Agilent

Trusted Answers

Innovative. Intuitive. Reliable.

Agilent Cary 630 FTIR Spectrometer

Agilent Cary 630 FTIR

Agilent Technologies is your premier resource and partner for molecular spectroscopy. Encompassing portable and in-lab FTIR, UV-Vis-NIR, and Fluorescence, Agilent offers you a comprehensive range of molecular spectroscopy solutions.

The Agilent Cary 630 FTIR is ideal for busy chemical, polymer, pharmaceutical, and biotech QA/QC laboratories, as well as the multiuser academic environment

Quality answers – fast

The Agilent Cary 630 FTIR spectrometer is innovative, and reliable, providing quantitative and qualitative information for the routine analysis of solids, liquids, and gases. With a wide range of sample interfaces and high performing optics, the compact Agilent Cary 630 FTIR will give you accurate results—fast.

The Agilent Cary 630 FTIR is:

- **Innovative** — unique sampling accessories slide in and out in seconds, with no alignment required, making liquid transmission measurements as easy to use as ATR
- **Intuitive** — multilanguage software guides users through every step of operation, while color coded alerts make it easy to see whether samples meet specification
- **Reliable** — the field proven, rugged optomechanical system offers outstanding performance and reproducibility, even in humid and tropical environments, providing answers you can trust
- **Versatile** — interchangeable sampling accessories will meet all of your analysis needs, including transmission, DialPath, TumblIR, diamond ATR, germanium ATR, ZnSe multibounce ATR, specular reflectance, and diffuse reflectance
- **Compliant** — software supports 21 CFR Part 11 and GLP/GMP compliance
- **Compact** — needing only 20 x 20 cm of bench space, and weighing just 3.8 kg (8 lb), the Agilent Cary 630 FTIR is the world's smallest FTIR
- **Affordable** — the Agilent Cary 630 FTIR offers leading performance at an attractive price

For Your Application

Agilent is committed to providing solutions for your application. We have the technology, platforms, and expert guidance you need to be successful.

Materials
Identify and confirm plastics, elastomers, and adhesive materials by comparing spectra with the onboard library
Verify the composition and quality of composites, coatings and thin films
Analyze contaminants during semiconductor processing and solar cell manufacturing
Confirm that formulated and finished products comply with defined specifications
Track paint curing and composition
Determine the concentration of UV stabilizers, antioxidants, or filler in plastics
Determine the degree of cure and composition of rubber
Analyze and measure thickness uniformity of wax or oil on polymer and metal surfaces

Bulk, Speciality & Fine Chemicals
Confirm the identity of incoming raw materials
Ensure the quality of compounds used in human food, health and cosmetic products
Analyze and confirm the composition of finished products
Measure the concentration of additives in formulations
Measure analytes in specialty solvents used in electronic component manufacturing
Analyze individual flavor components in a final flavor formulation
Analyze compounds in support of synthesis and/or blending processes
Analyze polymers, composites and other engineered materials for composition and structure

Food
Determination of trans fat content of edible fats and oils
Rapid authentication and detection of adulteration of food and beverages
QA/QC of various foods, such as coffee, tea, sugar and flour
Free Fatty Acid (FFA) & Iodine Value (IV) determination in oils

Academic
Teach students the basics of FTIR spectroscopy
Perform measurements for undergraduate and graduate analytical, organic and physical chemistry labs
Routine research support for organic, polymer and materials synthesis
Characterize unknown or newly synthesized compounds
Measure films and surface components
Monitor chemical or biological reactions that occur over time

Pharmaceutical
Confirm incoming raw materials identity
Analyze API's and drug products for overall purity and conformity
Analyze intermediates and work-in-progress compounds for identity and overall purity
Identify the structure and concentration of products formed in a reaction
Analyze contaminants and particles in products
Rapid authentication and detection of adulteration of drugs, herbal medicines, and dietary supplements

Molecular Spectroscopy Innovations

1947
First commercial recording UV-Vis, the Cary 11 UV-Vis

1954
Release of the Cary 14 UV-Vis-NIR

1969
First rapid-scanning Fourier transform infrared spectrometer, the FTS-14

1979
First use of a mercury cadmium telluride (MCT) detector in an FTIR

1982
First FTIR microscope, the UMA 100

1989
Release of the acclaimed Cary 1 and 3 UV-Vis

1999
First 256 x 256 MCT focal plane array for analytical spectroscopy

2000
First ATR chemical imaging system

2007
Smallest, most rugged commercially available interferometer introduced

2007
TumbIR sample accessory introduced — a revolution in FTIR liquid sampling

2008-2011
Agilent offers handheld and out-of-lab FTIR solutions

2017
Acquisition of Cobalt and Raman spectroscopy

2018
Cary 3500 UV-Vis and 8700 Laser Direct Infrared (LDIR) Chemical Imaging System launched

Small Size, Big Performance

Maximize your bench or fume hood space, and achieve the maximum in performance, without downtime.

Innovative design, unique technology

The compact, lightweight Agilent Cary 630 FTIR is big on performance and versatility. This performance is achieved through an innovative, integrated design that includes:

- A large, 25 mm, optical aperture and short internal optical path in the interferometer that provide performance levels associated with far larger lab FTIR systems
- Optics that are permanently aligned for ease-of-use and reliable operation
- The unique Flexture system driving the interferometer's moving mirror that delivers long-lasting, proven reliability
- A solid-state laser that provides long life, reliable operation, and precision while enabling compact design
- Interchangeable sampling accessories that require no user alignment. Choose from: a standard transmission module; DialPath; TumblIR; Diamond ATR; Germanium ATR; ZnSe multibounce ATR; specular reflectance; and diffuse reflectance sampling accessories
- The only required external utility is power

The world's smallest, most robust benchtop FTIR. The compact, lightweight Agilent Cary 630 FTIR is big on performance and versatility.

Snap-and-go accessories slide in and out in seconds, with no alignment required. Shown is the ZnSe multibounce ATR accessory.

Simplicity Through Innovation

The Agilent Cary 630 FTIR has a sampling accessory to suit your application and user requirements.

Interchangeable sampling accessories
Shown, left to right, are the 10° specular reflectance accessory, diamond ATR, germanium ATR, ZnSe multibounce ATR, DialPath, TumblIR, diffuse reflectance accessory and (front) 45° specular reflectance accessory, Cary 630 FTIR engine, and standard transmission module.

The Agilent Cary 630 FTIR sampling accessories are fully interchangeable and integrate with the optomechanical system. The result is exceptional performance and ease-of-use, and the versatility to meet the needs of busy multiuser environments.

Sampling accessories available with the 630 include:

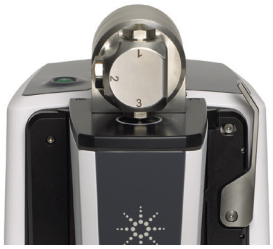
- Agilent's innovative TumblIR and DialPath technologies for rapid transmission analysis of liquids
- ATR modules to handle a wide range of solids, pastes, gels, rubbers, and liquids. Includes Diamond and Ge single bounce ATRs and a ZnSe multibounce ATR
- Diffuse reflectance for materials that scatter infrared light, such as powered samples, and specular reflectance for measuring samples such as optics, mirrors, and glass
- Transmission module that accepts standard KBr pellets, liquid, and gas cells

The DialPath advantage

Discover the advantages of Agilent's unique DialPath technology:

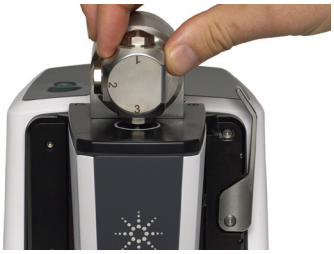
- Makes transmission spectroscopy of liquids as easy as ATR
- Ideal for both qualitative and quantitative analysis—instantly select from one of three factory-calibrated, fixed pathlengths between 30 and 1000 microns
- Select a longer pathlength window set for lower concentration samples, or use a shorter pathlength for more concentrated samples
- No spacers are required so there is no leakage, and no fringing
- No autosamplers or syringes are required for sample introduction
- Effectively handle liquids of varying viscosity and volatility

Three steps to analysis with the DialPath



1
Ensure that the crystal is clean

2
Place your sample on the window



3
Turn the DialPath to your required pathlength to analyze

Bulk, Specialty, and Fine Chemical Applications

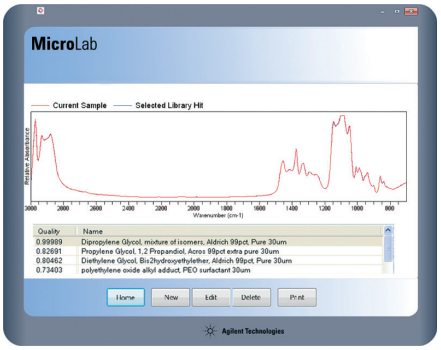
Designed for routine QA/QC labs and other multiuser, high traffic environments, the proven robustness and versatility of the Agilent Cary 630 FTIR will change everything you know about FTIR analysis.

Identify and measure

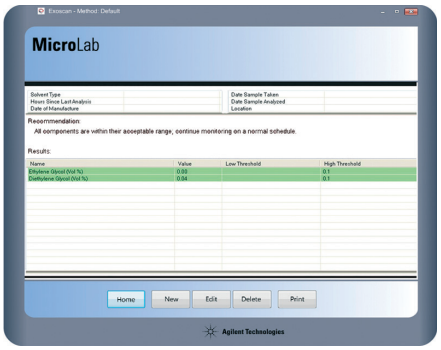
The Agilent Cary 630 FTIR spectrometer is a reliable and versatile system for routine every day QA/QC, Analytical Services, and Methods Development operations. Agilent's revolutionary DialPath technology, allows you to measure liquid samples in seconds, not minutes.

For bulk, specialty, and fine chemical analysis, you can:

- Quickly confirm the purity of incoming chemicals and final products
- Use spectral libraries to quickly authenticate solvents, surfactants, specialty amines, or industrial organic chemicals
- Ensure manufacturer's specifications are met by accurately measuring levels of known additives
- Ensure blends and mixtures of fine chemicals are properly formulated
- Easily handle the widest range of applications in specialty and fine chemicals, as well as the food and cosmetics industries
- Have confidence – the Agilent Cary 630 FTIR has GMP/GLP compliance



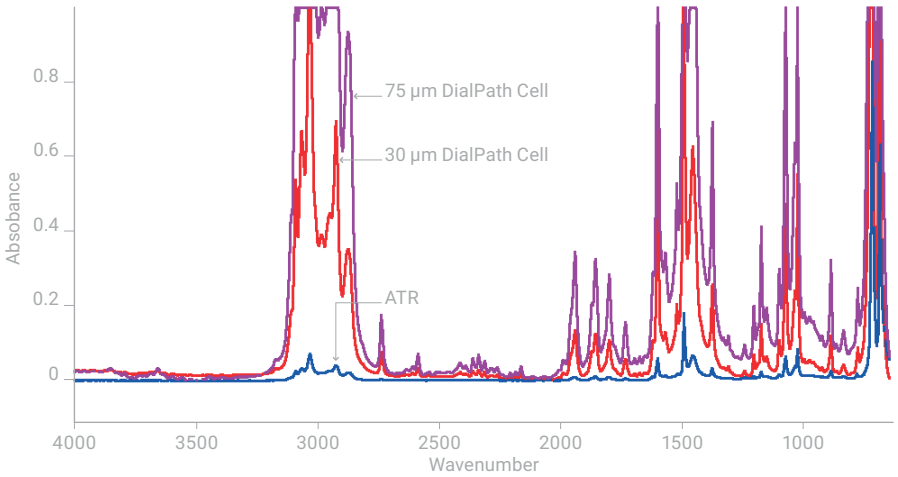
Analyze individual compounds to display high quality matches to reference spectra and confirm the identity of your sample.



Ensure that sample is within specification
The green color bands indicate that the levels of impurities are within the user set specifications.

Chemical analysis made fast and easy

The figure below shows the spectra of toluene, measured on the Agilent Cary 630 FTIR using the diamond ATR and DialPath at 30 and 75 µm. The spectra show the range of sensitivity available for a broad range of applications.



Materials Testing Applications

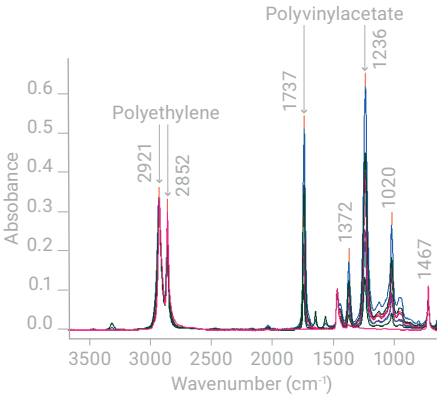
When you need to consistently and cost-effectively deliver quality finished products and materials, reliable analytical solutions are essential. Analyze material heterogeneity and sample contaminants within seconds with the Agilent Cary 630 FTIR.

Reliable and easy-to-interpret

The compact size of the Agilent Cary 630 FTIR saves laboratory space and easily fits on benches, in a glove box or under a fume hood. This makes it ideal for reaction analyses that require safety precautions.

For the routine analysis of materials in the chemical and polymer industries, use the Agilent Cary 630 FTIR to:

- Identify and confirm plastics, elastomers, and adhesive materials by comparing spectra with the onboard library
- Verify the composition and quality of coatings and thin films
- Analyze contaminants during semiconductor processing and solar cell manufacturing
- Confirm that formulated and finished products comply with defined specifications
- Track paint or polymer curing and composition
- Determine the concentration of UV stabilizers, antioxidants, or filler in plastics
- Determine the degree of cure and composition of rubber
- Analyze and measure thickness uniformity of wax or oil on polymer and metal surfaces
- Analyzer high carbon-content samples such as tires, o-rings, and rubbers



Spectral overlay of seven commercially available standards of PEVA, ranging from 0% VA (red) to 40wt% VA (blue) measured within seconds. These spectra are used to build a calibration curve.

Quantitative analysis of copolymers made easy

Polyethylene vinyl acetate (PEVA) is common in everyday products. The ratio of polyethylene (PE) to vinyl acetate (VA) in PEVA can affect the physical properties of the final product. The Agilent Cary 630 FTIR with diamond ATR accessory is ideal for this application.

Academic Applications

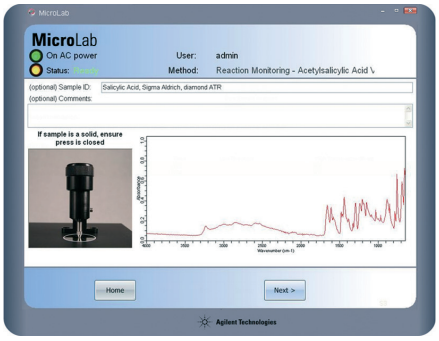
The Agilent Cary 630 FTIR caters to many applications and user levels. It has the capabilities of much larger FTIR instruments, without the complexity, maintenance requirements, or upfront and ongoing costs.

Sensitive and flexible

Ideal for the busy, multiuser environment found in colleges and universities, the Agilent Cary 630 FTIR is reliable and robust. It can be used for both teaching undergraduate students in an analytical chemistry laboratory or identifying the products from a synthesis in a graduate research lab.

For academia, the Agilent Cary 630 FTIR delivers:

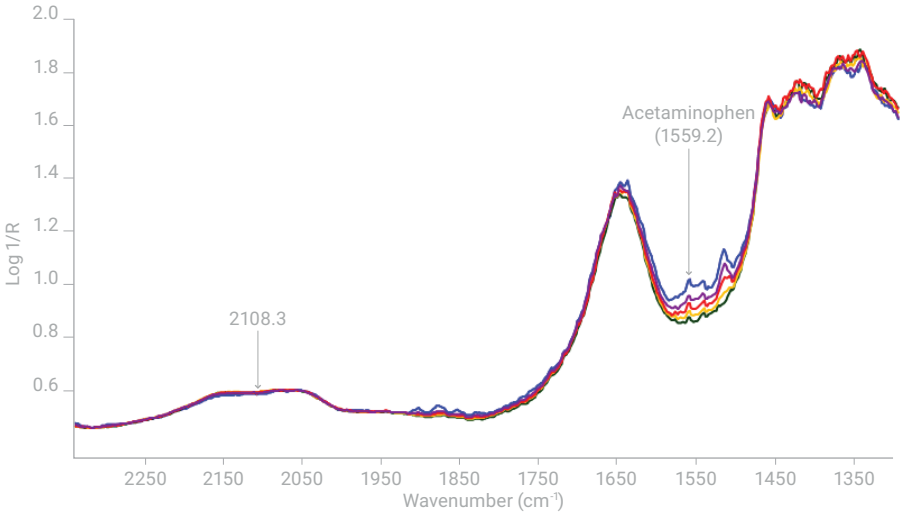
- Robust design — the diamond ATR is impervious to both scratching and corrosive materials, and the interferometer is insensitive to vibration
- Simplicity — the intuitive software is available in regional languages, to get students up and running samples in minutes. Software guided sampling helps to explain the basics of FTIR
- Versatility — interchangeable, zero alignment sampling accessories can measure powders, pastes, gels, or liquids
- Advanced data analysis — extend postcollection data analysis and ensure that research needs are met with a simple one-button transfer to the advanced Agilent Resolutions Pro software
- Lowest cost of ownership — a user-replaceable dessicant and long-lived lamp source minimize maintenance costs
- Modern instrumentation that ensures students and researchers are using the latest FTIR technology.
- Compact size — the Agilent Cary 630 FTIR easily fits on lab benches or in fume hoods for reaction analyses that require safety precautions. The instrument weighs 3.8 kg (8 lb), so can be easily moved between labs



The design of the Cary 630 accessories ensures high energy throughput—up to 30% greater than other routine FTIR systems. This enables faster data collection, lower noise, and superior data quality. Coupled with the easy-to-use MicroLab software, which has users up and running samples in minutes, the Cary 630 FTIR is the ideal solution for teaching or research.

Pharmaceutical Applications

In a field that demands accuracy, productivity and regulatory compliance, your challenges have never been greater. With versatile sampling options, intuitive software and 21 CFR Part 11 compliance, the Agilent Cary 630 FTIR is ideal for busy QA/QC, methods development, and analytical services laboratories



Carbonyl region of the FTIR diffuse reflectance calibration spectra of acetaminophen in cornstarch measured without dilution

Robust, dependable operation

- Accurate and repeatable results day-in and day-out
- Optional 21 CFR Part 11 functionality
- Instrument self-diagnostics for confirmation of analytical performance
- Proven, highly stable, and robust hardware design to minimize instrument downtime
- No utilities required for operation, other than power

Easy-to-use

- Software-guided sampling
- Measure neat samples—no sample preparation is required
- Color coded alerts for out of specification material
- Software in regional languages
- Unique liquid sampling accessories for increased productivity

Versatile

- Multiple sampling accessories to rapidly measure all sample types, including powders, pastes, gels, gases, and liquids
- Sampling accessories slide in and out in seconds, with no alignment required
- Exclusive Agilent TumblIR and DialPath sampling technology for qualitative and quantitative analysis of liquids from > 3 µL
- Compact size easily fits on lab benches or in fume hoods

Distinctly Better Software

Powerful Agilent MicroLab FTIR software ensures that you get answers quickly and easy.

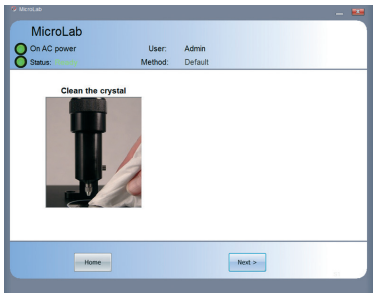
Analysis made easy

- Be guided through sample introduction, analysis and cleanup by an intuitive, pictorial interface
- Ensure data quality by seeing the spectrum before a full data collection, using real-time analysis mode
- Perform straightforward diagnostics for optimal instrument performance and data quality
- Easily create qualitative and quantitative methods using the supplied development package
- Click a button to use preloaded and precalibrated methods
- Identify unknown compounds by searching a library or database
- Use color-coding to quickly identify whether analytes are above a critical threshold (red), approaching threshold (yellow) or within specification (green)
- Edit action thresholds for specific equipment or formulations
- Transfer data files via a simple one-button operation to the Agilent Resolutions Pro software for advanced data analysis

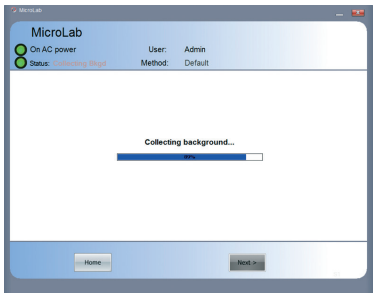
Autorecognition of sampling technology

- Agilent MicroLab software automatically recognizes all sampling accessories
- If a stored method is selected, auto-recognition guides users to select the correct sampling accessory and warns if the wrong accessory is in place
- Pictorial software interface automatically detects the installed sampling accessory

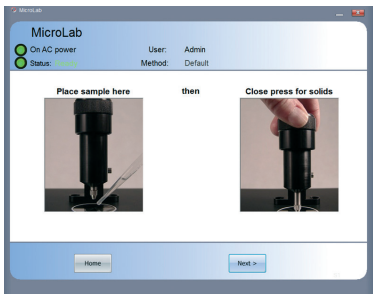
Innovative and intuitive MicroLab software guides users from sample introduction through to analysis



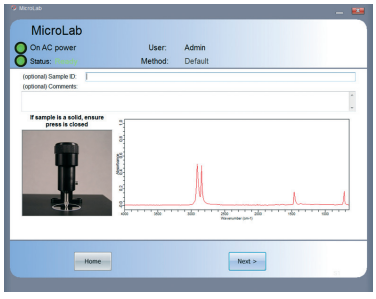
1 Ensure that the crystal is clean



2 'Clean crystal check' is performed to confirm that the system is ready for measurements



3 Place sample on sample accessory



4 Perform analysis

Distinctly Better FTIR

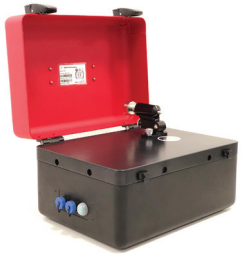
The Agilent FTIR range is unrivaled, innovative, and reliable. From bench-top instruments offering the highest analytical performance to dedicated portable analyzers for maximum flexibility, there is an instrument to suit every need.

Agilent 8700 Laser Direct Infrared (LDIR) Chemical Imaging System

The Agilent 8700 Laser Direct Infrared (LDIR) chemical imaging system provides a sophisticated new approach to chemical imaging and spectral analysis. Designed to be used by both experts and inexperienced users alike, the 8700 LDIR provides a fast, simple, and automated approach for obtaining high-definition, spatially-resolved chemical images of constituents on a surface.

Agilent 4300 Handheld FTIR analyzer

The 4300 Handheld FTIR analyzer is the first of its kind employing lightweight ergonomics, ease-of-use, ruggedness, and flexibility in one system. The 4300 weighs in at approximately 2 kg. With its light weight and ergonomic design, the system is ideal for field use and deployment into nonlaboratory situations.



Agilent 4500 Series portable FTIR analyzers

The Agilent 4500 Series portable FTIR analyzers are rugged and easy-to-use. They are idea for at-site analysis of incoming materials and outgoing finished products in the chemical, petrochemical, food, and polymer industries. The series is ideal for proactive maintenance programs of high value equipment and machinery.

Agilent 5500 Series FTIR analyzers

The Agilent 5500 Series FTIR analyzer is designed for one purpose – to provide you with great results rapidly and reliably, day after day. Offering robust performance in a compact design, the Agilent 5500 Series FTIR is available in dedicated configurations.

Trust Agilent to keep your lab running — at peak productivity

Agilent's Advantage Service protects your investment in Agilent instruments and connects you with our global network of experienced professionals who can help you get the highest performance from every system in your lab. Count on us for the services you need at every stage of your instrument — from installation and upgrade to operation, maintenance, and repair.

For customers who require full system validation, Agilent offers complete qualification services (Installation and Operational Qualification) for the Agilent Cary 630 FTIR.

And if ever your Agilent instrument requires service while covered by an Agilent service agreement, we guarantee repair or we will replace your instrument for free. No other manufacturer or service provider offers this level of commitment.

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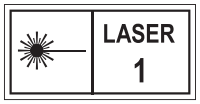

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