

## **POSITION STATEMENT – USE OF SPF30+ SUNSCREENS**

In Australia, primary sunscreens with an SPF rating of 4 and above must be listed on the Australian Register of Therapeutic Goods of the Therapeutic Goods Administration<sup>1</sup>. Products can only be listed on the register if they are tested in accordance, and comply with, the Australian/New Zealand Standard AS/NZS 2604: Sunscreen Products – Evaluation and Classification<sup>2</sup>.

Currently the highest sun protection factor (SPF) for sunscreen available in Australia is SPF30+<sup>3</sup>. The SPF30+ rating has been set by Standards Australia, which is satisfied that current testing practices can reliably measure up to this level only<sup>3</sup>.

Sunscreen is an important sun protection measure but should not be used as the first or only line of defence against ultraviolet radiation (UV radiation) and should always be used in conjunction with other sun protection measures<sup>4</sup>.

No matter what the stated SPF rating, no sunscreen product available provides 100% protection against UV radiation<sup>5</sup> and some UV radiation will always reach the skin. In laboratory conditions an SPF30+ sunscreen filters approximately 96.7% of UV radiation. However over 3% of UV radiation transmits through to the skin. The amount of UV radiation transmitting to the skin increases as length of exposure time increases.

Sunscreen should not be used to extend time in the sun or to achieve a suntan. Sunburn and skin damage can occur even when sunscreen is applied<sup>2</sup>, and skin damage can occur even though the skin does not appear to be sunburnt.

There is no scientific evidence linking potential carcinogenic effects as a result of the chemicals contained in sunscreen<sup>6</sup>.

## **Recommendations**

### Total protection

Sunscreen should always be used in conjunction with other sun protection measures such as wearing tightly woven clothing that covers the arms, legs and trunk, a broad-brimmed, legionnaire or bucket style hat, sunglasses, seeking shade whenever possible and avoiding outdoor activity during peak UV periods (11am-3pm daylight-saving time and 10am-2pm other times of the year).

### SPF30+, broad spectrum and water resistant

- The most effective sunscreen is labelled SPF30+, broad spectrum and water-resistant.
- Sunscreen that is broad spectrum and has an SPF rating filters out both UVA and UVB rays.
- Sunscreen with an SPF of 30+ provides very high protection against UVB rays.
- Water resistant sunscreen protects the skin during swimming and physical activity provided it is not wiped off.

### Correct application

Sunscreen should be applied to clean, dry skin at least 20 minutes before going outside. It is recommended that an average-size adult use one teaspoon of product on each arm and leg, on the back and on the torso. Half a teaspoon should be applied to the face and neck – including the ears and the back of the neck. Sunscreen should be reapplied every two hours.

## **Effectiveness of sunscreen against skin cancer**

When used correctly, mainly during unintentional sun exposure, (i.e. sun exposure not sought specifically to gain a suntan) topical sunscreens reduce the risk of sunburn<sup>4</sup>. Sunburn is a risk factor for all skin cancer types, especially melanoma and basal cell carcinoma, and preventing sunburn may help reduce the risk of skin cancer and other skin damage<sup>3,7</sup>.

There is evidence that regular use of sunscreen may prevent and/or reduce incidence of squamous cell carcinoma and solar keratosis<sup>8,9</sup>.

There is less conclusive evidence available regarding the extent to which sunscreen prevents melanoma and basal cell carcinoma<sup>4</sup>. Current evidence does indicate that regular use of sunscreen in childhood can prevent development of nevi (a type of mole) and freckling as well as sunburn. Nevi and sunburn are risk factors for melanoma and basal cell carcinoma<sup>10</sup>.

## Sun Protection Factor (SPF) and broad spectrum

- Current evidence indicates that both UVA and UVB radiation are contributing factors to melanoma and non-melanocytic skin cancers<sup>3,11,12</sup>.
- Sunscreen may be labelled with a Sun Protection Factor (SPF) number only or with an SPF number and the words 'broad spectrum'.
- As defined in the Australian Standard, sunscreen that is labelled as broad spectrum must filter UVA solar radiation<sup>2</sup>.
- Most broad-spectrum sunscreen currently available filters both UVA and UVB radiation<sup>10</sup>. However some sunscreen formulations that are NOT labelled broad spectrum, but do have an SPF number, may apply to the UVB range of solar radiation only.
- Sunscreens need to be applied liberally to achieve the SPF protection claimed on the label<sup>5</sup>. Poor application may result in SPF protection that is 1/3 to 1/4 of that expected from the product label<sup>13</sup>.
- An SPF number should be used as a guide only to the level of protection that a sunscreen can provide – not to determine how long an individual will take to become sunburnt<sup>2</sup>. Season, geographic location, skin type, correct application and other variables will impact on the length of time an SPF30+ sunscreen will prevent sunburn.

## Chemicals in sunscreen

- The chemicals used in sunscreen available in Australia have been tested and approved by the Therapeutic Goods Administration as being both safe and effective.
- Chemicals in sunscreen are classified as chemical filters (cinnamates, benzophenones, and salicylates) or physical filters (titanium dioxide and zinc oxide). Chemical filters work by binding with the cells in the skin and absorbing UV radiation and dispersing it as heat before it can damage the cells. These sunscreen components are referred to as "organic". Physical filters contain micro-fine particles that sit on the surface of the skin and act as a physical barrier. These sunscreen components are also referred to as being "inorganic". Sunscreen can contain one or the other and many contain both<sup>5</sup>.
- In addition to sun screening agents, sunscreen also contains preservatives and may contain fragrance<sup>14</sup>.
- There is currently no scientific evidence demonstrating long-term side effects including any hormonal effects, following regular use of sunscreen<sup>14</sup>.
- Short-term side effects may include reactions, such as skin irritation, stinging or development of a rash. It is recommended that affected people try another brand and look for products that are fragrance-free, labelled as suitable for sensitive skin and products that contain inorganic chemicals only. Products containing titanium dioxide and zinc oxide may be most suitable.

## Babies

Infants under six months of age should be kept out of the sun as much as possible, thereby avoiding the need to use sunscreen. However, there may be times when this is not possible. In such situations sunscreen may be applied to areas such as the face, ears and hands if these areas cannot be protected with wraps.

*For inquiries relating to sunscreen use on young children and babies, refer to The Cancer Council Australia's statement titled "Sun protection and Babies".*

**Date: June 2005**

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## References

- <sup>1</sup> Therapeutic Goods Administration. Australian regulatory guidelines for OTC medicines; Sunscreens. Commonwealth Department of Health and Ageing. 1 July 2003
- <sup>2</sup> Australian/New Zealand Standard, AS/NZ 2604:1998. Sunscreen products – evaluation and classification
- <sup>3</sup> Australian Radiation Protection and Nuclear Safety Agency. Resource Guide for UVR Protective Products. Commonwealth Department of Health and Ageing, 1999
- <sup>4</sup> International Agency for Research on Cancer. Summary recommendations for public health action; Cancer-preventative effect of sunscreens. World Health Organisation, Lyon 2002
- <sup>5</sup> Gies P, Holmes G. The effective use of sunscreens. Cancer Update in Practice. The Cancer Society of New Zealand. January 2003
- <sup>6</sup> Huncharek M, Kupelnick B. Use of topical sunscreens and the risk of malignant melanoma: a meta-analysis of 9067 patients from 11 case-control studies. Am J Public Health. 2002;92(7):1173-1177
- <sup>7</sup> Armstrong B.K. How sun exposure causes skin cancer: an epidemiological perspective. In Hill.D. et al (eds.), Prevention of Skin Cancer, 21-54. 2004 Kluwer Academic Publishers.
- <sup>8</sup> Green A, Williams G, Neale R, et al. Daily sunscreen application and beta-carotene supplementation in prevention of basal cell and squamous cell carcinomas of the skin: a randomised controlled trial. Lancet. 1999;354(9180):723-9
- <sup>9</sup> Thompson SC, Jolley D, Marks R. Reduction of solar keratosis by regular sunscreen use. N Engl J Med. 1993;329(16):1147-51
- <sup>10</sup> Gallagher RP, Lee TK, Bajdik CD. Sunscreens: can they prevent skin cancer? In Hill.D. et al (eds.), Prevention of Skin Cancer, 21-54. 2004 Kluwer Academic Publishers.
- <sup>11</sup> Agar N, Halliday G, Barnetson R, Ananthaswamy H, Wheeler M, Jones A. The basal layer in human squamous tumours harbours more UVA than UVB fingerprint mutations: A role for UVA in human skin carcinogenesis. The National Academy of Sciences of the USA. 2004
- <sup>12</sup> International Agency for Research on Cancer Monograph on the Evaluation of carcinogenic Risks to Humans. Solar and Ultraviolet radiation 1992; 55:95-122
- <sup>13</sup> Taylor S. "SunSmart Plus": the informed use of sunscreens. MJA 2004;180(1):36-37
- <sup>14</sup> Marks R. Sunscreens: Questions and Answers. Australian Cancer Society. 1993

