



## Antimicrobial Protection for Horse and Rider

### History of silver

For centuries silver has been used successfully to fight the bacteria that cause illness and degrade foodstuffs. In the past, silver coins were placed in earthen vessels to preserve milk. Today, refrigerators are lined with materials containing silver to meet hygienic requirements.

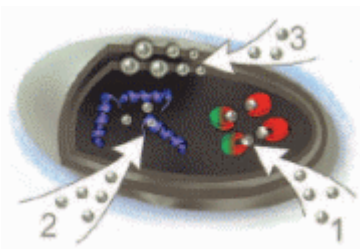
### Hygiene & Micro-Organisms

Micro-organisms are tiny life-forms that include bacteria and fungi. They exist when temperature and moisture allow and thrive on textiles worn next to the skin such as uniforms, nightwear, underwear and socks.

### How does SilverGuard work?

SilverGuard releases silver ions to control bacteria by means of a three actions:

1. Disrupts cell membrane
2. Deactivates the cell proteins
3. Disrupts the cell's DNA



They stop bacteria reproducing (which takes place every 20 minutes) so they die out in a relatively short space of time (95% after 2 hours).

### What about resistance?

Bacteria have not adapted to all three mechanisms and so have not become resistant to silver.

### How does SilverGuard Protection work?

The Silver ions are part of Silver Chloride which is carried by Titanium Dioxide. When in contact with moisture, the Silver Chloride releases the Silver Ions. Once Silver ions bond to microbes then more ions are released and an equilibrium is reformed.

### How long does it last?

The antimicrobial effects are virtually infinite because the equilibrium between Silver Chloride and Silver Ions occurs at very small quantities (stable at 3 parts per billion in solution). SilverGuard has been designed to remain active for as long as is required between washes (see below).

### How is it applied?

**SilverGuard** Protection is applied to clothing and textiles during the rinse cycle in a washing machine where it anchors itself to the yarn gaps. This makes the treatment microbiologically effective, with a 99.9% efficacy until the next wash without affecting the handle of the fabric.

### What does it protect against?

**SilverGuard** provides in excess of 99.9% reduction of bacteria, fungi, moulds and algae. It not only protects against bacterial infection but also inhibits the growth of odour causing bacteria thus providing long lasting freshness.

**SilverGuard** Laundry treatment protects against:

- MRSA
- Salmonella enteritidis
- Aspergillus nidulans
- Aspergillus amstelodami -
- Aspergillus niger
- Mucor racemosus
- Trychophyton mentagrophytes
- Penicillium chrysogenum
- Myceliophthora thermophila
- Saccharomyces cerevisiae
- Candida albicans
- Clostridium difficile
- Corynebacterium spp
- Corynebacterium minutissimum
- Enterobacter gergoviae
- Escherichia coli
- Klebsiella pneumoniae
- Listeria monocytogenes
- Proteus mirabilis
- Pseudomonas cepacia
- MRSA (resistant stem)

