



Reduction of Listeria on Ready-To-Eat meats by PhageGuard Listex

Smart

PhageGuard Listex applied on RTE products can specifically reduce Listeria up to 1 log, leaving the good bacteria intact.

Green

PhageGuard Listex is OMRI listed and considered processing aid, hence does not require labeling. Use of phage does not affect organoleptic properties and has no detrimental effect on personnel and equipment.

Easy

Easy to apply. Spray PhageGuard Listex after cooking or before freezing. Alternatively, it can be applied on products via dip.

PhageGuard Listex - The natural solution for Listeria

PhageGuard Listex is a highly concentrated solution containing phage P100. The phage P100 used in PhageGuard Listex is selected from nature for its specific killing ability against *Listeria monocytogenes*. PhageGuard Listex is also effective against all Listeria strains.

Application of PhageGuard Listex

Listeria contamination is typically found on the outside of cooked meat products. RTE products are especially at risk since Listeria continues to grow at refrigeration storage temperatures. We work closely with major spray equipment suppliers to offer an optimal application solution.

Effectiveness of PhageGuard Listex on RTE meats

Effectiveness of the PhageGuard Listex has been verified to provide >1 log kill by scientific researchers on various ready-to-eat meats such fermented pork sausage¹, dry cured ham², cooked turkey and roast beef³. Our research below (Figure 1 and Figure 2) shows bacterial reductions on RTE meats when phage treated with the recommended concentration of PhageGuard Listex.

PhageGuard Listex

Dosage	0.2 - 1% solution shows significant kill of Listeria on RTE meats
Distribution	0.2 – 0.5% pick up levels offers full coverage on smooth or rough product surfaces respectively
Application techniques	<ul style="list-style-type: none">➤ Spray onto product prior to packaging➤ Sprayed Lethality in Container (SLIC) method➤ Spray onto slicer blade/dice blades or other food contact surfaces
Contact time	Allow minimum of 30 minutes before the next surface intervention or grinding



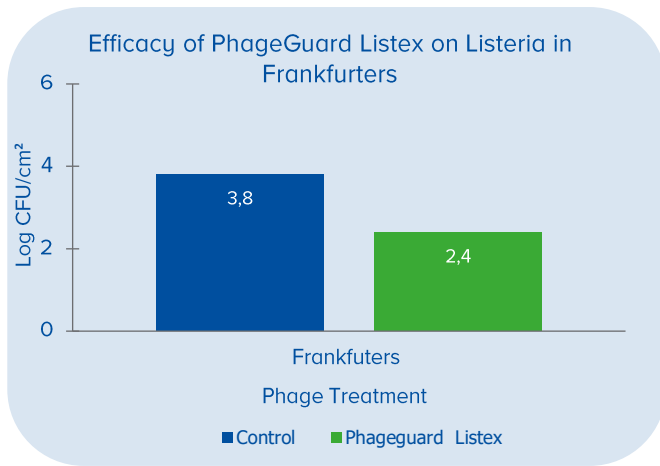


Figure 1 . 0.2% PhageGuard Listex provides more than 95% reduction of Listeria on Frankfurters in 48 hours

Kill on beef frankfurters:

PhageGuard Listex provided more than 1.2 log kill of Listeria on frankfurters. Products like this and similar such as hot dogs, sausages have smooth, even outer surface that can be easily spray treated with phage solution over roll stock machines or using spray lethality in container method.

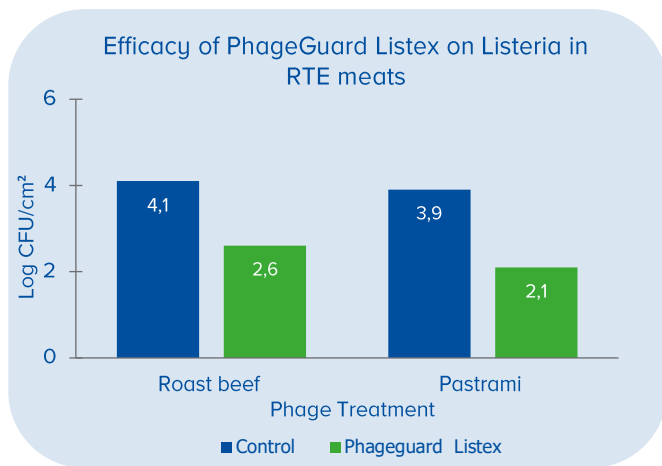


Figure 2 . 1% PhageGuard Listex provides more than 97% reduction of Listeria on different ready-to-eat meats in 24 hours

Kill on roast beef and pastrami:

Well distributed PhageGuard Listex on cooked whole muscle RTE products with uneven outer surface such as roast beef and pastrami can kill Listeria by more than 1.5 logs. Good distribution on whole muscles can be achieved by sprayed lethality in container or spray on food contact surfaces such as slicer/blades.

For more information regarding this application data bulletin

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¹F. Hansen & T. Jacobsen, (2012); ²Iacumin *et al.*, (2016); ³ A. Chibeu *et al.*, (2013);