

Sampling Accessories

Spheres for Reflectance

ISP-REF Integrating Sphere for Reflectance

The ISP-REF Integrating Sphere is designed for applications requiring even surface illumination for reflectance measurements -- such as in determining the color of flat surfaces.

The ISP-REF is 1.5" in diameter and features a transfer optic assembly for restricting the fiber viewing angle, a 0.4" aperture sample port and a built-in tungsten-halogen light source with 12 VDC adapter. The sphere is coated with Spectralon®, a white diffusing material that provides a highly Lambertian reflecting surface. A simple switch allows users to manipulate the sampling optic for the inclusion (I) or exclusion (E) of specular reflectance.

The ISP-REF Integrating Sphere is small and compact -- measuring just 54 mm x 57 mm x 83 mm (LWH) and weighing 865 g -- yet it is durable enough for use outside the laboratory.

Item Codes: ISP-REF Illuminated Integrating Sphere, ISP-REF-B Replacement Bulb for ISP-REF



| Specifications | |
|--|--|
| Spectral range (of illumination source): | 360-1000 nm |
| Dimensions: | 54 mm x 57 mm x 83 mm (LWH) |
| Sphere diameter: | 1.5" |
| Weight: | 864.7 g |
| Sample port aperture: | 10.32 mm |
| Sphere coating: | Spectralon (doped with Barium Sulfate) |
| Reflectivity: | >98% (400-1500 nm) >95% (250-2000 nm) |
| Reflectance measurements: | Specular included or excluded |
| Bulb life: | 900 hours |
| Bulb color temperature: | 3100 K |
| Connector: | SMA 905 |

ISP-R Integrating Spheres for Reflectance

The ISP-R Integrating Spheres are distinguished by their compact size and sturdy design. All ISP-R spheres have two SMA 905 ports. The excitation input is angled at 8° and collimates the fiber input before introduction into the sphere. The output port is angled at 90° (to connect to a spectrometer). A gloss-trap version comes with two cylindrical inserts coated with either a black absorbing material (for excluding the specular component of the reflection) or with the same material as the sphere (to include the specular component). This insert fits into a hole angled at 8° at the top of the sphere.



| Specifications | ISP-REF | ISP-30-6-R | ISP-50-8-R | ISP-80-8-R | ISP-50-8-R-GT |
|-----------------------|--|--|--|--|--|
| Dimensions: | 54 mm x 57 mm x 83 mm | 59 mm dia., 58 mm high | 80 mm dia., 78 mm high | 107 mm dia., 117 mm high | 80 mm dia., 78 mm high |
| Weight: | 864.7 g | 330 g | 730 g | 1,650 g | 743.3 g |
| Power consumption: | 600 mA @ 12 VDC (lamp) | None | None | None | None |
| Spectral range: | 360-2000 nm | 200-2500 nm | 200-2500 nm | 200-2500 nm | 200-2500 nm |
| Sphere diameter: | 38.1 mm | 30 mm | 50 mm | 80 mm | 50 mm |
| Sample port diameter: | 10.32 mm | 6 mm | 8 mm | 8 mm | 8 mm |
| Sphere coating: | Spectralon | PTFE material | PTFE material | PTFE material | PTFE material |
| Reflectance: | Diffuse or specular and diffuse | Specular and diffuse | Specular and diffuse | Specular and diffuse | Diffuse |
| Reflectivity: | >98% (400-1500 nm) >95% (250-2000 nm) | >98% (400-1500 nm) >95% (250-2000 nm) | >98% (400-1500 nm) >95% (250-2000 nm) | >98% (400-1500 nm) >95% (250-2000 nm) | >98% (400-1500 nm) >95% (250-2000 nm) |
| Bulb: | 900-hour bulb; 3100 K color temp. | None | None | None | None |