

# Solid & Powdered Sample Holders Accessories

Solid Sample Holder K-146

Powdered Sample Holder K-148

The K-146 Solid Sample Holder, our customers like to call it "sophisticated". We prefer to say that it is the most versatile holder, for small crystalline samples, glasses, and fibers to be quickly and easily mounted for fluorescence measurement. The K-148 Powdered Sample Holder is designed to allow accurate fluorescence measurement of amorphous samples. Because both holders utilize the same base, we offer options which allow you to add the capability of Solid(K-147) or Powdered(K-149) Sample Holder if you already own either one.

## Specifications

### Linear/Rotational Stage

Linear Travel	0.75" total with accuracy of $\pm 0.001$ "
Rotational Travel	360° total with accuracy of 1°
Installation/Removal	Thumbscrew and Linear Stage and Rotational Stage locking screws

### Solid Sample Holder

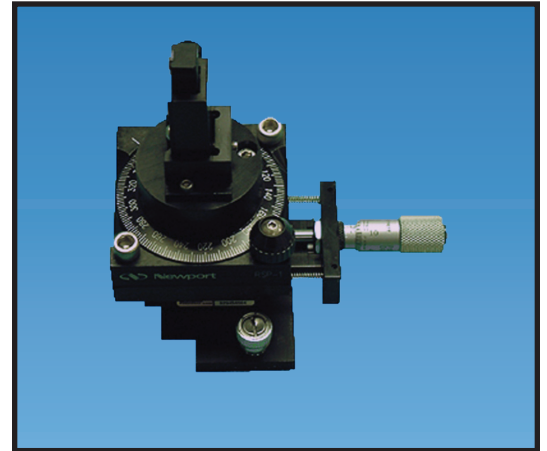
Mounting	Spring loaded with adjustable tension
Window Size	0.394" x 0.312"
Angular Field of View	136°
Maximum Solid Sample Size	1.30" x 0.75" x 0.45"

### Powdered Sample Holder

Mounting	Spring-Clamp with easy disassembly for sample loading/cleaning
Window Size	0.40" x 0.40"
Angular Field of View	90°
Powdered Sample Containment Area	0.30" x 0.10" x 0.05"
Cover Slip	Accepts 1/2" square or 1/2" round (cover slips sold separately)



Translational movement is accomplished by the micrometer positioned on the side of the holder and the user can select the horizontal distance of the sample relative to the excitation beam. Solid or powdered sample is positioned on a circular plate where the angle of illumination can be selected and locked in place.



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## Achieving High Sensitivity When Working with Solid Samples

The effects of sample geometry for observation of fluorescence have been well documented. Front-face illumination is well established as a common geometry to measure solid samples as well as concentrated solutions. Traditionally front-face illumination has been performed using either triangular cuvette or square cuvettes oriented 45° relative to the incident beam. Other designs have employed a setup where the illuminated surface is fixed at 22.5° from the incident beam instead of 45° in attempts to reduce reflections of light which reaches directly to the emission monochromator, resulting in stray light interference with the measurement. However fixed angle geometry for solid sample is not always convenient especially when dealing with surfaces, which are not smooth.

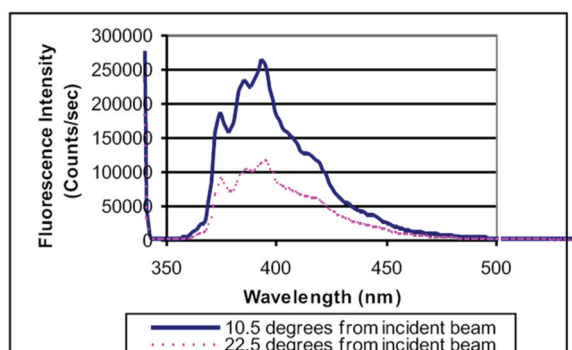


Figure 3: Emission spectra of pyrene deposited as thin film on a polymeric surface. The spectra were obtained using a QM-2001-4 equipped with solid sample holder (K-146). Sample was excited at 335 nm with both excitation and emission slits set to 4 nm. The intensity increased 2x upon changing the angle of illumination from the standard 22.5° from the incident beam to 10.5°.

That is when the translational and rotational freedom of PTI's solid sample holders for any of PTI's fluorometers is essential. Note the increase in the signal levels of a pyrene sample (deposited on polymeric film) when the angle is changed from the conventional 22.5° to 10.5° using the solid sample holder accessory (part number K-146). One reason for such increase in intensity is that by choosing a smaller angle a larger surface area of the sample can be excited leading to a higher signal observation.