TESTEX®

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Special textiles provide effective protection against sunburn

The right textiles provide the best protection

UV radiation is extremely dangerous, primarily for children and young people. Yet protection against the sun is still not taken sufficiently seriously. Special textiles provide the greatest security.

Zurich(am). The incidence of skin cancer in Switzerland is among the highest in Europe – and is continuing to climb steadily. The fact that the Swiss do not protect themselves adequately against dangerous UV radiation is also documented by a recent survey of 960 primary and secondary pupils from 13 schools. The troubling results of the survey published in «Swiss Medical Weekly» show that only one-third of the younger pupils are aware of the most important rules for appropriate protection against the sun. Older pupils know more, but protect themselves least of all. 38 percent of teenage females actually regard sunburn as worth it to acquire a good complexion. Yet dermatologists have long known that the skin does not forget sunburn: 80 percent of the effects of sunshine that the skin is exposed to before the age of 18 are retained by it and increase the risk of skin cancer.

Fig 1) Children shall protect themselves with UV tested clothing

Special textiles are particularly effective

Schoolchildren say they still like to expose themselves to the blazing midday sun, even though UV radiation is at its most intense between 11 a.m. and 3 p.m. That is when they are most likely to protect themselves with sunscreens; but this is only effective if it is used as instructed on the package and is, for example, applied regularly. Wearing protective clothing is still not widespread. Yet textiles can provide better protection against harmful radiation than cosmetic sunscreens – in some cases even better than sun blockers with a high sun protection factor. However, not all textiles are the same when it comes to protection against the sun. Natural fibres such as cotton, for example, provide little protection; the kidney-shaped cross-section of cotton fibres is unfavourable, and the fabric often features small holes through which radiation can penetrate unchecked. Protection is further reduced if cotton textiles have absorbed moisture.

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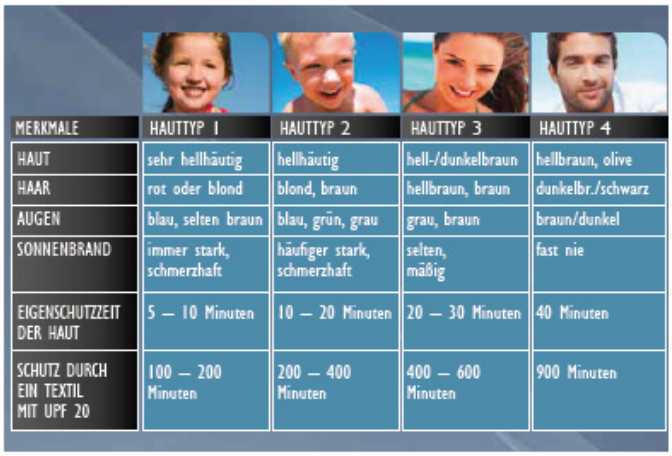
Manmade fibres with titanium oxide
Special apparel made from manmade fibres provides better protection. It incorporates titanium oxide particles such as those used in sunscreens. These particles reflect high-energy UV radiation and thus protect the skin. However, it is not only the composition of the material which affects the UV protection factor of textiles – mass per unit area, colour and finishing are also important. For example, dark-coloured textiles offer better protection than pale colours, since dye pigments also absorb UV radiation. A good protection factor can also be achieved by using UV absorbers in the fabric with pale colours.

Protection factors and skin types
The UV protection provided by textiles is indicated by the «UV Protection Factor» (UPF). This corresponds to the sun protection factor for sunscreens. The UPF indicates the factor by which the product extends the skin's natural protection. This natural protection depends on the individual skin type. For example, a white T-shirt has a UPF of 10 to 15. This means that someone wearing such a T-shirt is protected against UV radiation 10 to 15 times longer than without this garment.

The table of skin types shows how the UPF prolongs protection against the sun:



MERKMALE	HAUTTYP 1	HAUTTYP 2	HAUTTYP 3	HAUTTYP 4
HAUT	sehr hellhäutig	hellhäutig	hell-/dunkelbraun	hellbraun, olive
HAAR	rot oder blond	blond, braun	hellbraun, braun	dunkelbr./schwarz
AUGEN	blau, selten braun	blau, grün, grau	grau, braun	braun/dunkel
SONNENBRAND	immer stark, schmerzhaft	häufiger stark, schmerzhaft	selten, mäßig	fast nie
EIGENSCHUTZZEIT DER HAUT	5 – 10 Minuten	10 – 20 Minuten	20 – 30 Minuten	40 Minuten
SCHUTZ DURCH EIN TEXTIL MIT UPF 20	100 – 200 Minuten	200 – 400 Minuten	400 – 600 Minuten	900 Minuten

Fig. 2) Table with skin types

Defining the UV Protection Factor
In order to arrive at a UPF which is reliable and informative for the consumer, special requirements to which sun-protection textiles are exposed in use must be taken into account. Stretching of the fabric during wear, moisture due to perspiration or salt water and wear adversely affect sun protection and reduce the effective protection time by one-third on average. These effects therefore have to be taken into account in the UPF stated.

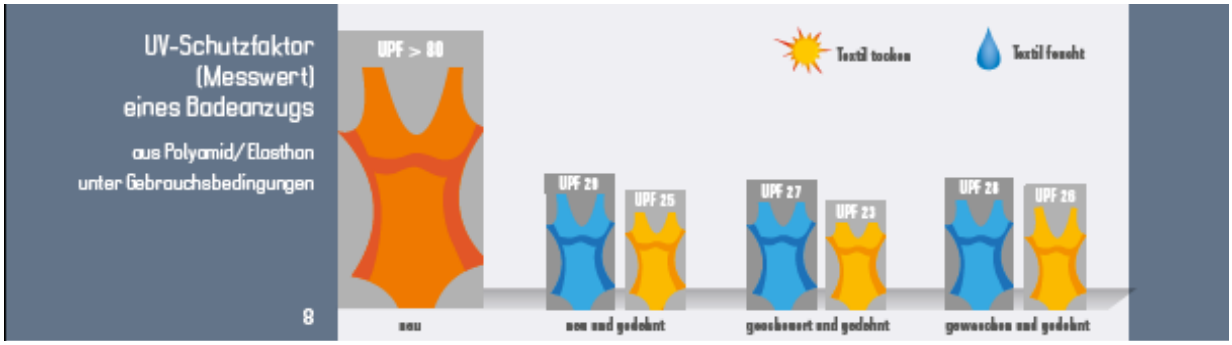


Fig. 3) UV-Protection Factor of swim suit tested according to UV Standard 801

UV Standard 801

TESTEX is a member of the International Testing Association for Applied UV Protection. It recommends using UV Standard 801 to measure the UV Protection Factor for sun-protective clothing. This is based on the most unfavourable wearing conditions – and is therefore always on the safe side. During testing the textile material is washed and scoured, moistened when measured and stretched in a clearly defined manner. Textiles used to provide shade, such as parasols, awnings or beach chairs are artificially weathered before measurement. UPF definition assumes maximum radiation intensity such as that prevailing in Melbourne at the height of the Australian summer. The most sensitive skin type is also assumed. UV Standard 801 is now the most widely used testing and certification process for clothing textiles such as swimwear, leisurewear and sportswear, as well as for work wear – and also for textiles used to provide shade.

www.uvstandard801.ch

Hangtag; The new label for UV Standard 801 is memorable and shows the consumer at a glance: this garment is a quality product and offers certain protection against UV radiation.

Fig 4) Surfer with UV-protect suit, Company Second Skins, South Africa

Fig 5) Workwear with UV Standard 801 label, Company Planam Arbeitsschutz Vertriebs GmbH, Germany

Fig 6) Parasol certified according to UV Standard 801