



 **Cell Solution**[®]
CLIMA

Textile solution for temperature regulation

Cools and heats in its unique way throughout the entire product life

Cellulose – a natural product

Cell Solution[®] CLIMA is made of wood from sustainable forestry. Cellulose is breathable and regulates moisture. Textiles made of cellulose are more absorptive than cotton, they are silkier than silk and cooler than linen. The fiber naturally absorbs excess moisture and progresses it away from the body. The ability of cellulose to transport moisture is superior to that of the synthetic fiber. The fiber structure supports a pleasant skin climate and is temperature-balancing.

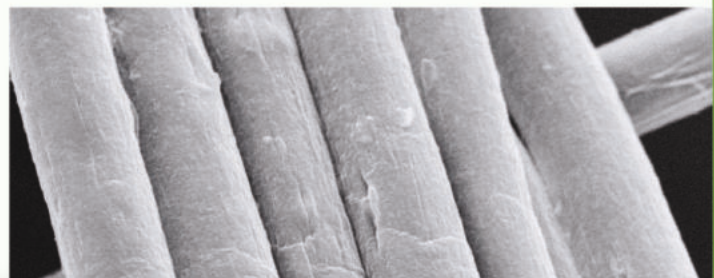
Cell Solution[®] functional fibers

The fibers are produced particularly environmentally friendly with the patented ALCERU[®] procedure. The active substance is directly integrated into the cellulose matrix imparting a permanent additional function to the fiber.

Natural temperature regulation

PCM function - temperature regulation with integrated phase change material. The phase change material is paraffin that melts in a temperature range of 28-32°C). Paraffin has the capability to latently accumulate energy when it is changing phase from solid to liquid.

The fibers absorb excessive heat, accumulate it and release it when needed. When the body or ambient temperature increases, the Cell Solution[®] CLIMA fibers accumulate the excessive heat. When the temperature drops, they release the accumulated heat.



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polymer**

Innovations characterize the range of products

Highest quality

Cell Solution® CLIMA actively balances temperatures that are too hot and too cold and provides a personal comfort climate in this way.

- PCM direct embedding
- Heat accumulation capacity for:
 - 6.7 dtex: > 90 Joules / gram fiber
 - 2.3 dtex: > 50 Joules / gram fiber
- Smooth surface
- Good textile processing
- dyeability in all colors with very good fastness
- Cellulose guarantees perfect moisture management
- More than 80% of the fiber components are natural raw materials
- Clearly improved heat storage capacity compared with similar products
- Washable
- Oeko-Tex Standard 100 product class 1 (textile items for babies and toddlers up to 3 years) certified

Protection of human body against heat and cold

Cell Solution® CLIMA supports the normal insulation capability of a textile product, e.g. a fiber blanket or clothing. The body is kept warm for a considerably longer period even at low temperatures and during rests and the body is cooled in strong heat and thus overheating due to physical exercise is prevented. Products with the Cell Solution® technology make you feel „exactly right“ regardless of the activity or season. Increased comfort due to reduced sweating is a measurable added benefit and provides a proven advantage in many situations in life.

Fields of application

- Sportswear/ Outdoor/ Outerwear
- Knitwear and Underwear
- Lining for shoes and gloves
- Knitted gloves and beanies
- Helmets
- Orthopedic bandages
- Clothes for pets
- Bedding / sleeping comfort (mattresses, pillows, blankets)
- Footwear (socks, shoe insoles)
- Work clothes for areas with rapidly changing temperatures (cold storages, fire service, etc.)



Please contact us if you have any further questions or would like to have more information.

Contact

smartpolymer GmbH
Breitscheidstraße 97
07407 Rudolstadt
Thuringia - Germany
Phone: +49 3672 3790
info@smartpolymer.de
www.smartpolymer.de





Life-long skin care

Active regeneration and healing of skin

Cellulose – a natural product

Cell Solution® SKIN CARE is made of wood from sustainable forestry. Cellulose is breathable and regulates moisture. Textiles made of cellulose are more absorptive than cotton, they are silkier than silk and cooler than linen. The fiber naturally absorbs excess moisture and progresses it away from the body. The ability of cellulose to transport moisture is superior to that of the synthetic fiber. The fiber structure supports a pleasant skin climate and is temperature-balancing.

Cell Solution® functional fibers

The fibers are produced particularly environmentally friendly with the patented ALCERU® procedure. The active substance is directly integrated into the cellulose matrix imparting a permanent additional function to the fiber.

Cell Solution® SKIN CARE with skin-caring properties

The combination of cellulose fibers with embedded vitamin E and caring oils yields the pleasant wearing comfort plus cosmetic effects.

Quality Guidelines

Cell Solution® SKIN CARE fibers are certified to the Oeko-Tex Standard 100 product class 1 (textile items for babies and toddlers up to 3 years).



Innovations characterize the range of products

Proven effect of vitamin E

- Smoothing and improvement of skin texture
- Improvement of water binding capacity of the horny layer, influencing of the moisture content of the skin, reduction of water loss of skin
- Protection against extrinsic skin aging (UV A & B influence), protection against oxidative damage to skin
- Protection of cell membrane against free radicals, prevention of skin damage from free radicals (ROS)
- Reduction of scar tissue
- Wound-healing effect, stimulation of epithelialization
- Anti-inflammatory, anti-itching effect
- Healthy and shiny hair

Temperature-regulating fibers

The fibers absorb excessive heat, accumulate it and release it when needed. The fibers actively balance temperatures that are too hot and too cold and provide a personal comfort climate in this way.

Washable

Cell Solution® SKIN CARE fibers are washable. The release of vitamin E has been proven even after 100 wash cycles at 40°C. The transfer of tocopherol (vitamin E) from the fiber to the skin has been demonstrated in tests (e.g. test report No. 14.8.5.0091 of Hohenstein Laboratories GmbH & Co. KG).



Fields of Application

Fiber blends permit the manufacture of various textiles for clothing, health and living, for instance:

- Underwear
- Shirts + polos
- Stockings and socks
- Massage toppers
- Anti-aging bed textiles
- Care gloves for neurodermatitis patients
- Terry articles



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 **Cell Solution**[®]
BIOACTIVE

Antimicrobial/antiviral cellulose fiber

Active protection against bacteria and viruses

Cellulose – a natural product

Cell Solution[®] BIOACTIVE is made of wood from sustainable forestry. Cellulose is breathable and regulates moisture. Textiles made of cellulose are more absorptive than cotton, they are silkier than silk and cooler than linen. The fiber naturally absorbs excess moisture and takes it to the outside. The ability of cellulose to transport moisture is superior to that of the synthetic fiber. The fiber structure supports a pleasant skin climate and is temperature-balancing.

Cell Solution[®] functional fibers

The fibers are produced particularly environmentally friendly with the patented ALCERU[®] procedure. The active substance is directly integrated into the cellulose matrix imparting a permanent additional function to the fiber.

Ecological high-tech fiber

Cell Solution[®] BIOACTIVE fibers exhibit a pleasant skin climate and excellent moisture absorption. The cellulose matrix is equipped with antimicrobial and / or antiviral functions imparting hygienic properties as well as a protection against harmful bacteria, viruses and germs. Nanotechnology is not used in the production procedure.



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Innovations characterize range of products

Antimicrobial and antiviral properties

Cell Solution® BIOACTIVE is a natural cellulose fiber provided with antimicrobial properties. Besides a natural skin climate harmful bacteria and germs can be fended off.

Simultaneously, Cell Solution® BIOACTIVE is safe against viruses like Influenza or Covid-19. Even after 30 sec 99.9% of viruses are killed.

Both features are maintained throughout the entire life of the textile product. Only a proportion of 2 – 6% in nonwoven or garment is efficient.

Pure luxury for the skin

Cell Solution® BIOACTIVE is the natural barrier against bacteria, fungi, viruses and other pathogens. Imparted antimicrobial functions render harmful bacteria harmless, antiviral features destroy virus shells. Positive side effect: Unpleasant odors are eliminated in this way.

Textiles containing Cell Solution® BIOACTIVE are used in medical technology and are one of the most efficacious and natural remedies in this field. The healing process, in particular, of open wounds and neurodermatitis is accelerated. This is caused by the

blocking effect on bacterial growth. Due to these properties Cell Solution® BIOACTIVE products are particularly suitable for highly sensitive people. Furthermore, when Cell Solution® BIOACTIVE is used in face masks their effectivity within very short time makes virus containing aerosols inactive.

Proven effects

- moisture-regulating
- temperature-regulating
- antistatic
- soft on skin
- regenerating
- antimicrobial (acc. to DIN EN ISO 20743)
- antiviral (acc. to ISO 18184, Hohenstein report)
- odor-inhibiting
- washable (50 washing cycles, temperature of 40°C, disinfectants or cleaners containing chlorine should not be used due to the antibacterial fiber properties)
- dyeable with direct, reactive and HT procedures
- listed as a material with bioactive properties with OekoTex® (Accepted chemical products)

Fields of Application

The developed balanced fiber blends permit the manufacture of nonwovens and textiles for clothes, health and living as, for instance:

- Office, work, sports and leisure textiles
- Underwear, stockings and socks
- Terry articles and massage toppers
- Baby and kids clothes
- OP clothes, medical dressings
- Medical wear and hospital textiles
- Neurodermatitis clothes
- Home textiles such as bedding, bedlinen and mattresses
- Face masks



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