

G8 Integrating Sphere for Measurement of Absolute Quantum Yield



Key Features

- ❖ Small diameter of the sphere for a higher intensity emission signal.
- ❖ Very small quantities of sample required, whether solid (powders) or liquid (e.g. 60 μ l for solutions).
- ❖ Possibility to adjust the position of the sample vertically in order to optimize the intensity of the emission signal.

Quantum yield is frequently used to characterize luminescent material.

It corresponds to the ratio between the number of emitted photons at a given wavelength, usually in the UV-visible region, and the number of absorbed photons.

Using an integrating sphere is a classical approach to that measurement. However, greatest care must be given to the signal to noise ratio, to retro diffusion of the excitation light, to possible contamination of the sphere when manipulating the sample and to the critical calibration process.

Designated by qualified and experienced specialists in Spectroscopy, the GMP G8 Sphere addresses these concerns. The result is a neat, practical and easy to use device intended for high precision and repeatable measurements.

The GMP G8 Integrating Sphere allows for the determination of Quantum Yield with a repeatability within of a few percent and a precision over 95%.

- ❖ Two emission windows at $+90^\circ$ and -90° : the same measurement setup applies to calibration and measurement, only the sphere pivots by 180° .
- ❖ Two retractable baffles: pushed in, they protect the detector from direct radiation; pulled out, they allow the recording of the emission spectrum without modifying the measurement setup.
- ❖ Quartz insert to receive the capillary tube containing the sample, thus avoiding contamination inside the sphere while sample is manipulated. So, no need to open the sphere. Fast sample switching.
- ❖ Measurement of very low quantum yields are possible, even in the near IR range (down to 0.02%).
- ❖ Samples of air sensitive products which are very difficult to measure, may be inserted into sealed capillary tubes.

Technical Specifications

One excitation window.

Symmetrical design, with emission windows at $+90^\circ$ and -90° .

Stand depending on the spectrometer

Two retractable baffles.

Air tight cavity.

Iris on excitation window to adjust transmitted light intensity.

Interior reflective coating made of Spectralon® (over 95% flat reflectance from 250 nm to 2.5 μm)

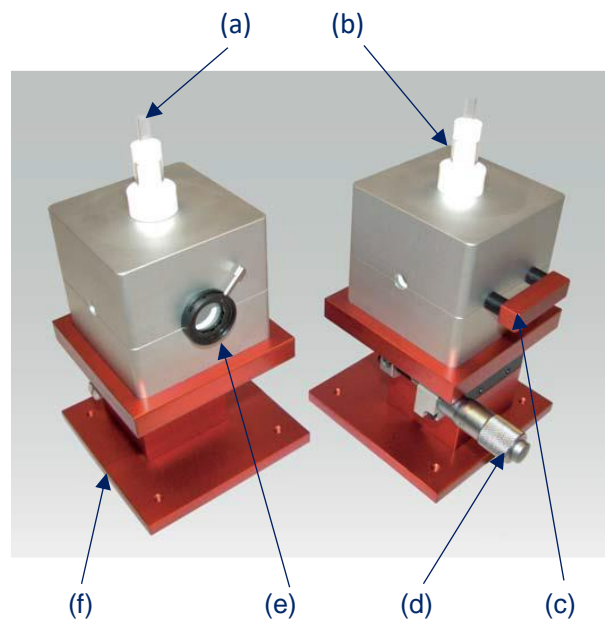
Micrometric screw on stand to align the sample and the emission windows with the axis of the measurement device.

Weight:

- stand 412 gr
- sphere 270 gr

Dimensions (wxdxh):

- stand 80x105x59 mm
- sphere 58x75x84 mm



- (a) Capillary tube holding the sample
- (b) Quartz insert
- (c) Handles for retractable baffles
- (d) Micrometric screw
- (e) Iris
- (f) Stand (spectrometer dependent)
Horiba Fluorolog model shown

Accessories

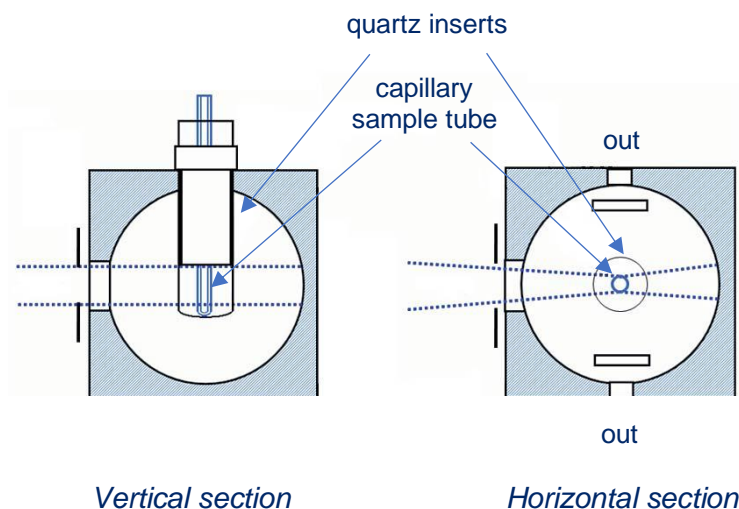
Capillary tube for samples.

Quartz inserts.

Set of screws.

Reference samples (2 units):

- Barium Magnesium Aluminate Eu
- Sodium salicylate



Vertical section

Horizontal section