

HUMAN HEALTH

ENVIRONMENTAL HEALTH



FT-IR IMAGING THAT'S CLEARLY MEASURABLY AMAZING



Spotlight™ 400 FT-IR and 400N FT-NIR Imaging Systems



YOUR CHALLENGES
COME IN ALL
SHAPES AND SIZES

ONE SYSTEM CAN HANDLE THEM ALL

It's been called the most productive laboratory FT-IR imaging system in

the world. And how else would you describe a laboratory instrument that so dramatically improves the understanding of materials across an unprecedented range of industries? With IR imaging that's faster, more efficient, and more flexible than you'd even thought possible?

Spotlight 400 FT-IR and Spotlight 400N FT-NIR systems: The choice of imaging professionals everywhere – for reasons we think are perfectly clear.



The Spotlight 400 system is built for highly demanding FT-IR imaging.

A new level of imaging performance and flexibility

With Spotlight 400 FT-IR and Spotlight 400N FT-NIR imaging systems, you experience unprecedented, uncompromising data quality and clear, complete, highly detailed results from all your samples. Spotlight FT-IR systems are purpose-built for a wide range of demanding imaging applications. So you're able to switch between sampling modes – standard transmission, reflection, ATR imaging, and more – with ease, and your images can be collected at high speeds with extraordinary signal-to-noise ratio.

Spotlight 400 systems set the standard for clarity in FT-IR imaging. They deliver an exceptionally wide spectral range and choice of standard image pixel sizes, from a highly sensitive 1.56 μ pixel option to a 50 μ pixel for imaging applications where speed is of the utmost.

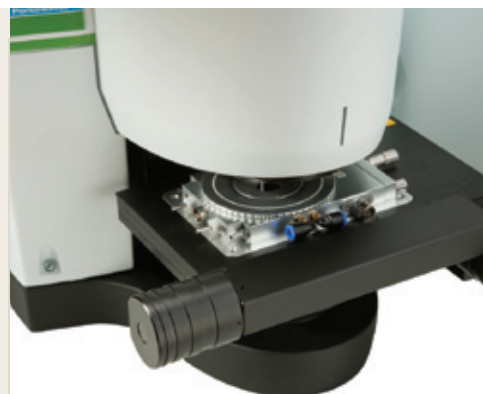
An optional large imaging stage increases the available sampling area, allowing a large number of samples or extremely large areas to run in a single operation, maximizing efficiencies and providing more information. And the system's unattended mode frees resources and permits overnight experiments.

Unlike some other imaging systems, the Spotlight 400 gives you a full-featured FT-IR spectrometer and macrosampling system. So you don't need an additional FT-IR spectrometer or external sample compartment to run even your most challenging FT-IR applications, maximizing your return on investment.

Together, these features mean one thing: more productivity from the world's most demanding lab environments. Like yours.

Spotlight 400 FT-IR AND 400N FT-NIR: The Clear Advantage

- High spatial resolution
- Broad range of sampling: more samples, larger sample size
- Fast, efficient data collection
- Automated mathematical data analysis routines
- Image analysis software
- Unattended operation
- Extensive applications flexibility
- Unique detector array options for extended-range IR imaging to below 600 cm^{-1} and dedicated, highest performance NIR imaging



A DIFFERENCE YOU CAN SEE AND EVERYONE CAN USE

PerkinElmer was the first instrument company to offer large-area microscopic ATR imaging coupled with a Linear Array Detector. And today, this combination of technologies and system software still provides a maximum ATR image area, increasing the range of applications that can benefit from ATR's higher spatial resolution, clarity, and speed.

ATR: Big information from the smallest samples

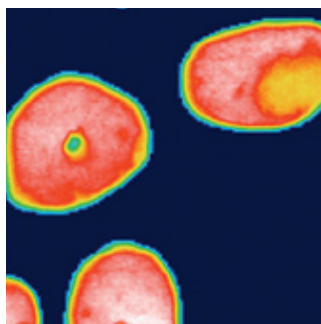
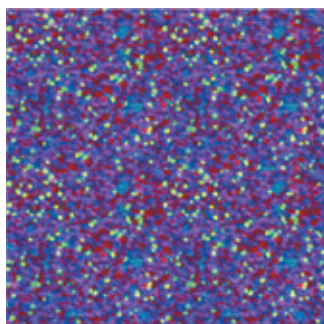
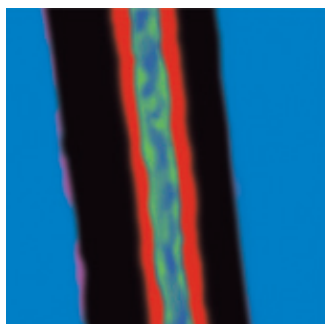
The PerkinElmer ATR Imaging Accessory captures infrared spectral images with up to four times higher spatial resolution than conventional reflectance or transmission imaging, while still maintaining image integrity and quality. It can measure sample diameters up to 500 μ (and optionally to 1200 μ) at a single sample contact point, providing up to 400 times larger images than can be achieved by other systems based on ca 50 μ ATR tip sizes – and without repositioning and “stitching” together individual images. You get more information from your materials – quickly and easily.

Spotlight 400 systems also boast unsurpassed clarity in the widest possible spectral range with pixel sizes ranging from 6.25 μ to 50 μ , to accommodate most IR imaging needs. The ATR Imaging Accessory also provides an effective pixel size of 1.56 μ , far beyond the limitations of traditional IR. And for added flexibility, Spotlight 400 systems deliver a 50 μ pixel for faster survey imaging – particularly valuable for problem analysis, routine quality assurance, and other applications where the highest spatial resolution isn't required.

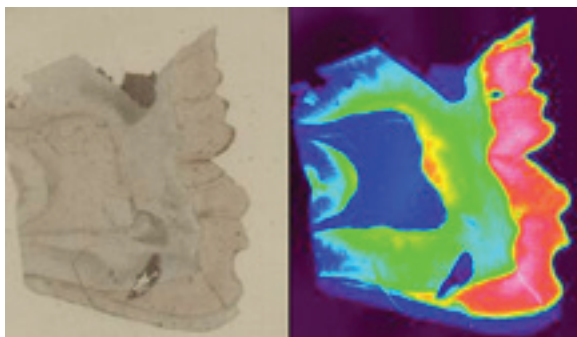
ATR imaging that everyone can benefit from

Labs today are looking for an FT-IR imaging system that does it all – and that doesn't require a dedicated professional to operate it. That's the whole idea behind the Spotlight 400 FT-IR system's ATR technology. With ATR imaging, you get:

- A software wizard that guides users through the ATR operation, minimizing mistakes and ensuring high-quality data
- System automation to speed focusing and alignment
- Large image areas that reveal the most information from samples without time-consuming repositioning
- Ability to handle large samples with a measurement area of 400 x 400 μ (optionally 1200 x 1200 μ) – no more patching together smaller images



You'll get clear, uncompromising data quality – faster than ever before.



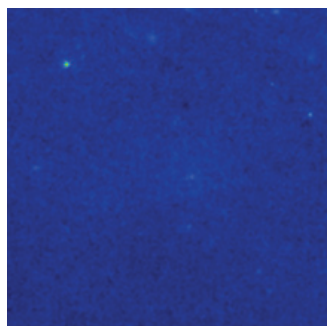
Human tooth section, visible light image (left) and Spotlight transmission image (right) showing phosphate distribution imaged between 650-570 cm^{-1} scanned using the extended MCT array option

Linear Array Detector: The beauty is in the detail

The Spotlight 400 systems' Linear Array Detector incorporates high-quality, intrinsically pure mercury cadmium telluride (MCT) arranged as 16 gold-wired infrared detector elements. Using patented stage movement and interferometer synchronization to maximize data-collection speed, the system delivers image data from all 16 elements with a 100% fill factor. Often a single scan is all that's needed to get high-quality spectra.

These are performance, reliability, and sample-handling capabilities that far surpass focal-plane array (FPA) detectors, which require longer sampling cycles to deliver comparable data quality and measure over a reduced spectral range. Spotlight 400 systems also provide much higher sensitivity and spectral range for any given sample area and analysis time. Plus, the Spotlight 400 system provides the capability to measure even beyond 720 cm^{-1} , allowing the detection of material characteristics that would be impossible on many competitive FT-IR imaging systems. Our MCT wide-range array option also provides rapid IR imaging coverage to below 600 cm^{-1} for improved polymer and inorganics mapping.

And for the ultimate spectral quality in rapid NIR imaging, a unique, dedicated InGaAs array system option delivers unsurpassed data quality while removing the need for liquid nitrogen cooling. It's the ideal system for NIR contaminant testing and pharmaceutical ingredient-distribution analysis.



A contrast-enhanced targeted reflectance image taken with the Spotlight NIR InGaAs option shows milk powder contaminated with ca 0.1% melamine.

Software built from the ground up for FT-IR imaging

Spectrum Image software for Spotlight lets you easily see the most relevant areas of your samples – so you get the information you need with the least amount of time and effort. Defining region of interest is simple using special interactive graphics in the software, with all stage movement under software control.

Spectrum Image software is built from the ground up to enhance data collection productivity. The 50 μ option makes it easy to collect survey images and preview a large sample area, so you can determine what part of the image you want to see in higher resolution. Plus, the Show Structure feature quickly enhances image contrast by automatically analyzing spectra and displaying chemical variations – in just seconds.

Spectrum Image software can also use multiple-sample image templates to efficiently capture and store multiple images from a single button press. These predefined templates allow quick operation with tablet and powder accessories, and users can define, store, and recall custom sample templates. What's more, you can set up multiple samples or sample areas and leave them to run overnight – unattended.

Spotlight 400 FT-IR software

- Flexible image sizes – simply draw the area of interest on the visible image and go
- Multiple Area Image mode – dramatically reduces data collection time
- Ability to quickly extract interesting areas from the larger complex image as quickly as possible
- Full set of hardware control functions
- Very easy manipulation of visible and infrared images
- Automation of all image controls

WHEREVER YOU LOOK YOU'LL SEE US IN ACTION

In just about every industry you can name, Spotlight FT-IR technology is making a difference, improving manufacturing processes and troubleshooting, accelerating the pace of research, opening new avenues of drug discovery, helping in the detection of counterfeit drugs – the applications are almost as many and varied as users themselves.



MATERIALS

The Spotlight 400 FT-IR imaging system can be used to accelerate product development, improve troubleshooting, aid in process improvements, reduce costs, and increase competitiveness – perfect for consumer goods, semiconductors, food, packaging, and more.



FORENSICS

Intrinsic chemical specificity and enhanced visualization enable counterterrorism organizations and law enforcement to image and analyze paint chips, drugs, fibers, explosives, tablets, packaging, documents, and more.



PHARMACEUTICALS

Pharmaceutical companies use IR imaging analysis to lower manufacturing cycle times, help distinguish genuine and counterfeit formulations, and determine end-product variability, for shorter time to market and less likelihood of product failures.



BIOMEDICAL

This high-performance, research-grade instrument and software are used to examine processes and chemical changes in a wide range of maladies, including osteoporosis, cancer, Alzheimer's, and other protein-folding diseases.



ACADEMIA

The enhanced imaging capability reduces the time it takes to view a complete chemical picture of your samples, making this system a clear choice for world-class researchers.



BIOMATERIALS

The Spotlight 400 system can be used to examine the composition of novel biomaterials, the biomaterial-host interface – and the events that occur at their nexus.



Dr. Robert Hoult, systems engineer
for the Spotlight 400 imaging system.

FT-IR imaging expertise you won't find anywhere else

For many scientific instrument builders, FT-IR imaging is a late addition to their technology portfolios. But PerkinElmer has always been a leader in infrared imaging. More than 60 years ago, PerkinElmer introduced the IR spectrophotometer, pioneering the commercial use of IR analysis – and our sales professionals and service engineers boast years of collective expertise in the field.

What does that mean for your lab? For one, our professional field engineers are able to understand and tailor an FT-IR solution to your specific industry requirements. Most labs realize that there can be significant differences between performance claims on benchmark tests and how systems perform in the actual laboratory environments. That's why our FT-IR experts encourage you to actually visit one of our facilities and run a sample to see the real-world difference PerkinElmer delivers.

And once you're part of the PerkinElmer network, you can benefit from OneSource Laboratory Services, with 1,600 certified engineers caring for more than 400,000 multivendor instruments in 120 countries around the world. It's the perfect way to ensure that your scientific endeavors and your business goals are aligned – and moving ahead.

See How Amazing Your Results Can Be

The Spotlight 400 FT-IR imaging system is capable of delivering the highest quality IR image data from demanding samples. Need more convincing? Then come down to an office, talk to a real FT-IR specialist, and run a sample.

Find out more at
www.perkinelmer.com/runasample

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