THE CRICKET™

Harrick Scientific's Cricket™ is excellent for routine measurements of solid samples in quality control environments and research laboratories. Its design follows the long-standing Harrick tradition of *true* diffuse reflectance accessories. Like its more versatile Praying Mantis cousin, the Cricket™ optimizes the collection of the diffusely reflected light while eliminating the specular component. With a flip of a switch, the Cricket™ converts from this true diffuse reflectance mode to a fixed-angle specular reflectance device. In this configuration, the Cricket™ collects 60° specular or in-line 'diffuse' reflectance. The Cricket™ is available in a downward sampling configuration for powder analysis. Both models of the Cricket™ feature PermaPurge™ for rapid sample and crystal exchange without interrupting the purge of the spectrometer.

APPLICATIONS

- Ideal for routine diffuse reflectance measurements of powders and solid samples.
- Excellent for quality control.

FEATURES

- Diffuse and specular reflection capabilities provide application versatility.
- Eliminates the collection of the specular component in the diffuse reflectance mode.
- Provides a fixed 60° incident angle in the specular reflectance mode.
- Easy to use.
- High sample throughput.
- Low cost.
- Prealigned for quick start-up.
- Harrick's exclusive PermaPurge™ allows rapid sample and crystal exchange without interrupting the purge of the system.
- Two models available:
  - Downward looking Cricket for examining powders and small cohesive solids.
  - Upward looking Inverted Cricket for cohesive solid samples of virtually unlimited sample size.
- Compatible with most FT-IR and UV-VIS spectrometers.

INCLUDES

- Three position sample holder.
- Specular Reflectance Reference.
- Mating hardware for the specified spectrometer.

ORDERING INFORMATION.

	CATALOG NO.
Cricket	CRK-D-XXX
Inverted Cricket	CRK-U-XXX
Replacement Sample Cup	CRK-CUP
Replacement Cricket Alignment Mirror	CRK-ALN
Replacement Inverted Cricket Alignment Mirror	MOP-112
Spectralon UV-VIS Diffuse Reflectance Reference	CRK-SPR

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The Cricket™ is an innovative reflectance accessory, featuring both true diffuse reflectance capability and 60° fixed-angle specular or in-line diffuse reflectance data collection. This is a powerful combination for collecting spectra from a wide variety of solid samples.

In its diffuse reflectance configuration, the Cricket™ optically eliminates the specularly reflected radiation and the reststrahlen bands associated therewith. With a flip of a switch, the Cricket™ converts to its specular configuation, where it illuminates the sample at a 60° incident angle and collects the radiation reflected on the same axis.

Figure 1 shows a diffuse reflectance spectrum of a powder diluted in KBr, as is commonly done to achieve diffuse reflectance spectra without saturated bands. This spectrum was recorded relative to a KBr background.

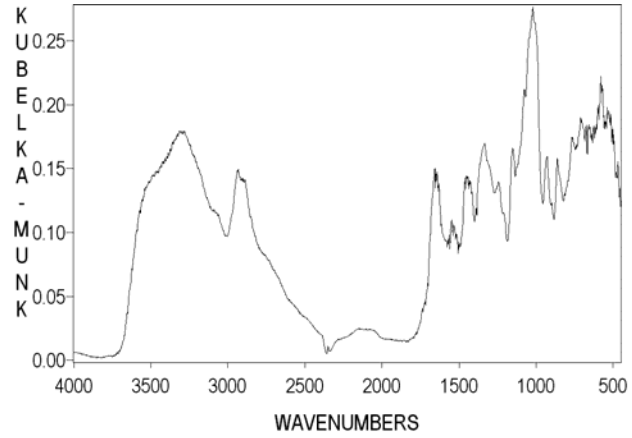

Figure 1. Diffuse Reflectance from Rye Flour Diluted in KBr.

Unfortunately, when recording true diffuse reflectance measurements, the signal levels are extremely low. This means an increased noise level. The Cricket™ allows a given sample to be examined by both true diffuse reflectance and 60° specular reflectance (in line diffuse reflectance) to determine which method is more appropriate.

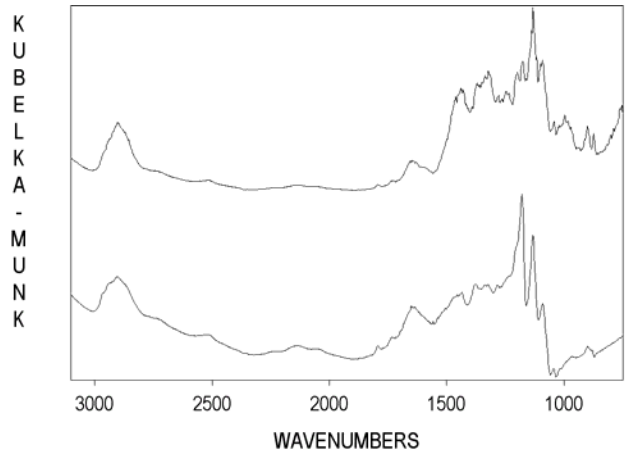

Figure 2. Diffuse (top) and Specular (bottom) Reflectance Spectra from a Yellow 3M Post-It.

Figure 2 shows the reflectance of paper, recorded in both the specular and diffuse mode of the Cricket™. Note that the sharp peak at 1132 cm^{-1} in the diffuse reflectance spectrum (upper curve) appears as a doublet in the specular reflectance spectrum (lower curve). This doublet is due to restrahlen effects. In addition, the structure of the bands around 1000 cm^{-1} is lost. Hence this sample would be better examined by diffuse reflectance, despite the smaller signal-to-noise ratio.

The Cricket™ is a powerful tool both for examining rough-surfaced solid samples and powder and for determining the best method of analysis.