



ANTI-VIRAL



ANTI-BACTERIAL



ANTI-MICROBIAL



DEFENSIVE FIBERS

PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS

WELCOME

to today's Expert Talks Live Webinar Series

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS

As protective materials will become central to everyday living let's talk about anti-viral, anti-bacterial, anti-microbial as well as defensive fibers and treatments.”

created for „FUNCTIONAL FABRIC FAIR“

powered by PERFORMANCE DAYS

February 23, 2021

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

WHY ARE WE TALKING ABOUT ANTIVIRAL, ANTIBACTERIAL, ANTIMICROBIAL AND DEFENSIVE FIBERS AND FINISHES TODAY?

The challenges of a virus were never as present as in the year 2020 when Covid-19 became a global pandemic. Keeping social distance is now a daily routine in almost every country. Masks are the new "must-haves" and gloves represent a fashionable accessory to protect one-self against the invisible danger. Anti-microbial and anti-viral treatments applied to textiles are a further way of taking hygienic precaution not only in the health sector, but especially in daily life.

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

WHY ARE WE TALKING ABOUT ANTIVIRAL, ANTIBACTERIAL, ANTIMICROBIAL AND DEFENSIVE FIBERS AND FINISHES TODAY?

I think these topics will play a big role in our future in textiles and materials.

This webinar serves to get an insight into the currently four most important areas for human health. It is not scientifically based but informative.

For myself I learned with so much enthusiasm during the research for this webinar.

I hope I can pass on the interesting essence today.

In order to not drag out this webinar I sometimes will list the options but present only one example in a category.

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

OVERVIEW

ANTI-VIRAL

In view of rising case numbers worldwide and reports of a lack of equipment and supplies, many textile research institutes and textile companies are working on new technical approaches to effectively combat the spread of viruses and bacteria.



ANTI-BACTERIAL

Antibacterial technologies are effective against a wide range of harmful bacteria, such as E. coli and MRSA. They usually contain active silver ingredients, so they can be used successfully in a wide range of product types.

ANTI-MICROBIAL

Antimicrobial technologies prevent bacteria, mold, and fungi. Compared to antibacterial agents, antimicrobial substances offer a higher level of protection. Thanks to their broad-spectrum effect, antimicrobial substances are ideal for use in environments where attention must be paid to hygiene. Typical active ingredients include silver or zinc.



DEFENSIVE FIBERS

The spotlight is on healing, anti-aging, defense, restoring, beauty, and wellness. Here we speak about protection from radicals, cellulite reduction, particular next-to-skin softness or other intelligent properties.

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

ANTI-VIRAL OVERVIEW

ANTI-VIRAL

Intro: In view of rising case numbers worldwide and reports of a lack of equipment and supplies, many textile research institutes and textile companies are working on new technical approaches to effectively combat the spread of viruses and bacteria.

Interesting insight: In the coronavirus pandemic, numerous products are currently being advertised with supposedly anti-viral textiles. However, since advantages have not been proven and disadvantages are to be feared, experts advise against it.

Experts say: Anti-viral finishes applied in clothing production should be coordinated with the manufacturer of the treatment for each country individually according to their regulations.



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

ANTI-VIRAL OPTIONS

ANTI-VIRAL

ANTI-VIRAL OPTIONS:

HeiQ: V-Block

<https://heiq.com/products/functional-textile-technologies/heiq-v-block/>

Polygiene: ViralOff®

<https://polygiene.com/viraloff/>

Devan: BI-OME AV

<https://devan.net/antimicrobial-viral-reducing/>

LIGC Applications: G-Volt

<https://product.statnano.com/product/11700/guardian-g-volt>

Carrington Textiles: Antiviral Finish

<https://www.carrington.co.uk/en/fabrics/finishes/>

Fulgar: Q-SKIN® powered by
AMNI® VIRUS-BAC OFF

<https://www.fulgar.com/eng/products/q-skin-1>

Sonovia

https://sonoviatech.com/the_technology/

Virustatic Shield

https://www.virustaticshield.com/?gclid=EAlaIQobChMILeeuO3_7gIVhN1RCh3V5AlrEAAYASAAEgKbDPD_BwE



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

CHEMICAL ANTI-VIRAL COATING

ANTI-VIRAL

The highly infectious SARS-CoV-2 virus is transmitted by droplets that are released into the environment when people speak, sneeze, or cough. When we move around in public places, these droplets can land on our clothes. And it is through our clothes that they can also end up contaminating our hands and objects. However, this is far more disastrous in the healthcare sector.

<https://innovationorigins.com/antiviral-coating-on-textiles-destroys-sars-cov-2-virus-2/>



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

CHEMICAL ANTI-VIRAL COATING

ANTI-VIRAL

The SARS-CoV-2 virus remains active on textiles for up to two days, Carlo Centonze explains. He is CEO of the Swiss HeiQ Group. The company is focused on specialized textiles and the CEO is determined to play his part in containing the SARS-CoV-2 virus. His research department developed a new type of antiviral coating for textiles.

<https://innovationorigins.com/antiviral-coating-on-textiles-destroys-sars-cov-2-virus-2/>



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

CHEMICAL ANTI-VIRAL COATING

ANTI-VIRAL

This destroys bacteria as well as *viral envelopes*.
Examples of viral envelopes are the coronaviruses 229E and SARS-CoV-2, both of which cause COVID-19.
Centonze explains further: “Medical equipment is already being coated with antimicrobial substances in order to reduce the risk of infection. Healthcare fabrics have never been coated before, but now there’s a huge demand for it.”



<https://innovationorigins.com/antiviral-coating-on-textiles-destroys-sars-cov-2-virus-2/>

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

CHEMICAL ANTI-VIRAL COATING

ANTI-VIRAL

The anti-viral coating can be applied to all types of fibers and non-woven fabrics. This opens up a wide range of applications in the medical field alone, such as protective masks, gowns, air filters, curtains, etc. In addition, the virus blocker can also be applied to fabrics for daily wear and interiors. The antiviral effect of washable fabrics has been verified for over 30 gentle laundry cycles. Centonze states that the coating can also be replaced.



<https://innovationorigins.com/antiviral-coating-on-textiles-destroys-sars-cov-2-virus-2/>

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL ANTI-VIRAL COATING

ANTI-VIRAL



A natural substance called silvestrol, which is extracted from mahogany plants, can repel pathogens such as the Corona virus, as well as Ebola, Lassa or Zika viruses.



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL ANTI-VIRAL COATING

ANTI-VIRAL

"We investigated the effect of silvestrol on human cells infected with the Ebola virus under the highest safety precautions," explains Professor Arnold Grünweller, who teaches pharmaceutical chemistry in Marburg/ Germany.

Silvestrol causes the virus concentration in the cells to drop sharply and the proteins of the viruses to disappear almost completely.



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL ANTI-VIRAL COATING

ANTI-VIRAL

In addition, the natural substance proved to be non-toxic to human cells.

This has qualified Silvestrol as a promising agent in the fight against Corona, Ebola, Lassa and Zika infection.

"It remains for future studies to confirm a broad-spectrum antiviral effect of Silvestrol," Grünweller says.



ANTI-BACTERIAL

Intro: Antibacterial technologies are effective against a wide range of harmful bacteria, such as E. coli and MRSA. They usually contain active silver ingredients, so they can be used successfully in a wide range of product types.

Interesting insight: How does the smell of sweat actually arise? When we sweat, we excrete through the skin not only water but also other substances that the body wants to get rid of. The bacteria on the skin, for example under our armpits, take care of these. The strong odor only develops when the bacteria on the skin break down the sweat into its individual components and digestive gases are formed. The unpleasant smell of sweat is therefore nothing more than bacteria farts...

Experts say: Care should be taken when handling usual silver treatments, as many beneficial bacteria can also die in the circuit. There are many smarter options where bacteria growth is just stopped.

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

ANTI-BACTERIAL OPTIONS

ANTI-BACTERIAL

ANTI-BACTERIAL OPTIONS:

Polygiene: Biostatic

<https://polygiene.com/biostatic/>

Devan: Odour Breakdown®

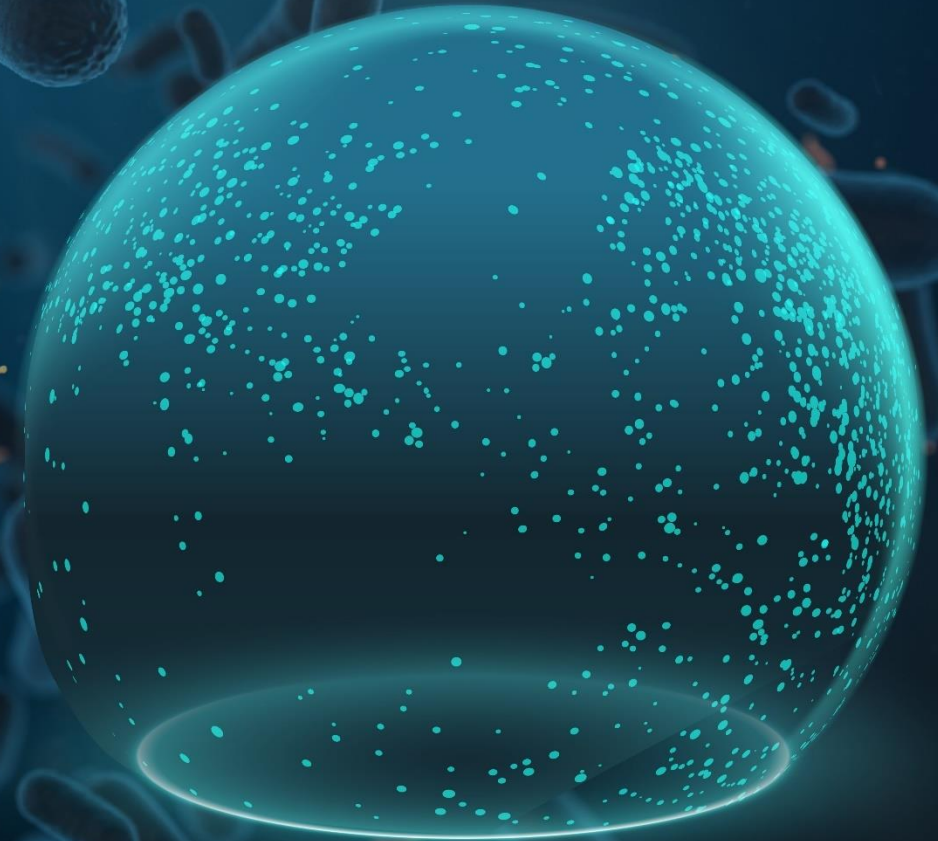
<https://devan.net/odour-breakdown/>

Fulgar: Q-SKIN®

<https://www.fulgar.com/eng/products/q-skin>

Carrington Textiles: „Sanitized®
Silver“

<https://www.carrington.co.uk/en/fabrics/finishes/>



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

SMART BIOSTATIC ANTI-BACTERIAL SILVER TECHNOLOGY

ANTI-BACTERIAL

Biostatic stays fresh technology by Polygiene

The treatment stops the growth of odor-causing bacteria in the material. As several treatments can be simultaneously applied at the finish stages of the fabric production process, no additional water or energy is needed and the impact on the environment is reduced.

What are the benefits of Biostatic stays fresh technology?

The silver salt (AgCl, silver chloride) in Biostatic inhibits and guards against the growth of odors from bacteria and fungi.

Polygiene biostatic stays fresh technology has the approvals and certifications relevant for textiles: EPA, BPR, REACH, bluesign®, and Oeko-tex Eco Passports and treated products can be recycled.

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

SMART BIOSTATIC ANTI- BACTERIAL SILVER TECHNOLOGY

ANTI-BACTERIAL

What is Biostatic stays fresh technology and how does it work?

It is based on silver salt (silver chloride). Silver chloride is naturally present in water and soil.

Its particles have a large number of silver ions per surface area. Due to the structure of the particles, very small amounts of silver salt are needed.

Polygiene is in most cases co-applied with other treatments to the fabric during the finishing stage. This helps minimize the impact on the environment because additional energy or water isn't required.

Any effects when worn next to skin?

Polygiene has a background in the healthcare sector and the treatments have undergone extensive skin sensitivity testing.

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL ANTI-BACTERIAL OPTIONS

NATURAL FIBERS

Wool / GOTS or RWS/ Merino wool/ Alpaca/ Yak

Wool has become Mother Nature’s miracle fiber with multiple benefits. It is an excellent insulator and regulates the body’s temperature. A woolen sweater will keep you cozy and warm by trapping air between its fibers without overheating the wearer. Wool is hygroscopic and hydrophobic at the same time. This means wool can easily absorb and release moisture and can absorb vapor at up to 36% of its dry weight without feeling damp or clammy (which is twice as much as cotton and thirty times as much as polyester). It allows moisture (perspiration) from the body to evaporate (wick) through the fabric. This helps keep the skin dry and comfortable.

ANTI-BACTERIAL

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL ANTI-BACTERIAL OPTIONS

NATURAL FIBERS

Wool / GOTS or RWS/ Merino wool/ Alpaca/ Yak

At the same time wool is naturally water-repellent. The waxy cuticle of the fiber does not allow water molecules to pass. Wool's capacity to absorb moisture and to wick away water prevents the build-up of bacteria and has therefore natural anti-odor properties. The fiber even has self-cleaning and dirt neutralization properties. Wool retains its shape, is durable and wrinkle resistant.

ANTI-BACTERIAL

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL ANTI-BACTERIAL OPTIONS

ANTI-BACTERIAL

PLANT FIBERS

Kapok

Kapok fiber is a natural and soft silky cellulosic fiber with a significantly homogeneous hollow tube shape, offering great thermal insulation. Eco-friendly brands use it as an alternative padding to down and synthetic fibers, referring to it as ‘plant-down’. Kapok is one of the few sustainable rainforest products due to the fact that it grows naturally in the rainforest and does not require tending to and upkeep by humans. It is also wild-harvested, and kapok does not need to be treated with chemicals, as it is naturally healthy and safe. Kapok fibers are strong and durable. The fiber is naturally hypoallergenic, anti-microbial, and dust mite-resistant. The kapok fiber naturally repels moisture, giving it great drying times and making it unsuitable for mold, mildew, and bacteria to thrive in.

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“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL ANTI-BACTERIAL OPTIONS

ANTI-BACTERIAL

PLANT FIBERS

Hemp

Apart from the environmental advantages of hemp, such as no necessity for irrigation & herbicides in cultivation, hemp is inherently antimicrobial - as little as 15% hemp combined with a neutral material such as polyester will kill 99.9% of present staph bacteria. In blends with cotton, it will fully inhibit further bacteria growth. Hemp is thermo-conductive and therefore feels very cool on the skin. It is a very light and strong natural fiber at the same time; it is resistant to degradation from sun and salt water and can protect the user from UV radiation. As a partially hydrophobic fiber, it naturally repels water.

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“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL ANTI-BACTERIAL OPTIONS

ANTI-BACTERIAL

PLANT FIBERS

Linen/Flax

The main benefit of wearing linen is the coolness it provides during hot weather. It has excellent heat conductivity properties, as linen quickly allows heat to escape. It is claimed that the heat conductivity of linen (which is similar to hemp) is 5 times higher than wool and 18 times higher than silk. Alongside its cooling qualities, linen has excellent hygroscopic properties and can absorb up to 20% of its weight and yet still remain dry. Linen is renowned for its durability, being twice as durable as cotton. With its resistance to fungi and bacteria, it is naturally anti-odor and it is anti-allergenic.

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL ANTI-BACTERIAL OPTIONS

ANTI-BACTERIAL

PLANT FIBERS

Abaca (Manila Hemp/paper-yarn)

Known as Manila Hemp, abaca is a leaf fiber belonging to the banana plant family. The plant has great economic importance, being harvested for its fiber extracted from the leaf-stems. Abaca is one of the strongest natural fibers. The abaca plant grows without the need for large amounts of water or pesticides. It helps stop erosion, and is now being used to replace fossil fuels in clothes. The fibers are pulped and then made into a thin but strong paper. The paper is then cut into thin strips and twisted into a fine yarn. The result is a soft and very lightweight, but also strong, resilient and long-lasting fabric, which has antibacterial, thermoregulation and moisture control properties.

Furthermore, Abaca protects from UVA and UVB rays without additional fabric treatment.

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL ANTI-BACTERIAL OPTIONS

ANTI-BACTERIAL

ORGANIC- & MINERAL BASED INGREDIENTS

Oyster-Shell (food waste)

The so-called »seawool« fabric is made from upcycled oyster shell, which is sustainably collected from oyster farms in Taiwan, and embedded in recycled polyester from PET bottles. Seawool naturally prevents odor caused by bacteria growing on the fabric, keeping the fabric and garment smelling fresher. Seawool is antistatic, soft to the touch and provides natural insulation, keeping the body warm in cold temperatures.

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL ANTI-BACTERIAL OPTIONS

ANTI-BACTERIAL

ORGANIC- & MINERAL BASED INGREDIENTS

Activated carbon

Activated carbon with its billions of micropores, has a very huge »internal surface« with remarkable moisture absorption and odor control properties. It can be applied on the surface of the fabric by direct application and also by embedding the particles into the fiber. Activated carbon can be generated from various raw materials such as wood, coal, coconut or also rice husk. It is a natural renewable resource derived mostly from food waste. It keeps clothes comfortable, fresh and odor-free.

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL ANTI-BACTERIAL OPTIONS

POLYMERS MADE OF GENERATED PROTEIN FIBERS

Milk fiber

Milk protein fibers are synthetically produced from the milk »casein«. Milk fibers are 100% natural, soft and smooth, and possess temperature regulation properties. With a natural antibacterial effect and high hydrophilicity, they are especially skin friendly and ideal for wearers with sensitive skin. Originally, milk fibers were not manufactured in a particularly eco-friendly manner, nowadays the milk fiber QMILK® is developed from the casein of non-food milk (food waste) in a more eco-friendly and sustainable process by using the by-product of milk production, and refraining from the use of chemicals. To gain 1kg of QMILK® fiber, only 2 liters of water are required, whereas in contrast, 10,000-25,000 liters of water are needed in order to get 1 kg of cotton.

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ANTI-BACTERIAL

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL ANTI-BACTERIAL OPTIONS

ANTI-BACTERIAL

PLANT-BASED INGREDIENTS

Roasted coffee grounds (consumer waste of coffee)

The coffee bean swells while being roasted, which means that the space inside the bean expands. These micropores of roasted coffee grounds absorb odors and reflect UV-rays. In their S.Café® fabric technology, Singtex integrates coffee grounds into the surface of polyester yarn, changing the characteristics of the filament, offering up to 200% faster drying times compared to cotton.

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL ANTI- BACTERIAL OPTIONS

ANTI-BACTERIAL

Odor Crunch[©]

Catalyzed silica captures and breaks down unpleasant odors – originating from the body, cigarette smoke, cooking fumes or other smelly environments. For instance, the Polygiene Odor Crunch[©] technology consists of silica, the main ingredient in sand, modified with a unique catalyst: It works in a 2-step odor eliminating process. The odor molecules will first stick to the modified silica particles in Odor Crunch. Once the odor molecules are adsorbed, they will be catalytically then cracked and broken down and the offensive odor is permanently eliminated. Polygiene Odor Crunch Technology is free of biocides.

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

ANTI-MICROBIAL IN FIBERS & TREATMENTS

ANTI-MICROBIAL

Intro: Anti-microbial technologies prevent bacteria, mold, and fungi. Compared to antibacterial agents, antimicrobial substances offer a higher level of protection. Thanks to their broad-spectrum effect, antimicrobial substances are ideal for use in environments where attention must be paid to hygiene. Typical active ingredients include silver or zinc.

Interesting insight: Due to their surface structure, textile clothing provides an ideal breeding ground for microbial germ formation. Previous methods represent a high environmental burden and are harmful to health. The use of photodynamic inactivation (PDI) of bacteria represents an alternative to these antimicrobial finishes commonly used to date. The physical mechanism is based on the action of light in the visible spectrum on a dye acting as a photosensitizer in the presence of oxygen and the consequent generation of singlet oxygen.

Definition: An antimicrobial is any substance that inhibits the growth of microorganisms.



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

ANTI-MICROBIAL IN FIBERS & TREATMENTS

ANTI-MICROBIAL

TREATMENT

There are various methods for antimicrobial finishing: Silver threads are wound around a second carrier yarn during twisting. The silver thread also has a cooling effect when worn on the body in a textile.

In melt spinning, silver ions can be added to the liquid polymer melt. This creates synthetic fibers that inhibit odor in addition to their ability to quickly wick away moisture. Because the silver ions are contained in the fiber, they are not washed out as quickly as when they adhere to the surface.



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

ANTI-MICROBIAL IN FIBERS & TREATMENTS

ANTI-MICROBIAL

TREATMENT

The finished textile can be treated with bactericidal substances.

However, these are washed out relatively quickly.

According to recent research, special algae (*Chlorella vulgaris*, *Spirulina platensis*, *Lithothamnium calcareum* and brown algae) can be used, which are able to coat metal ions. These algae-metal complexes, bound in a sol-gel matrix, can thus be applied to textiles. Treatment with an active ingredient extracted from neem oil is also possible.



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

ANTI-MICROBIAL OPTIONS

ANTI-MICROBIAL

ANTI-MICROBIAL OPTIONS:

Trevira: BIOACTIVE	https://www.trevira.de/en/trevira-brands-the-seal-of-quality-for-functional-textiles/trevira-bioactive
Devan: BI-OME	https://devan.net/antimicrobial-viral-reducing/
Fulgar: Q-SKIN®	https://www.fulgar.com/eng/products/q-skin
HeiQ: HeiQ Pure & HeiQ Fresh	https://heiq.com/products/functional-textile-technologies/heiq-pure/
Sonovia	https://sonoviatech.com/the_technology/
Milliken Textiles: BioSmart™ Technology	https://textiles.milliken.com/products/biosmart-technology
Microban: SilverShield® Technology	https://www.microban.com/blog/silvershield-silver-based-antimicrobial



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

TREVIRA BIOACTIVE ANTI-MICROBIAL TREATMENT

ANTI-MICROBIAL

TREATMENT

Trevira

Trevira Bioactive forms the basis for fabrics with permanently bioactive properties. These properties prevent bacteria multiplying in or on the fibre and so improve hygiene. Trevira Contains an active substance with permanently anti-microbial effect.

The familiar functions of Trevira fabrics, such as their low-pill, elastic, hard-wearing, breathable or heat-regulating properties, remain unchanged. But now they're joined by a welcome new addition to the team – Trevira Bioactive's antimicrobial effect. The antimicrobial function is created through the use of bioactive Trevira fibres. Trevira Bioactive textiles made with these fibres contain built-in protection against micro-organisms. Trevira Bioactive fibres protect textiles through minimising the growth of bacteria in and on the fabric.



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL ANTI-MICROBIAL OPTIONS

ANTI-MICROBIAL

PLANT FIBERS

Hemp

Apart from the environmental advantages of hemp, such as no necessity for irrigation & herbicides in cultivation, hemp is inherently antimicrobial - as little as 15% hemp combined with a neutral material such as polyester will kill 99.9% of present staph bacteria. In blends with cotton, it will fully inhibit further bacteria growth. Hemp is thermo-conductive and therefore feels very cool on the skin. It is a very light and strong natural fiber at the same time; it is resistant to degradation from sun and salt water and can protect the user from UV radiation. As a partially hydrophobic fiber, it naturally repels water.



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NATURAL ANTI-MICROBIAL OPTIONS

ANTI-MICROBIAL

PLANT FIBERS

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“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL ANTI-MICROBIAL OPTIONS

ANTI-MICROBIAL

BIO-BASED MAN-MADE FIBERS

Microsilk™

Microsilk™ is a silk-like biosynthetic fiber made by the company Bolt Threads. Microsilk™ is made through a process of fermenting water, yeast and sugar with spider DNA.

Bolt Threads began by studying silk proteins spun by spiders to determine what gives them their incredible properties - including high tensile strength, elasticity, durability and softness.

It also offers antimicrobial skin-friendly comfort.

<https://boltthreads.com/technology/microsilk/>



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

DEFENSIVE FIBERS & TREATMENTS

DEFENSIVE

Intro: The spotlight is on healing, anti-aging, defense, restoring, beauty, and wellness. Here we speak about protection from radicals, cellulite reduction, particular next-to-skin softness or other intelligent properties.

Interesting insight: In these times of a new work-life balance, self-care as well as the focus on physical and mental wellness, we welcome innovative approaches for sustainability and more purpose values in fabrics.

Brands will be able to satisfy their health and beauty conscious consumers by boosting benefits achieved by adding vitamins, minerals, amino acids, argan oil, aloe vera, collagen and so on.

Experts say: Large growing sector, defense also towards pollution protection (materials that filter air, absorb carbon or self-clean toxins will prepare us for environments that are already being altered by climate change), airborne illnesses and very important insect-repellent (global temperature rise might lead to tropical, mosquito-borne diseases such as malaria, dengue and yellow fever).



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

DEFENSIVE OPTIONS

DEFENSIVE

DEFENSIVE OPTIONS:

Tecnofilati: Resistex® Carbon

<https://resistex.com/en/carbon/>

Evertech Envisafe Ecology

<https://www.etese.com/en/product-c63285/Activated-Carbon-Fiber-Materials.html>

Directa Plus: G+

<https://www.directa-plus.com/>

Smartfiber AG: SeaCell™

<https://www.smartfiber.de/en/seacell-fiber/>

Smartfiber AG: smartcel™ sensitive

<https://www.smartfiber.de/en/smartcel-fiber/>

Umorfil®

<https://www.umorfil.com/>

Swicofil: CRABYON®

<https://www.swicofil.com/commerce/brands/various/crabyon>

Lenzing: TENCEL™

<https://www.lenzing.com/products/tencel™>

Bolt Threads: B-SILK™ PROTEIN

<https://boltthreads.com/technology/silk-protein/>



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

DEFENSIVE CARBON TREATMENT

DEFENSIVE

DEFENSIVE CARBON YARN

Resistex® Carbon

Resistex® Carbon is a yarn by the unique technical characteristics, obtained by the union of textile fibers with a continuous filament of conductive material based on active carbon.

Beyond the physical prowess, the competitive motivations and the ability to analyze competitive situations, the right yarn can also make the difference. It is in fact shown that Resistex® Carbon increases the technical performance of sportswear, guaranteeing muscular hold protection for the athlete against the external environment. Especially in high temperatures and resistance tests, the conductivity of the Resistex® Carbon yarn stabilizes the external environment, favoring athletic performance over the medium to long term, if compared to adversaries wearing a fabric without those properties.



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL DEFENSIVE OPTIONS

DEFENSIVE

PLANT FIBERS

Abaca

Known as Manila Hemp, abaca is a leaf fiber belonging to the banana plant family. The plant has great economic importance, being harvested for its fiber extracted from the leaf-stems. Abaca is one of the strongest natural fibers. The abaca plant grows without the need for large amounts of water or pesticides. It helps stop erosion, and is now being used to replace fossil fuels in clothes. The fibers are pulped and then made into a thin but strong paper. The paper is then cut into thin strips and twisted into a fine yarn. The result is a soft and very lightweight, but also strong, resilient and long-lasting fabric, which has antibacterial, thermoregulation and moisture control properties. Furthermore, Abaca protects from UVA and UVB rays without additional fabric treatment.



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL DEFENSIVE OPTIONS

DEFENSIVE

PLANT-BASED INGREDIENTS

Algae/seaweed – SeaCell™

Seaweed is pure and rich in essential substances such as vitamins, trace elements, amino acids and minerals. The substances found in seaweed hydrate the skin and help to activate cell regeneration, which in turn can help to relieve skin diseases, reduce inflammation and soothe itchiness. Its high level of antioxidants protects the skin against harmful free radicals, which damage our skin cells. Ingredients of Seaweed are for example embedded in SeaCell™LT and MT – a Lyocell-based wellness fiber using raw and organic algae from Iceland. The collect of seaweed is certified as sustainable harvesting. The natural moisture level of the skin enables an active exchange of those beneficial substances between the fiber and the skin, providing a noticeable sense of wellbeing.



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL DEFENSIVE OPTIONS

DEFENSIVE

PLANT-BASED INGREDIENTS

Aloe Vera

The soothing and anti-microbial properties of aloe vera help to disinfect wounds and are popularly used in helping to heal sunburn. It is renowned for its hydrating properties and is a fantastic source of vitamins C and E, which are renowned for their ability to help protect the body against potential harm from free radical molecules. Aloe vera promotes the production of collagen to keep skin healthy, and has resultantly, anti-aging properties. The Aloe Vera provides the fabric a soft touch, with silky features. The functional fabric brand M.I.T.I spa has created, for example, a fabric collection with embedded natural ingredients such as aloe vera and caffeine by using the cosmetic fibers from NOVAREL. They combine the benefits of compression with the functions derived from the embedded natural extracts in the yarn, e.g. by combining the compression of a high stretch warp knit fabric with molecules of caffeine to help control the orange peel effect and cellulite.



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL DEFENSIVE OPTIONS

DEFENSIVE

PLANT-BASED INGREDIENTS

Argan Oil

Originating from the fruit of the argan spinosa tree from Morocco, argan oil contains vitamin E and fatty acids offering numerous benefits for skin protection, creating a feeling of comfort and hydration which helps fight against dry skin.



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

NATURAL DEFENSIVE OPTIONS

DEFENSIVE

PLANT-BASED INGREDIENTS

smartcell™ sensitive

smartcel™ sensitive is skin friendly thanks to zinc oxide's soothing and anti-inflammatory capabilities. This is especially useful for people with sensitive skin or skin conditions such as eczema or neurodermitis.

Clinical studies with home textiles and underwear have proven that smartcel™ sensitive provides relief to people with eczema, allergies, neurodermatitis etc.

Zinc oxide also acts as a shield against harmful UVA and UVB radiation, which can damage our skin cells. Depending on the percentage of smartcel™ sensitive used in any garment, it can provide UPF 50+ (Standard AS/NZS 4339:2017).



ORGANIC- & MINERAL BASED INGREDIENTS

Ocean Collagen – Umorfil®

Ocean collagen peptide made of upcycled fish scale (food waste) has moisturizing, hypo-allergenic and natural deodorizing properties: The Taiwanese textile company UMORFIL has created a fiber out of recycled fish scale food waste and upcycled it into textile ingredients, creating at the same time a skin-friendly material suitable for hypoallergenic skin. The collagen peptide of the recycled fish scales can be embedded in polyester (Umorfil T), in nylon (Umorfil N6) and in viscose (Umorfil Beauty Fiber).



“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”



The audience has certainly noticed that these are indeed complex topics for the textile sector. The listing does not claim to be complete. Many developments are not shown in this overview. There will certainly be many further developments in the near future. We are considering a detailed extension for the next exhibition and would like to invite companies that are involved in fibers and finishing developments in the four directions to contact us to complete or improve the informative overview of today. This is about sharing, learning together and applying the right options in our collections to serve the consumer at its best possible way.

Now let's take a look at the fabrics:

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

EXAMPLES OF FABRIC FORUM

ANTI-VIRAL



HWA FUNE

W-4843-A32

Anti-viral 4-way stretch fabric

192g

88% Polyamide, recycl., 12% Elastan/Spandex

LDWR is an innovative chemical developed by Hwa Fune that not only extends the water repellency function, but also prevents the transmission of virus and bacteria in daily life whether you are running, biking, commute between office and home or for outdoor activities



MONOTEX

SMR-177AV

Outer Layer with ViralOff® by Polygiene

225g

57% Organic Cotton, 43% recycl. Polyester

Recycled polyester and organic cotton Dobby, finished with Anti-viral treatment by Polygiene and a PFC-free water-repellent.



LONG ADVANCE

LNR-19016-11C

Woven Rip-stop fabric

99g

100% Polyamide

The WR is with Viroblock treatment by HeiQ. With the anti-viral and anti-microbial protection, you can feel safe in your clothes.



NEW WIDE

CD231459

Anti-viral Rib

257g

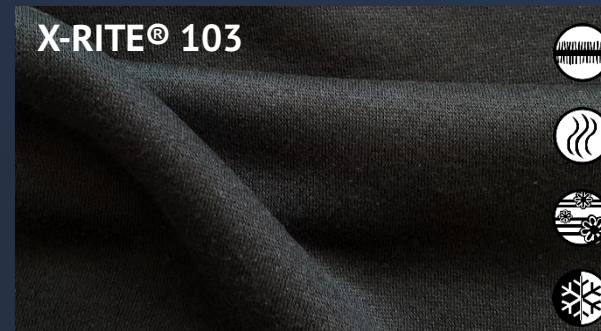
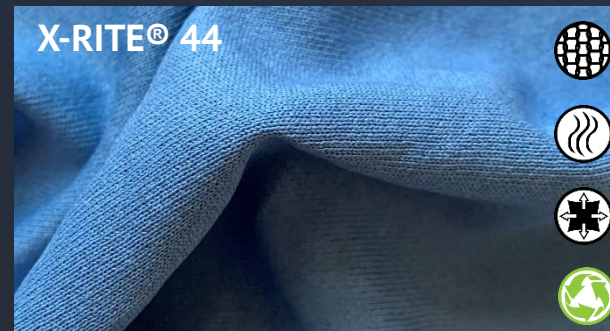
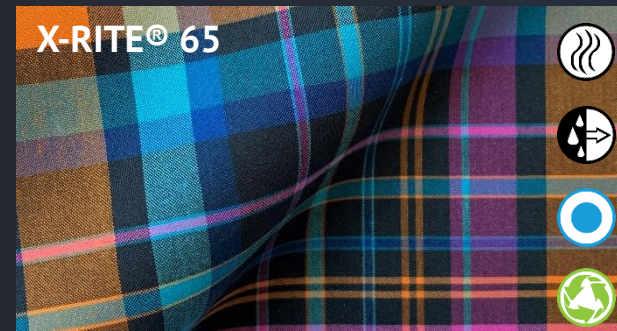
96% Cotton (BCI-certified), 4% Elastan/Spandex

The anti-viral additive can effectively inhibit the growth of virus including H1N1 and H3N2 Viruses, By attacking the virus envelope formed by proteins and polysaccharides. The defense effect does not decrease due to washing times, and it has good safety and is harmless to the human body. The cotton blend feels natural, dry, soft and comfortable, and is most suitable for stay home style.

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

EXAMPLES OF FABRIC FORUM

ANTI-BACTERIAL



SHINKONG TEXTILE
RS-Y0005-1

Woven Outdoor Shirt Fabric
136g
34% Polyester, 5% Elastan/Spandex,
61% REFIBRA™ Lyocell

Two-way Stretch woven fabric made by recycled polyester and REFIBRA™ Lyocell fiber with Silvadur anti-bacterial treatment.

LONG ADVANCE
LA-20054-104

Abaca Single Jersey
189g
36% Polyester, 64% Abaca

Abaca also known as manila hemp, we use the yarn called “ABACELL” – Manila Hemp paper yarn. The feature of ABACELL products as follows: lightweight, high wicking, high durability, toughness, odor resistant, high breathability, anti-bacterial, uv resistant, bio-degradable

CHICHAMPE FABRICS
SEKN32270PS001B1

Brushed Midlayer Knit
270g
71% TENCEL®, 24% Viscose,
5% Lyocell (smartcel™ sensitive)

The polar fleece is naturally antibacterial and thermoregulating due to the added blends of 97.6 PCM, a thermal regulating rayon, and zinc oxide embedded Lyocell. It is best for outdoor and athletic wear.

HSU PAI ENTERPRISE
PG9198/97W

Outdoor Pants
172g
88% Polyester, 12% Elastan/Spandex

The waterproof and abrasion resistant fabric is very suitable for outdoor pants. The fabric is treated with SILVADUR™ 930 FLEX, which can control microbe-derived odor and absorb select odors to provide durable freshness protection.

ANTI-MICROBIAL



JML

EL66098/24

Anti-microbial elastic
41% Polyamide, 12% Elastan/Spandex
47% anti-microbial Polyamide

This elastic underband & waistband with anti-microbial yarn can stand 300 times washing cycles.



CHT

BeSo® Guarded

Anti-microbial treatment for protective equipment

CHT's best solution for an anti-viral and anti-bacterial effect. Effective against microbials (99.99%). Anti-microbial activity on finished textiles approved (ISO 18184), wash-durable (ISO 6330) and suitable for non-wovens and various textile fibers, e.g., face masks, gowns, bedsheets, towels, etc.



OMNITEKSAS

7333/32

Single Jersey
130g
30% Hemp, 70% TENCEL®

Hemp has a growing popularity and usefulness for green development as a sustainable fiber. Hemp is strong fiber, which offers the best ratio of heat capacity of all fibers, is a breathable and a biodegradable natural fiber. Hemp is inherently antimicrobial.



FLOCUS BV

FL-AB-KW406090

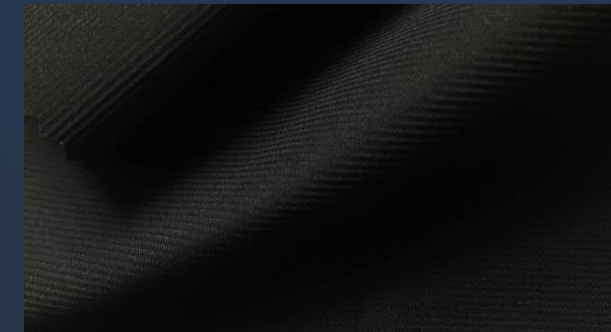
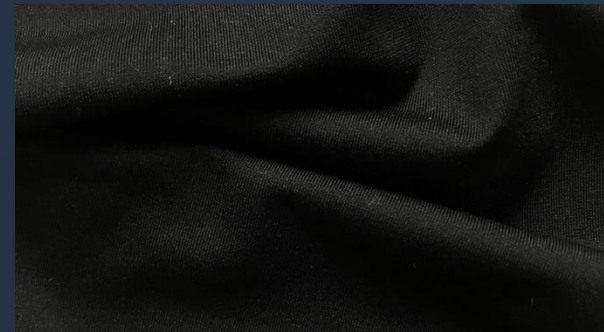
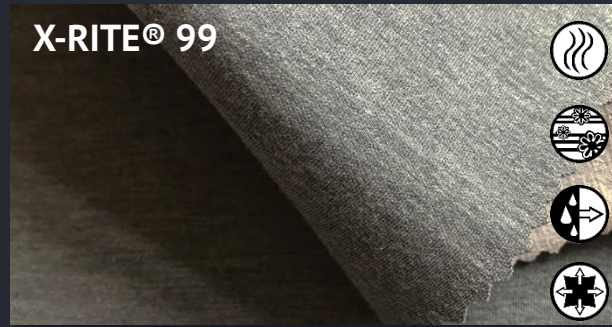
Kapok Insulation
90g
60% Wool Virgin, 40% Kapok

A kapok - wool insulation is a fully natural thus 100% biodegradable insulation - using two fiber which are known for extreme good insulation performance. Kapok is a regenerative raw material which is by default organic. It is hydrophobic, hollow, light in weight and extremely soft.

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

EXAMPLES OF FABRIC FORUM

DEFENSIVE



CHICHAMPE

OLKN40475PS001

Dual Spacer Layer
475g

65% Rayon, 15% LENZING™ Lyocell A100,
11% Lycra®, 9% Lyocell (SeaCell™)

Unique combination of different cellulose fibers and double-layer construction offer the best moisture wicking and quick dry properties as well as moisturizing to skin, yet dry to touch.

SeaCell™ lyocell fiber provides anti-oxidant Property.

JOAPS

MAJR 20 63 70

Single Jersey
130g

80% Cotton, 20% SeaCell™

Very soft single jersey with carbon finishing, antioxidants, vitamins, minerals and amino acids.

M.I.T.I.

UNIVERSAL OX

Sports Tight Jersey
100g

82% Polyamide, 16% Elastan/Spandex

Jersey with antioxidant and anti UV damage properties due to vitamin E

M.I.T.I.

RED LANTERN

Yoga Legging Jersey
170g

77% Polyamide, 23% Elastan/Spandex

A very special warp knit fabric with Novarel®Slim molecola, high stretch and amazing soft touch. All ingredients help to control cellulite, certified and tested.

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

OVERVIEW



HeiQ: V-Block	Polygiene: Biostatic	Trevira: BIOACTIVE	Tecnofilati: Resistex® Carbon
Polygiene: ViralOff®	Devan: Odour Breakdown®	Devan: BI-OME	Evertech Envisafe Ecology
Devan: BI-OME AV	Fulgar: Q-SKIN®	Fulgar: Q-SKIN®	Directa Plus: G+
LIGC Applications: G-Volt	Carrington Textiles: „Sanitized® Silver“	HeiQ: HeiQ Pure & HeiQ Fresh	Smartfiber AG: SeaCell™
Carrington Textiles: Antiviral Finish		Sonovia	Smartfiber AG: smartcel™ sensitive
Fulgar: Q-SKIN® powered by AMNI® VIRUS-BAC OFF		Milliken Textiles: BioSmart™ Technology	Umorfil®
Sonovia		Microban: SilverShield® Technology	Swicofil: CRABYON®
Virustatic Shield			Lenzing: TENCEL™
			Bolt Threads: B-SILK™ PROTEIN

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

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Closure:

I hope I could give you some useful information and inspiration
for the journey of your company.

That's all the time we have for today.

Thank you very much for attending today's webinar:

“PROTECTIVE PERFORMANCE IN FIBERS & TREATMENTS”

You should receive the recording of the webinar later on and if I did not get a chance to answer your questions, please don't
hesitate to contact me via email at alexa.dehmel@active-sports-design.com or at www.active-sports-design.com.

As a reminder, please sign up for the Functional Fabric Fair powered by Performance Days newsletter to receive more curated
material stories and to be updated on our future webinars. You can learn more by visiting www.functionalfabricfair.com.

Thanks again and I look forward to connecting with you all again, very soon!