

Boots Star UVA Rating Determination - per sample

The Boots Company 2008 Method . UVA/UVB Ratio is calculated from this measurement technique. Classification according to the labeling requirements is reported.

Experimental Design

Transmittance of a dried down film is measured between 290 nm and 400 nm.

Challenge of the sample film is required by pre irradiation with a compliant light source which is designed to imitate sunlight.

The spectral curve is measured, using a purpose built spectrophotometer which has been fitted with an integrating sphere device.

Method

The substrate for measurement is abraded Polymethylmethacrylate (PMMA) Plates.

A thin film of the test product, at a thickness of 1.0 mg/sq cm, is applied, by a standard application technique. This involves applying a series of around 30 dots over the area of the plate and then rubbing out evenly with the finger covered by a finger cot which has been pre-impregnated to saturation with the same product. The prepared plates are left to air dry for 15 min. After initial pre-irradiation measurements, a fixed dose of UV light of 17.5 J/sq cm is applied to the plates in a Xenon Arc solar simulator, filtered to comply with the requirements of the Boots Protocol. Post irradiation measurements are then made.

An SPF 290 Analyser is utilised for measurement. The instrument is calibrated on a regular basis. Measurements are taken against a matching blank glycerin loaded PMMA plate, at increments of 2 nm between the range of 290 and 400 nm.

A minimum of 5 measurements are taken pre-irradiation and a corresponding 5 are made post irradiation, on non-overlapping areas of each of the plates, such that the accumulated measured area of 2.0 cm has been sampled.

Reporting

UVA/UVB Ratios are calculated for both before and after irradiation. Star rating is allocated according to the results of the two measurements.

		INITIAL mean UVA:UVB RATIO			
		0.0 to 0.59	0.6 to 0.79	0.8 to 0.89	0.9 and over
	0.0 to 0.56	No Rating	No Rating	No Rating	No Rating
POST EXPOSURE	0.57 to 0.75	No Rating	★★★	★★★	★★★
mean UVA:UVB RATIO	0.76 to 0.85	No Rating	★★★	★★★★	★★★★
	0.86 and >	No Rating	★★★	★★★★	★★★★★

References

Measurement of UVA;UVB Ratios According to the Boots Star Rating System (2008 Revision).

DESOP 041 Procedure for determining BOOTS STAR Rating - UVA/UVB Ratios.

A New Substrate To Measure Sunscreen Protection Factors Throughout The Ultraviolet Spectrum. B L Diffey and J Robson, J. Soc. Cosmet. Chem., 40, 127-133, May/June 1989