

# Spectralon® Diffuse Reflectance Material

**Diffuse reflectance material  
specially fabricated for  
optical components**

Labsphere's Spectralon Diffuse Reflectance Material SRM-99 is a high diffuse reflectance material for applications over the UV-VIS-NIR region of the spectrum.

Spectralon can be machined into a wide variety of shapes for the construction of optical components. The material has a hardness roughly equal to that of high-density polyethylene and is thermally stable to >400 °C.

The surface and immediate subsurface of Labsphere's Spectralon exhibits highly Lambertian behavior. The porous network produces multiple reflections in the first few tenths of a millimeter of Spectralon, creating its highly diffuse reflectance nature.

Our in-house machining allows rapid prototyping throughout the design and development process. This manufacturing flexibility means low or high volume quantities can be delivered. Labsphere's engineering staff has an established industry-wide reputation for its knowledge and experience in laser pump chamber design, and often collaborates with customers to develop custom Spectralon designs.



Spectralon SRM-99 can be calibrated for 8/H Reflectance Factor from 250 to 2500 nm and exhibits relatively flat spectral distribution over most of the UV-VIS-NIR from 250 to 2000 nm. These spectral properties exceed those of most paints, which show strong absorbencies in the UV due to absorbencies by TiO<sub>2</sub> or similar pigments. The hydrophobic nature of Spectralon also leads to exclusion of water overtone bands in the NIR which may occur in barium-sulfate-based materials. The open structure of Spectralon SRM-99 causes both reflectance and transmittance, but not absorbance of light.

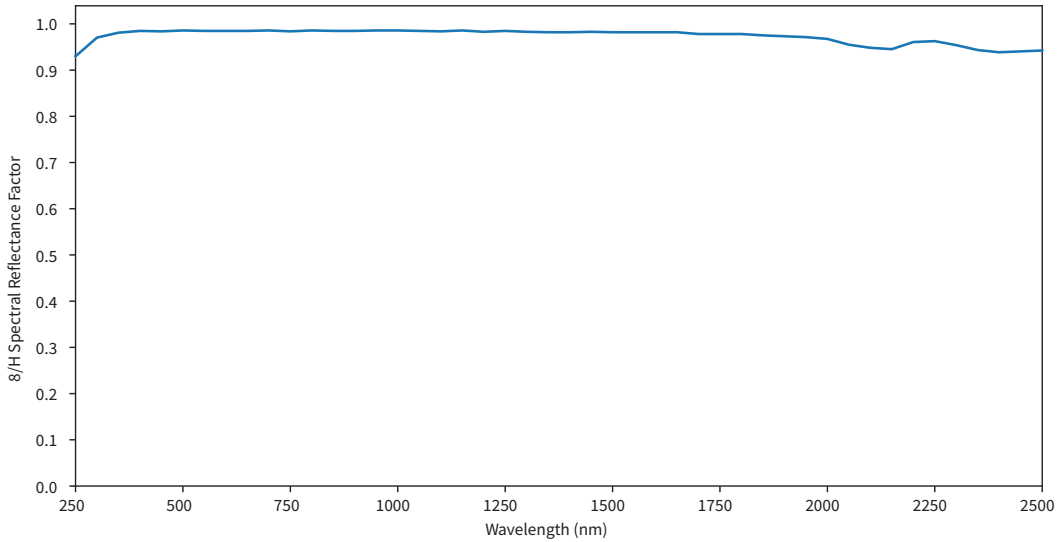
## Value:

- >99% Diffuse reflectance
- Extremely Lambertian
- Chemically inert
- Thermally stable
- Environmentally stable
- NIST traceable calibration

## Applications:

- Optical components
- Densitometer standards
- Remote sensing targets

Typical 8° Hemispherical Reflectance of SRM-99



## Specifications

Property	ASTM Test	Value
Water Permeability:	D-570	<0.001% (hydrophobic)
Hardness:	D-785	20 - 30 Shore D
Thermal Stability:		Decomposes at >400 °C
Coefficient of Linear Expansion:	D-696	5.5 - 6.5 x 10 <sup>-5</sup> in/in °F <sup>-1</sup> , or, 9.9 - 11.7 x 10 <sup>-5</sup> in/in °C <sup>-1</sup>
Flammability:		Non-Flammable (UL rating V - 0)
Yield Stress:	D-638	208 psi
Volume Resistivity:		>10 <sup>18</sup> Ω/cm
Dielectric Strength:		18 V/μm

## Typical Reflectance Values for Spectralon SRM-99

Wavelength Range (nm)	8°/Hemispherical Spectral Reflectance Factor
250	0.925
300	0.925
350	0.975 - 0.995
500 - 700	0.985 - 0.995
750 - 1600	0.975 - 0.995
1650 - 2500	0.925

## Outgas Test (ASTM E-595)

Total Mass Loss: (TMC)	0.00%
Collected Volatile Condensable Material: (CVCM)	0.03%
Water Vapor Recovered: (WVR)	0.00%

For helpful information regarding designing parts from Spectralon, please refer to Spectralon Design Guidelines.