

## IR READY FOR ANY SAMPLING CHALLENGE

Accessories play an important role in FT-IR analysis. Selection of the correct accessory speeds your analyses, increases repeatability of results and minimizes errors. We manufacture a host of high quality, easy-to-use accessories and partner with leading industry providers of branded IR accessories to provide a full range of compatible tools to extend the scope and capabilities of your FT-IR instrument.

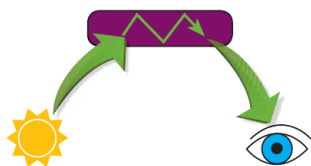
From simple transmission spectroscopy techniques to more advanced research analysis, our premium “plug-and-play” accessories, such as UATR and diffuse reflectance, offer ultimate performance with minimum set-up and calibration through their convenient auto-recognition set-up design.



With the widest range of both PerkinElmer designed and manufactured accessories and well-known brands of accessories from our global partners, our selection offers you the best solution for your laboratory's needs.

## INFRARED SPECTROSCOPY SAMPLING TECHNIQUES

### Attenuated Total Reflectance (ATR)

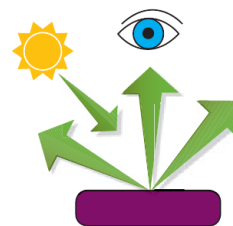


A sampling technique which requires little to no sample preparation. A beam of infrared light passes through the ATR crystal and is reflected off the surface of the sample. The reflection forms an evanescent wave which is collected by a detector.

**SAMPLE TYPES:** Solid, Liquid, Powder

**APPLICATIONS:** Identification of powders and polymers. Quantitative measurements for liquids, including aqueous solutions.

### Diffuse Reflectance



Diffusely scattered light is collected when a beam of light reflects off a rough, matt surface e.g. powder or fiber.

**SAMPLE TYPES:**  
Powders, Fibers, Solids with Rough Surface

**APPLICATIONS:**  
Characterization of minerals and hard plastic materials.

## Whatever your application or instrument, we have the right sampling accessory for you.

Not every accessory is ideal for every application. That's why we offer a complete line of sampling options for your Spectrum One/100/400/65, Spectrum Two or Frontier instruments. With three different levels of sampling accessories to choose from, we'll help you find the solutions that best suit your laboratory needs.



**Premium:** these top tier accessories offer you the most sampling flexibility. With "plug-and-play" accessory recognition and auto-alignment, you'll be able to quickly and easily analyze a wide range of sample types.

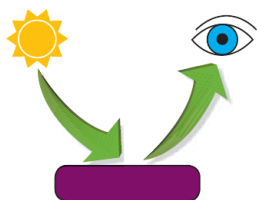


**Branded:** the quality of your instrument and that of the sampling accessory are equally important to your analysis. These mid-level accessories, manufactured by Specac, PIKE and others, have been tested and are approved for use on our PerkinElmer FT-IR systems.



**Value:** an affordable choice for laboratories that need a simple but effective sampling solution. With manual alignment, these accessories provide you with the performance you need to analyze most samples.

### Specular Reflectance

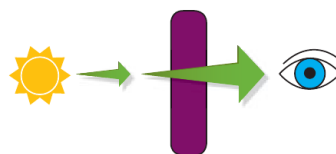


A mirror-like reflection occurs when a beam of light strikes a smooth, shiny surface such that the angle of incidence equals the angle of reflection.

**SAMPLE TYPES:** Thin Films on Substrates

**APPLICATIONS:** Analysis of coatings on metallic substrates, Langmuir Blodgett films and self-assembled monolayers.

### Transmission



When radiation passes through a body a proportion of the energy is absorbed by the sample and the remainder travels on to the detector.

**SAMPLE TYPES:** Solid, Liquid, Gas

**APPLICATIONS:** Quantitative determination of fuel properties, e.g. biodiesel, high-resolution gas-phase spectroscopy

## PerkinElmer UATR Accessory

**PREMIUM**



An excellent general accessory for the analysis of solids and liquids. The UATR produces high quality spectra through the use of a pressure arm allowing good contact of the sample with the diamond crystal. The pressure arm force indicator ensures first-class sample-to-sample and operator-to-operator reproducibility. The accessory is recognized when it is placed

in the sample compartment, the optics are automatically optimized and the system is ready to be used without additional alignment.

Description	Spectrum One/100/400/65	Spectrum Two	Frontier
UATR Diamond/ZnSe ATR (Single Reflection)	L1250050	L1600107	L1280301
UATR Diamond/KRS-5 ATR (Single Reflection)	L1250053		L1280304
UATR Germanium ATR (Single Reflection)	L1250054		L1280305
UATR Diamond/ZnSe ATR (3 Reflection)	L1250051		L1280302
UATR Diamond/ZnSe ATR (9 Reflection)	L1250052		L1280303
Liquid UATR Diamond/ZnSe (9 Reflection)			L1280069

## PerkinElmer HATR Accessory

**PREMIUM**

Available in Premium and Value versions this accessory is supplied with a top-plate fitted with a 25-reflection, 45 degree, 50 mm ZnSe crystal, allowing simple sampling of solids, films and powders.

Description	Spectrum One/100/400/65	Spectrum Two	Frontier
Premium HATR with ZnSe Flat Top Plate	L1200311		L1280308
Premium HATR with ZnSe Trough Top Plate	L1200312		L1280312
Value HATR with ZnSe Flat Plate		L1600113	L1280321
Value HATR with ZnSe Trough Plate		L1600109	L1280322

## ATR Miracle Accessory (PIKE)

A single reflection HATR accessory designed for the analysis of highly absorbing solid, semi-liquid and liquid samples. The sampling plate configuration features a small round crystal allowing reliable analysis of small sample volumes.

Description	Spectrum One/100/400/65	Spectrum Two	Frontier
Miracle Diamond ATR (Single Reflection)		L1600114	L1272483
Miracle ZnSe ATR (Single Reflection)	L1272126	L1600115	L1272126
Miracle Ge ATR (Single Reflection)	L1272127	L1600116	L1272127

## Multiple (10) reflection HATR Accessory (PIKE)

Provides high sensitivity for analysis of low concentration components in liquid, solid, and polymer samples. Available with a selection of crystal materials and high temperature configurations.

Description	Spectrum Two	Frontier
Multiple (10) Reflection HATR with ZnSe flat and trough plate	L1272337	L1272384

## Silver Gate™ Evolution ATR Accessory (Specac)

A high throughput, single reflection ATR accessory with interchangeable crystal plates. Used to analyze solids, liquids, gels and pastes, all with little or no preparation.

Description	Spectrum One/100/400/65	Spectrum Two	Frontier
Silver Gate Evolution ZnSe Flat Plate (Single Reflection)	L1272270	L1272326	L1272270
Silver Gate Evolution Ge Flat Plate (Single Reflection)	L1272271	L1272327	L1272271
Silver Gate Evolution Recessed ZnSe (Single Reflection)	L1272272	L1272328	L1272272
Silver Gate Evolution Recessed Ge (Single Reflection)	L1272273	L1272329	L1272273

## Golden Gate™ ATR Accessory (Specac)

A high performance single reflection monolithic diamond ATR product offer, featuring a Type IIIA diamond ATR element metal-bonded into a tungsten carbide mount to provide outstanding durability and exceptional chemical resistance. The robust design allows this ATR accessory to be used to achieve high-quality spectral data in the analysis of a broad range of materials including those that are abrasive, hard, reactive, or corrosive.

Description	Frontier
Golden Gate™ Diamond ATR (Single Reflection)	L1272407

## Gateway™ HATR Accessory (Specac)

An entry-level multi-reflection (6) horizontal ATR accessory. The rugged design and simple optical layout ensures optimum performance.

Description	Spectrum Two	Frontier
Gateway™ HATR with ZnSe flat and trough top plates	L1272330	L1272412
Gateway™ HATR with ZnSe with electrical heating to 200 °C. Requires Gateway controller (territory dependent)	L1272414	L1272414

## 25 Reflection ATR Accessory (Specac)

A vertically mounted ATR crystal accessory capable of being operated for a crystal incidence angle of between 30° to 60°. 25 Reflections are achieved at the 45° angle. The large number of reflections and range of incident angles makes this accessory ideally suited for the enhancement of small bands in weakly absorbing samples.

Description	Spectrum Two	Frontier
25 Reflection ATR Accessory with KRS-5 crystal	L1272372	L1272372

## The GladiATR Vision™ (PIKE)

A sampling tool which couples small area infrared analysis with simultaneous viewing. Samples are placed face down and positioned on the diamond crystal while its image is projected in real-time on the LCD screen. Analysis of thick or non-transparent samples is enhanced because viewing is through the diamond crystal. The 110X magnification of the sample image enables the positioning of small samples for optimized analysis.

Description	Frontier
GladiATR Vision/Video/PC connection	L1272381
GladiATR Diamond	L1272423

## The Variable Angle ATR (VATR) Accessory (PIKE)

This accessory has the ATR crystal mounted vertically and an optical layout is based on an optimized Gilby configuration and allows continuous adjustment of the incident beam angle between 30 to 60 degrees. Suitable for the analysis of solids, films and coatings. A unique mirror adjustment mechanism which utilizes mirror placement and proportional pivoting allows precise and repeatable alignment.

Description	Frontier
Classic VATR (25mm). Choose a 25mm crystal	L1272386
Classic VATR(50mm). Choose a 50mm crystal	L1272443

Crystal Type	25mm Crystal	50mm Crystal
KRS-5, 45° Parallelogram	L1272387	L1272388
KRS-5, 60° Parallelogram	L1272389	L1272390
ZnSe, 45° Parallelogram	L1272391	L1272392
ZnSe, 60° Parallelogram	L1272393	L1272394
Ge, 45° Parallelogram	L1272395	L1272396
Ge, 30° Parallelogram	L1272397	L1272398
Ge, 60° Parallelogram	L1272399	L1272400
Si, 45° Parallelogram	L1272401	L1272402

# PERKINELMER ATR TOP PLATE ACCESSORIES

## PerkinElmer ATR Top Plates & Options

Description	Part No.	Spectrum One/100/400/65	Frontier
UATR Top Plate Diamond/ZnSe (1 Reflection)	L1250240	✓	✓
UATR Top Plate Diamond/ZnSe (3 Reflection)	L1250241	✓	✓
UATR Top Plate Diamond/ZnSe (9 Reflection)	L1250242	✓	✓
UATR Top Plate Diamond/KRS5 (1 Reflection)	L1250046	✓	✓
UATR Top Plate Ge (1 Reflection)	L1250048	✓	✓
UATR 3.0mm Sample Position Plate (for 1 and 3 reflection UATR's)	L1202023	✓	✓
UATR 7.0mm Sample Position Plate (for 1 and 3 reflection UATR's)	L1202024	✓	✓
UATR Polarization Accessory Diamond/ZnSe (1 Reflection Top-Plate and Pressure Arm)	L1280064		✓
UATR Polarization Accessory Diamond/ZnSe (3 Reflection Top-Plate and Pressure Arm)	L1280065		✓
UATR Polarization Accessory Diamond/ZnSe (9 Reflection Top-Plate and Pressure Arm)	L1280066		✓
UATR Heated Top plate 60°C (Requires Pike Miracle ATR/10 Reflection HATR USB Temperature Controller)	L1272380		✓
UATR Heated Top plate 130°C (Requires Pike Miracle ATR/10 Reflection HATR USB Temperature Controller)	L1272433		✓
Universal 0.5mm ATR Shoe With 1.5mm diameter tip (for 1 and 3 reflection UATR's)	L1202049	✓	✓
Universal 6.0mm ATR Shoe With 6.0mm flat end (for 1 and 3 reflection UATR's)	L1202050	✓	✓
UATR Cone Shoe (for 1 and 3 reflection UATR's)	L1201980	✓	✓
Premium HATR ZnSe 45 Degree Flat Plate	L1200313	✓	✓
Premium HATR ZnSe 45 Degree Trough Plate	L1200314	✓	✓
Premium HATR ZnSe 60 Degree Flat Plate	L1200315	✓	✓
Premium HATR ZnSe 60 Degree Trough Plate	L1200316	✓	✓
Premium HATR (Coated for extended lifetime) ZnSe 45 degree flat plate	L1200323	✓	✓
Premium HATR (Coated for extended lifetime) ZnSe 45 degree trough plate	L1200324	✓	✓



Description	Part No.	Spectrum One/100/400/65	Frontier
Premium HATR (Coated for extended lifetime) ZnSe 60 Degree Flat Plate	L1200325	✓	✓
Premium HATR (Coated for extended lifetime) ZnSe 60 Degree Trough Plate	L1200326	✓	✓
Premium HATR Ge 30 Degree Flat Plate	L1200337	✓	✓
Premium HATR Ge 30 Degree Trough Plate	L1200338	✓	✓
Premium HATR Ge 45 Degree Flat Plate	L1200333	✓	✓
Premium HATR Ge 45 Degree Trough Plate	L1200334	✓	✓
Premium HATR Ge 60 Degree Flat Plate	L1200335	✓	✓
Premium HATR Ge 60 Degree Trough Plate	L1200336	✓	✓
Premium HATR AMTIR 45 Degree Flat Plate	L1200343	✓	✓
Premium HATR AMTIR 45 Degree Trough Plate	L1200344	✓	✓
Premium HATR AMTIR 60 Degree Flat Plate	L1200345	✓	✓
Premium HATR AMTIR 60 Degree Trough Plate	L1200346	✓	✓
Premium ATR Pressure Arm Kit	L1200321		✓
Premium Powder press	L1201944		✓
Premium Volatiles cover	L1205436		✓

Description	Part No.	Spectrum Two	Frontier
Value HATR ZnSe Trough Plate	L1360266	✓	✓
Value HATR ZnSe Flat Plate	L1360267	✓	✓
Value HATR Ge Trough Plate	L1360268	✓	✓
Value HATR Ge Flat Plate	L1360269	✓	✓
Value HATR AMTIR-1 Trough Plate	L1360270	✓	✓
Value HATR AMTIR-1 Flat Plate	L1360271	✓	✓
Value HATR KRS-5 Trough Plate	L1360272	✓	✓
Value HATR KRS-5 Flat Plate	L1360273	✓	✓
Value HATR Clamp Assembly	L1360275	✓	✓

## Pike ATR Top Plates & Options

Description	Part No.	Spectrum One/100/400/65	Spectrum Two	Frontier
Miracle ZnSe Top Plate	L1272130	✓	✓	✓
Miracle Ge Top Plate	L1272131	✓	✓	✓
Miracle AMTIR Top Plate	L1272132	✓	✓	✓
Miracle Si Top Plate	L1272133	✓	✓	✓
Miracle Diamond/ZnSe composite Top Plate	L1272313	✓	✓	✓
Miracle Heated 60°C Diamond/ZnSe Crystal Plate*	L1272314		✓	✓
Miracle Heated ZnSe Crystal Plate*	L1272315		✓	✓
Miracle Heated 130°C Ge Crystal Plate*	L1272316		✓	✓
Miracle Volatiles Cover	L1272320	✓	✓	✓
Miracle Liquid Retainer with Volatiles Cover	L1272321	✓	✓	✓
Miracle Flat tip for high pressure clamp	L1272323	✓	✓	✓
Miracle swivel tip for high pressure clamp	L1272324	✓	✓	✓
Miracle Concave tip for high pressure clamp	L1272325	✓	✓	✓
Multiple (10) Reflection HATR ZnSe Trough Plate	L1272338		✓	✓
Multiple (10) Reflection HATR ZnSe Flat Plate	L1272339		✓	✓
Multiple (10) Reflection HATR Ge Trough Plate	L1272340		✓	✓
Multiple (10) Reflection HATR Ge Flat Plate	L1272341		✓	✓
Multiple (10) Reflection HATR Heater with ZnSe Trough plate*	L1272342		✓	✓
GladiATR Heated ATR Diamond up to 210°C**	L1272422			✓
GladiATR Ge Crystal Plate	L1272425			✓
Miracle ATR/10 Reflection HATR USB Temperature Controller (220V, UK)	L1272317		✓	✓
Miracle ATR/10 Reflection HATR USB Temperature Controller (220V, Euro)	L1272318		✓	✓
Miracle ATR/10 Reflection HATR USB Temperature Controller (110V, 60Hz)	L1272319		✓	✓
GladiATR USB Temperature Controller (220V, UK)	L1272426			✓

\* Requires L1272317, L1272318 or L1272319

\*\* Requires L1272426, L1272427 or L1272428

Description	Part No.	Spectrum One/100/400/65	Spectrum Two	Frontier
GladiATR USB Temperature Controller (220V, Euro)	L1272427			✓
GladiATR USB Temperature Controller (110V, 60Hz)	L1272428			✓

## Specac ATR Top Plates & Options

Description	Part No.	Spectrum One/100/400/65	Spectrum Two	Frontier
Silver Gate™ ZnSe Flat Top Plate (Single Reflection)	L1272274	✓	✓	✓
Silver Gate™ ZnSe Recessed Top Plate (Single Reflection)	L1272276	✓	✓	✓
Silver Gate™ Ge Flat Top Plate (Single Reflection)	L1272275	✓	✓	✓
Silver Gate™ Ge Recessed Top Plate (Single Reflection)	L1272277	✓	✓	✓
Gateway HATR ZnSe Electrically Heated Top Plate to 200°C (220V, UK)	L1272331		✓	
Gateway HATR ZnSe Electrically Heated Top Plate to 200°C (220V, Europe)	L1272373		✓	
Gateway HATR ZnSe Electrically Heated Top Plate to 200°C (110V, 60Hz)	L1272374		✓	
Gateway ZnSe 45 Degree Flat Top-Plate	L1272332		✓	✓
Gateway Ge 45 Degree Flat Top-Plate	L1272333		✓	✓
Gateway ZnSe 550µl Flow Through 45 Degree Top Plate	L1272334		✓	✓
Gateway ZnSe Thermo-circulating 550µl flow through top plate	L1272335		✓	✓
Gateway ZnSe Water Heated/Cooled 45 Degree Top-plate	L1272336		✓	✓
Gateway™ UK Controller	L1272484			✓
Gateway™ Euro Controller	L1272485			✓
Gateway™ USA Controller	L1272486			✓
Gateway™ China Controller	L1272487			✓

## Diffuse Reflectance Accessories



**PREMIUM**

### PerkinElmer Diffuse Reflectance Accessory

Available in Premium and Value versions this accessory provides a convenient and sensitive method for analyzing opaque or highly scattering solid samples such as pharmaceuticals, food products, soap powders, coal, clay, soil, paper, painted surfaces, polymer foam and catalysts. The accessory allows for macro or micro sampling and only requires insertion into the sample compartment to be ready to use.

Description	Spectrum One/100/400/65	Spectrum Two	Frontier
Premium Diffuse Reflectance Accessory			<b>L1280306</b>
Value Diffuse Reflectance Accessory	<b>L1200351</b>	<b>L1600111</b>	<b>L1280323</b>

### EasyDiff Diffuse Reflectance Accessory (PIKE)

A reflectance accessory with pre-aligned optical components and micrometer controlled sample positioning for reproducible, high quality data.

Description	Spectrum Two
EasyDiff Diffuse Reflectance Accessory	<b>L1272344</b>

### DiffusIR™ Diffuse Reflectance Accessory (PIKE)

A research grade diffuse reflectance accessory with a large, efficient optical design accommodating optional environmental chambers for thermodynamic studies.

Description	Frontier
DiffusIR Diffuse Reflectance Accessory	<b>L1272403</b>

### Selector™ Diffuse Reflectance Accessory (Specac)

For analysis of powdered and solid samples. An environmental chamber option allows enhanced vacuum, temperature and pressure studies.

Description	Frontier
Selector Diffuse Reflectance Accessory	<b>L1272409</b>
Selector Diffuse Reflectance Accessory with Environmental Chamber	<b>L1272410</b>

### Mid & NIR Integrating Spheres (PIKE)

Mid-IR and NIR sample compartment spheres for reflectance measurements. Samples are placed directly onto the sample port of the upward-looking sphere or over a thin infrared transmitting window. Measurement of diffuse transmission may also be done by placing the sample at the slide mount beam input port. Kits include base optics, MCT detector (MIR) or InGaAs detector (NIR), and base mount.

Description	Frontier
Mid-IR Integrating Sphere with ZnSe Windows	<b>L1272405</b>
NIR Integrating Sphere with KBr Windows	<b>L1272406</b>

## Diffuse Reflectance Options

### PerkinElmer Diffuse Reflectance Options

Description	Part No.	Spectrum One/100/400/65	Spectrum Two	Frontier
Diffuse Reflection Macrosample Cup	L1201654	✓	✓	✓
Diffuse Reflection Microsample Cup	L1201655	✓	✓	✓
Diffuse Reflection Multi-Purpose Sample Holder	L1201865	✓	✓	✓
Diffuse Reflection Metal-Coated Silicon Carbide Abrasive Pads, Pack of 100	L1275106	✓	✓	✓
Diffuse Reflection Non-Coated Silicon Carbide Abrasive Sticks, Pack of 100	L1271021	✓	✓	✓
Diffuse Reflection Metal-Coated Diamond Abrasive Sticks, Pack of 100	L1275105	✓	✓	✓
Diffuse Reflection Non-Coated Diamond Abrasive Sticks, Pack of 100	L1275102	✓	✓	✓

### Pike Diffuse Reflectance Options

Description	Part No.	Spectrum Two	Frontier
EasyDiff Small Sample Cup, 2 Per Package	L1272345	✓	
EasyDiff Large Sample Cup, 2 Per Package	L1272346	✓	
EasyDiff Sample Slide	L1272347	✓	
EasyDiff Silicon Carbide Abrasive Disks, Pack of 100	L1272348	✓	
EasyDiff Diamond Abrasive Disks, Pack of 50	L1272349	✓	
EasyDiff Sample Cup Holder and Base	L1272350	✓	
EasyDiff EasiPrep Sample Preparation Kit	L1272351	✓	
EasyDiff Alignment Mirror	L1272352	✓	
EasyDiff Abrasion Kit	L1272375	✓	
DiffusIR Heating options. Requires DiffusIR Temperature Controller (territory dependent)	L1272344		✓
DiffusIR Environmental Chamber (900°C)	L1272458		✓
DiffusIR Environmental Chamber (500°C)	L1272459		✓
DiffusIR temperature controller for environmental chambers (220V, UK)	L1272461		✓
DiffusIR temperature controller for environmental chambers (220V, Euro)	L1272462		✓
DiffusIR temperature controller for environmental chambers (110V, 60Hz)	L1272463		✓



## Specular Reflectance Accessories

### PerkinElmer Fixed Angle Specular Reflectance Accessory

This accessory allows measurements on samples with glassy coatings and reflective surfaces. The sample is mounted horizontally and can be measured using 2, 5 or 10mm apertures (included).

Description	Spectrum One/100/400/65	Spectrum Two	Frontier
Fixed Angle (16 degree) Specular Reflectance Accessory	<b>01860796</b>	<b>L1600119</b>	<b>01860796</b>

### PerkinElmer Variable Angle Specular Reflectance Accessory

This accessory allows measurement of reflectance spectra at angles of incidence between 15 and 80 degrees. Provides high-quality, non-destructive routine measurements of glossy, non-scattering flat surfaces or coatings on highly reflective substrates. At high angles, very thin films or coating may be measured.

Description	Frontier
Variable Angle Specular Reflectance Accessory	<b>01860954</b>

### 80Spec Grazing Angle Specular Reflectance Accessory (PIKE)

For the measurement of relatively thin films and mono-molecular layers. Samples are laid face down and the spectrum of the film is measured. Includes base optics, sample masks, polarizer mounts.

Description	Spectrum One/100/400/65	Spectrum Two	Frontier
80Spec Grazing Angle Specular Reflectance Accessory	<b>L1272248</b>	<b>L1272248</b>	<b>L1272248</b>

### 10Spec™ Specular Reflectance Accessory (PIKE)

Recommended to measure the reflectivity of glass per ASTM Standard E1585-93. May also be used to measure near-normal reflectivity of a wide variety of surfaces including military devices, reflecting optics, anti-reflective (AR) coated surfaces, and other reflecting and non-reflecting materials.

Description	Spectrum One/100/400/65	Spectrum Two	Frontier
10Spec Specular Reflectance Accessory	<b>L1272247</b>	<b>L1272361</b>	<b>L1272247</b>

### VeeMAX™ II Variable Angle Accessory (PIKE)

Can be used as a specular reflectance or ATR accessory in both single and multiple reflection mode. The angle may be varied continuously from 30 to 80 degrees by the rotation of a single control. Has a built-in polarizer mount to permit selection of polarization angle without disturbing purge.

Description	Spectrum One/100/400/65	Frontier
VeeMAX II Variable Angle Specular Reflectance Accessory	<b>L1272240</b>	<b>L1272240</b>
VeeMAX II Variable Angle Specular Reflectance ATR Accessory		<b>L1272382</b>
ATRMx II Variable HATR accessory with 45 degree ZnSe Trough Plate		<b>L1272383</b>

## Pike Specular Reflectance Options

Description	Part No.	Spectrum One/100/400/65	Spectrum Two	Frontier
80Spec/VeeMAX KRS-5 Polarizer	<b>L1272243</b>	✓	✓	✓
80Spec ZnSe Manual Polarizer	<b>L1272376</b>	✓	✓	✓
80Spec/10Spec Gold Reflectance Mirror	<b>L1272377</b>	✓	✓	✓
VeeMax ZnSe 45 degree flat plate	<b>L1272450</b>	✓		✓
VeeMax ZnSe 60 degree flat plate	<b>L1272451</b>	✓		✓
VeeMax Ge 45 degree flat plate	<b>L1272452</b>	✓		✓
VeeMax Ge 60 degree flat plate	<b>L1272453</b>	✓		✓
VeeMax Ge 65 degree flat plate	<b>L1272454</b>	✓		✓
ATRMx II Variable Angle Multiple reflection ATR, 45 deg ZnSe crystal	<b>L1272455</b>	✓		✓
ATRMx Ge 45 degree trough plate	<b>L1272456</b>	✓		✓
ATRMx Ge 45 degree flat plate	<b>L1272457</b>	✓		✓

## WIDE SELECTION OF SAMPLING CELLS AND WINDOW MATERIALS

PerkinElmer offers a versatile product line of liquid sampling cells which utilize a specially designed Universal mount suitable for both FT-IR and dispersive instruments, and a wide variety of high-quality window materials to meet your analytical needs. These windows are polished to precise tolerances of flatness.

The first criteria to consider when selecting a window material is the wavelength range over which the spectrum must be measured.

Other important considerations include solubility, reactivity, and the refractive index of the window material with respect to the sample. Sometimes mechanical and thermal characteristics may also be important.

### Selecting Window Materials

The following information may be helpful in selecting window materials:

- **Sodium Chloride (NaCl)** is one of the most versatile window materials available, due to its spectral range and low cost. Samples should not contain water because NaCl is hygroscopic. This will cause the windows to fog and become unusable. Store NaCl cells in a desiccator when not in use. NaCl withstands mechanical stress and can be used up to 400 °C.
- **Potassium Bromide (KBr)** has a slightly wider spectral range than NaCl but is more hygroscopic. Although able to provide good resistance to mechanical shock, KBr is easily cleaved. KBr can be used up to 300 °C.
- **Calcium Fluoride (CaF<sub>2</sub>)** is extremely hard and stable. CaF<sub>2</sub> is not significantly affected by moisture and does not fog. While resistant to most acids and bases, CaF<sub>2</sub> should not be used with ammonium salts.
- **Barium Fluoride (BaF<sub>2</sub>)** is a relatively hard material, similar to CaF<sub>2</sub>. Though less resistant to water than CaF<sub>2</sub>, BaF<sub>2</sub> has a wider spectral range. The useful temperature range extends to 500 °C. Also, BaF<sub>2</sub> should not be used with ammonium salts.
- **Thallium Bromide-Iodide (KRS-5)** has a broad spectral range and a high refractive index, making it ideal for internal reflectance accessories. KRS-5 is slightly soluble in water and bases but insoluble in acids; KRS-5 is toxic and should not be repolished.
- **Silver Bromide (AgBr)** is easily scratched and has a tendency to cold flow at room temperature. Although only minimally degraded by water, AgBr will corrode after prolonged contact with moisture and metals. Avoid exposure to ultraviolet lights, as the crystal has a tendency to darken.
- **Zinc Selenide (Irtran-4™)** is similar to Cleartran except that it is somewhat softer and more easily scratched. Irtran-4 is used in total reflectance accessories because of its high refractive index.

Window Material	Transmission Range $\mu\text{m}$	Transmission Range $\text{cm}^{-1}$	Refractive Index at 1,000 $\text{cm}^{-1}$	Solubility G/100 G H <sub>2</sub> O at 20 °C
Sodium Chloride, NaCl	0.25 – 16	40,000 – 625	1.49	36.0
Potassium Bromide, KBr	0.25 – 26	40,000 – 385	1.52	65.2
Potassium Chloride, KCl	0.25 – 20	40,000 – 500	1.46	34.7
Cesium Iodide, CsI	0.30 – 50	33,000 – 200	1.74	160.0 (at 61 °C)
Fused Silica, SiO <sub>2</sub>	0.20 – 4	50,000 – 2,500	1.42 (at 3,333 $\text{cm}^{-1}$ )	Insoluble
Calcium Fluoride, CaF <sub>2</sub>	0.20 – 9	50,000 – 1,100	1.39 (at 2,000 $\text{cm}^{-1}$ )	1.51 x 10 <sup>-3</sup>
Barium Fluoride, BaF <sub>2</sub>	0.20 – 13	50,000 – 770	1.42	0.12 (at 25 °C)
Thallium Bromide-Iodide, KRS-5	0.60 – 40	16,600 – 250	2.37	< 4.76 x 10 <sup>-2</sup>
Silver Bromide, AgBr	0.50 – 35	20,000 – 285	2.00	12 x 10 <sup>-6</sup>
Zinc Sulfide, ZnS (Cleartran)	1.0 – 14	10,000 – 715	2.20	Insoluble
Zinc Selenide, ZnSe (Irtran-4)	1.0 – 19.5	10,000 – 515	2.41	Insoluble
Polyethylene (high-density)	16 – 333	625 – 30	1.54 (at 5,000 $\text{cm}^{-1}$ )	Insoluble

### Crystal Polishing Kit

Fogged windows are quickly restored with the infrared crystal polishing kit. The kit contains everything necessary to repolish sodium chloride, potassium bromide, or cesium iodide windows, and includes a smoothing lap, polishing rouge, a sponge, an optical flat, a Selvyt cloth, and a booklet describing the repolishing technique.

Description	Part No.
Crystal Polishing Kit	51001188

### Replacement Parts for the Crystal Polishing Kit

Description	Part No.
Selvyt Cloth (pkg. 5)	51001324
Glass Grinding Lap	51001325
Optical Lap	51001326
Cleaning Sponge (pkg. 2)	51001327
Tin Polishing Rouge, 56 g	51001328
Polishing Lap Glass Plate	51001329

## Demountable Cells and Windows

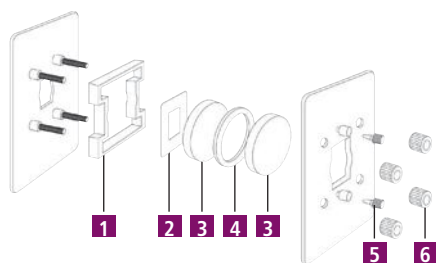


Demountable Cell

### FOR MULLS, CAPILLARY FILMS, CAST FILMS, AND VERY VISCOUS LIQUIDS

Circular windows are used to construct a demountable cell where the sample is placed on one window and the second window is pressed lightly on top of the first. Spacers of various thicknesses can be used to vary the cell pathlength.

Description	Part No.
Universal Demountable Cell	L1270986
<b>1</b> Window Aligner	04821132
<b>2</b> Neoprene™ Gasket	L1270512
<b>3</b> Circular Window (see below)	
<b>4</b> Spacer (see below)	
<b>5</b> Teflon® Plugs (pkg. 6)	04821008
<b>6</b> Quick Release Nut	04821131



## Circular Demountable Cell Windows (Pair)

Window Material	Diameter	Thickness	Part No.
Sodium Chloride	25 mm	4 mm	L1271102
Potassium Bromide	25 mm	4 mm	L1271202
Calcium Fluoride	25 mm	4 mm	L1271602
Barium Fluoride	25 mm	4 mm	L1272002
Thallium Bromide-Iodide	25 mm	4 mm	L1270665
Silver Bromide	25 mm	2 mm	L1272102
Zinc Selenide	25 mm	2 mm	L1270766

## Circular Spacers

Spacer Material	Thickness	Qty.	Part No.
Lead	0.025 mm	10	L1271250
Teflon*	0.05 mm	10	51001135
Teflon*	0.1 mm	6	51001137
Teflon*	0.2 mm	3	51001140
Teflon*	0.5 mm	3	51001141

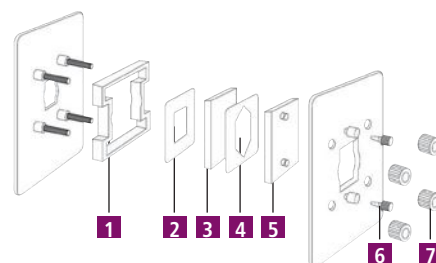
\* Teflon spacers can be used for the analysis of less viscous samples.

## Semi-demountable Cells and Windows

### FOR HIGH-VISCOSITY LIQUIDS OR MULL SAMPLES

By using rectangular windows instead of circular windows, the demountable cell becomes a semi-demountable cell. The semi-demountable cell can be used either as a demountable cell or as a sealed cell for high-viscosity liquids or mull samples. To order a semi-demountable cell, order the Universal Demountable Cell (L1270986) and your choice of semi-demountable windows and spacers.

Description	Part No.
<b>1</b> Window Aligner	04821132
<b>2</b> Neoprene™ Gasket	L1270512
<b>3</b> Undrilled Window (see below)	
<b>4</b> Spacer (see below)	
<b>5</b> Drilled Window (see below)	
<b>6</b> Teflon Plugs (pkg. 6)	04821008
<b>7</b> Quick Release Nut	04821131



## Rectangular Semi-demountable Cell Windows (1 drilled; 1 undrilled)

Window Material	Thickness	Part No.
Sodium Chloride	4 mm	L1271191
Potassium Bromide	4 mm	L1271192
Calcium Fluoride	4 mm	L1271193
Barium Fluoride	4 mm	L1271194
Cesium Iodide	4 mm	L1271195
Zinc Selenide	2 mm	L1270765
Silver Bromide	2 mm	L1270666
Thallium Bromide-Iodide	2 mm	L1270664

## Rectangular Spacers

Spacer Material	Thickness	Qty.	Part No.
Lead	0.025 mm	10	L1270301
Teflon	0.05 mm	6	L1270402
Teflon	0.1 mm	6	L1270404
Teflon	0.2 mm	3	L1270408
Teflon	0.5 mm	3	L1270409
Teflon	1 mm	3	L1270410
Assorted (2 of each)			L1270421

## Sealed Liquid Cells

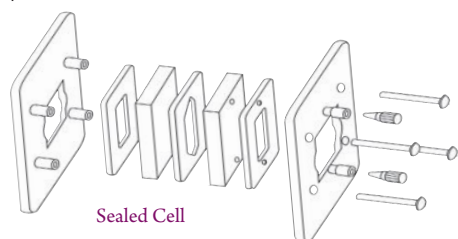
### FOR HIGHLY VOLATILE SAMPLES AND QUANTITATIVE ANALYSIS

The sealed liquid cells have a corrosion-resistant construction making them ideal for highly volatile samples. The sealed liquid cells are ideal for quantitative analysis where you require an accurate reproducible cell thickness. These cells use a lead spacer which is amalgamated to the window material. The resultant bond forms a good leak-free seal which is effective in preventing evaporation and loss of sample. The sealed liquid cell is an integral unit and cannot be disassembled.



Sealed Cell

The sample filling orifice is compatible with Luer-Lok™ hypodermic syringes. Two syringes are recommended when cleaning the cell. Never use viscous materials which are difficult to remove from a sealed liquid cell. Instead, use a semi-demountable cell.



Sealed Cell

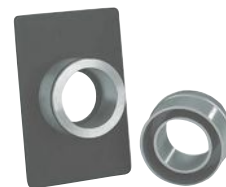
## Rectangular Sealed Liquid Cells

Window Material	Pathlength	Part No.
Sodium Chloride	0.025 mm	L1270941
	0.05 mm	L1270942
	0.1 mm	L1270944
	0.2 mm	L1270947
	0.5 mm	L1270948
	1 mm	L1270949
Potassium Bromide	0.025 mm	L1270951
	0.05 mm	L1270952
	0.1 mm	L1270954
	0.2 mm	L1270957
	0.5 mm	L1270958
	1 mm	L1270959
Calcium Fluoride	0.025 mm	L1270961
	0.05 mm	L1270962
	0.1 mm	L1270964
	0.2 mm	L1270967
	0.5 mm	L1270968
	0.1 mm	L1270969
Zinc Selenide	0.1 mm	L1270970

Description	Part No.
Luer-Lok Syringe for Sealed Liquid Cells	04967845

## Press-N-Lock Demountable Cell and Windows

### FOR SIMPLE ANALYSIS OF MULLS, SMEARS, AND VISCOUS FILMS



The Press-N-Lock Demountable Cell lets you analyze mulls, smears, viscous films, etc., without the use of nuts, springs, or bolts to keep the cell together. You can use this cell on any PerkinElmer FT-IR spectrometer. The cell consists of a backplate with a Viton™ O-Ring that lets you slip the cover on and off with ease.

Description	Part No.
Press-N-Lock Demountable Cell	N9302642
O-Rings 25 mm (pkg. 12).	N9302643

## Press-N-Lock Demountable Cell Windows (Pair)

Window Material	Diameter	Thickness	Part No.
NaCl	25 mm	4 mm	L1271102
KBr	25 mm	4 mm	L1271202
BaF <sub>2</sub>	25 mm	4 mm	L1272002
ZnSe	25 mm	2 mm	L1270766
CaF <sub>2</sub>	25 mm	4 mm	L1271602

## FT-NIR Liquid Cells and Holders

A comprehensive range of FT-NIR cells are available for use with PerkinElmer FT-NIR's and can be found in the cells listing included in the UV section of this catalog.

Description	Lightpath	Part No.
Cylindrical cell holder	10 mm	L1181303
Cylindrical cell holder	50 mm	N9302620
Rectangular cell holder	50 mm	N9302640
Rectangular cell holder	50 mm	02200550

## Short path demountable gas cells

Used to monitor air pollutants, study vapor phase transitions in gas molecules and quantify impurities in gas samples. The Pyrex cells are supplied with a choice of windows. Please note that all require the Universal 10 cm gas cell mount for use.

Description	Spectrum One/100/400/65	Spectrum Two	Frontier
10cm Short-path Demountable Gas Cells with NaCl Windows	51000634	51000634	51000634
10cm Short-path Demountable Gas Cells with KBr Windows	51000636	51000636	51000636
10cm Short-path Demountable Gas Cells with CaF <sub>2</sub> Windows	51000638	51000638	51000638
Universal 10cm Gas Cell Mount	51000817	51000817	51000817

## DC-2 Diamond Compression Cell

Enables samples to be compressed to an ideal thickness for transmission experiments on an FTIR microscope stage or the Microfocus Beam Condenser. It uses two type IIIa diamond windows, each mounted into a Hastelloy plate. Used in combination with the Microfocus Beam Condenser, a high performance 4x beam condenser. The simple two lens linear optical system ensures easy alignment and high throughput over a wide working wavelength range.

Description	Spectrum One/100/400/65	Spectrum Two	Frontier
Microfocus Beam Condenser with ZnSe Lenses. Requires but does not include DC-2 Diamond Compression Cell	L1272283	L1272354	L1272283
Microfocus Beam Condenser with KRS-5 Lenses. Requires but does not include DC-2 Diamond Compression Cell	L1272284		L1272284
DC-2 Diamond Compression Cell	L1272282	L1272355	L1272355

## Variable Temperature Cell

Used for the transmission study of solid or liquid samples at temperatures ranging from -190 °C to 250 °C for solids and -70°C to 250°C for liquids. Holder is supplied with NaCl external windows as standard.

Description	Spectrum One/100/400/65	Spectrum Two	Frontier
Variable Temperature Cell (220V, UK)	L1272288	L1272356	L1272288
Variable Temperature Cell (220V, Eur)	L1272289	L1272357	L1272289
Variable Temperature Cell (110V, 60Hz)	L1272290	L1272358	L1272290

## The Tornado™ series of fixed, long pathlength gas cells

Designed for measuring the infrared spectra of gases and vapors at ambient temperatures and pressures. A range of pathlengths is available.

Description	Spectrum One/100/400/65	Spectrum Two	Frontier
Tornado™ T5 Gas Cell 5m FPL; glass body; KBr windows	L1272301	L1272370	L1272301
Tornado™ T10 Gas Cell 10m FPL; glass body; KBr windows	L1272302		L1272302
Tornado™ T20 Gas Cell 20m FPL; glass body; KBr windows	L1272303		L1272303

## The Cyclone™ series of fixed and variable long pathlength gas cells

Designed for measuring the infrared spectra of gases and vapors at ambient temperatures and pressures. A range of pathlengths is available.

Description	Spectrum One/100/400/65	Frontier
Cyclone™ C2 gas cell 0.5 to 2.5m; glass body; CaF <sub>2</sub> windows	L1272470	L1272470
Cyclone™ C2 gas cell 0.5 to 2.5m; metal body; CaF <sub>2</sub> windows	L1272471	L1272471
Cyclone™ C5 Gas Cell 1-8m VPL; glass body; CaF <sub>2</sub> windows	L1272299	L1272299
Cyclone™ C5 Gas Cell 1-8m VPL; metal body; CaF <sub>2</sub> windows	L1272300	L1272300

## The Storm Short Pathlength (10cm) Gas Cell

Ideal for routine gas and vapor spectroscopic analysis. The cell has a fixed 10 cm pathlength, and is available in Pyrex™ and stainless steel.

Description	Frontier
Storm Gas cell (Pyrex) with NaCl windows	<b>L1272472</b>
Storm Gas Cell (Pyrex) with KBr windows	<b>L1272473</b>
Storm Gas Cell (stainless steel) with NaCl windows	<b>L1272474</b>
Storm Gas Cell (stainless steel) with KBr windows	<b>L1272475</b>

## The Oxford Instrument Optistat DN

A nitrogen reservoir cryostat providing a controlled low temperature exchange gas environment for samples. Designed to operate as an integral part of an optical measurement system.

Description	Frontier
MIR Optistat DN system (ZnSe windows)	<b>L1272480</b>
NIR Optistat DN system (Sapphire windows)	<b>L1272481</b>
FIR Optistat DN system (Polypropylene windows)	<b>L1272482</b>

## The Gasera Photoacoustic PA301 FTIR accessory

For flexible, rapid analysis of solid, semi-solid, and liquid samples in any form without sample preparation. Specially recommended for black samples, in-depth sampling, no-sampling preparation, etc. Photoacoustic principle requires low FT-IR/NIR mirror velocity and PA301 is optimized for 2.5 kHz He-Ne laser modulation frequency (or less).

Description	Frontier
Photoacoustic PA301 accessory	<b>L1272440</b>

## Transmission Options

Description	Part No.	Spectrum One/100/400/65	Spectrum Two	Frontier
Sealed Liquid Cell for Variable Temperature Cell, KBr, 1.00mm pathlength	<b>L1272292</b>	✓	✓	✓
Sealed Liquid Cell for Variable Temperature Cell, KBr, 0.50mm pathlength	<b>L1272293</b>	✓	✓	✓
Sealed Liquid Cell for Variable Temperature Cell, KBr, 0.10mm pathlength	<b>L1272294</b>	✓	✓	✓
Solids Holder for Variable Temperature Cell (Sample size 12 – 30mm diameter and 0.1 – 0.8mm thick)	<b>L1272298</b>	✓	✓	✓
Variable Temperature Cell Holder Jacket KBr windows (pair)	<b>L1272291</b>	✓	✓	✓
Variable Temperature Cell Holder Flow Fittings Kit	<b>L1272359</b>	✓	✓	✓
Cyclone™ C5 Gas Cell Pressure Gauge	<b>L1272307</b>	✓	✓	✓
Cyclone™ C2 Gas Cell Heating Jacket and controller (220V, UK).	<b>L1272364</b>			✓
Cyclone™ C2 Gas Cell Heating Jacket and controller (220V, Europe)	<b>L1272365</b>			✓
Cyclone™ C2 Gas Cell Heating Jacket and controller (110V, 60Hz)	<b>L1272366</b>			✓
Cyclone™ C5 Gas Cell Heating Jacket and controller (220V, UK)	<b>L1272367</b>			✓
Cyclone™ C5 Gas Cell Heating Jacket and controller (220V, Europe)	<b>L1272368</b>			✓
Cyclone™ C5 Gas Cell Heating Jacket and controller (110V, 60Hz)	<b>L1272369</b>			✓
Tornado/Cyclone™ Vacuum/Gas Inlet and Outlet Taps	<b>L1272307</b>			✓
Tornado/Cyclone™ Gas Cell Desiccant Storage Caps	<b>L1272152</b>			✓
Tornado/Cyclone™ Purge Bellows	<b>L1272227</b>			✓



15 Ton Hydraulic Press



13 mm Evacuatable Potassium Bromide Die

## 15 Ton Hydraulic KBr Press

This bench top easy-to-operate press allows creation of the highest quality KBr pellets. It is used with the Evacuatable KBr die to prepare high quality 13 mm pellets. Requires, but does not include the Evacuatable KBr Die (51001144), the KBr Pellet Holder (04810949), and the Adjustable Adapter (L1060351).

Description	Part No.
15 Ton Hydraulic KBr Press	51004599

### Accessories for the 15 Ton Hydraulic KBr Press

Description	Part No.
Evacuatable KBr Die	51001144
Plunger for Evacuatable KBr Die	51001152
Set of upper and lower anvils for Evacuatable KBr Die	04820519
Set of O-rings for Evacuatable KBr Die	04800514
Perspex extractor ring	04977042
KBr Pellet Holder	04810949
Adjustable Adapter to mount KBr Pellet Holder	L1060351

## 2 Ton Hydraulic KBr Press

This portable KBr press is used to prepare high quality 7 mm KBr pellets. Requires but does not include the 7 mm pellet die and ring holder (L1272492) and 7 mm Disc holder with rectangular mount (L1272493)



Description	Part No.
2 Ton Hydraulic KBr Press	L1272491

### 2 Ton Hydraulic KBr Press Accessories

Description	Part No.
7 mm Pellet Die including pellet ring holder	L1272492
7 mm Spare Pellet Ring Holder (Qty. 2)	L1272494
7 mm Disc Holder with Rectangular Mount	L1272493

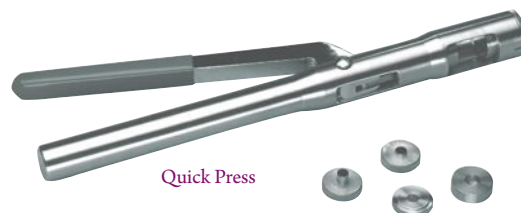
## Evacuatable KBr Mini-press

The Mini-press is designed for those situations where you occasionally need to make KBr pellets. This is the simplest solid sample device and is ideal for student use, where very low cost is an important factor. Two highly polished bolts turn against each other in a steel cylinder. The pellet is formed right inside the cylinder which becomes the sample holder. Once formed, the pellet cannot be removed from the cylinder without being destroyed. The Mini-press requires, but does not include, the holder (51002593).

Description	Part No.
Evacuatable KBr Mini-Press	51002592
Holder for Evacuatable KBr Mini-Press	51002593

## KBr Pellet Quick Press

The Quick Press provides a fast and economical way to prepare good quality KBr pellets. Pellets with diameters of 1, 3 or 7 mm can be prepared, depending on the die sets used.



The Quick Press consists of a handpress, a 7 mm die set and a metal collar. Micropellets can be prepared in the Quick Press by purchasing the optional 1 or 3 mm die. The KBr pellet is formed in a metal collar that fits into a Pellet Holder (51002593; required, but not included).

Description	Qty.	Part No.
Quick Press with Die	7 mm	01860436
Optional Die	1 mm	01862295
Optional Die	3 mm	01862292
Spare Die	7 mm	01862289
Pellet Holder for Quick Press		51002593

## Support Rings For KBr Pellets

Circular paper rings to reinforce your KBr disks. If the amount of sample is limited there are also paper microframes which reduce the size of the pellet to 11 x 2 mm.

Description	Qty.	Part No.
Paper Rings	100	51001148
Microframes	100	51001149

## KBr Powder

Description	Part No.
KBr Powder (100g)	04977043

## OilExpress Supplies

Description	Part No.
Insulation Block for Spectrum OilExpress	L1200558
Sample Probe for Spectrum OilExpress	L1200555
OilExpress Flowcell 0.1 mm pathlength, wedged Spacer, ZnSe Windows (one grooved), and two ports.	L1250220
ZnSe Windows for Spectrum OilExpress Flowcell	L1191081
Gaskets and Spacers for Spectrum OilExpress Flowcell	L1191082
Autosampler Oil Bottle Rack, 30-position, 4 oz bottle	L1200551
Autosampler Test Tube Rack, 16 x 6. For 17 x 100 mm tubes	L1200589
10 mL Syringe with Plunger for Spectrum OilExpress	L1200552
Seal Kit for Spectrum OilExpress (4 piston noses)	L1200553
Lubrication Kit for Syringe Pump Screw Drive for Spectrum OilExpress	L1200559
Clamps to prevent Syringe barrel from moving.	L1200574

## Tubing

Description	Part No.
Spectrum OilExpress Waste Tubing	L1200560
Sample Needle Tubing for Spectrum OilExpress	L1200587
Flowcell to Syringe Tubing for Spectrum OilExpress	L1200588
Solvent to Syringe Tubing for Spectrum OilExpress (pkg. 2)	L1200556
Injection/Transfer Port to Flowcell Tubing for Spectrum OilExpress	L1200557

## Tubes and Bottles

Description	Part No.
17 x 100 mm Polypropylene Tubes (15 ml), Pack of 1200	N0777167
Plug/Cap for 17 mm Tubes, Pack of 1200	N0777599
13 x 100 mm Polypropylene Tubes, Pack of 1000	B0508901
4 oz Clear Plastic Bottle with Lid (Safety Sealed), Case of 600	N9308900
2 oz Clear Plastic Bottle with Lid (Safety Sealed), Case of 800	N9308901

## Spectrum Two Portability Options

To allow for full portability the Spectrum Two portability pack (contains battery pack, car adaptor, Spectrum Two carry case and wireless router kit) should be ordered. Portability options may also be ordered individually.

Description	Part No.
Spectrum Two Portability Pack – includes UPS Battery Pack, Wireless Router and Spectrum Two Carry Case	L1600238
Battery Pack – portable/UPS (req. country power cord and incl. 12V car adaptor)	L1600233
Spectrum Two Carry Case	L9004199
Spectrum Two UATR Carry Case	L9004200
Spectrum Two Wireless Router Kit	L1600246
12V Car Adaptor	L9004128
Wireless USB Key	L9004198





Disposable Desiccant Kit

## Desiccant Kits

These kits are required for all the PerkinElmer FT-IR Spectrometers to keep the optical path free from moisture. It is recommended that the desiccant is replaced every six months. Follow the instructions in the appropriate instrument manual to install the desiccant.

### Disposable Desiccant Kit

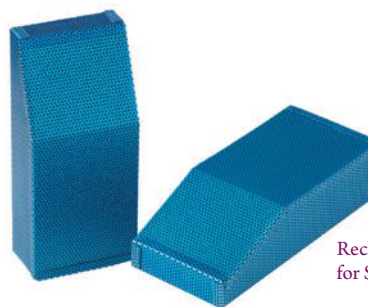
User-installable desiccant includes two desiccant packs. Four packs (two kits) required for each desiccant change. Six packs (three kits) required for use with Spectrum 65, Spectrum 100, Spectrum 100N and Spectrum 400.

Description	Part No.
For use with Model 1600, Paragon 500/1000, System 2000, Spectrum One/One NTS/400/1000/2000/BX/GX/RX/65/Frontier	<b>N0171159</b>
For use with Spectrum Two	<b>L1600244</b>

### Rechargeable Desiccant Kits

The desiccant is contained in rigid metal cages which are user-installable. Depending on the instrument either one or two cages are required.

Description	Part No.
For Spectrum Spectrum 65/100/100N/400/Frontier Includes: four (4) Desiccant Packs, two to be used in the instrument and two spares for recharging.	<b>L1250311</b>
For Spectrum One/One NTS Includes: four (4) Desiccant Packs, two to be used in the instrument and two spares for recharging.	<b>L1200219</b>
For Spectrum 1000/BX/RX, Model 1600, Paragon 500/1000 Includes: one (1) Desiccant Pack. One pack required for each desiccant change.	<b>L1180480</b>
For Spectrum 400 Second Desiccant area Includes: one (1) Desiccant Pack. One required for each desiccant change.	<b>L1251840</b>



Rechargeable Desiccant Kit for Spectrum One/One NTS

## Replacement Laser Head Kit and Sources

Description	Part No.
Laser Head (HeNe) and Laser Power Supply User-installable spare for Spectrum One 65/100/400/Frontier and Spectrum One NTS/100N systems.	<b>L1200253</b>
NIR Source Lamp for Spectrum One/65/100/400/Frontier	<b>L1240098</b>
Mid-IR Source Assembly for Spectrum One/100/400/Frontier	<b>L1200406</b>
Mid-IR Source Element for Spectrum One/65/100/400/Frontier	<b>L1200443</b>
Spectrum Two Source Replacement Kit	<b>L1600243</b>

## Instrument Performance Validation (IPV) Kits

Instrument Performance Validation Kits are available for both Mid-IR and Near-IR FT-IR instruments. All the kits include a polystyrene Traceable Reference Material (TRM) for abscissa calibration valid for three years. The Mid-IR IPV kits also include NG 11 Schott Glass Reference Material (RM) for checking the repeatability of ordinate measurement. Upgrade kits are available to replace the polystyrene TRM once the validity period has expired.

Description	Part No.
Mid Infrared IPV kit for Spectrum Software V.6 or lower	<b>L1365335</b>
Mid Infrared IPV upgrade kit for Spectrum Software V.6 or lower	<b>L1365341</b>
Mid Infrared IPV kit for Spectrum 10 Software	<b>L1250404</b>
Mid Infrared IPV upgrade kit for Spectrum 10 Software	<b>L1250474</b>
Near Infrared IPV kit for Spectrum Software V.6 or lower	<b>L1180479</b>
Near Infrared IPV upgrade kit for Spectrum Software V.6 or lower	<b>L1180490</b>
Near Infrared IPV kit for Spectrum 10 Software	<b>L1250405</b>
Near Infrared IPV upgrade kit for Spectrum 10 Software	<b>L1250475</b>
Polystyrene Test Film – 0.038 mm thickness (not traceable)	<b>L1202057</b>
Methane Test Sample for Manual AVI	<b>L1250462</b>
Spectralon Reference Material (for use with Remote Solid Sampling Systems)	<b>L1241446</b>

# ATR IMAGING UPGRADE FOR SPOTLIGHT



## ATR Imaging Upgrade for Spotlight Systems

Recommended option for the Spotlight 400 or 400N which allows convenient imaging of samples up to 10 mm thick. A large precision aligned crystal enables 400  $\mu\text{m}$  areas to be collected to get more information from the sample quickly.

Description	Qty	Part No.
ATR Imaging Upgrade		<b>L1860319</b>
Spare Germanium Crystal	1	<b>L1860317</b>
ATR Imaging Sample Supports	10	<b>L1860318</b>

## Micro ATR Objective Upgrade Kit

This kit upgrades Spotlight 400 and Microscope Systems without ATR Objective to include micro ATR facility. Includes an ATR Objective consisting of a cassegrain, mount and Germanium micro ATR crystal with holder. It covers the range 5,500 – 600  $\text{cm}^{-1}$ . A spare Germanium crystal and holder is provided.

Description	Part No.
Micro ATR Objective Upgrade for Spotlight 400 Systems	<b>L1860334</b>
Micro ATR Objective for AutoIMAGE Systems	<b>L1860275</b>
Micro ATR Objective for Multiscope Systems	<b>L1860298</b>
Optional/Spare Silicone Crystal with Holder	<b>L1860269</b>
Spare Germanium Crystal with Holder	<b>L1860268</b>

## Hot Stage Accessory

Consists of a heating block, which accepts FT-IR windows and a temperature controller. The Hot Stage can heat samples up to 230  $^{\circ}\text{C}$  in 1 $^{\circ}$  increments. The Hot Stage is held in the slide clip on the sample stage of a PerkinElmer FT-IR Microscope.

Power Requirement	Part No.
Hot Stage 100/120 V, 60 Hz	<b>N1870184</b>
Hot Stage 220/240 V, 50 Hz	<b>N1870188</b>

## Microsampling Tools

PerkinElmer offers a range of tools which allow you to prepare and manipulate samples for infrared microspectroscopy.

Description	Part No.
Microsampling Tool Kit	<b>N1870151</b>
Includes:	
Dissecting Forceps	<b>N9302610</b>
Roller Knife	<b>N9302619</b>
Micro Specimen Tweezers	<b>N9302609</b>
Straight Micro Probe	<b>N9302605</b>
Aluminum Probe Handle	<b>N9302622</b>
Pin Vise	<b>N9302603</b>

## Microscope Supplies

Description	Part No.
Holder for 13 mm Sampling Disks	<b>L1861634</b>
Holder for 13 mm Sampling Disks Includes gold mirror.	<b>L1860409</b>
Base Microscope Slides Optical quality glass, 1 x 3 in., 1 mm thick for visible observations (box of 72).	<b>N9302600</b>
Low-e Microscope Slides Optical quality with infrared reflective coating, 1 x 3 in., 1 mm thick for visible observations and infrared reflectance measurements (box of 25).	<b>L1272249</b>

## Diamond Compression Cell

The cell consists of two Hastelloy plates containing a pair of diamond windows that enable samples to be compressed to an ideal thickness for transmission measurements.

Description	Part No.
Diamond Compression Cell	<b>L1272282</b>

## Crystal Compression Cell

This is a device for flattening soft materials and holding specimens flat and in optical contact with salt windows. 1 and 2 mm thick windows of 13 mm outer diameter can be used with the cell. Two KBr windows (2 mm thickness) are included.

Description	Part No.
Crystal Compression Cell	<b>N1870185</b>

## Infrared Windows

Infrared windows allow you to support microsamples for infrared analysis with the microscope.

Window Material	Dimensions	Part No.
Barium Fluoride	13 x 1 mm	<b>N9302611</b>
Barium Fluoride	13 x 2 mm	<b>N9302612</b>
Sodium Chloride	13 x 2 mm	<b>N9302614</b>
Potassium Bromide	13 x 2 mm	<b>N9302615</b>

## FT-IR Sampling Kits

Two FT-IR Sampling Kits are available to help the newcomer to FT-IR spectroscopy choose the more frequently required items, and to simplify ordering and storage. KBr has been chosen for the transmitting material. The two kits are packaged in attractive storage and carrying cases.



### Liquid and Mull FT-IR Sampling Kit

This kit will satisfy the needs of most new users of FT-IR spectroscopy and has been designed to provide all the necessary equipment for handling liquids and mulls. Includes Polystyrene Film (0.038 mm), Nujol™ DD 057(100 mL), 10 cm Micro Spatula, 2mL Luer Syringe, Agate Pestle and Mortar, Magnetic Film Holder-Circular, Universal Demountable Cell Mount, Assorted Spacers, KBr Demountable Cell Windows (two pairs), and KBr Semi-demountable Cell Windows (two pairs).

Description	Part No.
Liquid and Mull FT-IR Sampling Kit	L1365311



### General Purpose FT-IR Sampling Kit

This kit includes all of the necessary equipment for handling liquids, mulls and KBr pellets. A laboratory press for making KBr pellets should be ordered. Includes Polystyrene Film (0.038 mm), Universal KBr Disk Holder, Nujol DD 057 (100 mL), 10 cm Micro Spatula, 2 mL Luer Syringe, Agate Pestle and Mortar, Magnetic Film Holder-Circular, KBr Powder (100 g), 13 mm KBr Die, Micro-disk Holder Accessory, Beam Condenser Accessory, 100µm Diameter Sample Holder Accessory, 500 µm Diameter Sample Holder Accessory, Universal Demountable Cell Mount, Assorted Spacers, KBr Demountable Cell Windows (two pairs), and KBr Semi-demountable Cell Windows (two pairs).

Description	Part No.
General Purpose FT-IR Sampling Kit	L1365312

## Spectrum Two Educational Starter Pack

A convenient kit which will teach you how to make solid and gas transmission measurements. Includes a simple KBr pellet press and pellet holder as well as a 10 cm gas cell and holder. Potassium Bromide not included.

Description	Part No.
Spectrum Two Educational Starter Kit	L1608022

## FT-IR Introductory Kit

This kit contains samples to rapidly familiarize you with sampling techniques such as Transmission, ATR and Diffuse reflectance, and preparing a cast thin film. The kit also provides familiarization with IR software including Basic Operation, Quality Checks and Spectral processing (Search and Compare). The samples included and experiments rapidly demonstrate good sampling technique, sampling accessory selection, managing atmospheric interferences, signal-to-noise ratio, resolution selection and more.

Description	Part No.
FT-IR Introductory Kit (1 User)	L1608001
FT-IR Introductory Kit (5 Users)	L1608002

## Solid/Liquid/Gas Sampling Starter Packs

Description	Part No.
KBr Disc Starter Pack Includes Adjustable Adaptor, KBr Die (13 mm) and KBr Pellet Holder.	L1272265
KBr Disc Complete Starter Pack Includes Adjustable Adaptor, KBr Die (13 mm), KBr Pellet Holder, 15 ton press and KBr Powder (100 g).	L1272266
Gas Sampling Starter Pack Includes 10 cm short-pathlength demountable gas cell, Spare KBr windows (47 mm diameter) and Universal gas cell mount.	L1272267
Liquid Sampling Starter Pack Includes Universal Demountable Cell Mount, Circular KBr Windows (pair), Rectangular KBr Windows (pair), 0.1 mm Circular Teflon Spacers (contains 6) and Assorted Rectangular Spacers.	L1272268

## FT-IR Sampling Kit Supplies

Description	Size.	Part No.
Nujol	100 mL	04960691
Fluorolube	1 oz bottle	01862301
KBr Powder	100 g	04977043
KBr Random Cuttings	100 g	N9300086
Micro Spatula	10 cm	04967843
Luer Syringe	2 mL	04967845
Agate Pestle and Mortar		04967854

Application packs, described as resource packs or analysis packs depending on whether specific software/calibrations are included, help speed up application development and make your lab more efficient.

## FT-IR Educational Resource Pack

For teaching FT-IR Spectroscopy to students and new users. Includes 15 experiments that can be used as part of a training curriculum.

Description	Part No.
FT-IR Educational Resource Pack	L1608003

## FT-IR Pharmacopeia Compliance Resource Pack

Designed to assist the user in understanding and achieving compliance to pharmacopeia regulatory requirements in FT-IR analysis, using PerkinElmer Spectrum 10 software and PerkinElmer FT-IR instruments. The pack covers the requirements of seven key Pharmacopoeias (USP, BP, EP, IP, JP, CP and IntPhr).

Description	Part No.
FT-IR Pharmacopeia Compliance Resource Pack	L1608004

## FT-IR Nutraceutical Compliance Resource Pack

This pack facilitates IR spectroscopy analysis for Nutraceutical and Traditional Medicine professionals. The pack covers the requirements of seven key Pharmacopoeias (USP, BP, EP, IP, JP, CP and IntPhr). The quality assessment of most of natural products is supported by an included nutraceutical starter set of spectra.

Description	Part No.
FT-IR Nutraceutical Compliance Resource Pack	L1608005

## FT-IR Polymer Resource Pack

Designed for use in the rapid screening and identification of polymer materials using FT-IR Spectroscopy. The pack is designed to help in the measurement of good quality spectrum of polymers, identification of polymers, and interpretation of polymer spectra. Utilization of library spectra is illustrated for effective results.

Description	Part No.
FT-IR Polymer Resource Pack	L1608013

## Environmental Hydrocarbons ASTM D7066-04 Application Pack

Contains accessories, consumables and application software to perform ASTM D7066-04 (extraction into hydrocarbon-free solvent and then transmission FT-IR). Includes cuvette holder, two Cuvette 10mm and Environmental Hydrocarbons Touch Application Software Kit.

Description	Part No.
Environmental Hydrocarbons ASTM D7066-04 Application Pack	L1608006

## Environmental Hydrocarbons Cyclohexane Application Pack

Contains accessories, consumables and application software to perform oil in water measurements by extraction into cyclohexane then transmission FT-IR. Includes two Port Luer Lock %T Cell - CaF2 0.5mm, two 2ml Luer lock Syringe, Spare 0.5mm Teflon Spacer (pk 6), IR Liquid Cell Luer Connected Waste Tube, and Environmental Hydrocarbons Touch Application Software Kit.

Description	Part No.
Environmental Hydrocarbons Cyclohexane Application Pack	L1608007

## Environmental Hydrocarbons ATR Application Pack for Spectrum Two

Contains accessories, consumables and application software to perform oil in water measurements by ATR. Includes Spectrum Two HATR, ZnSe 45 deg Top plate – Flat, 25um micro pipette, pipette tips, and Environmental Hydrocarbons Touch Application Software Kit.

Description	Part No.
Environmental Hydrocarbons ATR Application Pack for Spectrum Two	L1608008

## In-Service Lubricants Application Pack

Contains accessories, consumables and application software to perform used oil analysis. Includes flow cell with ZnSe windows, wedged spacer and luer fittings for Used Oil Analyzer, 3ml luer lock plastic syringe Starter Pk 100, Torque screwdriver, HEX BIT 3.0mm, IR Liquid Cell Luer Connected Waste Tube, Teflon plugs (pk 6) plugs, and In-Service Lubricants Touch Application Software Kit.

Description	Part No.
In-Service Lubricants Application Pack	L1608009

## IR Biodiesel Application Pack

Contains accessories, consumables and application software to perform Biodiesel analysis using IR. Includes 2 Port Luer Lock %T Cell - BaF2 0.1mm, 2 x 2ml Luer lock Syringe, Assorted Teflon Spacers, Torque screwdriver, HEX BIT 3.0mm, IR Liquid Cell Luer Connected Waste Tube, and Fuels FT-IR Touch Application Software Kit. Does not support ASTM D7371.

Description	Part No.
IR Biodiesel Application Pack	L1608010

## IR Benzene in Gasoline ASTM D4053-04 Application Pack

Contains accessories, consumables and application software to measure Benzene in Gasoline by IR. Includes 2 Port Luer Lock %T Cell - KBr 0.05mm, 2 x 2ml Luer lock Syringe, Spare 0.05mm Teflon Spacer (pk 6), Torque screwdriver, HEX BIT 3.0mm, IR Liquid Cell Luer Connected Waste Tube, AVI Manual Kit, FT-IR Fuels Touch Application Software Kit.

Description	Part No.
IR Benzene in Gasoline ASTM D4053 – 04 Application Pack	L1608012

## ROBUST, VERSATILE RAMAN FIBER-OPTIC PROBES AND ACCESSORIES

### Near Infrared Fiber-optic Probes

**For the Raman IdentiCheck, RamanStation 400F, RamanFlex 400 and RamanMicro 200F**

PerkinElmer's Fiber-optic Probes allow you to bring the spectrometer to the sample, making results easier than ever to gather. With a simple point and click process, you can analyze a range of samples types – even in uncontrolled environments and restricted spaces. Offering considerable additional functionality, like in-situ analysis and reaction monitoring, this easy-to-use accessory will be beneficial to your lab.

Description	Part No.
Raman Probe Stainless steel probe, 7.5 mm working distance, 5 M cabling. Spectral range is 230 – 3,500 $\text{cm}^{-1}$ .	<b>L1320002</b>
Liquid Immersion Sleeve An option for Raman Probe comprising stainless steel body with sapphire window. The sleeve allows the Raman Probe to be immersed in liquids at temperatures up to 200 °C.	<b>L1320003</b>
Trigger Fiber Optic Raman Probe, 5 m Stainless-steel probe, 7.5 mm Working distance, 5 m Cabling. Handle with Trigger, Removable contact tip 7.5 mm included, Spectral range is 230 – 3,500 $\text{cm}^{-1}$ .	<b>L1320030</b>
Trigger Fiber Optic Raman Probe, 20 m Stainless-steel probe, 7.5 mm Working distance, 20 m Cabling. Handle with Trigger, Removable contact tip 7.5 mm included, Spectral range is 230 – 3,500 $\text{cm}^{-1}$ .	<b>L1320031</b>
Short (10 cm) immersion sleeve for Triggered Fiber Optic Probe An optional stainless-steel immersion sleeve for Fiber optic probes.	<b>L1320070</b>
Raman Probe — Long Stainless steel probe, 350 mm long, suitable for non-contact and liquid immersion, and use at elevated temperature and pressure up to 200 °C / 1,500 psi, 5 M cabling. Spectral range is 230 – 3,500 $\text{cm}^{-1}$ .	<b>L1320011</b>
Raman Probe — Max Stainless steel probe, suitable for non contact and liquid immersion, and for use at elevated temperature and pressure up to 500 °C / 3,000 psi, 5 M cabling. Spectral range is 230 – 3,500 $\text{cm}^{-1}$ .	<b>L1320012</b>
Purge Jacket for Raman Probe — Max Required to enable Max Probe operation at temperatures between 200° & 500 °C.	<b>L1320013</b>
Removable Contact tip 7.5 mm working distance, replacement unit. Optimize the working distance of the fiber probe by directly touching the sample and reduce the risk of external light contamination of the spectrum.	<b>L1320324</b>
Ultra long working distance lens for fiber probes and triggered fiber probes This accessory allows a working distance of 25 mm instead of 7.5 mm	<b>L1320071</b>



### Raman Calibration and Operational Qualification Kit

An option for use with RamanStation 400, RamanFlex 400, RamanIdentiCheck and RamanMicro 200. Due to the design of these instruments no routine calibration is required. Annual calibration is normally performed during annual servicing or recertification. The Calibration Kit has been made available for those customers who wish to perform more frequent calibrations.

#### The kit includes:

- Neon lamp and fiber-optic connector for Wavelength Calibration
- Calibration Plate containing Polystyrene for Wavelength Calibration Verification and Laser Wavelength Calibration
- Calcite for Resolution Verification
- NIST 2241 Standard for Intensity Correction

Description	Part No.
RamanStation Calibration and Operational Qualification Kit (785 nm)	<b>L1320237</b>
NIST 2241 Intensity Correction Standard	<b>L1321831</b>

## Fiber Probe Sample Holder



Compact sample holder for the measurement of small vials and cuvettes. Can accommodate three sizes of standard glass vials (29, 23, 15 mm diameter) and cuvettes up to 1 cm pathlength. Also includes four solid sampling cups

for powders, pastes and films. A spring-loaded mechanism shields user from laser light and avoids measurement of ambient light.

Description	Part No.
Fiber Probe Sample Holder	L1320095

## MALDI Sample Plates

MALDI sample plates can be used to examine liquid samples; either in solution or as material dried onto the surface of the plate. A micro-pipette can be used to place a small drop of sample on an appropriate 1 or 2 mm 'spot' on the plate. The MALDI plates can be used with the motorized stage of the RamanStation 400, RamanMicro 300 and RamanMicro 200.

Description	Qty.	Part No.
96-well plate, 1 mm diameter target (gold on glass)	10	L1322000
384-well plate, 1 mm diameter target (gold on glass)	10	L1322001
96-well plate, 2 mm diameter target (gold on glass)	10	L1322002
96-well plate (stainless steel)	1	L1322003
384-well plate (stainless steel)	1	L1322004

## SERS Gold Colloids and Consumables

Description	Part No.
SERS Gold Colloid 50 nm particles (20 ml)	L1329300
SERS Gold Colloid 100 nm particles (20 ml)	L1329307
SERS Gold Colloid 200 nm particles (20 ml)	L1329308
Aggregating Agent – MgSO4 0.16 M milli Q water (20 ml)	L1329301
Standard Crystal Violet Pigment (0.25 ml)	L1329303
Disposable Micropipettes 200 µL 100/pk	L1329304
Disposable Micropipettes 50 µL 100/pk	L1329305
Disposable Micropipettes 2 µL 100/pk	L1329306

## Raman Laser Safety Kit (785 nm)

Description	Part No.
Raman Laser Safety Kit (785 nm), Including Coded Reed Switch with 10 M cabling, 1 pair of Laser Safety Glasses, Laser Viewing Card, Door Warning Label USA and Europe.	L1320262
Door Interlock Kit, Coded Reed Switch with 10 M cabling (one included in safety kit)	L1320820
Laser Viewing Card, for safe viewing of laser position (one included in safety kit)	L1323521
Door Warning Label USA and Europe. (one included in safety kit)	L1323523
Laser Safety Goggles for 785 nm, OD 6 at 785 nm (one included in safety kit)	L1323518

## Low-e Microscope Slides

Low-e microscopy slides are standard size microscope slides which reflect 95% of mid-IR radiation with no interfering absorption effects.



This is achieved by one side of the slide having a reflective surface made up of several coatings, two of which are silver.

Low-e microscopy slides can be used with solids, liquids, and biological materials. Liquid samples are simply applied to the slide surface. For solid samples such as fibers, minerals and polymers a Roller Knife tool can be used to press the sample flat on the slides surface.

Description	Part No.
Low-e microscope slides (pack 25)	L1272249
Roller Knife	N9302619