



## PhageGuard Listex reduces Listeria on food contact surfaces and in the environment

### Advantages of Phage Application

#### Smart

- Food Contact Surfaces & Processing Environment:** In 3 hours, 5% PhageGuard Listex reduces Listeria by 3.3 logs on stainless steel, 2.8 logs on conveyor belt & 1.8 logs on epoxy flooring (R.G Reinhard *et al.*, 2020)
- Biofilms:** 1% PG Listex reduces newly formed or aged Listeria biofilms by 3.6 -5.6 – logs (K. Soni *et al.* 2010)

#### Green

- Organic** - OMRI listed food processing aid
- Food grade** with no effect on odor, color & texture
- No detrimental effect on personnel or oxidizing effect on equipment surfaces

#### Easy

- Easy to apply
- Spray on Food contact surfaces during processing or after sanitation

### PhageGuard Listex - The natural solution against Listeria

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

### Application of PhageGuard Listex

*Listeria monocytogenes* has a persistent ability to form biofilms matrices in Food Contact Surfaces (**FCS**) and Food Processing Environment (**FPE**) like floors, drains, conveyor belts, freezer tunnels and cold rooms. directly on equipment and will not have an organoleptic influence on the end product.

**Advantage over chemical sanitizers** Listex can be applied during processing, directly on equipment and will not have an organoleptic influence on the end product.

### PhageGuard Listex

#### Dosage

- FCS & Biofilms:** 1 - 5% solution on stainless steel and conveyor belt shows 2-3 logs kill (>99%).
- FPE:** 1- 5 % solution

#### Distribution

Hand-held garden sprayer (picture)

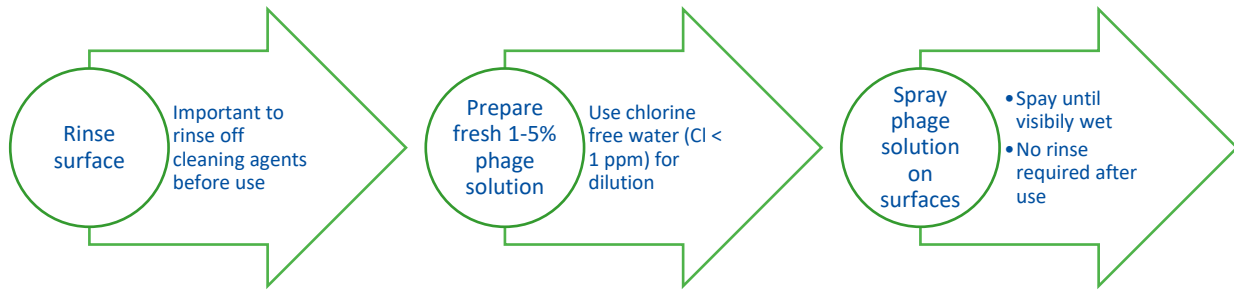
#### Application techniques

- Spray onto food contact surfaces during production.
- Use as the final sanitation step in the environment.

#### Contact time

- Allow minimum of 1 - 3 hours after application.
- FCS:** Daily
  - FPE:** Weekly/Biweekly
  - Biofilms:** Daily until removed

## HOW TO USE



### Rinse surface area to treat with phages

- Rinse off other chemical cleaning agents from the surface if used before.
- Do NOT let chemical residues come in contact with prepared phage solution.
- Use phage solution as a last step in your sanitizing procedure.



### Prepare fresh 1 - 5% PhageGuard solution

- Use clean, rinsed spray canister/installation. Do NOT let chemical residues come in contact with prepared phage solution.
- Use dechlorinated water (Cl < 1 ppm). A chlorine filter will remove chlorine from water.
- Dilution 1 % : add one 100mL bottle of PhageGuard for 2.5 gallons of water.
- Dilution 5 % : 5 X 100 mL bottles for 2.5 gallons of water.
- 2.5 gallon of phage solution can treat approx. 1000 ft<sup>2</sup>.
- Prepared solution can be stored refrigerated (39 °F) for 48 hours only.

### Spray phage solution

- Spray on surface until visibly wet. No need to rinse after spray.
- Phages work up to 24 hours upon treatment. Recommend to spray end of shift so has phages to work overnight/weekend.
- **Food contact surfaces:** recommended to spray daily.
- **Biofilms:** Spray 1 - 3 times after area has dried. Swab, if tested positive repeat until Listeria will test negative for 3 consecutive days. Biofilms should be eradicated in 2-7 treatments.
- **Food processing environments:** spray phage solution weekly/biweekly.
- Leftover phage solution should be stored refrigerated (39 °F).

## PhageGuard Listex removes Listeria on Food Contact Surfaces and in the production environment

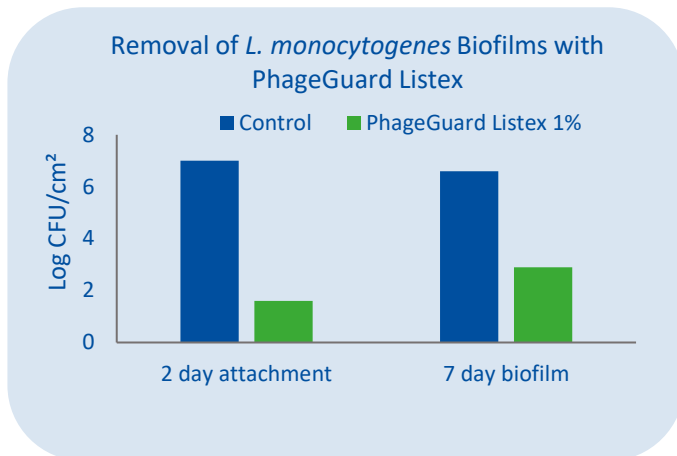


Figure 1. PhageGuard Listex reduces Listeria by 5.6 – 3.6 logs in newly formed or aged biofilm.

Scientific research by K. Soni *et al.* (2010), demonstrated the effectiveness of PhageGuard Listex on newly formed and aged Listeria biofilms on stainless steel (Figure 1) and R G. Reinhard *et al.* (2020), on Listeria contaminated Food Processing Environment surfaces such as stainless steel, conveyor belt material and epoxy flooring (Figure 2).

- **Biofilms:** PhageGuard Listex kills Listeria in newly formed or aged biofilms by 3.6 - 5.6 - logs (Figure 1).
- **Food Processing Environment surfaces:** In 3 hours, PhageGuard Listex reduces Listeria by 3.3 logs on stainless steel, - 2.8 logs on conveyor belts and 1.8 logs on epoxy flooring (Figure 2).

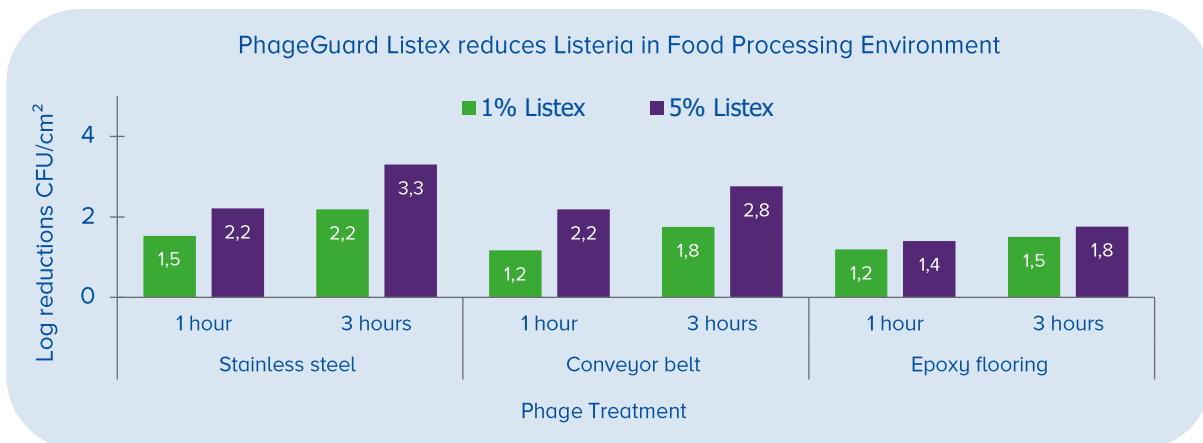


Figure 2. On Food Processing Environment surfaces, 5% PhageGuard Listex kills Listeria up to 2.2 – 3.3 logs on stainless steel, 2.2 – 2.8 logs on conveyor belt and 1.5-1.8 logs on epoxy flooring in 1 to 3 hours.

**For more information regarding this application data bulletin please use the following contact information:**

### Microos Food Safety B.V.

Nieuwe Kanaal 7p  
6709 PA Wageningen  
The Netherlands  
Tel: +31 (0)888 007 151  
info@microos.com

[www.phageguard.com](http://www.phageguard.com)