

# **Materials Analysis Solutions**

For research, quality assurance, production and teaching

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## What do you need to do today?

Whether you're discovering new materials, solving analytical problems or assuring product quality, your materials analysis instruments need to deliver the definitive answers you're looking for—fast!

Finish your PhD, publish groundbreaking discoveries, write a winning grant proposal, or patent novel materials with data from tools that give you the most information in the shortest amount of time.

Take your ideas to market quickly and keep your company competitive by standardizing materials analysis instruments and software across your organization—from the research department to the factory floor and in the analytical services lab.

### We help you to:

- Discover new materials with reproducible data from complementary techniques that allow a better understanding of your sample
- Solve materials and methods development challenges to improve processes and investigate product defects
- Assure defects are rejected before they reach your customers and jeopardize your reputation

## Fourier transform infrared (FTIR) spectroscopy

## Nicolet iS50 FTIR Spectrometer

# Complete spectroscopy workstation for advanced chemical analysis

Solve analytical challenges at the push of a button using the Thermo Scientific™ Nicolet™ iS50 FTIR Spectrometer. Built with an integrated ATR for quick sampling, and a dedicated sampling compartment, this workstation gives you answers that keep pace with your ever-changing workload. Identify unknown chemical components, troubleshoot production problems, or investigate dynamic time-based processes with award-winning Thermo Scientific™ OMNIC™ Software.

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Learn more at thermofisher.com/is50

Manage complex workloads and plan for future demands with:

### One-button automated set-up

Go from near-IR to far-IR with our Automated Beamsplitter Exchanger (ABX), avoiding delays and problems of manual optics exchange.

### **Built-in diamond ATR**

Ideal for quick walk-up sampling while keeping your spectrometer available for dedicated accessories.

### **Expanded spectroscopy capabilities**

Add modules and accessories for Raman, Near-Infrared (NIR), Thermogravimetric analysis-infrared (TGA); attach the spectrometer to an IR microscope or gas chromatography system for the ultimate materials analysis workstation.

For advanced spectroscopy, the Nicolet iS50R FTIR Spectrometer model adds step-scan and dual-channel capabilities. Perform time-resolved spectroscopy, PM-IRRAS, VCD and other advanced experiments to accelerate your research.



## **Nicolet Summit FTIR Spectrometers**

### Reach the peak of productivity

Generate fast, reliable answers with less effort—even in busy, multi-user QC labs or teaching labs—with our compact, powerful FTIR spectrometers from the name you trust in FTIR: Nicolet. Today's busy QA/QC and teaching laboratories demand fast answers with high confidence. You can rely on our compact Nicolet Summit FTIR Spectrometers to help you confidently identify, verify, or quantify materials faster than ever before.

The Nicolet Summit is available in four different models (LITE, X, PRO, and OA) to provide you with the best possible solution to fit your needs.





thermofisher.com/summit

## Nicolet iS20 FTIR Spectrometer

## Precise sample verification in minutes

Trusted by thousands of users around the world, the Thermo Scientific™ Nicolet™ iS20 FTIR Spectrometer set the benchmark for analytical FTIR instruments. Now, the Nicolet iS20 FTIR Spectrometer resets the standard with its redesigned optical engine and modern industrial design. The Nicolet iS20 spectrometer creates the perfect combination of the instrument platform FTIR users loved with the improvements they need.



## Nicolet iG50 FTIR Spectrometer

## Modular system for custom solutions

Acquire the power and sensitivity of a research FTIR system with the robustness of an industrial analyzer. This rugged, user-configurable FTIR platform allows you to easily integrate infrared analysis into your process monitoring systems. The compact and rack mountable design is ideal for OEM integration.





Learn how to solve your analytical challenges with ease at **thermofisher.com/ftir** 

## Fourier transform infrared (FTIR) microscopy

## Nicolet RaptIR+ FTIR Microscope

## See it fast. Identify it faster.

The Thermo Scientific™ Nicolet™ RaptIR™ and RaptIR™ FTIR Microscopes are designed to provide precision and agility with absolute simplicity of operation. Diffraction-limited objectives provide outstanding visual and infrared performance and the new Thermo Scientific™ OMNIC™ Paradigm Software enables users of any skill level to obtain quality results. Focus on target, acquire infrared data, and get your results and report faster than ever.

When coupled with the Thermo Scientific Nicolet iS50 FTIR Spectrometer, the system becomes the ultimate analytical workstation with FT-Raman, TGA-IR, built-in ATR, and multirange analysis all in one.

### **Pharmaceutical**

Produce and collect high-quality IR data over an entire tablet when reviewing a time-release dosage.

#### **Environmental**

Examine a dense microplastic sample with the wide field of view, then target a specific particle with automated visible and IR features.

#### **Forensics**

Discern counterfeit materials, identify inks on paper and investigate trace evidence with powerful visible and IR capabilities.

Learn more about analyzing large samples efficiently at thermofisher.com/raptir



## Nicolet iN10 Infrared Microscope

### Automated FTIR microspectroscopy for busy labs

Confidently perform microspectroscopic analyses without an external spectrometer using an intuitive, FTIR microscope that collects sample IR spectra down to 10 microns. Identify mixtures and pure compounds fast with integrated OMNIC Specta Software.



## Nicolet iN5 FTIR Microscope

## Rapid sample identification with point-and-shoot simplicity

For the busy QA/QC lab, this FTIR microscope coupled with a Nicolet FTIR Spectrometer quickly locates contaminants, and identifies inclusions and particles. A simple-to-use design and multiple IR collection modes allow users to make fast decisions with confidence.



Learn how to streamline your microanalysis workflow at thermofisher.com/ftir

Also, check out our one-hour-or-less, on-demand webinars on a variety of molecular spectroscopy techniques and applications.

thermofisher.com/spectroscopywebinars

## Near-infrared (NIR) spectroscopy and gas analysis

## Antaris MX FT-NIR Analyzer

# Real-time monitoring improves process yields

Optimize product quality while remotely monitoring your process at multiple points using the Thermo Scientific™ Antaris™ MX FT-NIR Analyzer. This plant-ready near-infrared spectrometer uses fiber optic probes for real-time feedback of critical processing parameters. Perform point-of-use materials analysis or monitor online production for process analytical technology (PAT) compliance.

### Lower operating costs

Simultaneous, multi-point analysis with NIR probes monitor materials at critical measurement points in your process and enable you to quickly change parameters to optimize yields.

### Reliable, reproducible data

The Thermo Scientific™ ParaLux™ Sample and Reference System provides internal qualification with traceable standard reference materials.

### Simplify methods development

Design routine or automated measurement methods using Thermo Scientific™ RESULT Software workflows for calibration transfer.



## Antaris II FT-NIR Analyzer

### Flexible sampling methods, robust answers

Easily develop and transfer methods from lab to the plant floor with our durable NIR analyzer that collects reliable data at-line, online and in-line with your process. Customize specific applications or choose a sampling system that includes transmission, fiber-optic and integrating sphere diffuse reflection analysis, all in one turnkey system.



Learn about solutions that connect the plant to the lab at **thermofisher.com/nir** 

## Antaris iGS Gas Analyzer

## Real-time analysis of complex gas mixtures

Simultaneously analyze more than 100 gas species using this rugged, mid-infrared gas analyzer in any plant or process environment. Industrial rack mounts, flexible gas cell configurations, factory-supplied calibrations, and on-site training services make this the ideal system to obtain research-grade results with speed and sensitivity.



## MAX-iR FTIR Gas Analyzer

## Ultra-fast analysis with ultra-low detection limits

The Thermo Scientific™ MAX-iR™ FTIR Gas Analyzer has been engineered to meet the most demanding standards for in-line process, batch sampling, gas purity/certification, emissions testing, and ambient air monitoring.

Don't miss out. MAX out.



Learn about gas analysis solutions at thermofisher.com/gas

## Raman spectroscopy and microscopy

## DXR3xi Raman Imaging Microscope

# Characterize new materials with fast chemical imaging

The Thermo Scientific™ DXR3xi Raman Imaging Microscope reveals research-grade imaging faster than ever. With enhanced software features and higher spatial resolution, users gain visual information instantly. Advanced imaging capabilities coupled with minimal sample prep and intuitive software give researchers the power of Raman at the speeds they need. Quickly explore areas of interest with large-area, fast mapping using the DXR3xi Raman Imaging Microscope to collect visual, spatial, chemical, and morphological data. Accelerate your research with this fully automated imaging microscope and our powerful Thermo Scientific™ OMNIC™xi Software. Exchange lasers, filters, and gratings in seconds. Novice or experts can accurately map materials to locate contaminants, study heterogeneous features, and conduct depth analysis of samples in real-time.

Focus on your work rather than learning a new tool when you:

### Save time with intuitive operation

Regardless of user skill level anyone can quickly generate reliable chemical images with confidence. 3D visualization software gives users visual information instantly while advanced particle analysis software quickly identifies and analyzes tiny contaminants in your sample.

### Quickly optimize imaging parameters in real-time

Instantly visualize data with 3D visual information software and adjust images on screen to compare and contrast areas of interest across your sample.

#### Ensure accurate measurements

Automatic X-axis calibration improves reliability and stability and requires no tools while background compensation is automatic.





## **DXR3 Raman Microscope**

### Identify unknowns with point-and-shoot simplicity

Solve your most challenging problems with a Raman microscope any technician can walk up and use. Quickly find and analyze unknown particulates and contaminants below 1  $\mu$ m in size with comprehensive OMNIC Software. Ensure accurate measurements with Automatic X-axis calibration that improves reliability and stability and doesn't require tools while background compensation is automatic.



## **DXR3 SmartRaman Spectrometer**

### Accurate results without sample preparation

Measure samples directly through glass and plastic, automate batch testing, and rapidly test bulk materials. Ease and consistency of push-button operation are ideal for multi-user QA/QC labs. Improve reliability and stability with Automatic X-axis calibration.



## **DXR3 Flex Raman Spectrometer**

## A Raman "engine" that easily adjusts to your analysis

The Thermo Scientific™ DXR3 Flex Raman Spectrometer is specifically designed to bring research-grade measurements to your most challenging analytical applications.





Learn more at thermofisher.com/dxr

## Rheology | Extrusion and compounding

## **HAAKE MARS iQ Rheometer**

### More iQ for your QC

Characterize your materials with this highly flexible modular advanced rheometer system (MARS) designed to provide accurate results, easy handling and application-specific solutions.

HAAKE MARS iQ Rheometers are fully software controlled via Thermo Scientific™ HAAKE™ RheoWin™ PC Software which allows operations to be optimized for individual requirements. Alternatively any HAAKE RheoWin Software method can be launched from the instrument touchscreen.



Learn more at thermofisher.com/marsiq

#### Intuitive

State-of-the-art user interface with multifunctional 7" touchscreen for instrument operation and Standard Operating Procedure (SOP) execution right at your fingertips.

### Intelligent

Durable rheometer frame material selection offers highperformance mineral composite casting with high vibrational damping, minimal temperature expansion, and increased chemical resistance. It is the next generation of highly dynamic, powerful EC motor with mechanical or air bearing.

### Individualized

Extensive modularity with a broad scope of temperature modules, measuring geometries and application-oriented measuring cells for QC applications.



### **HAAKE Viscotester iQ Rheometer**

# Move from simple to complex rheological testing—fast

Measure mechanical properties of liquids, pastes, or semi-solid samples with ease using this compact, portable, line of rheometers. With Connect Assist technology, accessories are automatically recognized for fast, effortless setup between materials and measurements.



### **HAAKE MARS 40/60 Rheometer**

## User-focused design minimizes errors and simplifies operation

The flexibility of the Thermo Scientific™ HAAKE™ MARS™ Rheometer expands your options to analyze the most demanding challenges faced by the pharmaceutical, petrochemical, mining, cosmetics, food, coatings and paints, and polymer industries. Couple this rheometer platform with other analytical techniques (e.g., FTIR, Raman spectroscopy) or optical microscopy to extend your measuring capabilities.





Learn more at thermofisher.com/rheometer

## **Process 11/Process 16 Twin-Screw Extruders**

## Minimize material use during material development

Optimize compounding recipes for food, polymer, and cosmetic formulations with a benchtop extruder that streamlines your process development from R&D to production. Hygienic versions for food and healthcare applications are also available.



# HAAKE PolyLab OS Modular Torque Rheometer

## Minimize time to model your process and scale-up

Monitor important process parameters like melting behavior, influence of additives, temperature stability, shear stability, and melt viscosity with an innovative torque-rheometer platform that is focused on optimizing process development and scale-up. Choose from a range of extruder and mixer options to design your application.





Learn more at thermofisher.com/extruder

## Ultraviolet & visible (UV-Vis) spectrophotometry

# NanoDrop One Microvolume UV-Vis Spectrophotometer

## Quantify and qualify samples for downstream success

Improve your UV-Vis workflow with an instrument that eliminates the need for dilution, provides an easy-to-use instrument- or PC-control experience, and runs chemometric algorithms without the need for additional analysis.

Rely on fast, accurate quantification of DNA, RNA, and protein samples using only 1-2 µL with the Thermo Scientific™ NanoDrop™ One Microvolume UV-Vis Spectrophotometer. No dillutions needed even for highly concentrated samples.

#### Contaminant identification

See absorbance curves from common contaminants and automatically obtain corrected concentrations with Thermo Scientific™ Acclaro™ Sample Intelligence technology.

### **Guided troubleshooting**

Be alerted when purity ratios are out of range and follow suggestions on the touchscreen interface.

Learn more at thermofisher.com/nanodropone



# NanoDrop Eight Microvolume UV-Vis Spectrophotometer

### Intelligent analysis eight samples at a time

The Thermo Scientific™ NanoDrop™ Eight 8-channel Microvolume UV-Vis Spectrophotometer accurately measures a wide concentration range for DNA, RNA, and protein samples using a 1 to 2 µL sample size. The auto-ranging pathlength technology on the NanoDrop Eight instrument pedestals allows life scientists to measure samples in an expanded concentration range, eliminating the need for error-prone dilutions.



## **GENESYS 50 UV-Vis Spectrophotometer**

### UV-Vis data analysis with Wi-Fi connectivity

Offered in a single-cell configuration, this instrument is designed with a sloping surface to shed spills along with a washable sample compartment for easy clean up. An intuitive, color touchscreen interface with local control software eliminates the need for a PC, making this a rugged tool for large teaching labs.



## **GENESYS 180 UV-Vis Spectrophotometer**

## High-throughput for heavy workloads

Experience the power of double beam UV-Vis reliability with this next generation spectrophotometer. Room-light resistant measurements are possible with the 8-position cell changer included for multi-sample processing. No PC required with a 7-inch touchscreen display that controls data collection and optional Peltier thermostatted temperature control accessory.



## **Evolution UV-Vis Spectrophotometers**

## Powerful UV-Vis capability to get answers fast

Run challenging samples and set up sophisticated experiments with this flexible spectrophotometer. Take your routine measurements or your research study to the next level with customizable workflows, temperature control, rapid-mixing for kinetics, and 21 CFR Part 11 compliance. Together with easy-to-learn, easy-to-use Thermo Scientific Insight Pro Software, this solution will meet the diverse needs your organization requires from an analytical tool.





Learn more at thermofisher.com/uv-vis

# ARL PERFORM'X Sequential X-Ray Fluorescence (XRF) Spectrometer

# High-sensitivity XRF analysis down to the ppm level

Integrates bulk elemental analysis with surface mapping and small spot analysis to create a solution that evaluates up to 90 elements in nearly any solid or liquid sample without destroying your sample. No standards are required when using Thermo Scientific™ UniQuant Software for identifying completely unknown samples. Perform advanced material characterization with the Thermo Scientific™ ARL™ PERFORM'X Sequential X-Ray Fluorescence Spectrometer that meets your desired precision and limits of detection.

### Wide elemental and concentration range

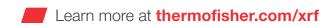
Ultra Closely Coupled Optics (UCCO) offers the highest performance from beryllium to americium with a wide dynamic range (from sub ppm to 100%).

### Intelligent sample handling

Liquid sample recognition and leak prevention design allows sample changer to automatically process solid and liquid samples in mixed batches when needed.

### Fast analysis cycle times

With the fastest goniometer in the industry, high-throughput labs can process up to 60 samples per hour, unmanned.





## ARL iSpark Optical Emission Spectrometer (OES)

## High performance, fast elemental analysis in most metals and metal alloys

Based on the most reputed optical system, the ARL iSpark is the trusted standard in OES. All trace, minor and major elements are quantified accurately and precisely in less than a minute. Perfectly adapted to work in harsh environments, it provides reliable metals analysis to primary producers, foundries, automotive and aviation fabricators, appliance industries, service and contract laboratories, and metal recyclers.

The ARL iSpark is also an ultra-fast inclusion analyzer. The number, type and size, and other properties of inclusions are determined with the elemental concentrations, allowing inclusions to be controlled even during metal fabrication.



## **ARL QUANT'X EDXRF Spectrometer**

# Major, minor and trace element quantification across the broadest range of samples

Analyze bulk solids, granules, powders, thin films and liquids in minutes with an EDXRF spectrometer. Built with the latest generation silicon drift detector (SDD) and advanced Digital Pulse Processing (DPP) technology, central and contract laboratories as well as other industries can expect exceptional sensitivity for trace analysis and high measurement throughput for process control.



## ARL X'TRA Companion X-ray Diffractometer

## Benchtop XRD instrument for routine analysis and research labs

From classroom teaching to routine measurements to discovering the next breakthrough material, Thermo Scientific ARL benchtop X-ray Diffractometers are designed to meet the needs of today's laboratories. They offer grade resolution and a comprehensive feature set (large selection of sample holders, dedicated sample changers for routine control, etc.) particularly suited to academic and industrial environments. In addition, our intuitive software provides quick responses with multiple data export options.





Learn more at thermofisher.com/oes and thermofisher.com/xrd

## X-Ray photoelectron spectroscopy (XPS)

## Nexsa G2 XPS Surface Analysis System

## Affordable, fully-automated, multi-technique XPS

Acquire high-throughput data with research-quality results using the Thermo Scientific™ Nexsa™ X-Ray Photoelectron Spectrometer (XPS) System for microelectronics, ultrathin-films and other nanotechnology applications.

Advance your research goals with true correlative analysis using this cost effective, X-ray photoelectron spectrometer that allows you to combine complementary techniques, such as Raman spectroscopy, to improve your understanding of sample surfaces.

### Powerful correlative data analysis

The Nexsa design allows multiple techniques (i.e, Raman, REELS, UPS, ISS) to be integrated into your XPS analysis, so you gain enhanced insight into material properties and composition.

#### **Effortless features location**

Quickly find features of interest using the unique optical system and SnapMap, the rapid XPS imaging method.

### Fast, accurate depth profiling

Use the EX06 monatomic ion source or MAGCIS dual mode ion source to remove layers and conduct depth analysis of your advanced materials.



Learn more at thermofisher.com/nexsa



## Phenom Pro G6 Desktop SEM

### Desktop SEM for robust and effortless SEM analysis

Fast and easy to use, the Thermo Scientific™ Phenom™ Pro G6 Desktop SEM can be used to relieve the burden of routine analysis for standard samples from floor-model SEM instruments. Instrument configuration and the sample loading mechanism ensure quick imaging with minimal time spent tuning between experiments. In addition, its high stability and small form factor allow the instrument to be used in practically any lab environment and does not require specialized infrastructure or expert oversight.



### **Axia ChemiSEM**

## Flexible, easy-to-use SEM EDS instrument for instantaneous, quantitative elemental analysis

The Thermo Scientific™ Axia ChemiSEM™ uses unique algorithms to simultaneously process the SEM and EDS signals, allowing it to display the morphology and quantitative elemental samples together in real-time. It constantly processes EDS data in the background, giving you live updates on elemental data as it is acquired.



### Helios 5 PFIB DualBeam

# TEM sample preparation including 3D characterization, cross-sectioning, and micromachining

The Thermo Scientific™ Helios™ 5 PFIB DualBeam electron microscope delivers unmatched capabilities for materials science and semiconductor applications ranging from large-volume 3D characterization, gallium-free sample preparation, and precise micromachining to semiconductor devices and advanced packaging technology.



## Talos F200X G2 TEM

# TEM microscope for high resolution TEM and STEM with accurate chemical quantification

The Thermo Scientific™ Talos F200X (S)TEM delivers fast, precise, quantitative characterization of nanomaterials in multiple dimensions. With innovative features designed to increase throughput, precision, and ease of use, the Talos F200X (S)TEM is ideal for advanced research and analysis in academic, government, semiconductor and industrial environments.





Learn more at thermofisher.com/materialsscience

## Resources for learning

### **Tools for Education**

# Make learning memorable for young minds

As a professor you don't have to sacrifice performance in the teaching lab to provide a valuable hands-on experience for your students with these intuitive Thermo Scientific™ instruments. Bring the excitement of discovery into the classroom when you include our student-friendly hardware and software as part of your curriculum.

## Spectroscopy in the classroom thermofisher.com/specclassroom

At Spectroscopy in the Classroom, our goal is to empower students and teachers through instrumentation and resources. Explore lesson plans, videos and products that complement your syllabus.

## Nicolet Summit LITE FTIR Spectrometer

### Entry level spectrometer stimulates curiosity

Keep students engaged with this intuitive spectrometer and lesson plans that help you demonstrate different functional groups of the IR spectra. Have students quickly measure samples in a crowded teaching lab and then analyze data later, on or off campus, using the OMNIC Anywhere Software.



## **GENESYS 30 Visible Spectrophotometer**

### UV-Vis data analysis for advanced courses

Facilitate student learning by integrating an innovative visible spectrometer into your higher education curriculum that is designed to let students focus on collecting and understanding scientific data rather than learning how to use the instrument.



## **Product applications**



### Food & beverage

- Lab-scale extruders for food development
- Non-destructive contaminant ID, nutritional analysis
- Pre-programmed routine
   QC measurements



### **Forensics**

- Toxicology and nucleic acids analysis
- Non-destructive analysis of drugs and substances
- Trace evidence and counterfeit currency detection



### Metals & mining

- Chemical analysis of metals and alloys
- Ultra-fast analysis of inclusions in metals and alloys
- Elemental and structural analysis of minerals



### Microplastics & environmental

- Complete characterization of microparticles in water
- Elemental analysis of soils and slurry samples
- · Characterization of recycled materials



### Pharmaceutical & biotech

- Product quality and safety across workflow
- Non-destructive analytical techniques
- Compliance with regulatory requirements



### Polymers & chemicals

- Reliable compounding tools for new formulations
- Non-destructive chemical and elemental composition analysis
- Analysis of mechanical properties and flow behavior



#### Academic & government research

- Resources for teaching chemistry principles
- Complete analysis of material properties
- Multi-modal analysis for advanced studies



#### **Semiconductors**

- Characterization of graphene-based materials
- Ultra-high purity gas analysis
- QC of silicon wafer layers



### Batteries & energy storage

- Chemical compound identification of materials
- Structural crystallinity and bulk elemental composition
- Slurry flow property and formulation analysis

## **Instrument Services**

Backed by a world-class organization of more than 2,800 service professionals, we provide a complete portfolio of instrument services and support solutions designed to help you improve productivity, reduce the total cost of ownership and ensure performance throughout your laboratory.

### Services you can trust

- Services delivered from a company with an unparalleled track record
- Local engineers, global expertise
- Unmatched combination of innovative technologies, purchasing convenience, and comprehensive support
- Extended warranty and support plans

### The depth of our experience

- Access to a deep bench of domain expertise
- Rigorous service engineer certification program
- More than 1,900 inventory locations
- More than 16k engineer training days/year and more than 3k customer training days per year

### The breadth of our capabilities

- 2,800 Global service professionals
- The broadest Enterprise Services portfolio in the market
- Support more than 500k equipment/instruments
- Unparalleled multi-vendor metrics/monitoring





### Spectroscopy academy

### thermofisher.com/specacademy

Find videos, on-demand webinars, and articles. Discover how you can enhance your knowledge of FTIR, Raman, NIR, XPS, OES, XRF, XRD, and more.

### Advancing materials blog

#### thermofisher.com/advancingmaterials

Stay current on advanced materials analysis topics discussed by our experts offering insights on your daily challenges.

#### Instrument services

### unitylabservices.com

Backed by a world-class organization of service professionals, find instrument services and support solutions to improve productivity, reduce total cost and ensure lab performance.

### OES, XRD and XRF resources

#### thermofisher.com/elemental

Understand the elemental and structural composition of your materials with instruments and applications that meet the needs of analytical laboratories serving a diverse range of industries.

### Materials analysis solutions for pharmaceuticals thermofisher.com/brighteroutcomes

Discover a wide range of spectroscopy and materials characterization tools that help pharmaceutical labs move through the drug formulation, development, and manufacturing processes.

## Near-infrared spectroscopy (NIR) resources

#### thermofisher.com/nir

Learn about different applications for NIR and how you can apply this technology to your analyses and quality assurance and quality control activities.

### Raman resources

### thermofisher.com/raman

Raman requires minimal sample preparation—making it a top analytical technique for pharmaceutical, polymer, battery, energy, semiconductor, microplastics, and many other materials science applications.

### **FTIR** resources

#### thermofisher.com/ftir

FTIR is the standard for chemical identification work in academic, analytical, QC/QA, and forensics laboratories. View our resources and learn more about this technique.

## Analytical solutions for automotive

### thermofisher.com/automotive

Know the chemistry and composition of the materials used across the supply chain to help ensure profitability, performance and appeal.

### **UV-Visible spectrophotometry**

#### thermofisher.com/uv-vis

View our extensive line of UV-Vis instruments for education, research and QC.

### Electron microscopy resources

#### thermofisher.com/em

Find a range of high-performance microscopy tools and techniques that provide images and answers in the micro-, nano-, and picometer scales.

### **Drug formulation resources**

### thermofisher.com/drugformulation

See how to design and analyze hot melt extrusion and continuous granulation processes.

### Food development and testing resources thermofisher.com/foodbevresources

Explore food and beverage development and testing resources that introduce relevant technologies and solutions to help improve quality and assist with research and development.

## Battery research and manufacturing

### thermofisher.com/batteryresearch

Explore technologies used in battery research, manufacturing, and QC that provide significant gains in performance and product quality.

#### Rheology resources

### thermofisher.com/rheologyresources

Discover a wide array of resource materials that supports your specific rheological meansurement requirements across a variety of sample types and industries.



### Partner with us...

#### Accelerate your innovation

Find the widest range of analytical methods to drive deeper insight into your materials. Then share your data anywhere, anytime and on any device with cloud-enabled instruments that connect to the Thermo Fisher Cloud.

### **Enhance your productivity**

Do more in less time with user-friendly instruments and software that generate fast, expert answers. Robust hardware is designed to prevent downtime and enables easy owner maintenance. Use our multi-technique approach on instrument platforms to give you more answers per sample.

### **Build your confidence**

Look to our dedicated <u>Unity Lab Services</u>\* to deliver expert installation, instrument training, and reliable service contracts. Keep your business running with unmatched support that includes a highly qualified dealer network, over 7,000 service engineers and 1,800 technical support personnel worldwide.

\*Unity Lab Services are available only in North America and Europe. Visit <u>unitylabservices.com</u> for details.



