Defensive™ Solutions

Product Information

Fabric Sanitizer

Using an EPA Registered, Residual, Self-Sanitizing Treatment for Healthcare Textiles

Reducing the incidence of cross-contamination in the healthcare setting is a primary objective of all cleaning processes, especially healthcare laundry. Killing bacteria in the washwheel is the first step in creating a "safety zone". If the proper procedures are followed, and the proper chemistry is utilized, the medical textiles should emerge from the washwheel "hygienically clean" (although there is not one universally accepted definition of this term, one commonly used is free of vegetative pathogens).

Medical textiles begin the recontamination process virtually the instant they are removed from the washer. They are handled by employees, placed into potentially contaminated carts, handled by workers wearing contaminated garments, staged in hallways where patients roam – and finally put into service where they will be contaminated with bodily fluids and every imaginable form of bacteria, virus and spore.

In this contaminated state they will be collected – by hand. Frequently stored temporarily in hallways, elevators, storage rooms… and then ultimately transferred back into the laundry – by hand. The opportunity for cross-contamination is greatest here – not in the washwheel. You need protection at the use-sites!

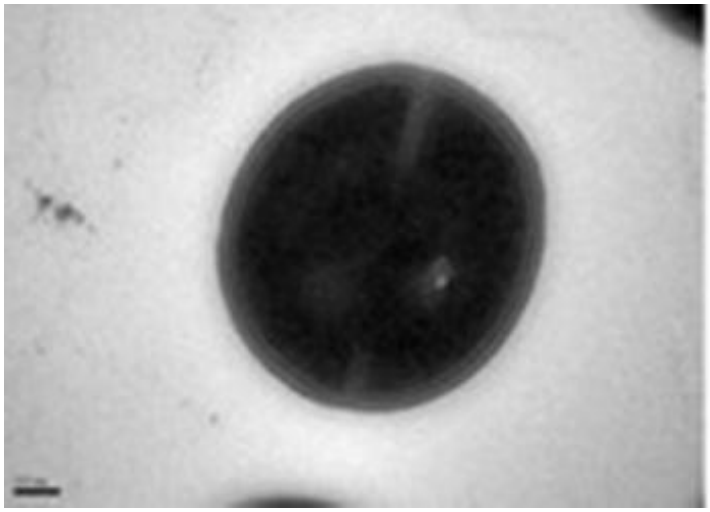
It has long been known that the use of an EPA Registered textile sanitizer with residual, self-sanitizing capabilities will create a **Zone of Inhibition**[1] on the surface of the fabric. This will kill 99.9% (at minimum) of newly acquired bacteria. Using a product like this, in addition to good and hygienic laundering practices, will insure that you are not only getting clean textiles out of the dryer but that you are significantly reducing the incidence of cross-contamination for patients, visitors and employees, during the use-cycle of these textiles.

How Does A Residual, Self-Sanitizing Finish Work?

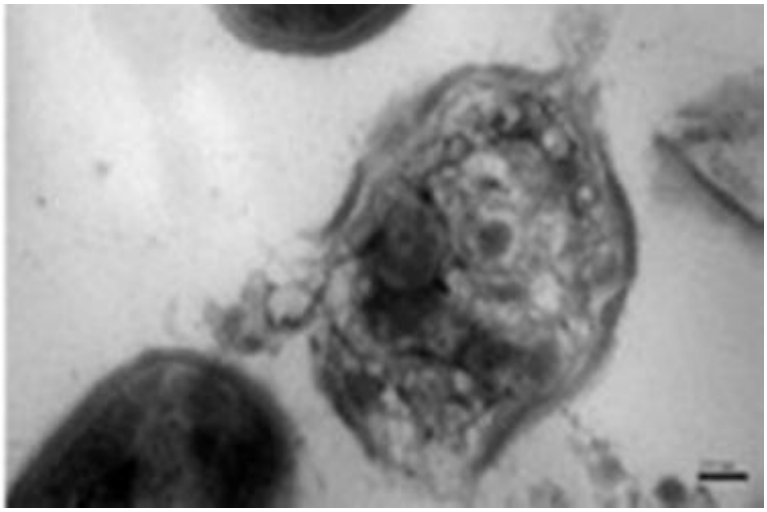
EPA Registered sanitizers for use on textiles are cationic quaternaries. These products electro-magnetically bond to the surface of the textiles and remain active until they are laundered again (laundering with an anionic surfactant will release the quaternary). These products exhibit broad-spectrum efficacy proven across a wide range of bacteria. These treatments will continue to kill **At Minimum 99.9%** of **Bacteria** that has been **Newly Acquired** from use and contamination.

Will Use of a Textile Sanitizer Foster the Creation of Resistant "Superbugs"?

Unlike antibiotics, textile sanitizers do not attempt to selectively eliminate only certain bacteria. These cationic quaternaries utilize their electro-magnetic charge to disrupt the molecular structure of the bacterial cell walls, causing the cell wall to lose its electromagnetic bonds – ultimately rupturing the cell wall. This inactivates bacterial multiplication (no-growth).



Normal Bacteria Cell



Bacteria Cell with Cell Wall Ruptured

This “broad-spectrum” mechanism is very important! Most in the medical community today believe that the recent proliferation of the “super bugs” and the antibiotic-resistant strains of bacteria are a direct result of attempts to be selective in the elimination of some bacteria while sparing others (antibiotics). Textile sanitizers are designed to eliminate all newly acquired bacteria on the surface. While some useful or harmless bacteria may be removed, this is essential in preventing mutations into super bugs.

HOW DO YOU TEST FOR A “ZONE OF INHIBITION”?

[1] *AATCC TM1479 is a qualitative, zone of inhibition test adapted from the Kirby-Bauer test used in the medical field for decades. Both JIS L 1902 and ISO 20743 have qualitative sections modeled on AATCC TM147.*

The bottom of a Petri dish is filled with nutrient agar that is streaked with the organism of interest. The test sample, a strip of fabric, is then placed over the streaks. For textile substrates AATCC Test Method 147 is used, where a length of fabric is placed across a series of five streaks on a pour plate. After incubating for 24 hours, the technician measures the width of the zone of inhibition to either side of the sample at the top streak. The GSA uses AATCC Test Method 174, Part I for qualitative testing of carpet. For solid plastic articles, a plate is streaked to provide a lawn, a cut piece of sample is placed on top of the streaked organism, and the sample is incubated for 24 hours. The technician then measures the average width of the zone of inhibition around the sample. Some antimicrobials, such as silver and quaternary ammonium silanes, have efficacy at the surface but do not diffuse at high enough rates to give a zone of inhibition.

Fig. 2 on the next page shows the results of an AATCC TM147 test (the light colored streaks are the bacterial organism). For the treated sample, the area of no growth at the sample edge is called the zone of inhibition and reported in millimeters. Some samples will not show a zone of inhibition, but the streaks will stop at the edge of the sample; as long as there is no growth under the sample, the result will be reported as a pass and is commonly referred to as contact inhibition. AATCC TM147 is quick (done over a 24-hour period), cheap, simple, and well-defined. Since the amount of antimicrobial present is usually based on the weight of the fabric, a light fabric may not show activity despite being appropriately treated, and diffusion seen in the test does not represent antimicrobial behavior in actual use. The method provides a nice visual demonstration of inhibition.

Figure 2
Transfer of the antimicrobial by skin contact has already been shown to be undetectable in the case of the most thoroughly-studied antimicrobial in the market.