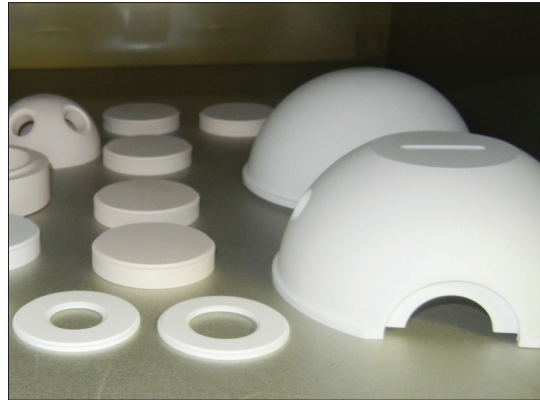


# Space-grade Spectralon<sup>®</sup> Reflectance Material

Diffuse reflectance material designed for space applications



## Accurate

Labsphere's Space-grade Spectralon Reflectance Material has gained wide acceptance as a reflecting diffuse material for terrestrial remote sensing applications for both field and laboratory applications. Space-grade Spectralon combines high reflectance with an extremely Lambertian reflectance profile.

Labsphere's Space-grade Spectralon has undergone extensive testing for UV exposure, Proton bombardment, atomic oxygen exposure,  $\alpha$ -Lyman radiation, outgassing and static charge testing by national laboratories, such as Jet Propulsion Laboratory, Goddard Space Flight Center, TRW and CSEM. This testing has led to the development of a stringent manufacturing process that eliminates potential contaminants which lead to UV degradation.

## Quality

Space-grade Spectralon is developed using an advanced manufacturing process that involves special cleaning and baking procedures, rigid inspection, special handling and packaging, and a full documentation of the process. Each sample undergoes rigorous mechanical and spectroscopic analysis.

The material packaging process includes specially configured sample containers with nitrogen purging to protect against molecular and particulate contamination. Each step of the manufacturing process ensures that the material is of the highest purity and cleanliness, essential for space environment applications.

## Customizable

Labsphere's Space-grade Spectralon can be machined into a wide variety of shapes for many different applications. Labsphere's engineering staff has an established industry-wide reputation for its knowledge and experience in Spectralon design and often collaborates with customers to develop custom designs to meet their specific requirements.

## Value

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

## Applications

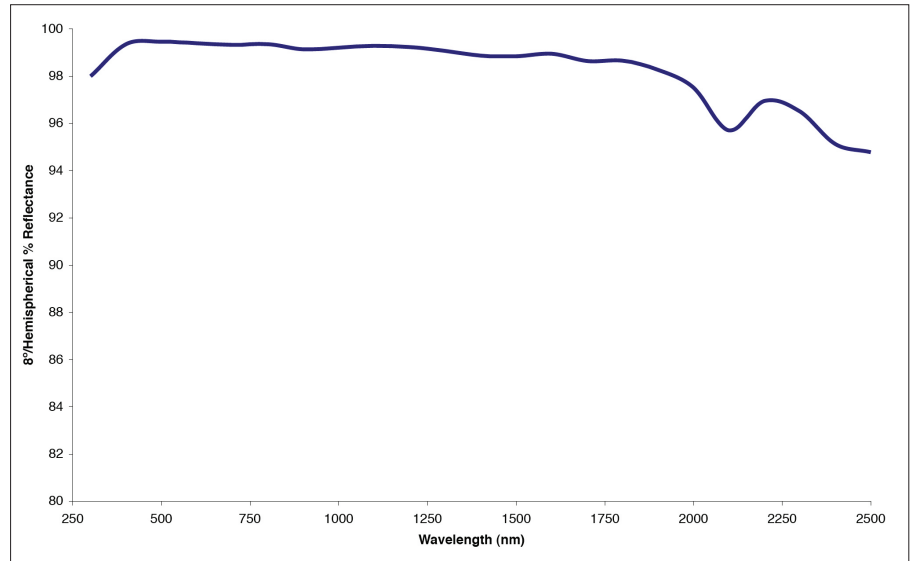
- Solar illuminated diffuse panels
- Radiance calibration standards
- Calibration targets
- Integrating sphere uniform sources

## Specifications

### Property

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 - O)
Yield Stress:	D-638	208 psi
Volume Resistivity:		>10 <sup>18</sup> Ω/cm
Dielectric Strength:		18 V/μm

## Typical 8° Hemispherical Reflectance SRM-990



## Typical Reflectance Values for Space-grade Spectralon

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%

## Parts that are made under the current Space-grade process should be specified at:

- Not greater than +/-0.010" on any mechanical dimension – applies to parts with <4" dimensions
- Not greater than +/-1° on any mechanical angle – applies to parts with <4" dimensions.
- For longer or larger parts of greater than 4" add +/-0.001" to any dimension for every dimensional inch added to the part.
- For longer or larger parts of greater than 4" add +/-0.1° to any angular dimension for every dimensional inch added to the part.

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