



Description

Spectralex reflection standards (diffuse reflection standards) are made from our high-purity optical PTFE. This pure material provides the highest known diffuse reflection in the spectral range of 250–2500nm. The reflection behaviour is therefore almost perfectly Lambertian. In the spectral range of 300–1500 nm, the pure material achieves a reflection value of up to 99%.

The addition of special black pigments leads to the generation of additional defined reflection grades (greyscale) in the reflection standards that are needed in order to identify and determine the linearity of optical detector systems.

Spectralex is also UV-resistant, water-repellent (hydrophobic) and resistant to almost all chemical compounds (the physical properties may change if additional substances are added). The material and the reflection standards it is used to produce are therefore very durable and resistant to environmental influences.

The optically constant reflection spectrum, the Lambertian BRDF properties and simple maintenance steps in the event of contamination make Spectralex the perfect reference test piece in the calibration of optical systems.

Application

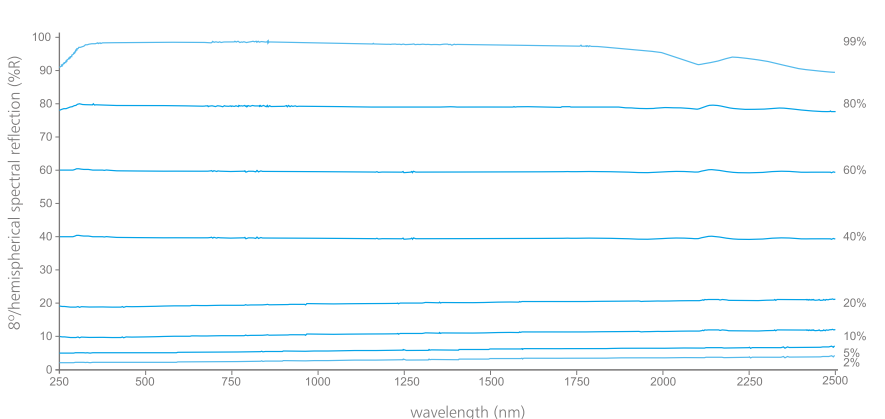
Calibration of

- colorimeter
- radiometer
- photometer
- spectrophotometer
- densitometer
- integrating sphere systems
- reflectometer
- a.o. optical equipment

Linearity test of

- detector systems
- colorimeter
- densitometer
- spectrophotometer
- a.o. optical equipment

Reflectance graph



Calibration

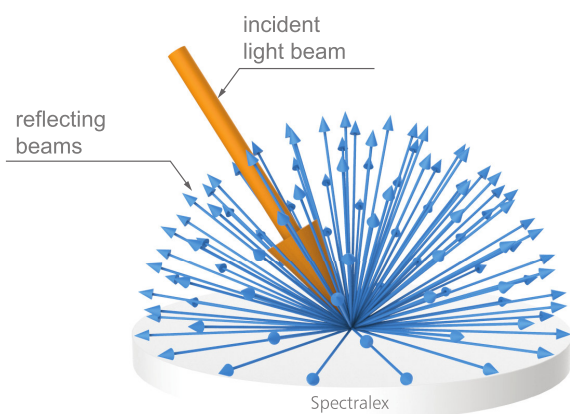
Lake Photonics has a calibration laboratory for measuring the diffuse reflection of flat surfaces (spectral radiance factor $\beta(8^\circ/d)$). The measurements are taken using a UV-Vis-NIR spectrophotometer (Lambda 950S) by PerkinElmer®. The spectral range of the measurements is between 250 and 2450nm. The measurement data is traceable to the National Metrology Institute of Germany (PTB), and is provided electronically in measuring steps of 1nm. A certificate with printed measured values in 50nm steps is also provided.

Optical properties

reflectance value	350 – 1500nm = ~99%R
(Spectralex without additives)	250 – 2500nm = ~93%R
laser damage threshold (LDT)	~8 J/cm ³
refractive index	~1,38
surface homogeneity	+/- 0,2%R

* various greyscale available:

80%R, 60%R, 40%R, 20%R, 10%R, 5%R, 2%R	
surface homogeneity (grayscale):	+/- 1 %R
linearity of the spectrum (grayscale):	+/- 0,5 %

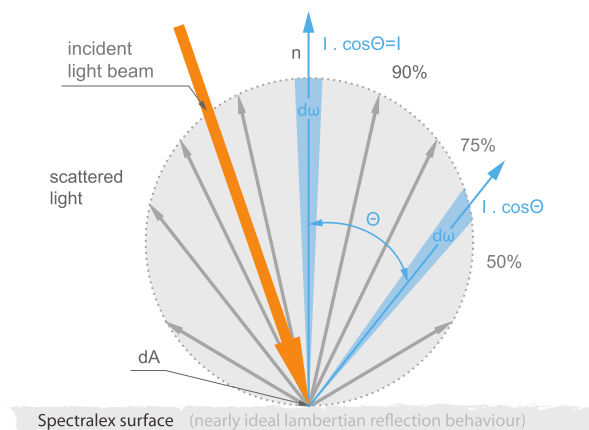


Technical properties

working temperature	-40°C – 130°C
humidity range	10% – 90% RH

Physical properties

- universal chemical resistance
- resistance to UV radiation
- insoluble in water (hydrophobic, nonpolar)
- physiologically safe



Order information

article number		reflectance value	reflectance surface	dimensions
uncalibrated	**calibrated (250-2500nm)	(%R)	(diameter)	(diameter / height)
DRS-50-99-U	DRS-50-99-C	99	Ø 50mm	Ø 60mm / 14mm
DRS-30-99-U	DRS-30-99-C	99	Ø 30mm	Ø 40mm / 14mm
DRS-50-80-U	DRS-50-80-C	80	Ø 50mm	Ø 60mm / 14mm
DRS-30-80-U	DRS-30-80-C	80	Ø 30mm	Ø 40mm / 14mm
DRS-50-60-U	DRS-50-60-C	60	Ø 50mm	Ø 60mm / 14mm
DRS-30-60-U	DRS-30-60-C	60	Ø 30mm	Ø 40mm / 14mm
DRS-50-40-U	DRS-50-40-C	40	Ø 50mm	Ø 60mm / 14mm
DRS-30-40-U	DRS-30-40-C	40	Ø 30mm	Ø 40mm / 14mm
DRS-50-20-U	DRS-50-20-C	20	Ø 50mm	Ø 60mm / 14mm
DRS-30-20-U	DRS-30-20-C	20	Ø 30mm	Ø 40mm / 14mm
DRS-50-10-U	DRS-50-10-C	10	Ø 50mm	Ø 60mm / 14mm
DRS-30-10-U	DRS-30-10-C	10	Ø 30mm	Ø 40mm / 14mm
DRS-50-05-U	DRS-50-05-C	5	Ø 50mm	Ø 60mm / 14mm
DRS-30-05-U	DRS-30-05-C	5	Ø 30mm	Ø 40mm / 14mm
DRS-50-02-U	DRS-50-02-C	2	Ø 50mm	Ø 60mm / 14mm
DRS-30-02-U	DRS-30-02-C	2	Ø 30mm	Ø 40mm / 14mm
SET-50-02-U	SET-50-02-C	*** (freely selectable)	Ø 50mm	2 x Ø 60mm / 14mm
SET-30-02-U	SET-30-02-C	*** (freely selectable)	Ø 30mm	2 x Ø 40mm / 14mm
SET-50-04-U	SET-50-04-C	*** (freely selectable)	Ø 50mm	4 x Ø 60mm / 14mm
SET-30-04-U	SET-30-04-C	*** (freely selectable)	Ø 30mm	4 x Ø 40mm / 14mm
SET-50-08-U	SET-50-08-C	*** (freely selectable)	Ø 50mm	8 x Ø 60mm / 14mm
SET-30-08-U	SET-30-08-C	*** (freely selectable)	Ø 30mm	8 x Ø 40mm / 14mm

* Through the adding of additives, the optical and physical properties can be changed.

** Calibration includes printed certificate inclusive electrical measurement data delivered on a portable data storage device. Traceable to the National Metrology Institute of Germany (PTB).

*** Within the sets, reflectance values are freely selectable. Multiple selection of one reflectance value is also possible.

Delivery information: reflectance standards will be supplied with a protective housing made of POM and a waterproof transportation box.

For customized queries and further information, please contact us directly!