



500

fabric protector

Residential/Consumer Instructions

1. Textile (clothing, linen, etc.) to be treated should be clean and free of residues (if in doubt, ensure textile is freshly laundered and rinsed without a fabric softener or bleach).
2. Prepare a washing machine or tub to treat the textile.
3. Prepare a solution of 3.2 oz. of Biospada 500 Fabric Protector per 1 lb. of dry textile (10 lbs = 32 oz.).
4. Add enough water to ensure that the textile will be fully covered and mix to disperse all of the Biospada 500 Fabric Protector solution.
5. Add the textiles slowly and stir to ensure that the textile is saturated with the Biospada 500 Fabric Protector solution.
6. Ensure the textile remains in contact with the Biospada 500 Fabric Protector solution for at least 30 minutes (75 minutes preferred) so the textile can absorb the protector.
7. Textile can be spun gently to remove excess solution. Remove textile and dry using a dryer on NORMAL to HIGH setting.
8. **DO NOT REUSE** left over solution, as the active Biospada 500 Fabric Protector solution will not be present in any useful quantity.
9. Dispose of leftover Biospada 500 Fabric Protector solution as indicated on labels and in accordance with local regulatory guidelines



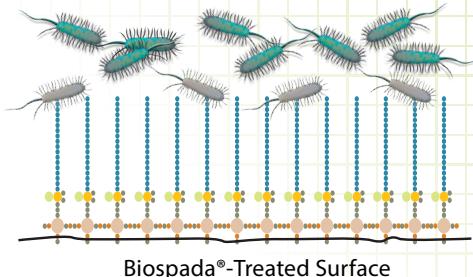
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TEXTILE TREATMENTS

The requirement for a fabric that will **control** the growth of **bacteria** and **fungi** is not new, and many different approaches have been tried over the years.

Most methods of controlling bacteria rely upon a "**poison**" to prevent them from multiplying. This "**poison**" is typically contained in either the fiber or in a finish applied to the fabric. To be effective, the "**poison**" has to be released slowly from the fabric, and it is eventually exhausted. The effective life depends on many factors, including washing conditions, and it is impossible to determine without sophisticated laboratory testing facilities.



There is also considerable concern amongst many medical and health specialists that the widespread use of these types of products could result in the creation, through mutation, of bacterial and microbial strains, often called "**super-bugs**", which are resistant to all existing antimicrobials.

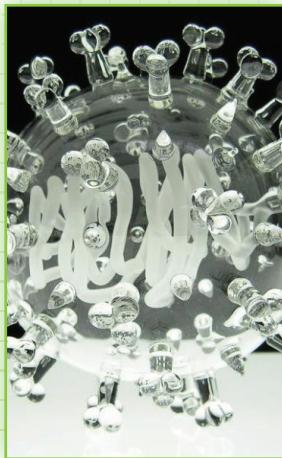
Recognizing both the requirement for an anti-bacterial fabric and the problems associated with it, Katan Technologies™ has developed a completely **new product** under the name of **Biospada® Antimicrobial Protector**, which can be applied to a wide range of textiles including acrylics, cotton, elastanes, nylons, polyester and various blends.

Unlike other products, Biospada does NOT rely on the slow release of an antimicrobial, but utilizes a **physical kill** mechanism that penetrates the cell wall of the microbe only on contact with it. Because it is not being continually released, it is not being used up and provides a **durable and effective** way of **protecting the fabric**.

Field trials followed by microbiological testing have shown that there is no reduction in effectiveness after 50 washes @ 85°C followed by tunnel finishing. For everyday Quality Control purposes, a simple stain test can be used to confirm the on-going effectiveness of the finish.

Biospada finishes are used in the textile, healthcare, and transportation, education and athletic markets and offer the following benefits:

Over 40 Years of Proven Effectiveness and Eco-Responsibility



- **Effective control** and growth **prevention** of a wide range of algae, gram positive and gram negative bacteria, fungi, mold, mildew, viruses and yeasts
- **Water-based** and **non-toxic** (EPA Class IV rating)
- **Eco-responsible** with no VOC issues or out-gassing
- Long-term durability on the surface
- Excellent **value** because of on-going effectiveness
- Easy stain test to confirm effectiveness
- Enhanced personal hygiene by the inhibition of odor-causing bacteria and fungi
- **No** known risk of causing **bacterial mutation**
- Meets **Oeko-Tex 100** standards
- **Global brand recognition**



FREQUENTLY ASKED QUESTIONS

What types of microbes does Biospada Antimicrobial Protector control?

Biospada is effective against nearly all algae, bacteria, fungus, mildew, mold and viruses.

What is the difference between Biospada and other antimicrobials on the market?

Conventional antimicrobials and biocides penetrate living cells and kill by way of poisoning the organism or disrupting a vital life process. They are designed to act quickly and dissipate quickly. Most commercial antimicrobials used for treating surfaces do an adequate job of killing bacteria and fungi, although most have a limited range of effectiveness. The Biospada technology takes a totally unique approach. It provides an effective microbial kill when applied, but, unlike the conventional methods, it also provides long-term control of growth on treated surfaces, often for the life of that surface. The surface itself is microscopically modified to make it an antimicrobially active surface.

What Fabrics can Biospada be applied to?

All fabric types including acrylics, cotton, elastanes, nylons, polyester and various blends. Wash durability tends to be better on synthetic blends as they lint less (shed fibers).

How long does the Biospada last?

Since the cured antimicrobial is nonvolatile, insoluble, and non-leaching, Biospada should last for the life of the treated surface. The life of a treated surface depends on a number of factors, not the least of which is surface preparation. If you treat a dirty or unstable surface, when the dirt comes off or the surface is disturbed, some of the antimicrobial will be removed with it. Abrasive or caustic ($\text{pH} > 10.5$) cleaners will also shorten effective life.

How does Biospada alter the other properties of the fabric?

Biospada adheres at the molecular level and forms an extremely thin film (typically 3 nanometers - a human hair is about 10,000 nanometers). This layer is so thin that it does not alter any of the physical properties such as appearance, color, hand, strength, etc.

How does the Biospada technology work?

The active ingredient in Biospada forms a colorless, odorless, positively charged polymer that molecularly bonds to your product's surface. You could think of it as a molecular layer of electrically charged swords on the surface. When a microorganism comes in contact with the treated surface, the molecular sword punctures the cell membrane killing the cell and as an added measure the electrical charge shocks the cell. Since nothing is used up to kill the now dead cell, Biospada doesn't lose strength and is ready for the next microbe.

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How do you determine if Biospada is present?

Biospada is based on an active ingredient that, in most cases, can be easily detected. A simple method of detection is available to demonstrate the presence or absence of the treatment. Bromophenol Blue (BPB) stain testing clearly shows the presence of Biospada in a matter of minutes.

How Eco-responsible is Biospada?

Biospada technology does not adversely affect the skin or environment - Since the antimicrobial is permanently bound to the surfaces it protects, it does not leach from the fabric to the skin or into the environment. Extensive toxicological testing shows the antimicrobial does not cross the skin barrier. Biospada does NOT contain any heavy metals. Tin, arsenic, silver and copper are often used in other antimicrobials.

Biospada does not give off gases after application. Biospada does not volatilize, dissipate, or leach onto other surfaces or into the environment. The chemistry polymerizes where it is applied and forms a permanent bond that typically lasts for the life of the treated surface. Normal cleaning should not remove the treatment, although it can be abraded away.

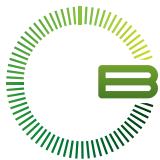
Biospada does not form "super bugs". Adaptation studies show that microbes do not adapt to Biospada and no "zone of Inhibition" develops. Therefore microbes cannot adapt to Biospada.

Can goods, treated with Biospada be chlorine bleached?

Yes. We have seen great results even after 50 washes in chlorine.

Can Biospada be washed off?

No. Biospada forms a permanent covalent or ionic bond to most surfaces and cannot be washed off or leach into the environment. For example, testing has proven that Biospada still provides 94% reduction of standard test organisms on polypropylene fabric through more than 50 launderings at 85° C (AATCC 61-4A).



BIOSPADA®

& Cotton Textiles

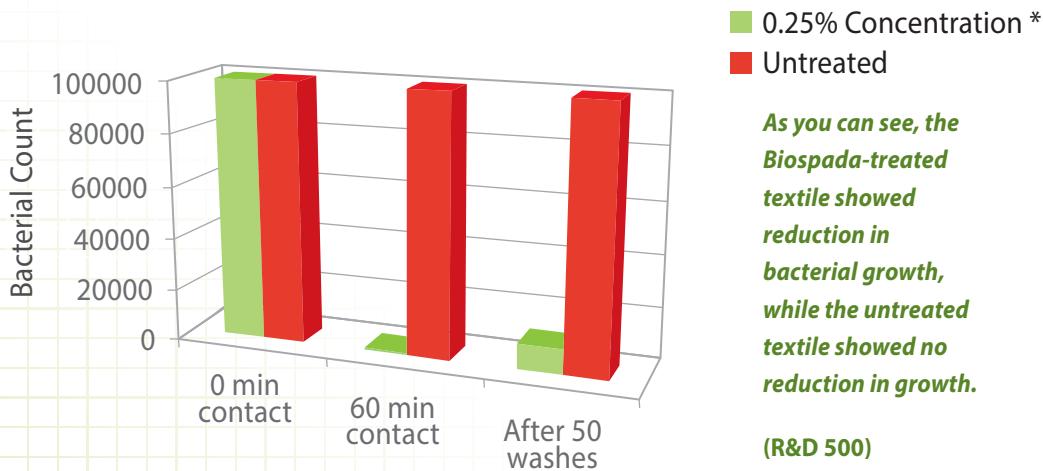
BIOSPADA® delivers a truly **durable, cost-effective, and eco-responsible** antimicrobial to the cotton textile market.

Introducing Katan Technologies: the long-lasting, water-based antimicrobial technology that protects your cotton textiles from bacteria, mould & mildew, viruses and fungi, yeast and viruses... a technology that does not release toxic chemicals or create "super-bugs" the way conventional cleaners and disinfectants do.

When exposed to warmth and moisture, residual nutrients on cotton textiles can provide an excellent environment for pathogens to grow, causing odour, staining, quality and durability deterioration, and sickness. After treatment with Katan Technologies, your products, your environments will be more resistant to the growth of microbes that can be hazardous to health and business such as mould, mildew, bacterial and viruses.

In the following lab study, Biospada antimicrobial has proven to be effective in protecting cotton textiles from bacterial growth:

R&D 500: Biospada-treated cotton textile challenged with 50 home launderings



* 0.25% of active ingredient on weight of goods



Why Biospada®, Why Now?

- **Safe**

What makes Biospada® safe? It is non-leaching.

- **Effective**

What is Biospada effective against? MRSA, VRE, Staph, Salmonella, E coli., and many more!

- **Green**

What makes Biospada green? It is water-based, non-mutagenic*, & it degrades to naturally-occurring elements.

- **Easy to Use**

How is Biospada applied? Spray, dip, soak, or wipe.

- **Durable**

How long does Biospada last? The antimicrobial protection remains between cleanings, or until removed by abrasion.

Biospada vs. the competition

Retail/Office Brand	Aplaus									
Commercial Brand	Biospada, Biospada Plus, Ovation									
Agricultural Brand	Nanospada, Verdespada									
Technology	S.P.A.D.A.	BZK, natural acids, DFE	Silver Salts, Nano-Silver	Micro-Copper	Heavy Metals	Triclosan	Phenols	Alcohol	Bleach	Oxidizing Agents
Toxicity Rating	Very MILD	Mild	Mild	Mild	HIGH	GROWING CONCERNs	HIGH	MEDIUM	MEDIUM	VARIABLES
Odour Reduction	YES	NO	YES	YES	YES	YES	YES	NO	YES*	YES
Durability	Essentially PERMANENT	NO	Up to 24 Hours	DURABLE	VARIABLES	NO	NO	NO	NO	NO
Green	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
Prevents Super Bugs	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO
Prevents Cross-Contamination	YES	NO	UNLIKELY	UNLIKELY	UNLIKELY	UNLIKELY	UNLIKELY	UNLIKELY	UNLIKELY	NO
Water-Based	YES	YES	YES	NO	NO	NO	NO	YES	YES	VARIABLES

* distinctive residual chlorine odour

Your Brand Benefits:

- **Superior Performance** - Adding Biospada to cotton products results in superior product performance, durability and perceived value.
- **Competitive Advantage** - Adding Biospada to cotton products sets the standard ahead of the competition.
- **Brand Promise** - Your Brand will deliver on innovation and high value.