

PhageGuard Listex Application Data Sheet: Salmon

PhageGuard Listex

PhageGuard Listex is a highly concentrated solution containing Phage P100. Phages are the most abundant microorganisms in the world and can be used for targeted bacterial control.

The phage used in PhageGuard Listex is selected for its killing ability against *Listeria monocytogenes*, but targets all *Listeria* strains and can effectively be applied as surface intervention against *Listeria* contamination in smoked salmon and fresh salmon fillets. Listex has no effect on the colour, texture or taste.

Product supply

PhageGuard Listex is supplied in 100ml and 1 liter bottles at a concentration of 2×10^{11} phages per ml.

Approvals

As a processing aid no labelling is required. PhageGuard Listex is a FDA and USDA approved. It is further accepted as a processing aid in Australia, New Zealand, Israel, Switzerland, The Netherlands (EU) Canada and others. It is organic certified (OMRI USA and SKAL EU).

Application

Listeria contamination can be found on the outside of whole fish, filets and in the environment. It grows at refrigeration temperatures and has a high mortality rate. Cold smoking does not kill listeria.

A sufficient amount of phages need to be present to ensure the statistical probability that the phage encounter the bacteria. The number of phages required depends on the type of surface.

PhageGuard Listex can be applied using various methods:

- Spray onto product prior to packaging
- Spray into package
- Spray onto slicer blade/dicer blades
- Dipping/immersion into a solution containing Listex

We work closely with spray equipment suppliers to offer optimal application solutions.

PhageGuard Listex is effective in solution between +0°C and 35°C. PhageGuard Listex is diluted with clean water prior to application.

Concentration	PFU/(phage forming units) per ml
100% Listex	2×10^{11}
2%	4×10^9
0,2%	4×10^8

A typical application for fresh salmon filets is during filleting process. PhageGuard Listex can be applied during the filleting process by spraying a 2% solution on the slicer, the conveyor belt and to the top of the fillet to ensure Listex comes in contact with both sides of the fillet.

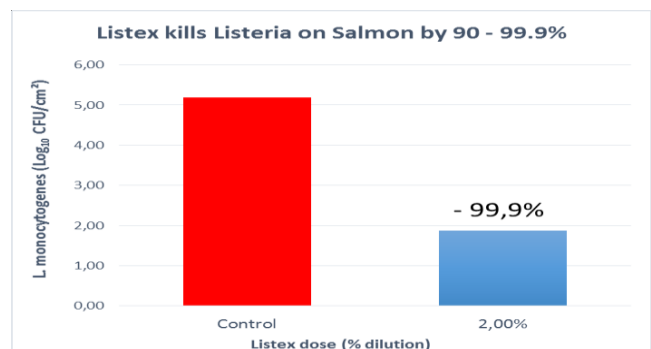
Benefits of Listex

- Topical treatment
- Processing aid
- No organoleptic influence
- OK for use on Certified Organic products
- Harmless to humans, animals and plants
- No wastewater issues
- No worker safety issues
- Non corrosive to equip, concrete etc



Benefits

The graph below shows the result of tests on Salmon fillet with an inoculation of ~ 100.000 cfu/cm².



Reductions of *L. monocytogenes* within 2hrs at 4°C on raw salmon fillet tissue with different concentrations of PhageGuard Listex.

A 2% PhageGuard Listex solution resulted in a 99.9% reduction after 2 hours at 4 °C. Typically we observe a 1 log reduction within minutes and a 1.5-3 log reduction in cell count after 24hrs

Literature

- 2010 **Bacteriophage significantly reduces *Listeria monocytogenes* on raw salmon fillet tissue.**
Soni KA, Nannapaneni R. Journal of Food Protection. 2010 Jan;73(1):32-8