

IRIS – Go-To Diamond ATR Accessory



FEATURES

- High-performance diamond ATR
- Precision optics and design for high energy throughput
- Optional Ge ATR crystal for high refractive index samples
- Additional sampling tools – Flow-Through Attachment and Liquids Retainer
- Compatible with most FTIR instruments

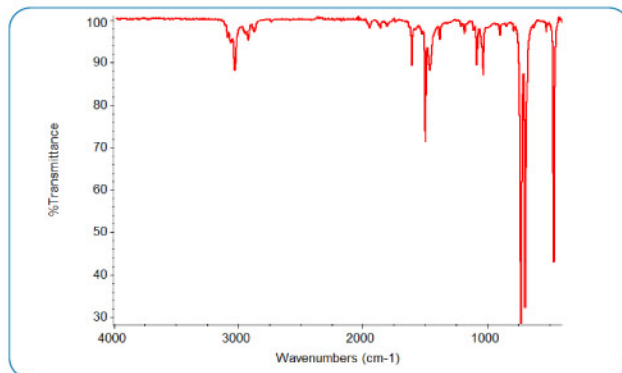
The IRIS accessory is the go-to diamond ATR for every lab. It is designed to make IR sampling easy. You can expect high-quality spectra covering a wide range of samples from powders, gels, liquids, solids and more. It is ideal for research, QA/QC and sample identification. Data collection for most samples may be completed in less than one minute.

The backbone of the IRIS is its high-precision optics. IRIS' powered mirrors have been designed and processed using diamond-turning technology to achieve optimal performance. All mirrors are gold-coated for maximum reflectivity.

The diamond ATR crystal, with a diameter of 1.8 mm, offers the ultimate sampling surface for most all samples. It provides extreme hardness, and is suitable for testing samples with pH values between 1-14. The unique PTFE seal for the diamond ATR element in the stainless-steel mounting plate adds to IRIS' universal applicability for the analysis of a wide range of organic and caustic samples, due to inertness of PTFE. Other commercial ATR accessories rely on an epoxy seal, which may dissolve over continuous exposure to some organic solvents.

IRIS diamond ATR plate uses a small crystal to maximize the energy passing through the diamond phonon bands, inherent to all diamonds, and a strong metal brace on the underneath side to prevent microscopic movements of the ATR crystal. Together these two features allow the diamond phonon bands to ratio out in sample spectra resulting in the highest quality data.

PIKE Technologies offers two diamond plates. Our anti-reflective coated diamond crystal plate is the most popular with a spectral range of 4000 – 400 cm^{-1} . The function of the anti-reflective coating



Toluene spectrum collected using IRIS diamond ATR.

is to optimize energy throughput. An uncoated extended range diamond plate is also available to allow for measurements in the mid- and far-IR spectral regions.

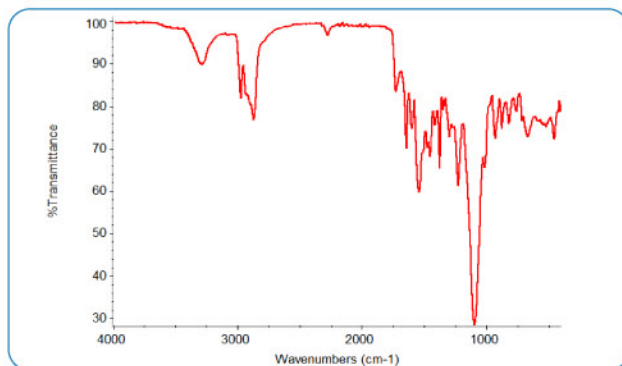
To offer the most flexibility, IRIS may also be fitted with a Ge ATR plate for measuring samples with a high refractive index. Types of samples that would benefit from using the Ge ATR crystal plate are carbon black filled samples and inorganic materials such as oxides, aluminas, titania and minerals. IRIS' Ge element offers a wide transmission range spanning 4000 – 450 cm^{-1} .

IRIS Sampling Tools

IRIS may be used with an optional Liquids Retainer and Volatiles Cover. The Liquids Retainer offers a trough configuration while the Volatiles Cover reduces the amount of evaporation when making IR measurements of highly volatile liquid samples. The High-Pressure Clamp is required, and serves to apply pressure to the u-bridge of the Liquids Retainer thus compressing a sealing PTFE O-ring positioned on the underneath side of the retainer trough.



The Flow-Through Attachment may be used for continuous monitoring, handling samples that pose a hazard, and are degraded from ambient exposure. The attachment is stainless steel with Luer fittings. Optional 1/16th inch compression fittings are available.



Polyurethane foam spectrum showing unreacted isocyanate monomer at 2280 cm^{-1} .

ORDERING INFORMATION

IRIS BASE OPTICS

(must select)

PART NUMBER DESCRIPTION

027-18XX IRIS Single Reflection ATR Base Optics,

Notes: Replace XX with your spectrometer's Instrument Code listed on page 164. IRIS base includes purge tubes, purge kit, and selected spectrometer base mount. Crystal plates must be selected from the table below. High-Pressure Clamp, and Liquids Retainer/Volatiles Cover are optional and need to be ordered separately, if required.

CRYSTAL PLATE FOR IRIS

(must select one or more)

PART NUMBER DESCRIPTION

027-2100 Diamond Crystal Plate

027-2110 Diamond Crystal Plate, Extended Range

027-2120 Ge Crystal Plate

Notes: IRIS crystal plates are pre-aligned. Plate housing is stainless steel.

PRESSURE CLAMP FOR IRIS

(must select for solid or powdered samples)

PART NUMBER DESCRIPTION

027-3025 IRIS High-Pressure Clamp

027-3027 IRIS High-Pressure Confined Space Clamp

Notes: The High-Pressure Clamp is required for analysis of solids, powders and use of Liquids Retainer, and/or Flow-Through Attachment. Pressure clamp includes a flat tip, a swivel tip and a concave tip.

IRIS SAMPLING OPTIONS

PART NUMBER DESCRIPTION

025-3095 Flat Tip for High-Pressure Clamp

025-3093 Swivel Tip for High-Pressure Clamp

025-3092 Concave Tip for High-Pressure Clamp

025-3099 High-Pressure Tip Assortment

026-5013 Liquids Retainer and Volatiles Cover Set

026-5010 Liquids Retainer

026-5012 Flow-Through Attachment, 100µL

Note: Flow-Through Attachment and Liquids Retainer require High-Pressure Clamp.

SPECIFICATIONS

ATR Crystal Choices	Monolithic diamond or Ge
Spectral Range, Diamond	4000 to 400 cm ⁻¹
Spectral Range, Diamond Ext. Range	4000 to 30 cm ⁻¹
Spectral Range, Ge	4000 to 450 cm ⁻¹
Crystal Plate Mounting	User-changeable plates
Crystal Plate Mount	Stainless steel
Diamond Surface Diameter	1.8 mm
Press Clamp	Rotating, continuous variable pressure; click-stop at maximum pressure
Maximum Pressure	10,000 psi
Sample Access	47 mm, ATR crystal to pressure mount
Accessory Dimensions (W x D x H)	102 x 97 x 91 mm (excludes FTIR baseplate and mount)
FTIR Compatibility	Most, specify model and type



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