

SAFEGUARDS

SGS CONSUMER TESTING SERVICES

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CLAIM SUPPORT OF SPF (UVB) OR PFA (UVA) ON SUNSCREEN PRODUCTS

Light from the sun comes in many different wavelengths. Scientists define segments of sunlight as Ultraviolet, Visible, and Infra Red wavelengths. The Ultraviolet segment is further subdivided into wavelength ranges referred to as UVA (315-400 nm), UVB (280-315 nm) and UVC (100-280 nm). Traditionally, sunscreen products were designed to filter out UVB wavelengths because excess exposure allows these wavelengths to reach the innermost layer of the epidermis, the top layer of the skin. This region is where new skin cells are continually being made. UVB damage to this layer causes surface cells to bubble and cells in the bottom layer of the epidermis to mutate and cause cancer. However, today, most sunscreens also contain UVA filters. UVA wavelengths have enough energy to penetrate the top layer of skin and enter the next lower layer. Excess exposure to UVA alters molecules that support the skin's surface and cause sagging and the beginning of wrinkles. Anti-aging skin treatments were created to stop this phenomenon from occurring. UVA sunscreens applied to the surface of the skin absorb the UVA wavelengths before they penetrate to the next layer. As a result, the molecules are not damaged and they continue to support the skin, keeping the surface tight and without wrinkles.

Health authorities require the claimed efficacy of sunscreen products to be supported. There are corresponding SPF or PFA test methods to support the SPF (UVB) or PFA (UVA) claim on sunscreen products in different countries. Recently, ISO (the International Organization for Standardization) has developed a standard in-vivo method for UVB and UVA in 2010 and 2011 respectively. ISO has now established a new standard for UVA determination by in-vitro method, ISO 24443, which helps the industry to determine the UVA absorbance of sunscreen products in a reproducible



way. The latest version of the Australian standard AS/NZS 2604:2012 also adopts ISO 24444 and 24443 for reference.

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TABLE 1. SUMMARY OF DIFFERENT METHODS FOR SUNSCREEN PERFORMANCE

SUNSCREEN CLAIM/TEST	ISO METHOD	US FDA METHOD	AUSTRALIA METHOD	CHINA METHOD
DETERMINATION OF UVB (SPF VALUE)	ISO 24444:2010 (by human subjects)	21 CFR 352.73 21 CFR 352.76 (by human subjects)	AS/NZS 2604:2012 (Adopts ISO 24444)	Hygienic Standard of Cosmetics (by human subjects)
DETERMINATION OF UVA (PFA VALUE OR BROAD SPECTRUM PERFORMANCE)	ISO 24443:2012 (by instrumental analysis) ISO 24442:2011 (by human subjects)	US FDA In-Vitro Broad Spectrum Test	AS/NZS 2604:2012 (Adopts ISO 24443)	Hygienic Standard of Cosmetics (by human subjects)

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Rely on a company whose experience and competence makes it the world's leader in Testing, Inspection and Certification. If you are interested in our services, please don't hesitate to contact us and visit our website.

**FOR ENQUIRIES:**

Global Competence Support Centre: gcsc@sgs.com

HK-Ivan Tsui Tel: +852 2204 8374 (ext 1374), Fax: +852 2603 7577 or Ivan.Tsui@sgs.com

Asia – Hong Kong. Tel: +852 2334 4481 Fax: +852 2144 7001 mktg.hk@sgs.com

Australasia – Perth. Tel: +61 (0) 3 9790 3418 Fax: +61 (0) 3 9701 0988 au.cts@sgs.com

Europe – London – UK. Tel: +44(0) 203 008 7860 Fax: +44 (0) 203 00 7870 gb.cts.sales@sgs.com

Africa & Middle East – Turkey. Tel: +90 212 368 40 00 Fax: +90 212 296 47 82 sgs.turkey@sgs.com

Americas – USA. Tel: +1 973 575 5252 Fax: +1 973 575 7175 uscts.inquiries@sgs.com

www.sgs.com/cts Global Competence Support Centre: gcsc@sgs.com

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