

[ARPANSA - Australian Radiation Protection and Nuclear Safety Agency](#)

Our Services

About Ultraviolet Protection Factor (UPF) Testing

Clothing provides one of the most convenient forms of protection against UVR but not all garments offer sufficient sun protection.



Keep the [schedule of testing charges PDF 106kb](#) for reference but watch for updates.

Use the [fabric testing request form \(PDF 128kb\)](#) to request the fabric testing service.

Over-exposure to solar ultraviolet radiation (UV radiation) can cause sunburn, skin damage and an increased risk of developing skin cancer. Clothing provides one of the most convenient forms of protection against UVR but not all garments offer sufficient sun protection. All fabrics have some ability to block UVR and laboratory testing is performed to determine how effective different fabrics are. The ARPANSA UV laboratory performs Ultraviolet Protection Factor (UPF) testing on fabrics and other materials.

The UPF rating indicates how effective a fabric is at blocking out solar ultraviolet radiation. This testing is performed according to Australian/New Zealand standard **AS/NZS4399**. UPF ratings range from 15 to 50 with higher ratings indicating more effective blocking and therefore better protection for the wearer of a garment made from the fabric. Fabrics that test higher than UPF 50 are rated as UPF 50+.

ARPANSA (formerly the Australian Radiation Laboratory) has performed these measurements on fabrics since the early 1990's. Testing methods developed here were adopted by the Australian Standard; *Sun protective clothing - Evaluation and classification* **AS/NZS4399: 1996**. This standard was released in July 1996 to introduce a standardised UPF testing method and it also specifies appropriate wording to be placed on labels of clothing claiming to offer sun protection. Copies of this standard are available from [Standards Australia](#).

UPF testing involves exposing a fabric to ultraviolet radiation (UVR) and measuring how much is transmitted through the sample. Different wavelengths of radiation in the UVR spectrum have different effects on human skin and this is taken into consideration when calculating the UPF rating.

Factors that contribute to the UPF rating of a fabric are: -

- Composition of the yarns (cotton, polyester, etc)
- Tightness of the weave or knit (tighter improves the rating)
- Colour (darker colours are generally better)
- Stretch (more stretch lowers the rating)
- Moisture (many fabrics have lower ratings when wet)
- Condition (worn and faded garments may have reduced ratings)
- Finishing (some fabrics are treated with UV absorbing chemicals)

ARPANSA operates a service for measuring the Ultraviolet Protection Factor (UPF) rating of sun protective materials. Samples are processed in order of receipt. An additional Express Testing charge of 50% of the standard charge applies to each sample required to be processed out of sequence. Indicate on the testing request form if any samples require Express Testing. UPF testing request forms are available from the ARPANSA UPF testing section on +61 3 9433 2211.

In July 2000 a Goods and Services Tax (GST) of 10.0% was introduced in Australia. Australian companies pay the charges in the GST-included column. Non-Australian companies pay the charges in the GST-exempt column. All prices are in Australian dollars. The preferred methods of payment are in Australian dollars, either by bank cheque made out to "ARPANSA" or by electronic funds transfer (EFT). Note that overseas EFT payments attract an additional bank fee of A\$20 per transaction. Contact the ARPANSA accounts department on +61 3 9433 2250 for specific details of payment by EFT.

Charges for UPF testing as at 1 December 2005 are:

Number of Samples	Cost per sample (\$)including Australian GST	Cost per sample (\$)excluding Australian GST
1 to 10	AUD \$93.60	AUD \$85.10

11 to 20	AUD \$85.80	AUD \$78.00
21 to 30	AUD \$77.75	AUD \$70.70
31 to 40	AUD \$69.95	AUD \$63.60
More than 40	AUD \$62.15	AUD \$56.50

Notes about Fabric Sampling and Identification

To obtain meaningful UPF results it is essential that samples sent for UPF testing are representative of the bulk of material. Due to manufacturing variations, UPF results for one batch of material may not apply to different batches of the same material.

The Australian/New Zealand standard for sun protective clothing, AS/NZS 4399, specifies certain requirements for test reports. These include adequate descriptions of the type and colour of the material tested. ARPANSA cannot issue an AS/NZS 4399 compliant report unless adequate descriptions are supplied with samples.



NATA Accredited Laboratory

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