

NIRONE® WHITE REFERENCE

Diffuse reflectance standards with Zenith Polymer®.

NIRONE White Reference is a highly reflective PTFE-based material with superior performance fully comparable to the best laboratory instruments, making it ideal for use as reflection standards.

The NIRONE White Reference is easy to use, for calibrating the NIRONE Sensor, NIRONE Device or NIRONE Scanner.



HIGH-PERFORMANCE AND COMPACT WHITE REFERENCE

Key Benefits

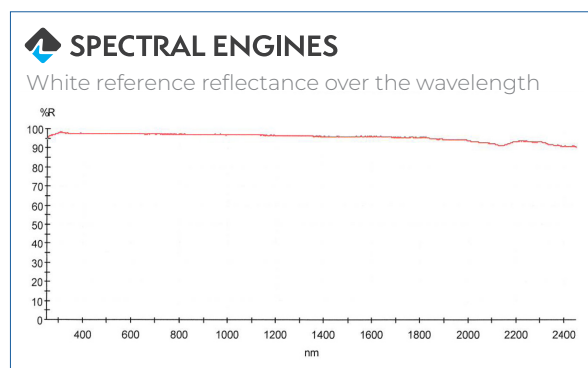
- High-tech reflection standard integrated into a small package
- High reflectance over a wide wavelength range
- Resistant to UV light, high temperature and humidity
- Nearly ideal Lambertian, diffuse reflectance
- The durability and robustness makes it ideal to be used in challenging environments

Advanced Technology

The white reference target has a protective plastic enclosure. The top side has a protective cap that needs to be removed before the measurement, to reveal the white reference material. The bottom part holds the white reference material that is nearly ideal lambertian target, providing diffuse reflectance of minimum 95%. The white reference material is PTFE-based material that is resistant to heat and humidity. The white reference target is periodically measured to capture the shape of the illumination spectrum. For the MEMS based NIRONE sensors this reference measurement is used to remove the illumination spectrum from the captured sample spectrum, such that the final result only contains the spectral information of the sample material instead of the combination of the illumination and sample properties.

Measuring the white reference also compensates some of the device-to-device variations of the MEMS based NIRONE sensors. The result of the white reference measurement is also used to monitor that the NIRONE Sensor is operating correctly.

If the White reference target becomes dirty or damaged, the white reference measurements are corrupted, and the device measurement results are unreliable. Although the material is very durable, care should be taken to prevent contaminants such as finger oils from contacting the materials surface. Best way to prevent contamination is to wear clean clothes when handling the white reference.



Example Applications

- Diffuse reflectance standards for light measurements and calibration
- Calibration of integrating sphere systems
- Calibration of MEMS based spectral sensors, spectrometers, photometers and radiometers
- Environment test targets
- Light source characteristic and behavior

Technical Specifications

SPECIFICATIONS	VALUE
Product	White Reference
Material	PTFE-based material (Zenith Polymer)
Operation and storage temperature range	-10°C to 60°C
Operation and storage humidity range	5% to 95% (hydrophobic)
Spectral range	250 nm – 2500 nm
Reflectance	> 99 % from 350 nm – 1500 nm > 95 % from 1500 nm – 2500 nm
Surface reflectivity is constant	+/- 1 % R
Tolerance in reflectance value depending on batch	+/- 3 %
Absorption bands	None in the range of 250 nm – 2500 nm

Handling recommendations

Zenith Polymer is a hydrophobic material, which means it repels water, however, it is sensitive to contamination from organic and hydrocarbon-based substances, such as oils (fingerprints), soaps, and solvents. Reference material white surface should not be touched while using the target. Always insert the protective cover back in place immediately after measurement. Tissues and other paper products should not be used to contact the material as they may leave behind residual particles that can alter the optical properties of the material. The only liquids that may safely contact the material are clean water (distilled water recommended) and optical grade Isopropyl alcohol.

For correct disposal of the old, contaminated materials either send them back to your supplier or dispose them according to the respective government regulations for organic polymer.

SPECTRAL ENGINES® GMBH
Weisskirchener Str. 2-6
61449 Steinbach, GERMANY
sales@spectralengines.com

WWW.SPECTRALENGINES.COM

 **SPECTRAL ENGINES**