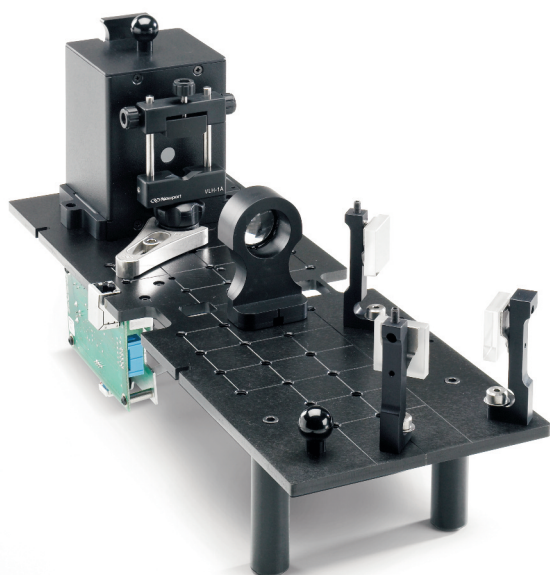
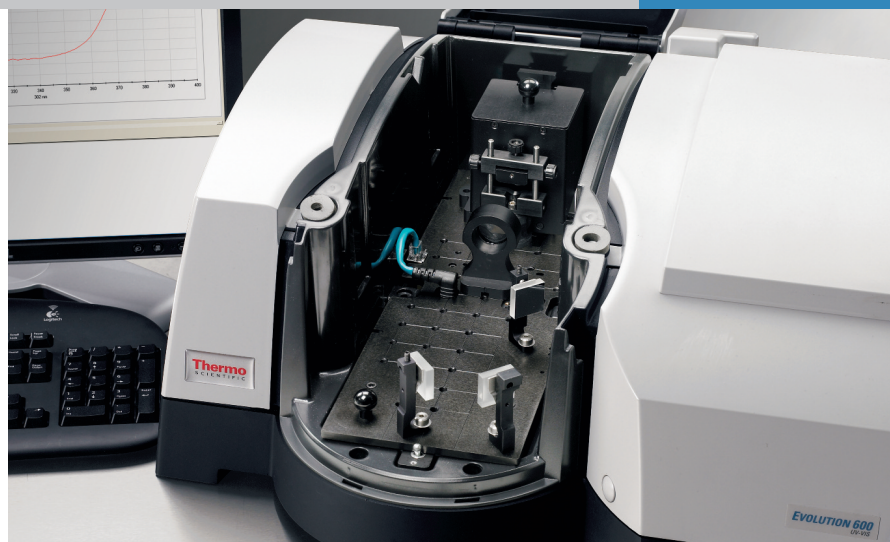


Thermo Scientific Diffuse Transmittance Accessory

High performance integrating sphere accessory for scattered and long path transmittance measurements

The Diffuse Transmittance accessory for the Thermo Scientific Evolution UV-Visible spectrophotometer offers a new dimension of capability for measuring the transmittance of scattering solids, lenses, fabrics, haze, and unusually wide or thick samples.



The Diffuse Transmittance accessory (DTA) offers a solution for measuring a variety of challenging samples. Unlike a spectrophotometer's conventional detector, an integrating sphere offers the advantage of collecting all the light that passes through a sample, not just the photons that are transmitted along the axis of the beam. It is also unaffected by changes in the size and shape of the beam, or the precise angle at which the beam enters the detector. For these reasons, the DTA is ideal for measuring:

- UPF of fabrics
- Haze by ASTM D1003
- Pharmaceutical container transmittance under USP 671
- Transmittance or reflectance of curved optics
- Transmittance of multi-lens optical systems

Optimized Sphere Design Delivers Maximum Performance

To deliver the highest possible performance, the integrating sphere on the DTA is constructed using the best available materials and optimized optical design. The 60 mm double beam sphere has a port fraction of below 3%, includes a dedicated photomultiplier tube detector, and is constructed from Spectralon®, which is >99% reflective.¹ The best materials and the smallest port fraction of any spectrophotometer integrating sphere of comparable size allow the DTA to measure transmittance values of less than 1% with accuracy and precision.

Customizable Optical Bench Delivers Maximum Sampling Flexibility

The DTA includes a magnetic steel base, scored on a one inch grid and drilled with ¼-20 threaded holes at the grid intersections, just like a laser table. This versatile base, and the large sample compartment of the Evolution™ 600 UV-Vis spectrophotometer, provide a platform that allows users to:

- Make use of standard optical table mounts to position samples of all types on the accessory
- Accommodate samples up to 14 cm wide or 26 cm long
- Position a standard cuvette holder for turbid solution measurements
- Design a unique optical system to test any optical component or sample

The standard optical system uses three mirrors to bring the beam to the front of the sample compartment, providing the maximum possible pathlength for measuring samples. With the entire sample compartment as your optical bench you have unlimited possibilities when you add your own optical components to take the beam anywhere you desire. Add optical components and sample mounting accessories from your preferred supplier to design the ideal spectrophotometer-based measurement system for your unique application.

Combine with VISIONlite MaterialsCalc Software for ASTM D1003 Haze and Ultraviolet Protection Factor (UPF) of Fabrics

The sphere is fitted with a haze port and is designed with a small port fraction specifically to support the requirements of ASTM method D1003 for determining the haze value of translucent materials such as glass and plastic windows, lenses and lighting envelopes. An optional magnetic mount fabric holder incorporates the required fluorescence filter to support measurements of UPF by the recognized international standards. Haze and UPF calculations are fully automated in the optional Thermo Scientific VISIONlite MaterialsCalc software.

Reference

1. >97% at 250 nm, >98% from 300 nm to 400 nm, >99% from 400 nm to 850 nm. By contrast, barium sulfate spheres achieve only 98% reflectivity at best and 95% at 250 nm. Sphere efficiency increases as $1/(1-R)$, so Spectralon outperforms BaSO₄ considerably across the visible range and by a larger margin in the UV.

Specifications

Accessory Optical Design	Double beam transmission sphere with light trap port
Sphere Diameter	60 mm
Sphere Material	Spectralon
Detector	R928 photomultiplier tube
Measurement Range	220 nm to 850 nm
Port Fraction	2.9% (haze port closed) 3.9% (haze port open)
Optical Bench Baseplate	Magnetic steel with 1 inch scored grid and ¼-20 tapped holes for standard optical table mounts
Beam Height Above Baseplate	46 mm

Ordering Information

Description	Part Number
Diffuse Transmittance Accessory	222-261100
Evolution 600 PC Controlled Spectrophotometer with Thermo Scientific VISIONpro Software	10600201
Small Spot Kit (recommended)	222-261200
VISIONlite™ MaterialsCalc Software (optional for specific applications)	869-124500

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