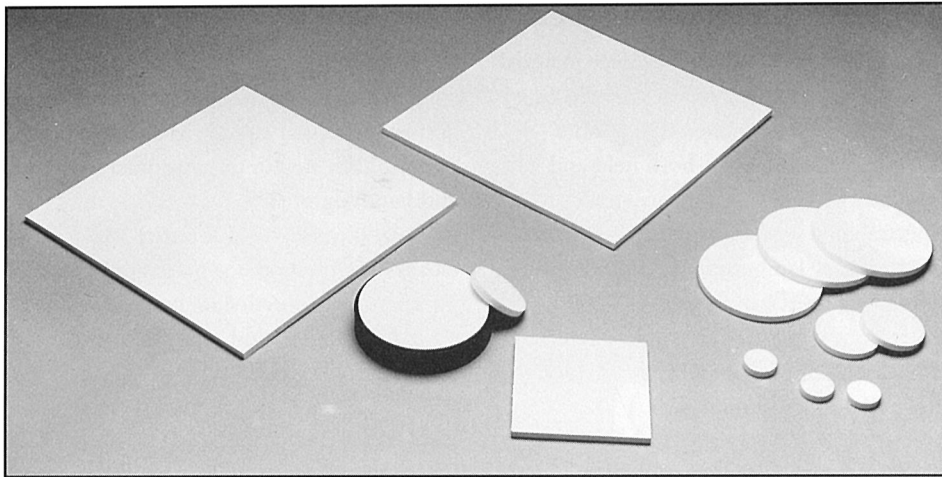


# SPECTRALON DIFFUSION MATERIAL

## APPLICATIONS

- ◆ Fluorescence Chambers
- ◆ Improvement of Light Source Uniformity
- ◆ Improvement of Detector Performance
- ◆ Photomicroscopy
- ◆ Transillumination
- ◆ UV-VIS-NIR Diffusion



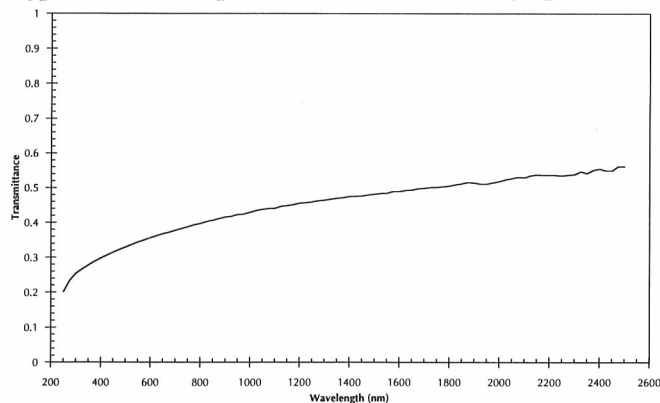
## SPECTRALON UV-VIS-NIR DIFFUSION MATERIAL

Spectralon diffusion material consists of thin sections, generally between 0.1 and 1.0 mm, of specially formulated Spectralon designed to transmit and efficiently scatter incident light. Diffusers fabricated from Spectralon are particularly useful for broad-band diffusion of optical radiation, from the UV spectral region to the NIR spectral region. Spectralon diffusion material is invaluable in reducing the sensitivity of detectors to beam alignment

and improving the uniformity of light sources.

These diffusers have a useful range of 200 - 2500 nm, and are significantly more diffuse than double-ground quartz. However, please note that transmission can vary 2% to 3% across an individual diffuser. The variations are a function of slight differences in the thickness and density of Spectralon diffusion material.

### *Typical 8°/Hemispherical Transmittance of Spectralon Diffuser*



## SPECIFICATIONS AND ORDERING INFORMATION

PART NO.	TYPE	OVERALL DIMENSION (inches)	
		Diameter	Thickness
SDM-050-DU	Disc, unmounted	0.5	0.012
SDM-050-DM	Disc, mounted	0.512	0.25
SDM-100-DU	Disc, unmounted	1.0	0.012
SDM-100-DM	Disc, mounted	1.012	0.25
SDM-200-DU	Disc, unmounted	2.0	0.12
SDM-200-DM	Disc, mounted	2.25	0.25
SDM-200-SU	Sheet, unmounted	2.0 x 2.0	0.012
SDM-200-SM	Sheet, mounted	2.25 x 2.25	0.25
SDM-500-SU	Sheet, unmounted	5.0 x 5.0	0.012
SDM-500-SM	Sheet, mounted	5.25 x 5.25	0.25

*We welcome inquiries for the manufacture of custom diffusers to meet your specific requirements.*

2.13 Spectralon UV-VIS-NIR Diffuser Material

Spectralon diffuser material consists of thin sections, generally between 0.1 and 1.0 mm, of specially formulated Spectralon. This material is designed to transmit and effectively scatter incident light. Diffusers fabricated from Spectralon are particularly useful for broad band diffusion of optical radiation, specifically over the UV, as well as the visible and near-infrared spectral regions. Spectralon diffuser material is invaluable in reducing the sensitivity of detectors to beam alignment and improving the uniformity of light sources.

Spectralon diffusers have a useful range from 250 to 2500 nm and are significantly more diffuse than double-ground quartz. By changing various parameters within the formulation, a range of transmittance can be obtained (see Figure 29). With an increase in transmittance, however, there is a corresponding lessening of the degree of diffuseness (see Figure 30). In addition, transmittance, especially in very high-transmittance pieces, may vary by as much as 2-3% across a piece. These variations are a function of the thickness, density and other factors. At transmittances of 20% or less, Spectralon diffuser material is an almost perfect scatterer of incident radiation.

As with Spectralon reflectance material, diffuser material is totally hydrophobic and very inert. When subjected to 24 hours of atomic oxygen exposure (plasma ashing) a minimal weight loss has been reported and no degradation of the optical properties was observed.

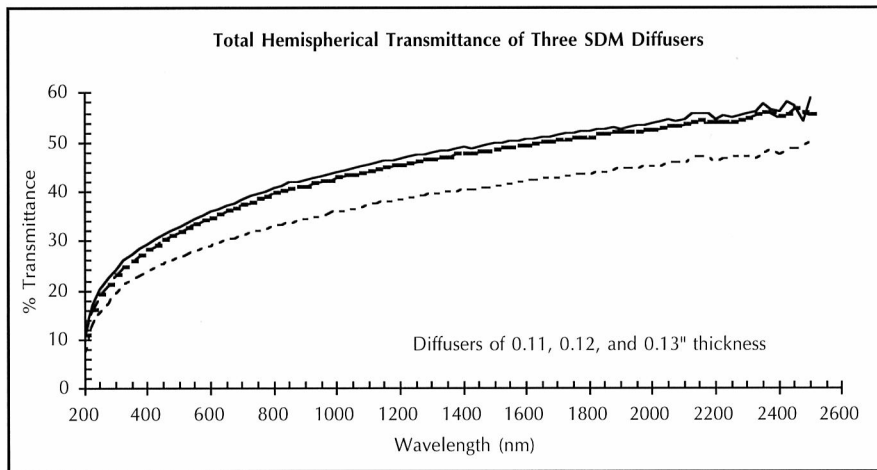


Figure 29 - Total Hemispherical Transmittance of Labsphere SDM Diffusers

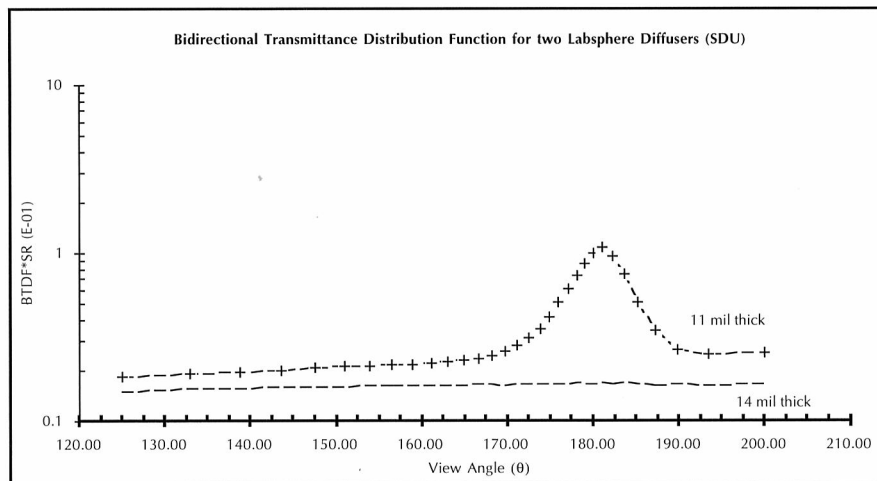


Figure 30 - Bidirectional Transmittance Distribution Function of Labsphere SDU Diffusers

(Data provided by D. Lowrance, Martin Marietta, Boulder, CO.)