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The secret to natural freshness: smartcel™ sensitive fiber with zinc turns textiles into real skin care products

With smartcel™ sensitive, smartfiber AG has introduced the first fiber containing the essential trace element zinc onto the market. The high-quality zinc oxide is integrated into the smartcel™ sensitive fiber, which provides cosmetic and regenerative properties in conjunction with effective protection against environmental influences, and an antibacterial effect, in textiles (*for detailed information, see page 4 of the press release). Therefore smartcel™ sensitive has discovered the secret to natural freshness.*

Zinc – essential trace element, integrated into a skin-caring fiber

The origins of the trace element zinc are found in the earth's crust; it is found in most ores. Unlike many other nutrients, zinc has an incredible influence on our well-being – it is vital for us. Zinc is the second-most abundant trace element in the body (iron being the most abundant). Its properties are crucial for the core functions of the living organism. Zinc strengthens the immune system, the sensory functions, raises fertility, and ensures proper growth rates.

Zinc also has a vital role in nutrition. It is a component among over 100 enzymes that aid in the digestion and utilization of fats, proteins, and carbohydrates. It is closely involved in the production of energy, and prevents deficiencies. Meat, fish, seafood, cheese, and oatmeal or whole wheat all have high contents of zinc.

The healthy growth of skin and hair is determined mainly by zinc. As a result, zinc is used in pharmaceutical and cosmetic products or in multivitamin preparations.

Zinc's beneficial properties for the skin are important. The skin is the largest organ of the human body and protects from cold, heat, and environmental influences. Caring for your skin is crucial to ensure this ongoing support from the outside. This is especially true for the choice of textiles that you wear on your skin.

The zinc oxide in smartcel™ sensitive: The combination of high tech and nature

Zinc is integrated into the smartcel™ sensitive fiber in the form of a high-quality zinc oxide called zinc white Pharma 4. It is natural and medically approved and combines revitalizing effects with hygienic properties. It is made of metallic zinc, which is pharmaceutically pure and meets the purity requirements of DAB 10 and other international regulations for drug preparation.

We see zinc oxide in everyday use – in mineral sunscreens, ointments, powders, high-quality face

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creams, baby care products, and cosmetics. In all these products, the zinc oxide that is present within supports the natural processes of the skin. When present in mineral sunscreens it also shields against harmful UV rays.

Therefore, zinc oxide is used to protect sensitive skin, even the delicate skin of babies. An infant's skin is up to five times thinner than adult skin and becomes dry faster and cracks more easily. Their skin has only weak defenses against bacteria and fungi because the protective flora still has to develop. Rash creams containing zinc oxide protect the baby's sensitive bottoms.

Advantages: smartcel™ sensitive has a cosmetic effect, regenerates and protects against harmful environmental influences

The zinc oxide inside the smartcel™ sensitive fiber allows the fiber to have several advantages for textiles. The fiber works cosmetically while nourishing the skin. It possesses a regenerative, soothing power while also promoting the healing of inflammations and wounds.

Zinc oxide protects against negative environmental influences, such as harmful UV rays. The Hohenstein Institute of Germany confirmed this while testing textile material with smartcel™ sensitive: they lauded the fiber as an "excellent protection" against UVA and UVB rays. smartcel™ sensitive also fights against the free radicals that attack our skin, therefore helping in reducing skin damage and skin's premature aging. The skin, acting as a protective shield around the body, gets support and maintenance through smartcel™ sensitive fibers.

Another advantage of zinc is that it naturally possesses excellent antibacterial and odor-reducing abilities. Its powers have been implemented for deodorants since the end of the 19th century. Zinc is also an accepted drug in the medicinal field, combatting inflammation and promoting the healing of wounds. Based on these unique properties smartcel™ sensitive is used successfully in the U.S. market for medical and antibacterial products. On the European market, however, zinc is not listed as a biocide. This is despite its undisputed natural antibacterial effect and despite the fact that it has long since been found to be an essential component in recognized cosmetic products of all kinds. Therefore it is not used for antibacterial applications in Europe.

smartcel™ sensitive brings zinc's elixir of life-type qualities into textiles to promote well-being among the consumer - because nothing in our everyday lives has such a close contact to our skin as our clothing, home textiles, and underwear.

Universal: The applications of smartcel™ sensitive in textiles

To develop smartcel™ sensitive, smartfiber AG retained the suggestions of customers from the entire textile industry and its various branches. The objective was to produce a fiber that increases comfort for the wearer through skin care, rehabilitation, protection against environmental stress, and by containing antibacterial properties* (for detailed information see page 4 of this Media Release). This objective holds

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true for the office, for aerobic activities, and for recreational textiles that include infantile and children's clothing, underwear, and socks.

smartcel™ sensitive is also the ideal fiber to use in home textiles like bed linen, bedding, mattresses, and towels. The tests that guarantee this are affirmed by the renowned Hohenstein Institute. For example, the tests show that there is a transfer of zinc ions from duvet fillings containing smartcel™ sensitive directly onto the skin of the sleeping person; even though the duvet fillings itself do not come in direct contact with the skin.

The power of the fiber, when incorporated in professional and medical attire, shows the resulting attire to have a cosmetically antibacterial effect* (for detailed information see page 4 of this Media Release). This effect may even solve current health issues such as the ongoing struggle against strains of antibiotic-resistant bacteria (MRSA). For this particular reason the fiber is already increasingly incorporated in medical applications such as surgical gowns, other medical uniform, and hospital wear. Clothing containing smartcel™ sensitive also provides relief against people with eczema. The zinc-containing fiber is even applicable for bandage materials, like gauze or plaster bandages. The wearer's contact to the fiber allows for accelerated skin regeneration and a complication-free healing of the wounds.

In fact, many of the reputed suppliers in fashion apparel, home textiles, and medical textiles have been and are using smartcel™ sensitive.

Sustainable production, proven effect and tested quality

The smartcel™ sensitive technology is based on the patented lyocell process. The zinc oxide that is integrated into the fiber will function continuously, with lasting effects. smartcel™ sensitive is manufactured without the use of nanotechnology and harsh chemicals. The fiber consists of a biogenic raw material that is 100 percent environmentally friendly, 100 percent eco-friendly, and 100 percent biodegradable. It is certified by Oeko-Tex® Standard 100, class 1; safe even for babies.

smartcel™ sensitive can be combined with all common types of fiber, like synthetic or cotton; it remains effective even in wool blends. Only ten percent of smartcel™ sensitive fibers are required in an end product to ensure their effectiveness. It can be easily integrated into all standard textile processes. The equipment experts of smartfiber AG also support customer's demands by producing the textiles with special instructions from the buyer, such during the dyeing and finishing of the product. smartcel™ sensitive has been tested positively for its effectiveness by several independent institutions. The proof of those certifications can be found at www.smartfiber.de in the "customer center".

* Please note: The European market does not list zinc as a biocide, despite its undisputed natural and antibacterial properties and despite the fact that it has long since been found to be an essential component for all kinds of recognized cosmetic products. Therefore, it must not be used and applied for antibacterial applications in Europe. In contrast, smartcel™ sensitive in the U.S. and Asian markets is

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based on particular characteristics of zinc oxide that are already successfully used in medical and antibacterial products.

About smartfiber AG: smartfiber AG, with its headquarters in Rudolstadt (located in Thuringia, Germany), was founded in 2005. The company develops and markets lyocell fibers with different functionalities for the international market. The technology is based on the research and development of the renowned Thuringian Institute for Textile and Plastics Research (TITK) in Rudolstadt, Germany. smartfiber AG succeeded in permanently incorporating natural additives into cellulosic fibers known as lyocell, with resulting positive effects on skin and body. These high-tech fibers, with the internationally protected trademarks SeaCell™ and smartcel™ sensitive, are today the basis for innovative products in the textile and nonwovens industry. On this account smartfiber AG sets greatest value on quality controls implemented by independent institutes and laboratories. To ensure the premium processing of the fibers, the company cooperates with selected international production partners in the entire textile-processing industry. Lenzing AG, the world market leader for industrially produced cellulose fibers, exclusively produces the lyocell fibers developed by smartfiber AG since the latter part of 2011. The fiber received several awards in technology, among others the famous "Deutscher Innovationspreis" ("German Innovation Prize") in 2010. The board of directors consists of CEO Michael Kohne and COO Thomas P. Daue. For further information, please go to www.smartfiber.de, www.facebook.com/smartfiberAG, www.twitter.com/smartfiberNews and www.youtube.com/user/smartfiberAG.