

**Smallest particles with a major effect:
Nanotechnology facilitates the self-cleaning principle**

Nature – our role model

Scientists at Bonn University discovered particularly fascinating evidence of nature's cleverness: leaves of certain plants, and the wings of insects, always stay clean, because dirt and water cannot adhere to their structured surfaces. Therefore, "the smoother the surface, the less dirt particles can adhere."

Nanotechnology – the revolution

A surface structure which mimics nature can be produced using nanotechnology, considered the key futuristic technology in most industries.) Nanoparticles measure only a few millionths of a millimeter and are not visible to the human eye.

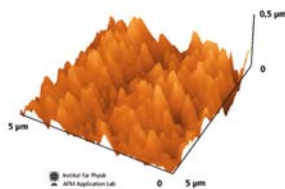
Surface – specifically altered

In order to transfer the non-stick and self-cleaning process from nature to textiles, the surface is altered through nanoparticles. On the basis of the "guest-host system" and in combination with what is known as "sol-gel engineering." Schoeller has developed a finishing technology which leads to the formation of a structured surface. The result is NanoSphere®.

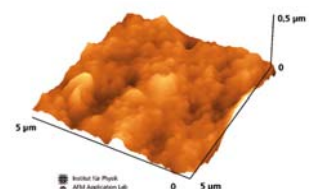
Conforms to bluesign® – for the sake of the environment

With its patented NanoSphere® finishing technology, Schoeller has launched an innovation onto the market which is revolutionizing the textile industry and which meets the high requirements of the bluesign® standard. Clothing based on bluesign® guarantees the greatest-possible exclusion of substances which are harmful to humans or the environment as well as the most economical use of resources in manufacturing.

Surface structure of the lotus leaf



Surface structure of NanoSphere®



The result: self-cleaning, ecologically sound, stable and versatile!

- NanoSphere® provides optimum impregnation of textiles. The waterproofing is excellent and the oil and grease repelling properties at a level never achieved before. Ketchup, honey, coffee, red wine and many other substances simply run off the nano-structured surface.
- NanoSphere® also benefits the environment. These textiles need less frequent washing and can be washed at lower temperatures. This offers a considerable saving in the consumption of energy, detergent and water.
- NanoSphere® makes textiles robust, abrasion-proof and long-lasting. The washing permanency is many times higher than is the case with conventional impregnation. NanoSphere® resists pressure and friction and has no influence on the comfort of wear, appearance, feel, breathability or elasticity.
- NanoSphere® is suitable for use in many areas of clothing. Further applications, for example in the home furnishing area or in the medical sector are definitely conceivable.