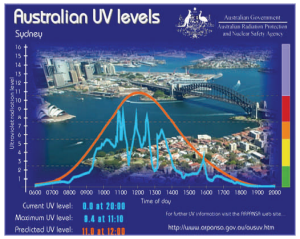
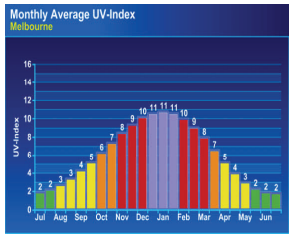
## How do we know how much UVR there is in Australia?

ARPANSA maintains a network of UVR detectors in all major Australian population centres. The latest UVR levels are continually displayed on the ARPANSA web site. The intensity of UVR varies throughout the day and is highest around noon (1PM during daylight saving time). UVR levels can be predicted for clear sky days using a computer model. Local atmospheric effects such as cloud, smoke, smog and ozone levels affect the amount of UVR reaching the ground.




## What other UVR information is available from ARPANSA?

ARPANSA publishes ***The Resource Guide for UV Protective Products*** that lists sources of UPF rated fabrics, clothing and other UVR protective products and hard copies are available free of charge from ARPANSA. The latest version is on the ARPANSA web site.


## Where can I get more information about UVR protection?

Most state cancer councils, ARPANSA and other scientific organisations produce a range of publications on radiation related matters. The table below lists some useful sources of information about UVR.

## Why is it important to protect our skin from the sun?

Australia has the highest incidence of skin cancers in the world due to UVR exposure. Every year over three hundred thousand new cases of skin cancer are diagnosed and treated. Over fifteen hundred Australians die each year from skin cancer. Wearing well-designed sun protective clothing is an easy and effective way of reducing the UVR exposure to our skin. A UPF rating label on clothing shows that the fabric has been tested and how much sun protection it provides. Look for garments that have good body coverage. Remember that a garment can only protect the skin it covers. For complete protection apply sunscreen to exposed areas of skin, wear a broad-brimmed hat and wrap-around sunglasses. When outdoors, seek shade at times when UVR is intense.


Further information is available from the

**Australian Radiation Protection and Nuclear Safety Agency**

**619 Lower Plenty Road**
**Yallambie VIC 3085**
**Telephone:** **(03) 9433 2211**
**Fax:** **(03) 9433 2223**
**E-mail:** **upf-testing@arpansa.gov.au**
**Web:** **http://www.arpansa.gov.au**


| Information Source | Internet Link |
|---|---|
| **Australian UV measurements** | http://www.arpansa.gov.au/uvindex/index.cfm |
| **Australian Academy of Science** | http://www.science.org.au/nova/008/008key.htm |
| **Bureau of Meteorology** | http://www.bom.gov.au/products/uvindex_national.shtml |
| **New Zealand UV measurements** | http://www.niwascience.co.nz/services/free/uvozone/uvi-today |
| **Resource Guide for UV Protective Products** | http://www.arpansa.gov.au/uvrg/index.cfm |
| **Skin Cancer Fact Sheets** | http://www.skincancer.gov.au |
| **Sunsmart** | http://www.cancer.org.au/cancersmartlifestyle/SunSmart.htm |
| **UPF Testing Service** | http://www.arpansa.gov.au/services/upf/index.cfm |
| **UV Occupational Exposure Standard** | http://www.arpansa.gov.au/publications/codes/rps12.cfm |
| **World Health Organization** | http://www.who.int/mediacentre/factsheets/who271/en/ |


Australian Government
Australian Radiation Protection and Nuclear Safety Agency


# Sun Protective Clothing


**December 2010**

# ULTRAVIOLET RADIATION AND CLOTHING

## What is ultraviolet radiation?

The sun emits many types of radiation. At the earth's surface we receive mostly visible radiation (light) and infrared radiation (heat). Ultraviolet radiation (UVR) is also present but we cannot see it or feel it. Ozone in the atmosphere absorbs much of the UVR before it reaches the ground but we can still receive enough to cause sunburn as well as more serious health problems.

## Why is UVR dangerous?

Exposure to UVR can cause not only sunburn but also lasting skin and eye damage. This may result in premature skin ageing, skin cancers and eye disorders such as cataracts.

Due to Australia's geographical location our country receives high levels of UVR. Relatively clear skies and poor use of sun protection measures during outdoor work and leisure means that our mainly fair-skinned population has a high exposure to UVR. Australians have the highest rate of skin cancer in the world. The risk of a person eventually developing skin cancer is related to the amount of UVR they are exposed to over their lifetime, particularly in childhood.

## How can you protect yourself from UVR?

- Avoid going outdoors in the middle of the day (10am to 2pm) when the sun is highest (11am to 3pm during daylight saving). This practice can dramatically reduce your UVR exposure.
- When outdoors, choose shaded areas where you cannot directly see the sun or the open sky.
- Wear well designed clothing that covers the arms, legs and neck as well as the body and offers good sun protection.
- Wear a broad-brimmed hat which shades the face, ears and back of the neck.
- Wear wraparound sunglasses when outdoors.
- Apply SPF 30+ broad spectrum, water resistant sunscreen to the face and all areas of the body that are not covered by clothing. Reapply ample sunscreen every two hours and after swimming or activities that cause heavy perspiration, as sunscreens can wear off. Sunscreen should not be used to extend the time you spend in the sun.

Young children do not understand the dangers of UVR. Be a role model so they learn good sun sense and protect them with shade, suitable clothing, hats, sunglasses, and sunscreen. Well designed sun protective clothing is available in children's sizes.

## What does a UPF rating mean?

In Australia on clear summer days people with unprotected fair skin can receive enough UVR to exceed recommended exposure limits and cause a sunburn in about fifteen minutes. If their skin is covered with a garment, the UVR exposure they receive will be significantly reduced.

For example, wearing a well designed garment with a UPF rating of 40 will reduce solar UVR exposure to the skin beneath the garment by a factor of 40. This means a UPF 40 fabric will only allow one fortieth of the UVR to pass through it.

***The aim of sun protective clothing is to reduce a person's UVR exposure.***

## What affects the UPF rating of a fabric?

- Different fabrics such as cotton or polyester have different UVR absorbing properties.
- Less UVR passes through tightly woven or knitted fabrics than loosely woven or knitted fabrics.
- Darker colours usually block more UVR than lighter colours.
- Heavier weight fabrics usually block more UVR than light weight fabrics of the same type.
- Garments that are overstretched, wet or worn out may have reduced UVR protection. Follow the care instructions attached to the garment.

Remember that the UPF rating is for the material only and does not address the design of the product. Garments can only protect the areas of skin that are covered by the material.

## How can you choose effective sun protective garments?

The UPF rating on many garments indicates clearly how good the fabric is at blocking UVR but the design of the garment also needs to be considered. Shirts with long sleeves and high collars and hats that shade the face and protect the back of the neck and ears are most effective. Loose fitting clothing is usually more protective than tight fitting clothing.

## Where can you purchase sun protective garments?

Many state cancer councils, department stores, children's stores and sports stores stock UPF rated garments. The ARPANSA UV Resource Guide web site also lists some suppliers.

## What is the Standard for Sun Protective Clothing?

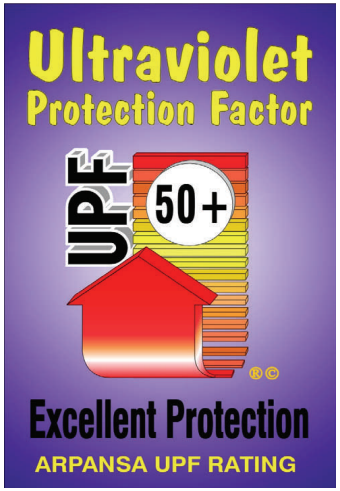
Published in July 1996, ***AS/NZS 4399, Sun protective clothing - Evaluation and classification*** describes standard laboratory procedures for measuring the UPF of fabrics and for labelling UPF rated clothing. Fabrics are assigned a UPF rating number and also a protection category depending on how much UV radiation they block out. This table shows the rating system.

| UPF Rating | Protection category | % UVR blocked |
|---|---|---|
| 15, 20 | Good | 93.3 to 95.9 |
| 25, 30, 35 | Very good | 96.0 to 97.4 |
| 40, 45, 50, 50+ | Excellent | 97.5 or more |

The Australian/New Zealand Standard states that the highest numerical UPF rating that garments may be labelled with is 50. Garments made from fabrics with ratings higher than 50 are labelled as UPF 50+.

## What is the ARPANSA UPF Certification Scheme?

This was developed by ARPANSA (formerly the Australian Radiation Laboratory) to guide purchasers of sun protective clothing. Garments made from fabrics tested by ARPANSA may be labelled with a tag showing the garment's UPF rating which assures consumers of the protective ability of the fabric.




ARPANSA operates a testing service for sun protective clothing and can also provide UPF labels to garment manufacturers.

Since 1992 ARPANSA has issued over 50 million UPF rating tags for labelling sun protective products.