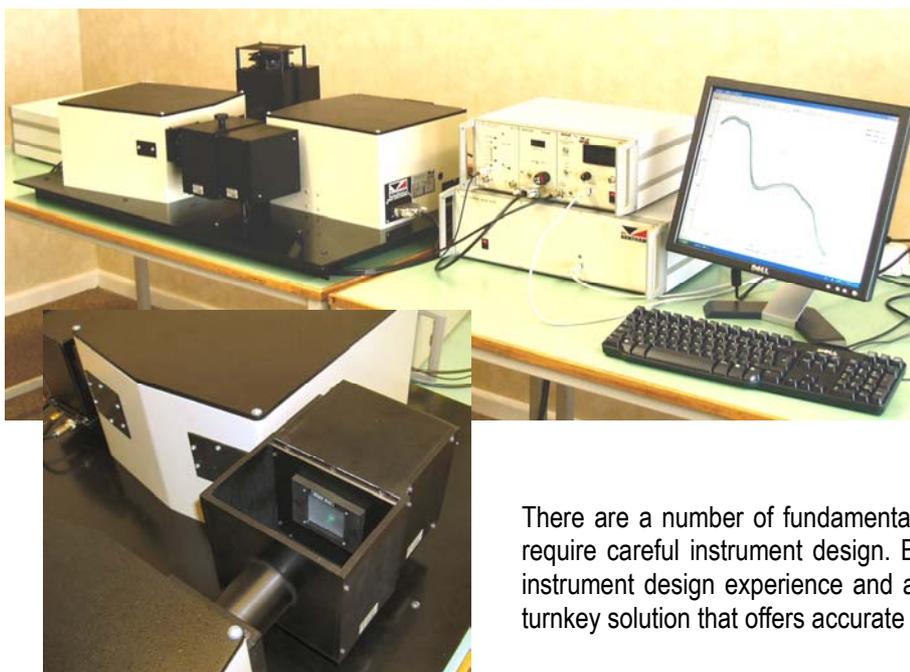


SSUV300 *In Vitro* UVA Testing of Sunscreen Products



The SSUV300 performs the accurate measurement of UV transmittance through thin film sunscreen samples in strict accordance with the COLIPA guideline "Method for the In Vitro Determination of UVA Protection Provided by Sunscreen Products".

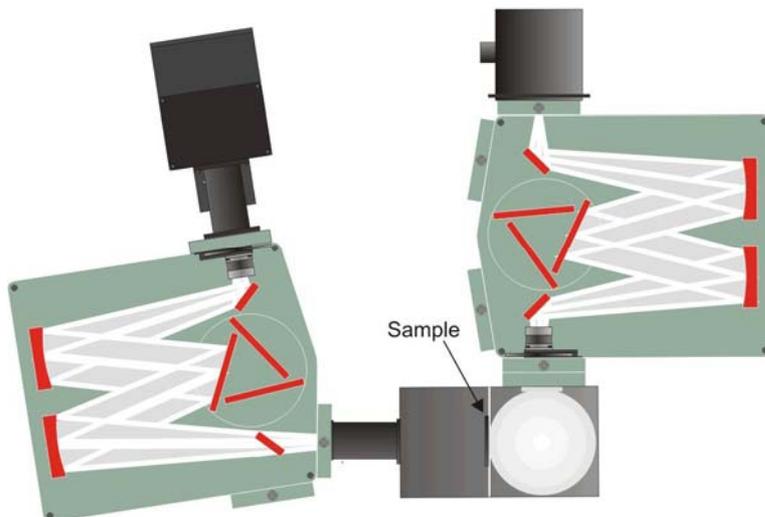
There are a number of fundamental difficulties with this method that all require careful instrument design. Bentham has drawn on its extensive instrument design experience and applications knowledge to produce a turnkey solution that offers accurate and repeatable measurements.

Sunscreens are highly absorbing in the UV

The need to measure highly absorbing samples in the UV requires the system to have a large dynamic range. Therefore, high scattered light rejection within the system is essential. The SSUV300 is based on the DTMc300 double monochromator which has excellent scattered light rejection proven in many demanding UV applications. Absorption levels over 6 decades (down to 6 O.D.) can be measured with confidence.

Sunscreen products fluoresce

Sunscreen products typically exhibit strong fluorescent effects which need to be suppressed during a measurement. The SSUV300 minimises fluorescent effects in a most elegant way. The sample is placed in between the two halves of the double monochromator. This eliminates the fluorescence effects more effectively than conventional filter techniques whilst retaining the full scattered light rejection performance of the double monochromator. Additionally, because the two halves can be independently controlled, it is possible to fully investigate fluorescence effects by producing both excitation and emission spectra of any sample.



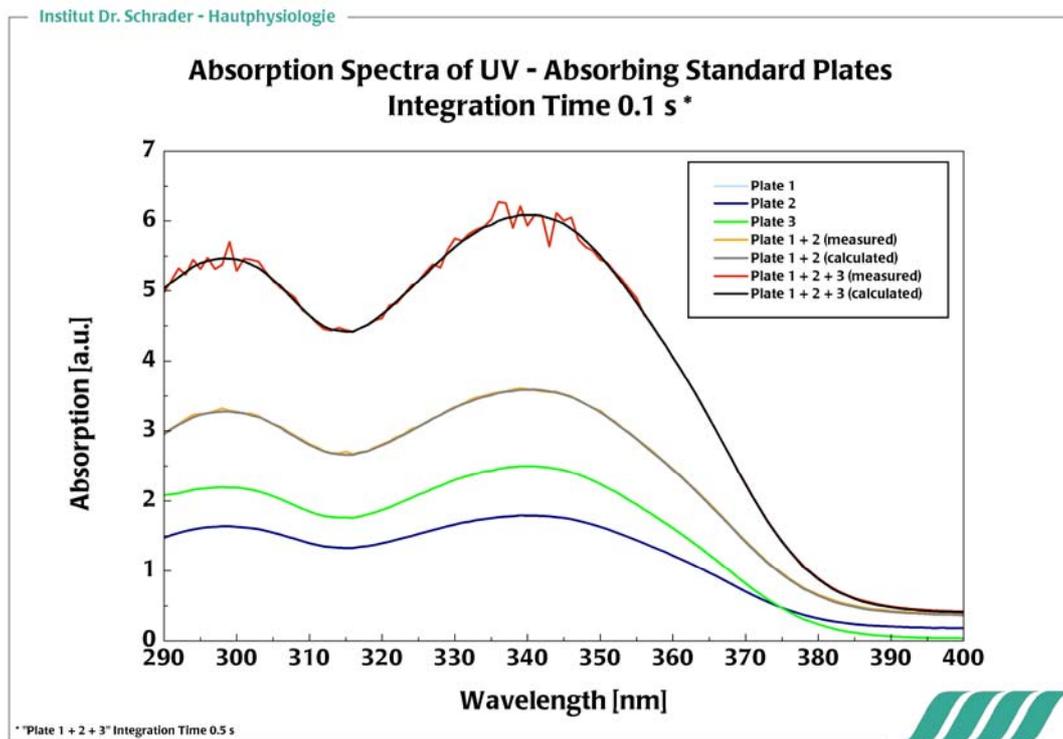
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Sunscreens are very light scattering

As sunscreens are so highly scattering, it is essential to ensure that the sample chamber optics maximise the collection of light transmitted through the sample. This requires careful design of the integrating sphere's entrance port and the ability to hold the sample in very close proximity to it. The measurement beam diameter within the SSUV300 can be set to accommodate sample non-uniformity.

Sunscreens require careful sample preparation and handling

Sample preparation is always an issue for anyone involved with testing of sunscreen products. The COLIPA guideline details the appropriate method using PMMA plates. The SSUV300 sample chamber provides good access and a very convenient-to-use magnetic sample carrier which can be adjusted to match different sample thicknesses. This can be easily positioned to permit the measurements at a number of different sites on the sample as set out in the guidelines. An optional cuvette holder can also be used within the sample chamber.



Measurement spectra courtesy of Institute Dr. Schrader, Holzminden, Germany