

Press release

High-tech textiles protect from sources of radiation

A shield against electromagnetic and thermal radiation

BÖNNIGHEIM, (im/ri) Scientists at the Hohenstein Institute in Bönnigheim, in partnership with the ITCF Denkendorf, have developed the world's first textiles which effectively screen out both electromagnetic (EM) and infrared (IR) radiation. Until now, textile materials have ever only offered a choice of protection, either from the so-called electrosmog caused by electrical devices, or from thermal radiation, for example from sources of fire or intensive solar radiation.

The artificial fibres are given their screening effect **either by dosing (integrating) or by coating** them with indium tin oxide (ITO), a transparent oxide compound which is also used in the touchscreens of smart phones. In tests, the textile treatment proved to be resistant to washing, abrasion and weathering. It was also possible to prove that the treatment was not biologically harmful - and nor were the garments made uncomfortable to wear.

Project leader **Dr. Edith Claßen** envisages the innovative fabric being used primarily for occupational clothing: "These novel materials are not only extremely effective at screening radiation but they also conduct electricity so they are anti-static. This makes them ideal for use in Personal Protection Equipment (PPE) for firemen, workers in foundries and welding workshops, in the semiconductor industry or for maintenance staff working on telecommunications systems."

However, **Dr. Claßen** can also see many potential applications in domestic and technical textile products: "For example, you could imagine making roller blinds which not only screen out solar radiation in summer to keep the room cool, but at the same time also offer protection from the electromagnetic radiation from mobile phone masts in the vicinity."

These multifunctional materials may well also be of interest to the military: if used for uniforms, they make the wearer "invisible" to infrared cameras and at the same time they give protection from electromagnetic radiation.

Hohenstein Laboratories
GmbH & Co. KG

Hohenstein Textile Testing Institute
GmbH & Co. KG

Hohenstein Institut für Textilinnovation e.V.

Hohenstein Academy e.V.

Corporate Communication & Research Marketing
Schloss Hohenstein
Your contact for this text: Rose-Marie Riedl
74357 Bönnigheim
GERMANY
Tel. +49 (0)7143 271-723
Fax +49 (0)7143 271-721
Email: presse@hohenstein.de
Internet: www.hohenstein.de

You can use the press service free of charge ☑ please send us a voucher copy.

We are grateful to the Research Association the Textile Research Council, Reinhardtstraße 12 - 14, 10117 Berlin for its financial support for IGF project 15598N, which was provided via the AIF as part of the programme to support "Industrial Community Research and Development" (IGF), with funds from the Federal Ministry of Economics and Technology (BMWi) following an Order by the German Federal Parliament.

Gefördert durch:



aufgrund eines Beschlusses
des Deutschen Bundestages

The above press release and the associated images can also be downloaded at any time on the Internet at

<http://www.hohenstein.de/SITES/presse.asp>

Bönnigheim, December 2010



In order to provide workers in industry, public companies and the military with the best possible equipment, researchers at the Hohenstein Institute are working on special protective clothing which simultaneously protects from both electromagnetic and infrared radiation.

Picture: Hohenstein Institute



Many groups of workers, such as firemen, welders or furnace operators, need to be protected from heat radiation.

Picture: Bönningheim Fire Service - private



Electrical devices in everyday use (e.g. mobile phones, televisions, computers, radio alarms, WLAN networks) produce electromagnetic fields - what is called electrosmog. The novel textiles provide effective protection from this.

Picture: istock_silvrshootr