



THE MVP-PRO™

This single reflection ATR accessory combines a convenient horizontal sampling surface with a 0.5mm diameter sampling area, making the MVP-Pro™ ideal for quick and easy examination of a wide range of samples. Small drops of liquid and minute smears of pastes can be placed directly on the ATR crystal. Coatings on wire, paint chips, fabrics, powders, and miniature hard samples can be pressed against the crystal using the built-in pressure applicator. The MVP-Pro™ also features PermaPurge™ for rapid sample and crystal exchange without interrupting the purge of the spectrometer. The MVP-Pro™ ATR makes FTIR spectroscopy of small samples simple and straightforward.

APPLICATIONS

- ▶ Excellent for studying optically thick, hard samples; slightly curved samples; fibers; paint chips; micro-liters of liquids and pastes; and powders.
- ▶ Invaluable for QC applications.

FEATURES

- ▶ Convenient horizontal sampling.
- ▶ High sample throughput.
- ▶ Little or no sample preparation required.
- ▶ Excellent retention of sample integrity.
- ▶ Small sampling area – 0.5mm in diameter.
- ▶ Si ATR hemisphere for operation from 10,000 cm⁻¹ to 100 cm⁻¹.
- ▶ Readily exchangeable ATR sampling plates.
- ▶ Built-in pressure applicator with slip-clutch for reproducible pressure application.
- ▶ Designed to achieve optimal contact between the ATR element and solid samples.
- ▶ Additional ATR crystal materials available include a diamond prism and ZnSe or Ge hemispheres.
- ▶ Harrick's exclusive PermaPurge™ allows rapid sample exchange without interrupting the purge of the system.
- ▶ Mechanically compatible with the SplitPea™ and Meridian™ crystal holders.
- ▶ Options include:
 - ▶ Ge, ZnSe and diamond hemispherical ATR crystals.
 - ▶ Heatable sampling plates for operation up to 200°C with diamond or ZnSe ATR crystals, 100°C with Ge.
 - ▶ Powder Adapter for retaining powdered samples.
 - ▶ Flow-Through Liquid Cell for static and flow applications.
 - ▶ Force sensor with digital read-out for precise force measurements.
 - ▶ Low-torque slip-clutch available.



INCLUDES

- ▶ Si ATR sampling plate.
- ▶ Built-in pressure applicator.
- ▶ Mating hardware for the specified spectrometer.

Crystal Material	Additional ATR Sampling Plates	Heated Sampling Plates
Diamond	MVP2-ATR-0W	UNS-HOT-0W
Ge	MVP2-ATR-J	UNS-HOT-0J
Si	MVP2-ATR-E	UNS-HOT-0E
ZnSe	MVP2-ATR-M	

ORDERING INFORMATION

MVP-Pro™.....CATALOG NO. MVR-XXX

OPTIONS

Force Sensor with Digital Read-Out, 110V.....MVR-1-FSD Powder Adapter.....UNS-PSC
 Force Sensor with Digital Read-Out, 220/240V...MVR-2-FSD Powder Adapter Viton O-Ring.....ORV-012
 O-Ring Sealed Liquid Cell with Luer Fittings.....UNS-LCF Temperature Controller, 110V.....ATC-024-1
 Liquid Cell Viton O-Ring.....ORV-0015 Temperature Controller, 220/240V (CE marked) ...ATC-024-2
 Low Torque Slip-Clutch, 24 in-oz (170mN-M) for use with
 ZnSe and Ge ATR crystals.....SLP-CLL

This novel horizontal ATR mini-sampler is perfect for examining samples that are difficult to analyze by conventional spectroscopic methods. Such samples include solids, such as slightly curved and inflexible materials, powders, and micro-liters of liquids and pastes.

The MVP-Pro™ utilizes all front-surface aluminum mirrors to focus the spectrometer beam to and from the ATR crystal. The Si ATR crystal is hemispherical, additionally focusing the beam to produce a 0.5mm diameter sampling area. The accessory is enclosed in a purgable box for rapid sample exchange without interrupting the purge of the system.

For applications requiring different penetration depths or chemical resistance, ZnSe and Ge hemispherical ATR crystals are also offered, premounted in their sampling plates. In addition, a monolithic diamond prism ATR crystal is available.

For making contact with solid and powder samples, the MVP-Pro™ is equipped with a built-in pressure applicator with slip-clutch for consistent and reproducible results. For more fragile ATR crystals, i.e. ZnSe and Ge, a compatible low-torque slip-clutch is available. For more precise force measurements, a pressure applicator with built-in force sensor and display is offered.

Heatable sampling plates are also available for operation up to 200°C with diamond and ZnSe or up to 100°C with a Ge ATR crystal. The Heatable Sampling Plates feature a K-type thermocouple and cartridge heater. These are intended for operation with the Harrick Temperature Controller.

For easy sampling of powders and liquids, an optional Powder Retainer and Flow-Through Liquid Cell are available. Both of these sampling accessories attach to the sampling plates and are sealed with a Viton o-ring. The Powder Retainer is designed to contain the powder in a restricted volume and requires approx. 0.1 ml for operation. The Flow-Through Liquid Cell is a micro-cell with a volume of approx. 0.15 ml and features Luer Lok fittings for introduction of the sample.

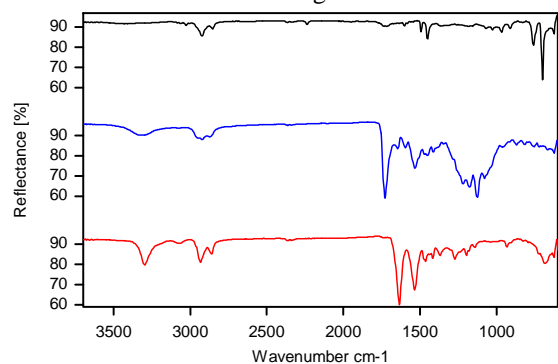


Figure 1. ATR Spectra of a Painting Pad Showing the Stiff Backer (top), the Compressible Sponge (middle) and the Soft Bristles (bottom).

Representative spectra recorded are shown in Figures 1 through 4. Figure 1 shows the ATR spectra of various parts of a Shur-Line Trim and Touch-Up Pad for painting. As seen in the spectra, all three components have different compositions.

Figure 2 shows the spectra from two parts of a traditional paint brush. Spectra from the hard plastic handle and a clump of the bristles are both readily measured with the MVP-Pro™.

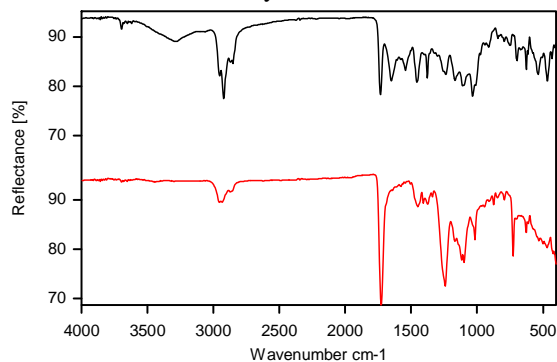


Figure 2. Anatomy of a Paint Brush: ATR Spectra of the Plastic Handle (top) and Bristles (bottom).

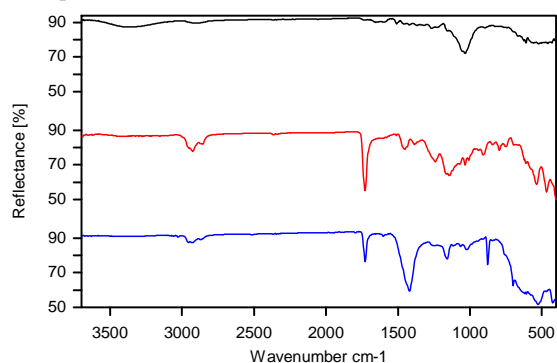


Figure 3. ATR Spectra of Wooden Paint Stirrer Unused (top), Covered with Dry Brown Paint (middle) and Covered with Dry White Paint (bottom).

Figure 3 shows the spectra of the paint stirrer and dried paint thereon. Spectral differences are clearly visible between the two types of paint and their substrate.

Figure 4 shows Zinsser Primer Sealer Stain Killer Bond Coat. The changes in the relative intensities of the bands at 3000 cm⁻¹ and those at 1400 cm⁻¹ are indicative of the evaporation of the organic solvent used in the primer.

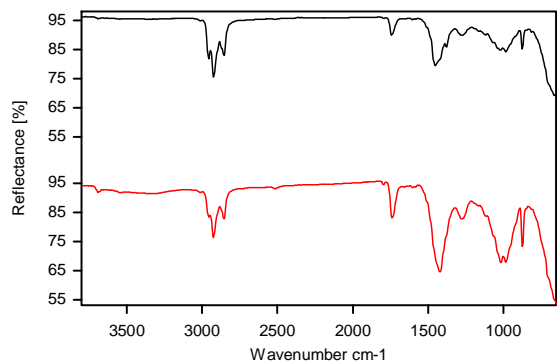


Figure 4. ATR spectra of Oil-Based Primer Wet (top) and Dried Residue (bottom).

The MVP-Pro™ is perfect for routine analysis of a variety of materials. Liquids, pastes, powders and solids are all readily examined.