



MICREOS

LISTEX™ P100

Product Data Sheet

Introduction

Spoilage, pathogenic and other micro organisms are widely present in cheese- meat- and other food-processing plants. They may vary with the type of product manufactured, the equipment used, and the environment and process conditions. Production protocols reflecting state-of-the-art GMP and effective hygiene measures according to HACCP-principles, and a strict quality assurance program, are prerequisites for the production of top quality food products, which are safe from a consumer perspective, at reasonable cost.

However, spoilage by dangerous microbial contaminants like *Listeria monocytogenes* (LM) requires extra attention.

Bacteriophages (“phages”) are the most abundant micro-organisms in the biosphere. They are naturally present in significant numbers in water and foods of various origins. Phages are harmless to humans, animals, and plants. Humans are routinely exposed to phages at high levels through food and water without adverse effect. Phages use bacteria for their multiplication. Via this mechanism, phages contribute to environmental homeostasis, the situation wherein none of the bacterial species in a biosphere becomes dominant. Every species of bacteria is thought to be the host for at least one phage type. Several phages exist that are able to recognize and lyse a number of different bacterial strains within one species; these have a ‘broad spectrum’ or a wide host range.

In every food processing facility, bacteria and a wide variety of phages are naturally present. As such, in the production of the food, those phages can either have a positive effect (killing certain dangerous bacteria), or a negative one (killing certain desirable bacteria). An example of a negative effect is the interference of specific phages with the growth of lactic bacteria, resulting in hampering the starter activity. Then again, where the lysed lactic starter bacteria more effectively contribute to the ripening of the cheese, the effect phages have is regarded as positive.

LISTEX™, a natural phage culture against outgrowth of LM in food production, is another example of a positive effect.

Description

LISTEX™ is a culture of safe micro-organisms to be used in food production as a Processing Aid and has been confirmed as GRAS by the FDA.

The LISTEX™ phage is characterized by its broad spectrum toward *Listeria* strains. The LISTEX™ phage has been selected from MICREOS's proprietary collection of food grade phages. The most important selection criterion has been the sensitivity to the broadest possible selection of strains within the pathogenic species LM.

The product has been concentrated and filtered, and the formulation of the product is aimed at allowing for an optimal integration in standard and traditional processes of food production.

The product, when becoming the dominant phage in a food matrix or food processing environment, can effectively contribute to bringing down to zero the number of viable cells of LM in that food processing environment. When brought in contact with a sensitive host strain, LISTEX™ kills 100% of the infected host strains.

Application & Technical Support

LISTEX™ is aimed at the prevention of the outgrowth of undesirable *Listeria* strains on food during processing. The use of the product, and its application, can be integrated easily within the daily routine of the normal production process. For further information on the product, see the Instructions for Use in the Technical Data Sheets.

The application of LISTEX™ neither affects any of the properties of the food, be it chemical or physical, nor does it have any affect on the taste and flavour of the product.

Technical Support may include Application Design, Training of Production- and QA/QC-staff and Troubleshooting.

Manufacturing & Food Safety

MICREOS applies innovative and proprietary manufacturing techniques and uses production processes that sustain the obtained GRAS-status of the product.

Use of LISTEX™ as a Processing Aid does not require labelling on the final food products.

LISTEX™ is manufactured to meet the highest quality and safety standards.

Packaging & Storage

The packaging of MICREOS products is tailored to the requirements of product and customer. The product has a stable shelf-life of a minimum of 6 months when stored under dark conditions at 2-8°C in the original and unopened container.

Please refer to the Instructions for Use in the Technical Data Sheets for a description of the best way to prepare the product for the application.

For more information please contact:

*To the best of our knowledge, the information contained herein is accurate and complete. However,

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