



The secret of
natural freshness





"Thanks to modern leisure wear with smartcel™ sensitive, I can actively combine hygiene, a sense of wellbeing and protection with my sport. This is important to me!"



"Bedding with smartcel™ sensitive gives me and my family the secure feeling of more purity and care. This is important to me!"

The **fiber** which provides the **skin** with more **care** and **protection**

As the biggest human organ, the skin protects the body from cold, heat and environmental influences every day.

Special care is crucial to protect the skin in its function as a protective shield.

Clothing holds a key role in this regard. Every day our clothing is in direct contact with our skin.

Especially textiles should be able to offer extra care and protection for the skin.

For this reason we have developed smartcel™ sensitive.

This unique fiber innovation on the basis of natural cellulose includes the essential trace element zinc.

Zinc contains what people require while wearing clothes: it acts anti-inflammatory, regenerative, odor-reducing, cosmetic and antibacterial.

This is our secret of natural freshness for you!

CELLULOSE

+

ZINC

=

smartcel™
sensitive



Zinc is vital for humans



Like almost no other nutrient, zinc has a big impact on our wellbeing.

Zinc provides for a healthy growth in humans, animals and plants. It is omnipresent within the body and of crucial relevance for the core functions of the organism. It strengthens the immune system and the body's defenses but also sensory functions and fertility.

Also in nutrition it takes on an important role.

As an essential component of over 100 enzymes, zinc contributes to the digestion and utilization of fats, proteins and carbohydrates and is closely involved in energy production and prevents symptoms of deficiency in the long term. Animal source foods like meat, fish, seafood and cheese, but also oat flakes and wheat whole grain flour are high in zinc.

After iron, zinc is the most frequent trace element within the human body.

An adult should ingest between 12 and 15 milligram zinc per day. However, zinc cannot be stored in the body and has to be absorbed regularly anew.

Experts estimate that every second human being lacks zinc. This shortage leads to growth disturbance, tiredness and increased liability to infectious diseases, among others.

This proves how essential zinc is for our body. Zinc is pure life!

smartcel™ sensitive contains the precious properties of the trace element zinc in one fiber – for your wellbeing!

Natural skin protection and effective wound healing

Zinc has a crucial function for our skin.

The healthy growth of the skin and hair is highly determined by zinc. It fosters the regeneration of cells and hence catalyses the healing of inflammation and wounds.

Thus zinc oxide is being used in pharmacy, cosmetics and multivitamin preparations.

As care product for external application, for example as zinc oxide in sun blocker, it protects from harmful UV radiation.

In ointments, powder, baby creams and cosmetic products zinc oxide supports the natural processes of the skin, fosters the wound healing and fights skin inflammation.

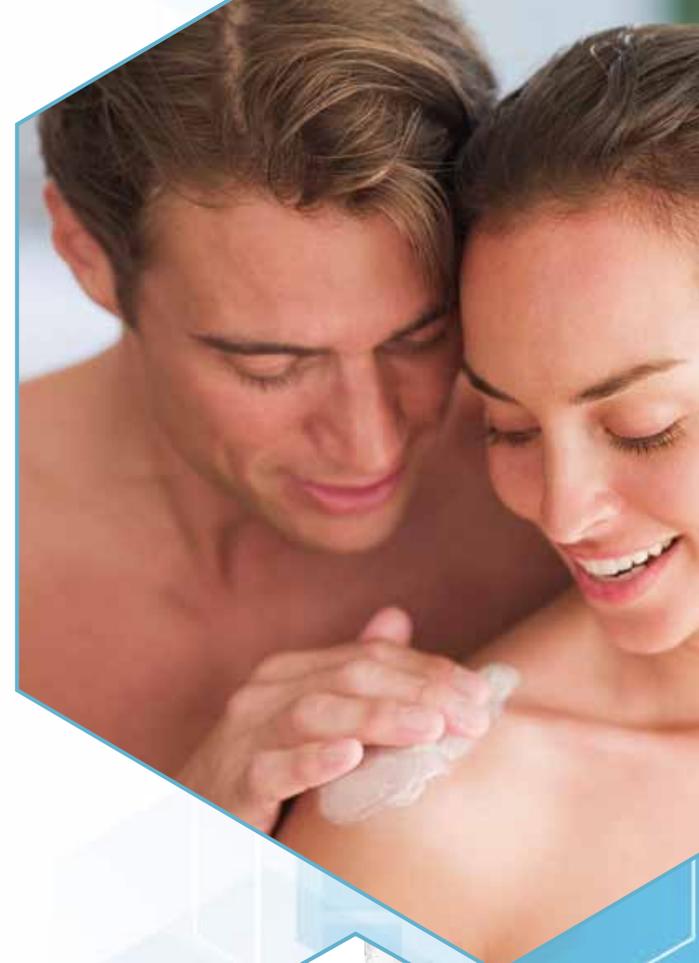
In smartcel™ sensitive just the best of ingredients are to be found.

smartcel™ sensitive contains pharma grade 4 zinc white – a pharmaceutically pure zinc oxide made from metallic zinc.

It meets DAB 10 purity requirements and other international regulations for the preparation of pharmaceuticals.

It is used in pharmaceuticals, cosmetics, dental chemistry and nutritional supplements, among others.

**“Zinc oxide causes swellings of the skin to decrease and fosters the wound healing.”
(Source: Der Dermatologe, June 2005)**





Effective protection

against mites

Allergies to mites have evolved into a widespread disease.

Especially newborns and infants, but also adults, often develop allergic reactions to this "house dust allergy" caused by the excretions of mites.

The consequences are chronic rhinitis, allergic asthma or torturous neurodermatitis, among others. Thereby the rule is: The more mites are there, the bigger the allergic complaints are.

House dust mites are to be found in every household.

The bed with its warm and moist climate is their preferred whereabouts. Here, they can ideally subsist on human skin scales and hair.

Did you know that up to 10 million mites can live in an older mattress?

About 65 % of all mites in a household are located in the bed. The rest is mainly allocated in upholstered furniture and carpets.

Effective help against mites is offered by smartcel™ sensitive.

Zinc within the fibers provides for an environment that is unfavorable for mites. This positive effect is verified by the renowned Hohenstein institute.

smartcel™ sensitive fibers are ideally suited for the application in the home textile sector (mattresses, mattress toppers, bedding and bedclothes).

They suppress bed mite population in beds and improve the quality of life for people suffering from allergies.



Stops **bacteria** and unpleasant **odors**

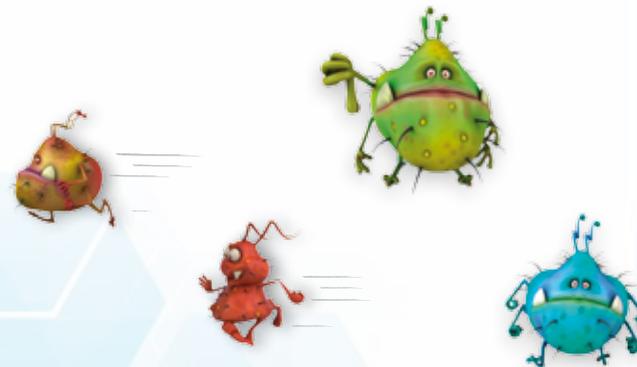
smartcel™ sensitive possesses the odor-reducing and antibacterial properties of zinc oxide.

Did you know that already since the end of the 19th century, zinc oxide is being used in deodorants because of its antibacterial effect?

Independent laboratories have confirmed the odor reducing and antibacterial effects of zinc in textiles many times.

This reaction is triggered when the skin gives off moisture, and an active exchange between the fibers and the skin is produced. Since zinc is a component of skin building enzymes, it operates directly on the skin – thanks to the smartcel™ sensitive fiber.

As a result, zinc oxide in smartcel™ sensitive achieves a considerably reduced odor formation and a permanent improvement of hygiene with simultaneously skin-caring properties.





Perfect for home textiles...

The smartcel™ sensitive fiber with its skin-caring, regenerative and antibacterial effect is ideally suited for home textiles of all kinds.

smartcel™ sensitive possesses a positive effect for the skin – in skin care, during relaxation and during sleep.

Especially bedding, duvets, pillows, mattresses and towels are in direct contact with the skin and therefore should possess exceptionally sensitive properties.

A particular plus for this textile sector is the zinc fiber's protection against mites.

smartcel™ sensitive enhances comfort and protects from stress factors or pollution.

The revitalizing properties of the fiber particularly benefit allergy sufferers and give more quality of life to people who are prone to ailments like neurodermatitis and psoriasis.



- Duvets
- Pillows
- Matresses
- Matress covers
- Bed linen
- Hand towels
- Bath towels
- Bath mats
- Bathing robe
- Sleeping bags

Many quality goods, which include smartcel™ sensitive and are available on the market, show a dynamic upward tendency.

... and sport, leisure & business

Skin protection, odor-reduction and health promotion are properties of the fiber that certainly play a very important role in the sectors of sport- and leisure wear as well as underwear and socks.

smartcel™ sensitive meets these extensive requirements!

The zinc fiber is ideally applicable in modern function fabrics and hence meets the requirements of an active, conscious and healthy living generation.

As a high-tech fiber with multiple use, smartcel™ sensitive proves not only in sport- and leisure textiles, but also in office-, work- and everyday clothes to be a real power product, which combines functionality with health and ecology benefits.

Also undergarment items and socks profit from these advantages of the zinc fiber and help to improve basic products.

Wearing textiles with smartcel™ sensitive offers natural and pure skin care with a lasting protective effect.

smartcel™ sensitive is also perfect for people with sensitive skin.



Sports gear

Leisure wear

Underwear

Socks and stockings

Textiles for babies and children

Work wear

Medical and semi-medical applications



smartfiber offers its customers specific solutions in all areas.



High-tech fiber at a glance

Application range:

Sports- and leisure wear, socks

Ideal field of application, among others because of the increased skin regeneration during physical effort and reduced odour formation

Night- and underwear

Ideal field of application, among others because of the soft care-, protection- and hygiene qualities

Home textiles

Ideal field of application, among others because of the protection from mites

Medical and semi-medical applications

Ideal field of application, among others because of the wound healing and antibacterial effect of zinc oxide

Advantages:

Active agent: essential trace element zinc

Skin caring and regenerative properties

Odor-reducing and antibacterial effect

Even works with wool blends

Active protection against mites

No nanotechnology, no aggressive chemicals

Patented technology

Lasting effect (functional permanence), constant release of zinc onto the skin

Fiber made from renewable raw materials

100 % biodegradable

Technical Data

Titer	dtex	2,5	6,7
Cut length	mm	38	60
Tenacity	cN/tex	> 22	>18
Tenacity wet	cN/tex	>19	>13
Elongation	%	10	10
Elongation wet	%	16	14
Wet Modules	cN/tex	≥90	≥90
Degree of whiteness	CIE	51	51

Dyeability: dyeable in all colors.
The strong matting effect of zinc oxide should be taken into account.

Tested quality – verified effect

Certificates:

Oeko-Tex® standard 100,
product class 1 (for baby products)

Efficiency against house dust mites:

Hohenstein type test, test No. 12.8.9.006. "According to the expert report No. 12.8.5-001- Part 1, February 16, 2012 this is to certify that the following article of the Hohenstein Laboratoires GmbH & Co. KG got tested after NF GF39-011:2001-04 'Characterization and measurement of the efficiency of the protection against house dust mites'. An efficiency against house dust mites has been proved."

All certificates and tests can also be found and downloaded on www.smartfiber.de.



Not only the smartcel™ sensitive fiber itself, also the textiles, which are made of these special fibers, have to pass tests again. Only then, an effect of zinc through the active exchange between fiber and skin can be guaranteed.

For this reason, all textiles are examined again for their zinc content after their completion. Only then, the products receive the label smartcel™ sensitive and are thus recognizable, via a particular tag, as a product with a perceptible function and a real added benefit for the customers.

Tests:

The university clinic of Jena for Dermatology and Dermatologic Allergology, quality certificated DIN EN ISO 9001 :2000 has carried out the following tests:

Cytotoxicity test; Test for **skin irritation and allergic reactions** passed.

Overall antibacterial activity after JIS L 1902: 2002 effective, efficacy of the cotton/wool mix fabric verified.

The test report No. 42/2009 confirms "...the strong antibacterial effect..." of zinc oxide in smartcel™ sensitive.

The test report No. 03/2012 certifies "a strong antibacterial activity against the test strain (MRSA) DSM 11729 and against the test strain (MRSA) ATCC 33591".



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smartfiber AG: using nature's know-how

Nowadays only high creativity, environmentally responsible behaviour and highly developed customer orientation can open up markets – this is the philosophy of the smartfiber AG.

And just like Charles Darwin, smartfiber is convinced that “anything against nature, won't abide for any length of time.”

Since 2005, the company stands for patented, innovative, nature-based high-tech fibers which are produced exclusively for smartfiber by Lenzing AG in Austria.

More Information about smartfiber AG:



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