Solar UV Protection – New British Standard for Hats Published

What are the dangers from UV Radiation?

The dangers of prolonged exposure to the sun are well documented. The incidence of skin cancers increases annually; for example, in the UK over 70,000 new cases are reported each year and Australia has the highest rate of skin cancer in the world.

The sun emits several types of radiation. We are aware of visible radiation (light) and infrared radiation (heat) reaching the earth’s surface. However, ultraviolet radiation (UVR) is also present but we cannot see it or feel it.

UVR is made up of three types of radiation, UVA, UVB and UVC. Each type of UV radiation has a different impact human health.

- UVA (wavelength 315 – 400nm) is mostly associated with skin ageing
- UVB (wavelength 280 - 315nm) is associated with sunburn and skin cancer
- UVC (wavelength 200-280nm) is the most dangerous and is potentially lethal even in moderate doses. Fortunately, however, the earth’s ozone layer blocks out virtually all UVC.

Protection from UV Radiation

In order to remain safe from the dangers of UVR, there are a number of steps that can be taken

- Stay in the shade, especially between 11am and 3pm
- Wear clothing to cover the most vulnerable parts of the body
- Wear a hat
- Use sunscreen products
- Wear sunglasses

Sun Protection Clothing

There are several standards worldwide that relate to UV protective properties of garments.

- EN 13758-1 - Sun Protective Clothing, Method of test for apparel fabrics
- EN 13758-2 – Solar UV properties – Classification and marking of apparel
- D6544-00 Standard Practice for Preparation of Textiles Prior to Ultraviolet (UV) Transmission Testing
- D6603-00 Standard Guide for Labeling of UV-Protective Textiles
- AATCC Test Method 183-2004 Transmittance or Blocking of Erythemally Weighted Ultraviolet Radiation through Fabrics

The standards that address the testing of sun protection fabrics are all essentially similar, in that they pass UVR (wavelength 290-400nm) through a fabric and the amount of UVR transmitted through the fabric is recorded. This figure is then used to calculate a UPF (Ultraviolet Protection Factor)
What does the UPF mean and what affects it?
The UPF gives you an indication of how good a fabric is at blocking UVR. A fabric with a UPF of 20 will only allow 1/20th of the UVR to pass through it, a fabric with a UPF of 50 will only allow 1/50th of the UVR to pass through it.

- Fabric with a tight woven or knitted construction will have a higher UPF than fabric with a more open construction.
- Heavier weight fabrics will block more UVR than lighter weight fabrics of the same construction.
- Darker colours can generally block more UVR.
- Garments worn in a stretched, wet or worn-out state will have a lower UPF than that measured on the original state fabric.

Labelling Sun Protection Garments
European, Australian and American standards all give guidance on appropriate marking of sun protection garments.

For example, the European standard, EN 13758-2, specifies that, for a garment to be sold as providing sun protection, it should have a minimum UPF in excess of 40. It also advises the use of a pictogram thus:

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EN 13758-2
40+
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Design of sun protection garments
EN 13758-2 also emphasises that not only must garments have a UPF of more than 40, but they must also cover a significant proportion of the body.

According to the standard,

- Clothing for the upper body ‘shall at least cover the upper body completely’
- Clothing for the lower body ‘shall at least cover the lower body completely’.
- This is generally understood to mean that a top must come down to the elbows and up around the neck, and lower body clothing must come down to below the knees.

New Hat Standard BS 8466:2006

- BS 8466:2006 gives requirements for the UPF for fabrics used in hats.
- A minimum UPF of 50 is specified, when tested to EN 13758-1.
- The standard also gives requirements for dimensions and design of hats specifically designed to provide protection from UVR. It is accepted that hats of any design will give some UVR protection, but areas of the head, neck and face are not covered by some designs and a simple cap, for example, will give inadequate UVR protection.
- Designs are based around a legionnaire style cap and a simple full brim.
- Specific dimensions are given for both styles, to fit ages ranging from 6 months to adult.
- Guidance on correct wording to be used on labels is also given.
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Testing of fabrics
Intertek offers testing to the BS, EN, AATCC and AS/NZS standards at a number of their laboratories globally.

Sunscreens
The European Commission launched an initiative earlier in 2006 to improve the labelling system for sunscreen products and to ensure coherent rules in the EU.

Sunscreens are cosmetic products according to the EU Cosmetics Directive 76/768/EEC. They have an important “protective” function against UV radiation.

Particular areas of concern that are being addressed are:
• Products should contain protection against all dangerous UV radiation;
• Products and claims should provide sufficient guidance to aid in choosing the appropriate product;
• Products should provide guidance on the correct application of the product.

The results of this initiative should be visible on sunscreen products going onto the market for Summer 2007

Sunglasses
Sunglasses also play an important role in protection from UVR. UVR can damage eyes as well as skin, and is known to cause cataracts, a clouding in the lens of the eye that obscures vision.

Again, standards have been developed to address the properties of sunglasses. These include


All sunglasses for sale within the EU must conform to this standard. They are subject to the PPE Directive 89/686/EEC and require a CE mark.

Testing to EN 1836:2005 is offered at our Hong Kong laboratory.

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