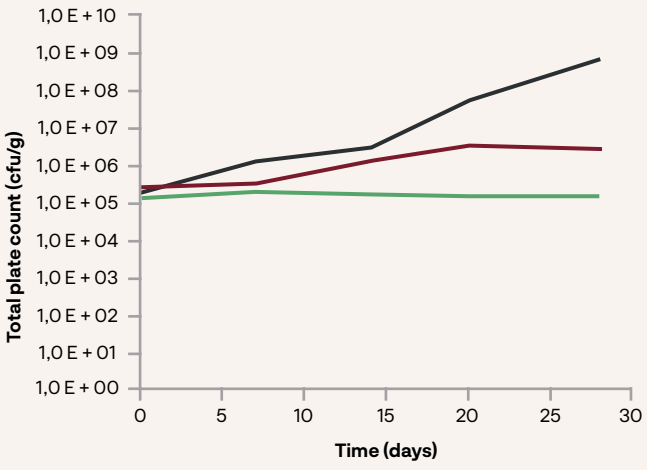
FACT BOX

Mode of action of shelf-life extenders

- influence on microbiological conditions (change of parameters like pH and a_W)
- use of organic acids and their salts
- suppression of microbiological growth
- preservation of product freshness
- extension of shelf-life

Challenge tests show that our shelf-life extenders are very effective against bacteria and strongly inhibit the growth of listeria. They influence microbiological conditions and change parameters such as pH- and water activity-value.

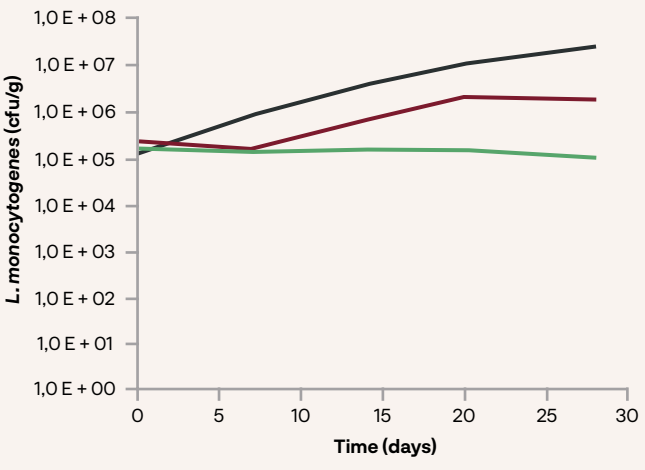
Challenge test – cooked ham after recontamination with *Listeria monocytogenes*



control
Sodium acetate (1.8 kg in 100 kg brine at 20 % injection)
GERMEX V (1.8 kg in 100 kg brine at 20 % injection)

Cooked ham, sliced and inoculated with listeria; storage at 4 °C

Challenge test – cooked ham after recontamination with *Listeria monocytogenes*



control
Sodium acetate (1.8 kg in 100 kg brine at 20 % injection)
GERMEX V (1.8 kg in 100 kg brine at 20 % injection)

Cooked ham, sliced and inoculated with listeria; storage at 4 °C

Shelf-life extension

Produktbezeichnung	Produktbeschreibung	Dosierung	Art.-Nr.	Symbolik
Acelact Antistaling agent for meat and sausage products	• visible improvement in freshness for a longer period of storage • for cooked sausage and convenience products • not suitable for injection • E262, E327	10 g	**290361** 1 kg	AF GF
Frischex L Antistaling agent for meat and sausage products	• visible improvement in freshness for a longer period of storage • soluble in brine • for cooked sausage, cooked ham and meat preparations • to inhibit listeria a dosage of 4 g is recommended • E262	3 g 1–1.8 kg in 100 kg brine at 20 % injection	**135585** 1 kg	AF GF
Germex Flavor Cider vinegar flavoring	• delicate with a hint of apple • prolongs shelf-life without E numbers • for cooked sausage, cooked ham and meat preparations • to inhibit listeria a dosage of 4 g is recommended	2–3 g 1–1.8 kg in 100 kg brine at 20 % injection	**182270** 0.5 kg	F NP
Germex V Buffered vinegar	• slightly sour • soluble in brine • for cooked sausage, cooked ham and meat preparations • E267	3–5 g 1.8 kg in 100 kg brine at 20 % injection	**260227** 1 kg	AF GF

AF: without allergenic ingredients (according to EU regulations) GF: without added, taste enhancing additives
Novapure: AF, GF (F) functional ingredient

New regulation for buffered vinegar

In 2023, the European Food Safety Authority (EFSA) has changed the additive regulation for buffered vinegar so that now it needs to be labeled with the E number E 267. The new regulation provides a clear framework for the use of buffered vinegar. Depending on the function in the product, food manufacturers have two options for adapting the declaration on their labels:

Preservative: E 267 / Buffered vinegar

Acidity regulator: E 267 / Buffered vinegar

Food cultures with protective properties against listeria

Fermented sausage and raw cured meat products require particularly careful production. Contamination with pathogenic bacteria such as listeria poses a potential risk.

With the BITEC® B-Range, NovaTaste offers solutions that go beyond the effects of a standard food culture. Certain lactobacillus strains are able to produce inhibitors that effectively reduce the growth of *Listeria monocytogenes*. This additional hurdle ensures optimum product safety.

Food cultures

Fermented sausage

Product name	Product description	Dosage	Item no.	Symbol
BITEC® STARTER B 1 Food culture with protective function for reduction of listeria during the fermentation process	• protective function against *Listeria monocytogenes* • slow decrease in pH-value • strong fermentation aroma • for spreadable/soft fermented sausage and traditionally ripened, sliceable fermented sausage	25 g for 50 kg mass	**245206** 0.025 kg	AF GF
		25 g for 100 kg mass	**241080** 0.025 kg	
BITEC® STARTER B 2 Food culture with protective function for reduction of listeria during the fermentation process	• protective function against *Listeria monocytogenes* • fast decrease in pH-value • strong fermentation flavor • for sliceable and fresh fermented sausage, especially for sliced products	25 g for 100 kg mass	**241175** 0.025 kg	AF GF
BITEC® STARTER B 3 Food culture with protective function for reduction of listeria during the fermentation process	• protective function against *Listeria monocytogenes* • very fast decrease in pH-value • balanced fermentation aroma with distinctive acid character • for sliceable and fresh fermented sausage, especially for sliced products	25 g for 100 kg mass	**241193** 0.025 kg	AF GF
BITEC® STARTER B C3 Food culture with protective function for reduction of listeria during the fermentation process	• protective function against *Listeria monocytogenes* • for cold ripening of Zwiebelmettwurst produced with NCS • in this application only use in combination with Lactalin ZM (241358) • also suitable for Filet Americain	25 g for 50 kg mass	**241107** 0.025 kg	AF GF
BITEC® STARTER B MILD & FAST Food culture with protective function for reduction of listeria during the fermentation process	• protective function against *Listeria monocytogenes* • fast decrease in pH-value • mild, harmonious fermentation aroma • for sliceable fermented sausage, especially for sliced products	25 g for 50 kg mass	**266305** 0.025 kg	AF GF
		25 g for 100 kg mass	**249273** 0.025 kg	

Raw cured ham

Product name	Product description	Dosage	Item no.	Symbol
BITEC® STARTER B SAFE CURED Food culture with protective function for reduction of listeria during the fermentation process	• protective function against *Listeria monocytogenes* • moderate acidification • mild fermentation aroma • improved color formation • recommended for curing by injection and dry curing	25 g for 100 kg mass	**259687** 0.025 kg	AF GF

Add-on culture

Product name	Product description	Dosage	Item no.	Symbol
BITEC® B BACTO SAFE PLUS Add-on culture, protective function for reduction of listeria during the fermentation process	• add-on culture usage only in combination with a maturing culture • protective function against *Listeria monocytogenes* • no flavor formation • for all kind of raw fermented sausages and raw cured meat products	25 g for 50 kg mass	**269258** 0.025 kg	AF GF

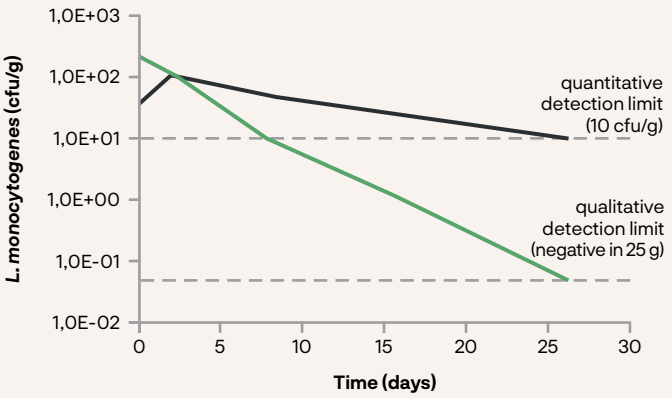
AF: without allergenic ingredients (according to EU regulations) GF: without added, taste enhancing additives
Ⓕ functional ingredient

Food safety and color stability

These aspects are crucial for an attractive product in the eyes of the consumer. The ripening culture with protective properties **BITEC® STARTER B SAFE CURED** not only forms a stable curing color, characteristic aroma and improved hygiene status, but also effectively prevents the potential growth of listeria in raw cured meat products.

BITEC® STARTER B MILD & FAST, a food culture for fermented sausage, is characterized by a particularly mild and harmonious fermentation aroma even at low pH-values. A fast acidification and the additional protective function ensure a high level of product safety.

Challenge test – fermented sausage after recontamination with *Listeria monocytogenes*

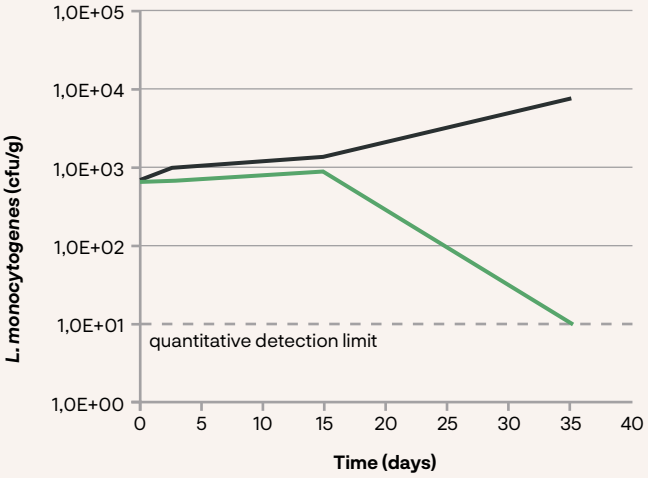


BITEC® STARTER B MILD & FAST
reference

Salami – total fat, fresh 22 % – weight loss 20 % – recontaminated with listeria after slicing – MAP packed – stored for 28 days at 4 °C

Safety for your fermented sausage products

Challenge test – raw ham after recontamination with *Listeria monocytogenes*



BITEC® STARTER B SAFE CURED
reference

Pork loin with chain and rind – injection quantity approx. 12–15% – inoculated with listeria Stored for 35 days at 4 °C

Safety for your raw cured meat products

BITEC® STARTER B MILD & FAST:

Benefits at a glance

- formation of inhibitors that effectively reduce growth of *Listeria monocytogenes*
- mild-aromatic fermentation aroma even at lower pH-values
- very good color formation and stability due to very high content of staphylococcus
- wide range of applications: snack salami, sliced products, Mediterranean and low-fat applications

BITEC® STARTER B SAFE CURED:

Benefits at a glance

- rounder and fuller taste, better color formation and stability over the length of the storage time
- dominates the microflora and provides active reduction of potentially harmful germs
- recontamination challenge tests show a significant reduction of *Listeria monocytogenes*
- prevention of quality fluctuations in the final product

Our Services
at a glance

Are you interested in our products and services? We are your partner for customer-specific solutions – simply ask your contact person!

Quality
Our guiding principle

We define ourselves through the high quality of our products; they provide us with the incentive to offer our customers optimal solutions. You can recognize the importance of this claim in every step of our work, from incoming raw materials inspection to the finished product – a team that works hand in hand!

Food law
Paragraphs, made easy

We are happy to support you with advice and assistance on labeling issues, the preparation and review of product designations and declarations. Do you need expert opinions, certificates or simply competent support in the complex field of food law for your production or further processing? Contact us with confidence.

Technical sales team
Service has a face

Our creative butchers, technologists and application specialists can provide support at any time with efficient, innovative and individually tailored product solutions, practical tips in the field of industrial manufacturing processes as well as manual applications.

Laboratory
At the heart of the best quality

In our in-house laboratories, we use a wide range of chemical and microbiological analysis methods. Every single raw material has its own individual, risk-based test plan. This means the company‘s experts don‘t miss anything when it comes to safety. Our independence from other laboratories means that we can act quickly and efficiently according to the situation at hand.

NovaTaste

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