

coldblack®: Sun Reflector – UV Protector

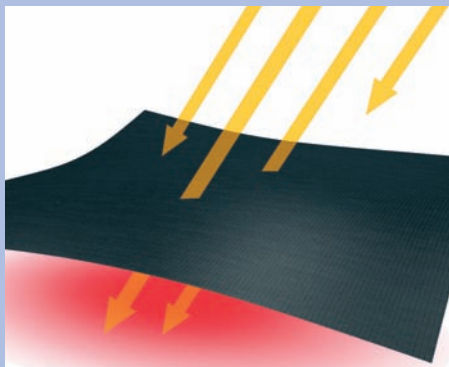
Dark colors heat up stronger when exposed to direct sunlight compared to light colors. This no longer needs to happen! Now there is coldblack®, a special finishing technology for textiles which reduces heat build-up and provides reliable protection from UV rays.

Effective heat management

Light colored textiles reflect both visible and invisible rays of sunlight, meaning both heat and light. Dark colored textiles absorb both types of rays and therefore absorb heat. coldblack® reduces this absorption of heat rays, particularly in the case of darker colors, and in all types of textiles. The result is tangibly better heat management. Because textiles finished with coldblack® heat up less in all colors compared with material without a coldblack® finish.

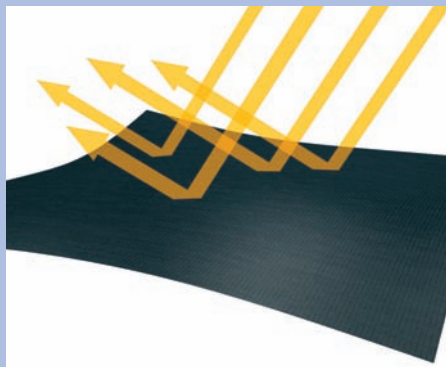
coldblack
a schoeller® technology

Without coldblack®



Dark textiles without coldblack® absorb heat

With coldblack®



Dark textiles with coldblack® reflect heat

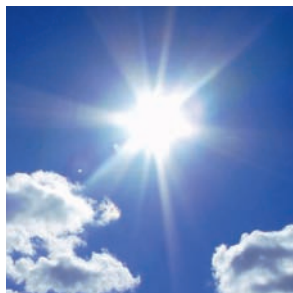
Reliable protection from UV rays

Many textiles worn in the summertime or exposed to the sun offer poor protection from damaging UV rays. The long wave UV-A rays can penetrate deep into the skin and accelerate its aging. The shorter wave and more energy rich UV-B rays penetrate only a few millimeters into the skin and, due to a pigment change, result in long term browning. Without effective UPF protection (Ultraviolet Protection Factor), aggressive oxygen molecules are released which cause sunburn or which can lead to the formation of melanoma. The coldblack® technology guarantees a minimum UPF 30 protection when applied to any textile* in any color without affecting the look or feel of the product. As a result, textiles with coldblack® can make an effective contribution to protecting against harmful UV rays.

* Important: The UPF value can vary depending on structure, thickness and material. It relates to closed textile surfaces. For this reason, the UPF factor needs to be determined on the different textiles. From a minimum of UPF 30, coldblack® conformity is guaranteed.

Sun Reflector – UV Protector

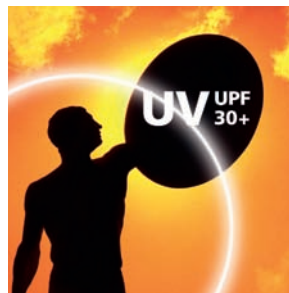
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- Optimal protection from heating up due to sunlight



- Textiles stay cool to the touch

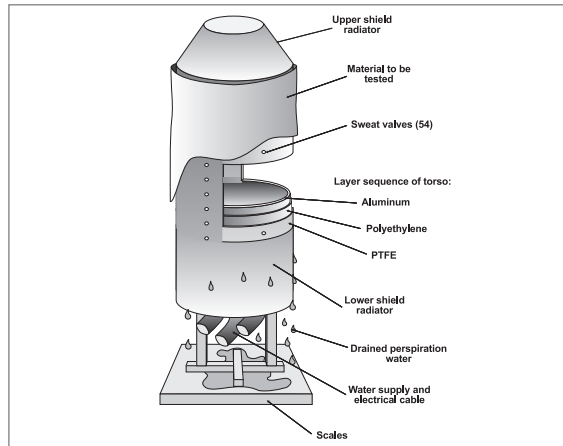


- Reliable protection from UV rays (minimum UPF 30)

Significant heat difference – coldblack® performances tested on the sweating torso

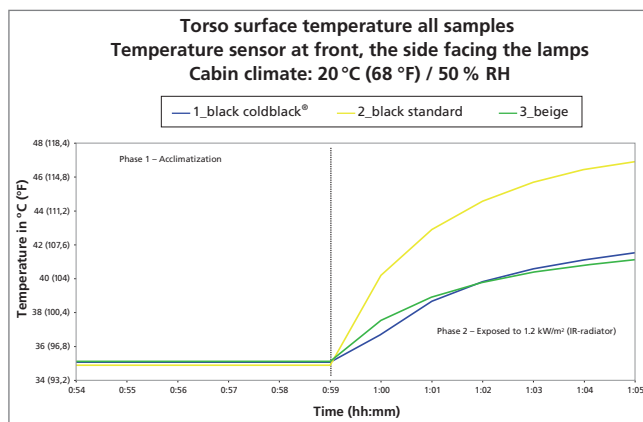
The capacity of coldblack® to reflect infrared heat rays can be determined precisely and measured in the laboratory. The Empa in St. Gallen (www.empa.ch) has measuring methods using a sweating torso. Heat management on the textile surface and the effects on the human body were tested using three different polo shirts.

The torso is a cylinder with the dimensions of the human body. The individual layers of material replicate the layers of human skin and display properties similar to human skin in terms of heat capacity and heat conducting. In addition, the torso can be filled with water to achieve the same heat capacity as the human body. 20 sensors are attached around the torso to allow the temperature in the individual layers to be determined. The warming through exposure to sunlight is simulated in the torso using infrared rays.



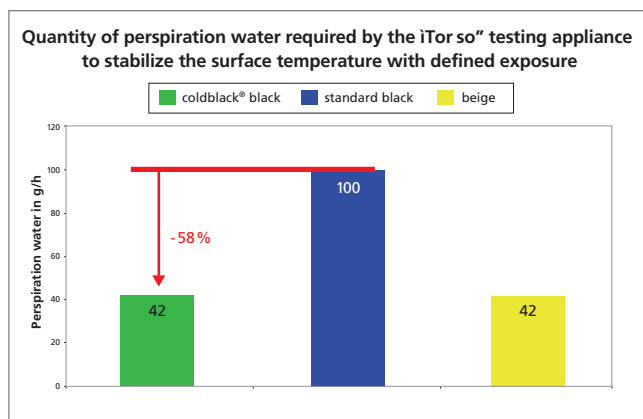
(Source: Empa)

Convincing measurement results



(Empa Test Report No. 448807 of 26. March, 2008)

- **Measurement without simulated sweating**
When exposed to simulated sunlight (infrared lamp) the black coldblack® polo shirt displayed a temperature increase of the torso which is approx. 5 °C (9 °F) lower than that of the non-treated black shirt.



(Empa Test Report No. 449906 of 28. July, 2008)

- **Measurement with simulated sweating**
The measurements show that, when exposed to simulated sunshine, a coldblack® shirt (just like a beige one) requires only about half as much perspiration water as a tested black T-shirt to achieve the same torso surface temperature. This means that the wearer of a coldblack® shirt only perspires about half as much as the wearer of a conventional black T-shirt in order to compensate for the increase in skin temperature.

Greater comfort and higher performance

Due to the coldblack® finish, a large part of the infrared heat rays are reflected. When exposed to sunlight, the heat absorption can thus be significantly reduced. When applied to clothing this means that the wearer perspires less, feels better and is capable of greater performance.



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www.coldblack.ch