

HUMAN HEALTH

ENVIRONMENTAL HEALTH

IR MICROSCOPY THAT OVERCOMES  
YOUR BIGGEST CHALLENGES  
AND YOUR SMALLEST



Spotlight™ 150i/200i FT-IR Microscope Systems

  
**PerkinElmer**<sup>®</sup>  
For the Better



## NOW EVERY TECHNICIAN IN YOUR LAB CAN DO IR MICROSCOPY

In every laboratory in which analytical IR and microscopy are factors – in food packaging and other advanced materials, forensics, pharmaceuticals, biomaterials, academia, and a host of other disciplines – the trend is toward less specialization and more emphasis on learning a variety of instrumentation. As lab functions expand and become more centralized, bigger challenges – and a wider array of samples and sample sizes – are being tested by users who are being asked to do more than ever before. It's the new normal, and you have to adapt to a changing, and more challenging, landscape.

Helping you meet those challenges, both large and small, is what the Spotlight™ IR microscope systems are designed to do. With simple operation that's easy enough for novices to perform. Clear, common software controls for all sample types – from smallest to large. And streamlined reporting tools that let all your people concentrate on their core responsibility: moving your science forward.

It's intelligent technology, and it's simple to use: Smart region-of-interest search. Batch analysis and reporting for multipoint and multicomponent measurement. Auto-ATR optimization for fast, accurate results. And so much more.



Best of all, it's high-performance IR microscopy with full-featured FT-IR included, the most flexible and versatile solution of its kind. The Spotlight 150i and Spotlight 200i systems: Taking on today's challenges – and your challenges to come.

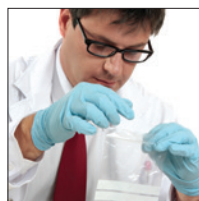
# HERE'S WHERE YOU'LL FIND US WORKING

Our IR microscopy solutions play an important role in a wide variety of industries. Easy to use, yet exceptionally powerful and versatile, the Spotlight's flexibility and sensitivity make it a perfect addition to any lab setting, in any discipline.



## MATERIALS

Food packaging, consumer goods, semiconductors and high tech, and more – analytical services laboratories use our IR microscopy technology to visualize the chemical composition of a wide array of products. It's also the ideal platform for accelerating product development and quality troubleshooting, quickening the pace of product improvements, and cutting costs – all while making you more competitive.



## FORENSICS

Analysis of paint chips, drugs, fibers, and explosives; plastic fusion studies; characterization of tablets, packaging, artworks, and documents; and much more: The Spotlight system opens up a whole new world of opportunity for crime fighting and counterterrorism.



## PHARMACEUTICALS

IR microscopy analysis enables the pharmaceutical industry to lower manufacturing cycle times and product variability, for shorter time-to-market and less chance of product failures.



## BIOMEDICAL

This high-performance, research-grade instrument and its powerful software are ideal for diagnostic tool development and functional understanding on a wide range of biological materials.



## ACADEMIC RESEARCH

The Spotlight system's enhanced capability significantly reduces the time it takes to get a chemical picture of your sample. The ability to quicken the pace of research, combined with the capability of processing novel information in profound ways, opens up a wide range of new opportunities for academics.

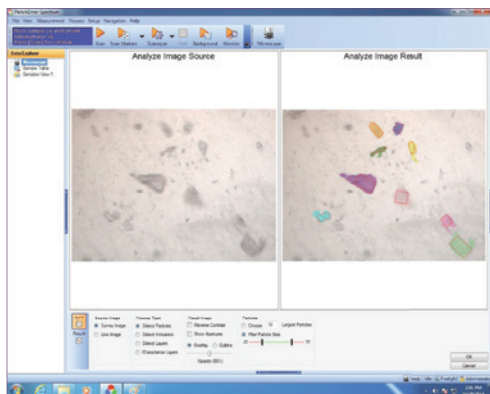


## BIOMATERIALS

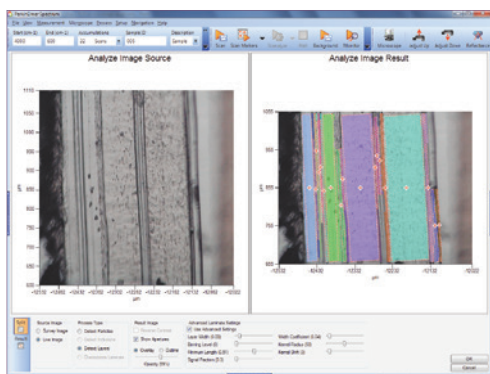
Biomaterials research can benefit from the Spotlight system, which is ideal for examining the composition of novel biomaterials and the biomaterial-host interface.

# WHO KNEW EXCEPTIONAL RESULTS COULD BE THIS EASY?

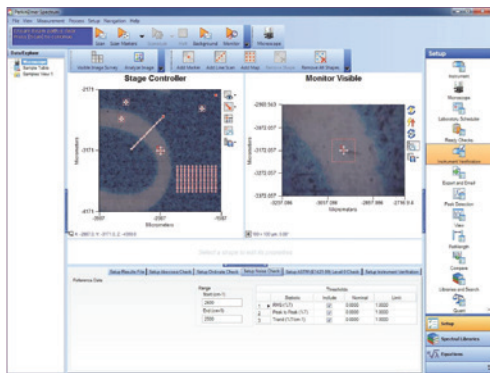
The Spotlight microscope systems are designed for the lab scientist faced with increasingly challenging samples – and who needs higher sensitivity and simpler workflows to meet those challenges. That means faster, more intelligent automation, state-of-the-art technologies, easy-to-use software, plus simple tools for everything from setup to method development to data analysis. The result? The highest sensitivity and sophisticated analysis capabilities for even the most challenging samples.



Intelligent particle-finding routine reduces setup times from minutes to seconds.



Faster laminate analysis enabled by automatic region-of-interest determination.



More efficient sample characterization with multimode random mapping with linescan combinations.

## Very intelligent automation

With the Spotlight systems, everything is designed to speed you to high-quality results, with automatic features and functions that are simply unprecedented on any IR microscope. Its advanced technology performs a variety of tasks to provide everything from automated setup to complete characterization – in record time.

For example, intelligent region of interest (ROI) finding makes time-consuming manual setup for analysis of multiple particles and layers a thing of the past, so it's perfect for finding contaminant specks and analyzing powder samples. At the same time, automated laminate analysis routines quickly locate features and set optimum scanning conditions for the sample viewed. Plus, you can combine analyses with point scanning for multiple sample points – so you can deliver results, not spectra, for a multitude of operations.

Nearly everything else on the system is automated, too:

- Automatic ATR performs multiple sampling modes, including single point, line scans, and maps, in a single experiment – with minimum sample preparation compared with transmission analysis, while maintaining spectral integrity and quality.
- Configurable validation routines speed instrument performance validation tests, so you're always ready for operation.
- The capability of combining random markers and line scans across boundaries and 2D maps enables more complete, reproducible sample characterization – even in unattended mode.
- When configured with the Frontier FT-IR platform, an automatic beamsplitter change can quickly reconfigure the system for multispectral range operation.

## IR microscopy that's agile enough for anything

Today's lab environments are all about accuracy and agility – and that's what our IR microscopy solution is designed to deliver. The microscope is optimized for samples below 100 microns, while larger samples can be quickly and conveniently measured using the full FT-IR sampling capability. And it, too, is highly automated, eliminating time-consuming manual adjustments to focus, aperture, and region-of-interest location. Our microscopy solution is also intuitive to operate, making everything from spectral collection to processing and reporting simple and straightforward.

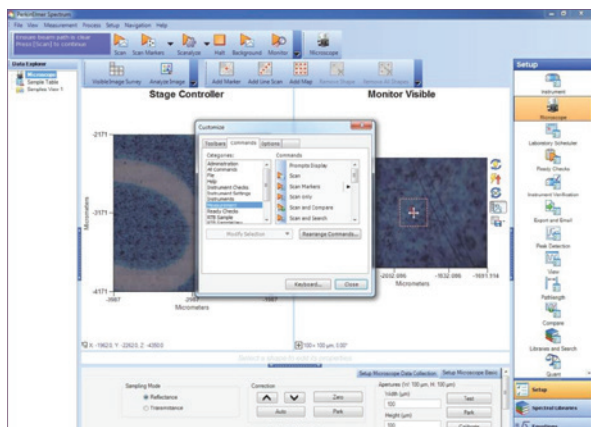
## Standalone or coupled - it's your choice

With the Spectrum Two, you can quickly decouple the microscope, giving you a portable FT-IR system that's perfect for out-of-the-lab experiments. Hyphenation options for the Frontier such as TG-IR enable you to do a more complete characterization of your sample. And its unique, proprietary ATR option delivers ruggedized performance for hard or abrasive samples.

## Software that couldn't be more intuitive

Built for laboratories that need intuitive operation coupled with a wide range of advanced capabilities, Spectrum™ 10 software sets the standard for simplicity and agility in data collection, processing, and analysis.

Our software interface combines easy navigation and customizable workflow, so learning the software is almost second nature. Common operations such as scanning and analysis are reduced to single clicks, and novices can quickly learn to locate, scan, analyze, and report multiple contaminants in complex matrices with ease. What's more, smart multicomponent search takes the guesswork out of analyzing complex spectra.



Completely customizable interface for both non-specialized and advanced operators.

## FT-IR Microscopy Starts Here

Every lab is different, and each has its own unique requirements from an FT-IR system. That's why we offer two distinct FT-IR options to meet your most exacting specifications – each delivering high performance and reproducible results.



## Spectrum Two™ FT-IR

Perfectly suited for day-in, day-out use, the Spectrum Two system enables you to confidently perform fast, accurate IR analysis and assures the quality of your materials across a wide range of applications. Unique in its operational simplicity, Spectrum Two combines superb performance with a low maintenance design. Plus, it's highly transportable, with optional wireless connectivity, so it's at home both in the field and in the laboratory.



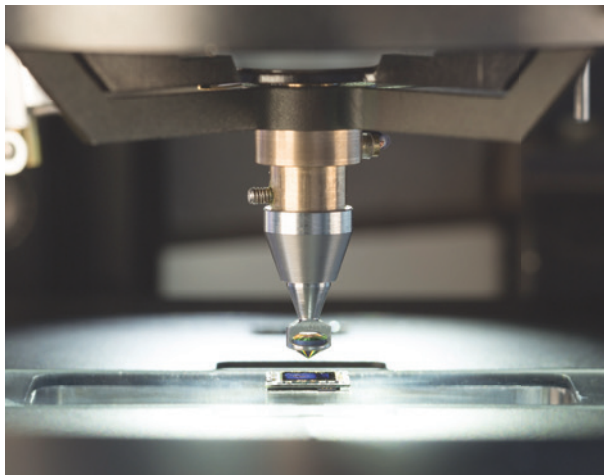
## Frontier™ FT-IR

Our most powerful, adaptable IR solution, the Frontier FT-IR system delivers superior performance in your most demanding applications. With the highest levels of sensitivity and configurability, Frontier can handle everything from everyday measurements to the most advanced, complex analyses. The system can also be expanded as your research evolves, and its flexible, upgradable optical system offers superior spectra in the near, near-mid, mid, mid-far, and far infrared regions. The Frontier FT-IR system's automated technology allows users to switch spectral range at the touch of a button, freeing up more time for analysis.

# IR MICROSCOPY FOR TODAY'S CHALLENGES AND TOMORROW'S

## Flexible microscopy for samples big and small

For analysis of everything from contaminants to advanced materials, Spotlight delivers unrivaled micro and macro sampling versatility for the challenges you face every day.



### Micro Sampling

Multiple microscope collection modes provide optimum configurations for sub-100-micron samples, enabling the microscope to measure the greatest range of samples with the standard instrument. And additional spectral-range options are available for specialized sample types.

All Frontier systems are field upgradable to IR imaging, too, and the industry-leading Spotlight 400 imaging configurations provide the highest performance hyperspectral imaging solutions.

A range of special accessories are available for custom experiments and multisampling, including a variable-temperature sample holders, stage inserts with multiple tablet holders for automated measurements, and a diamond compression cell for thinning difficult samples.



### Macro Sampling

Fully adaptable Frontier and Spectrum Two systems can expand right along with your research. Frontier systems' flexible optical system delivers superior spectra in everything from near to far infrared. Plus, you can switch ranges with a single push of a button.

On the Frontier system, the switchable beam path is perfect for hyphenated techniques – for instance, TG-IR and other accessories with a second external beam, and a general-purpose optical bench and auxiliary input port for emission.

Frontier and Spectrum Two systems deliver the highest levels of data fidelity, even in most basic configurations. At the same time, they can couple seamlessly with any of our sampling accessories for analysis without compromise. You can choose from a vast range of specialized sampling accessories – simply switch accessories out to address any application, all on a single instrument. And an extensive range of third-party accessories – including heatable sampling systems and gas cells – enable you to meet out-of-the-ordinary sampling requirements.

# WHATEVER THE SAMPLE WE'VE GOT YOU COVERED

Optimized, zero-alignment accessories can be quickly interchanged to create the perfect configuration for your application.

## Frontier Accessories

### Solids autosampler

A 30-position autosampler for tablets or powders with patented custom molds for reproducibility.

### TG-IR

Hyphenated FT-IR and thermo-gravimetric analysis of breakdown products from decomposition and combustion, with unique gas-transfer system for better sensitivity, less sample contamination.

### NIRA

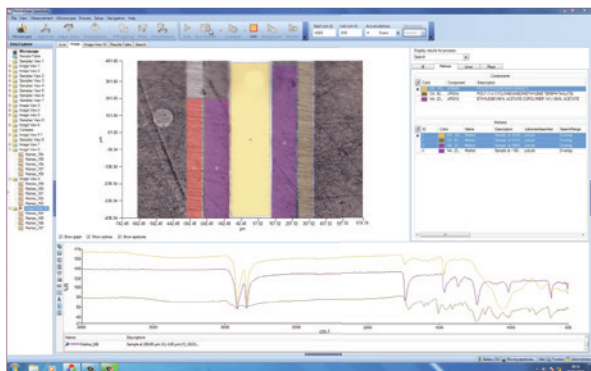
Measures solids, liquids, powders, gels, and pastes in containers such as blister packs, polythene bags, and glass vials – highest performance and reproducible NIR reflection and transfection with no sample prep.

### Remote liquids probe

Remote transmission measurement of liquids directly within reaction vessels, with universal interface for compatibility with a wide range of probes.

### Remote solids probe

Sampling of powders and solids up to 10 meters away from the instrument, with an advanced handset with scan trigger and LCD interface for continuous remote operation.



Aggregated Search results reporting over multiple sample regions.

## Frontier/Spectrum Two Accessories

### Diffuse reflectance

Simple analysis of powders and hard-to-measure solids, with a range of sampling tools to speed preparation.

### Liquid sampling

A range of liquids sampling options including both ATR and transmission techniques.

### UATR

Universal sampling for simple IR spectroscopic analysis, with automatic recognition of top-plate crystal, real time pressure readout, and recorded serial number for traceability.

### Spectrum Two Compartment

Compatible with many PerkinElmer and third-party sampling accessories, handling anything from high temperature liquids to long path length gas cells.

### Connected Data Is Smart Data

TIBCO Spotfire® technology enables you to visualize IR results, reveal hidden insights in data, and collaborate across your entire organization. Dashboards can be set up and shared for easy collaboration. Exploratory views can be set up to uncover hidden trends and relationships. And it's possible to take advantage of a single analytics and data-discovery platform to empower and inspire all your people to make better, more informed decisions.

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