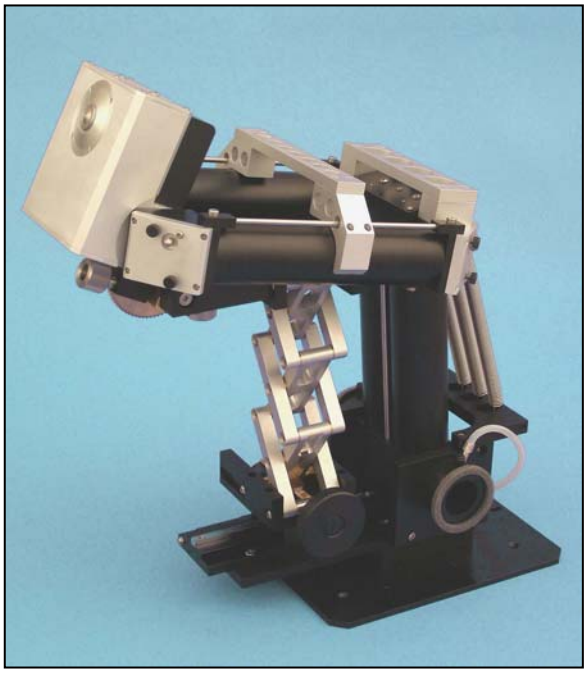
DA VINCI ARM

The da Vinci Arm is a unique articulated opto-mechanical FTIR accessory designed for analyzing samples that are too large to fit into the sample compartment of a spectrometer. The da Vinci Arm enables the analyses of samples by specular, diffuse and ATR reflection techniques. Since the da Vinci Arm is articulated, it simplifies analysis of samples in front of, below, or above the spectrometer sample compartment. The sampling surface can be facing in any direction – up, down, or sideways. Samples such as paintings, vases, sculptures, etc. can now be easily analyzed. The integral camera provides for magnified viewing and image capture of the sampled spot. The entire optical path of the IR beam is enclosed and integrated into the purge of the host spectrometer.

APPLICATIONS

- Qualitative and quantitative analysis of samples that are too large to fit within the FTIR spectrometer sample compartment.
- Analysis of neat samples or small spots on large samples via diffuse reflectance, external reflectance or ATR spectroscopy.

FEATURES



- Fixed 45º incident angle.
- Sampling head configurable for diffuse and specular reflectance.
- Optional diamond ATR sampling head available.
- Allows both contact and non-contact analysis, depending on the sample.
- Enables analysis outside the sample compartment.
- Articulated opto-mechanical system has:
  - 3.5” of horizontal motion
  - 5.8” of vertical motion
  - 180º of tilt
  - Fine focus adjustment
- Small sampling spot size:
  - 500µm diameter for ATR.
  - 1000 µm diameter for specular and diffuse reflectance.
- Small spot size allows analysis with high spatial resolution.
- Spectral range: mid-IR to the FIR.
- Video imaging system:
  - Magnifies the image for easy viewing.
  - Directly views the sample surface.
  - Integrates with your computer for real-time viewing and long-term storage of sampled images.
- Suitable for use in most FT-IR spectrometers.

INCLUDES

- Mating hardware for the specified FTIR spectrometer.
- Alignment mirror.
- USB adapter and software for video image capturing, compatible with Windows 98/350MHz or higher computers.

ORDERING INFORMATION

	CATALOG NO.
da Vinci Arm	DAV-XXX
	XXX denotes the spectrometer code

OPTIONS

Diamond ATR	DAV-ATR-W

Harrick Scientific Products, Inc.
141 Tompkins Ave, 2nd floor, Pleasantville NY 10570
Ph: 800-248-3847, FAX: 914-727-7209, web site: www.harricksci.com, e-mail: info@harricksci.com

The daVinci Arm is a high performance accessory designed for spectroscopic analysis of samples outside of the box. Many samples are too large to fit within the confines of the sample compartment. The daVinci Arm is articulated so that it reaches out of the sample compartment to measure samples facing virtually any direction.

The daVinci has two modes of operation: ATR and in-line diffuse reflectance. Both modes utilize all front-surface mirrors to direct the beam to and from the sample at a 45º incident angle.

Its ATR mode utilizes a monolithic diamond ATR crystal and the moveable sampling head is used to apply the pressure required to obtain good contact between the ATR crystal and the sample. The video-imaging system views through the ATR crystal for easy visual confirmation of the wetting of the crystal that occurs when good contact is obtained and also for photographic documentation of the sampling area.

The diffuse reflectance mode allows non-contact measurements of a variety of samples. This mode collects both the diffusely and specularly reflected components reflected from the sample and the video-imaging system can be used as a aid in sample alignment and for photographic documentation.

Although primarily intended for analysis of large solid samples, the daVinci Arm can also be used to examine powders, pastes, gels and liquids. Figures 1 through 3 show sample spectra recorded with the daVinci Arm. Figure 1 are spectra recorded from two locations on the vents on an in-tact automobile dashboard. The vent itself is shown to the right. There are small spectra differences between the two locations on the vent. Figures 2 and 3 show spectra of paper and ink thereon, as measured by diffuse reflectance and ATR spectroscopy respectively. Both sets of spectra show differences between the ink-coated paper and the paper itself.

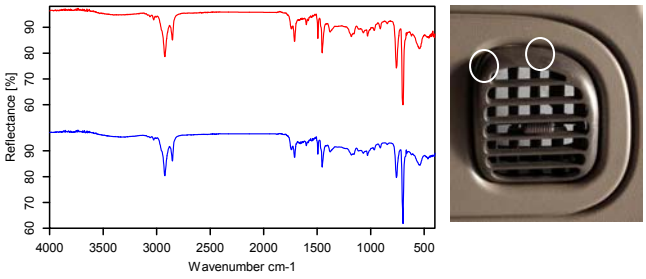


Figure 1. ATR spectra (right) of an automobile dashboard vent (left), measured from two areas.

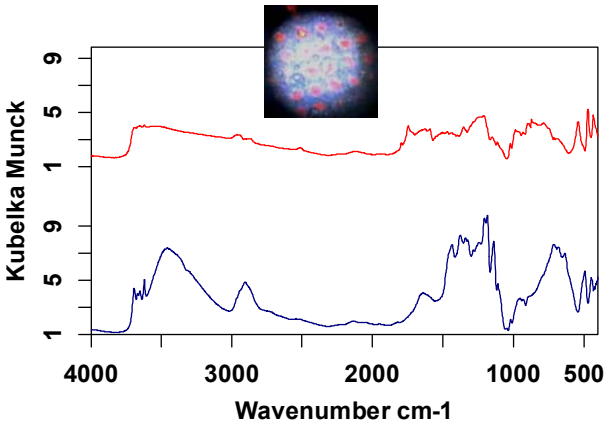


Figure 2. Diffuse reflectance of colored ink on 1940s paper (top) and the paper itself (bottom).

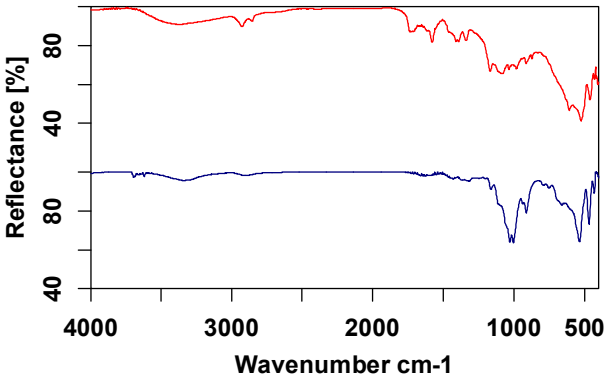


Figure 3. ATR spectra of 1940s ink on paper (top) and the paper itself (bottom).