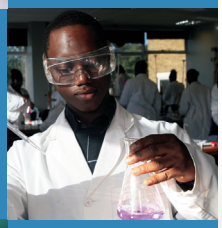
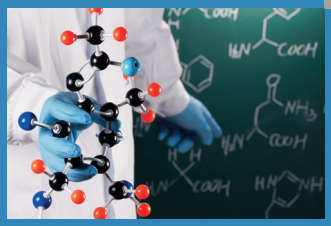
Thermo Scientific Nicolet iS5 FT-IR Spectrometer

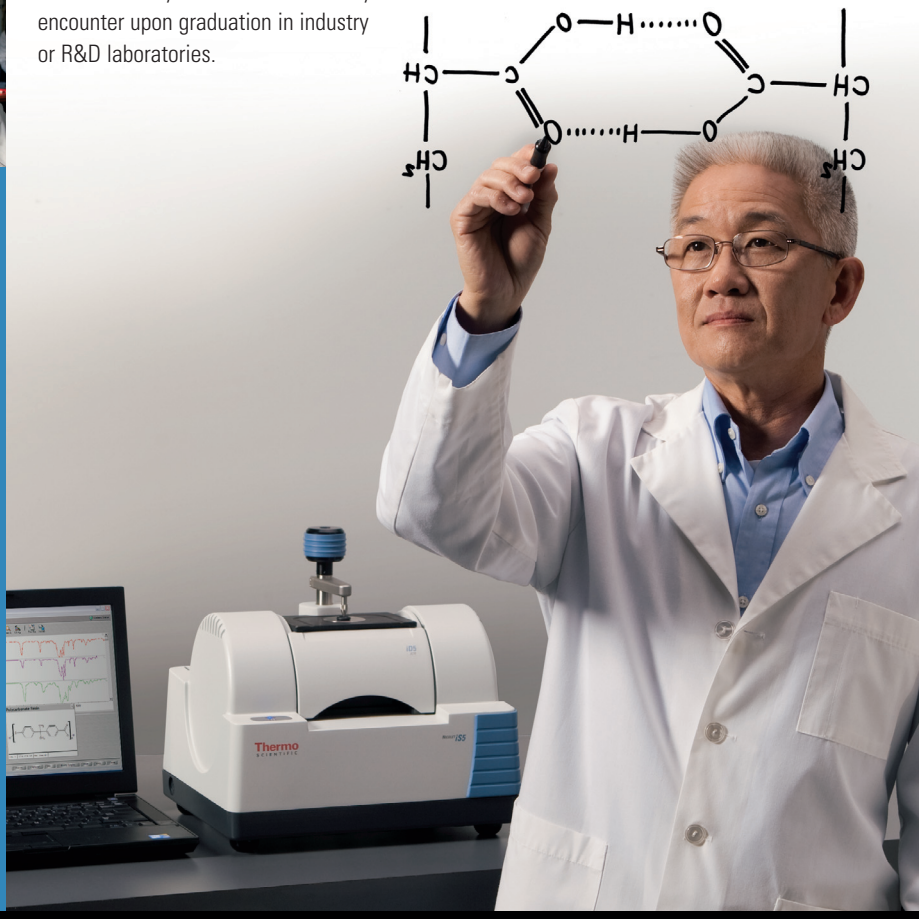




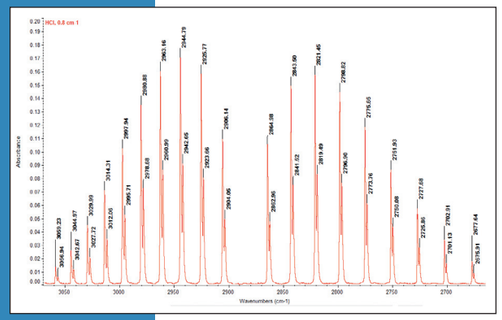
FT-IR spectroscopy made for teaching chemistry

The Thermo Scientific Nicolet iS5 FT-IR spectrometer is a perfect fit for classrooms and teaching laboratories. Affordable, reliable and rugged, the Nicolet™ iS™5 FT-IR spectrometer offers worry-free operation for many semesters to come.

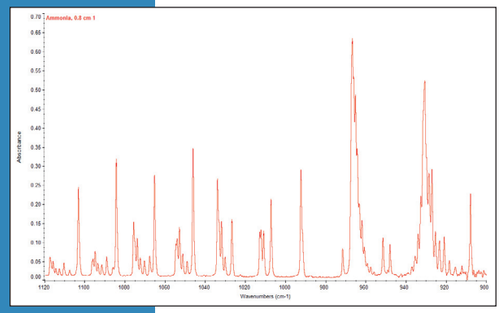
The Nicolet iS5 spectrometer's compact size allows you to easily move it from classroom to classroom, or into the laboratory. Its rugged design was created to withstand the rigors of the teaching environment. And it comes equipped with the same software and tools that your students will likely encounter upon graduation in industry or R&D laboratories.



NICOLET iS5 SPECTROMETER: PREPARE YOUR STUDENTS WITH WORLD-CLASS FT-IR



HCl spectrum from 10 cm gas cell



High resolution FT-IR spectrum of ammonia

Assist Students in Understanding Spectroscopic Concepts

To assist you with your curriculum, your spectrometer includes well-tested experiments developed by educators. Basic experiments that demonstrate FT-IR spectroscopy, examples of how to identify functional groups, and quantitative analysis are prepared for use in the classroom. We include classic physical chemistry experiments that are written in such a way that students can quickly grasp spectroscopic concepts while gaining valuable experience with FT-IR instrumentation.

Premier Performance

The Nicolet iS5 FT-IR spectrometer puts our high-performance, field-tested FT-IR optics in a compact chassis. The no-compromise design of this FT-IR spectrometer features:

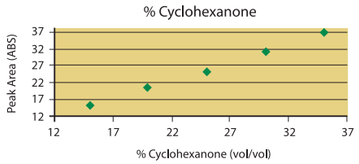
- High sensitivity (signal-to-noise ratio) through optically efficient layout and optimized amplifier electronics
- Diamond-turned mirrors that help maintain excellent alignment throughout the lifetime of the instrument
- A dynamically-aligned interferometer – for exceptional stability and performance
- Our Auto-Align feature maintains optimal performance under environmental changes associated with temperature or vibration
- Real-time bench diagnostics that verify performance to traceable standards and include support for user-designed tests

Compact Design

Small and light enough to move around easily, the Nicolet iS5 spectrometer features a benchtop footprint similar in size to a laptop computer.

- Magnesium-alloy chassis
- 10 kg (22 lb) weight allows nearly anyone to move the bench as necessary
- Rugged design means you can move your instruments around your facility or store them when not in use without worry of harming the system
- Stored either vertically or horizontally on a shelf when not in use
- User-replaceable source and desiccants reduces service calls
- Long-lasting diode laser for years of worry-free operation

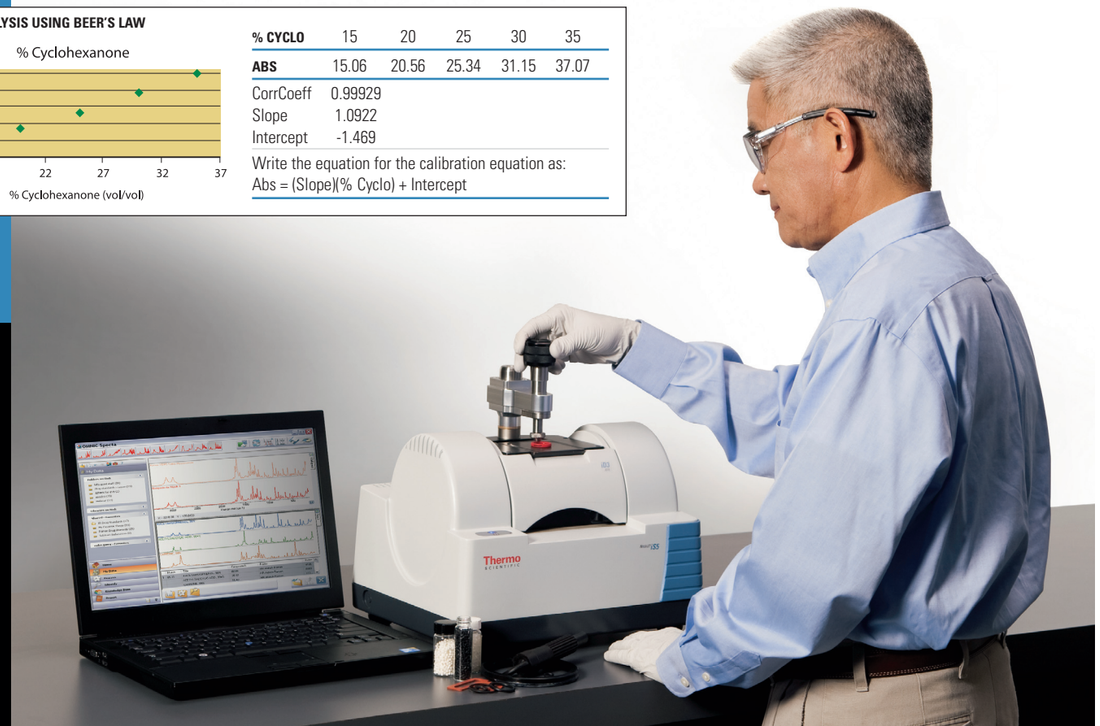
QUANTITATIVE ANALYSIS USING BEER'S LAW



% CYCLO	15	20	25	30	35
ABS	15.06	20.56	25.34	31.15	37.07

CorrCoeff	0.99929
Slope	1.0922
Intercept	-1.469

Write the equation for the calibration equation as:
Abs = (Slope)(% Cyclo) + Intercept



Configurable with iD Accessories, Foundation Series or Standard Accessories

Our iD sampling accessories provide optimized results for solid, liquid, film, gas, and gel samples. Choose from transmission accessories or high-performance ATR sampling. An adapter baseplate supports almost all standard accessories, including those you already own.

The **iD1 Transmission accessory** is ideal when you need to make measurements of samples mounted in liquid cells, pellet holders, cuvettes or gas cells. The iD1 supports sampling cells up to 10 cm long.

The **iD5 ATR accessory** features a diamond crystal for ultimate sampling flexibility and reliability. Crystal materials are available in either flat- or trough-plate configurations.

Both ATR accessories provide a calibrated pressure tower to maintain repeatable pressure for sample reproducibility, with multiple anvil pressure tips provided to adapt to different sample shapes and textures.

The **iD3 ATR accessory** provides exceptional single-bounce ATR performance at an attractive price. The iD3 features very high sensitivity with its high-throughput 7 mm crystals (ZnSe or Ge), while maintaining exceptional line shapes of absorbance bands.

The **ID Base accessory** provides a baseplate adapter that accommodates full-sized or customized sampling accessories that you may already own or may need for additional experiments.

iD Base adapter

Foundation iD Base converter

The **iD Foundation** family of accessories provides an economical approach to sampling by enabling you to easily adapt existing Foundation accessories such as multi-bounce ATR and diffuse reflectance for use with the Nicolet iS5 spectrometer.

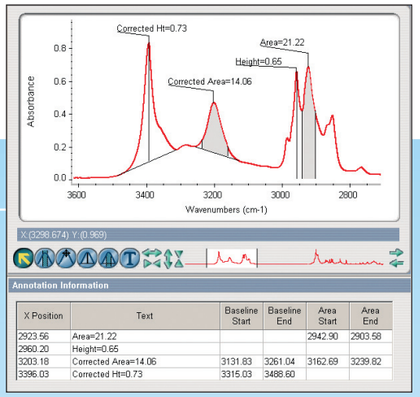
OMNIC SOFTWARE

Infrared Software

Industry-leading Thermo Scientific OMNIC software is used in R&D and manufacturing facilities around the world. Students experienced with OMNIC™ software see first hand how FT-IR spectroscopy solves real-world problems and builds knowledge.

The OMNIC Software Experience Includes:

- Flexible display tools, such as stack/overlay, %T vs Abs, zoom, peak height/area tools, peakpicking, one-touch print-outs to standardized report templates, and real-time preview
- Powerful spectral processing tools, such as baseline correction and smoothing, advanced ATR correction, and spectral interpretation tools
- Spectral subtraction, including spectral library management tools, and a wide selection of spectral libraries for common solvents, coatings, additives, or biochemical materials
- OMNIC software allows students to easily collect their sample and perform a task in seconds, making your class fast and effective



X Position	Text	Baseline Start	Baseline End	Area Start	Area End
2923.56	Area=21.22			2942.90	2903.58
2960.20	Height=0.65				
3203.18	Corrected Area=14.06	3131.83	3261.04	3162.69	3239.82
3396.03	Corrected Ht=0.73	3315.03	3488.60		

- Customizable menus provide unique feature sets for different users. For example, restrict beginning students to simple "point and click" data collection, while allowing upperclassmen access to more sophisticated quantitative or spectral interpretation features
- Multi-user licensing available

Performance, value and fit

The Thermo Scientific Nicolet iS5 FT-IR Spectrometer integrates high-performance optics into a small, rugged package, offering premium spectral performance in a reliable, compact size. Award-winning OMNIC software makes FT-IR easy to master. Instruments can be set up for standardized, step-by-step procedures that streamline lab procedures or customized for specific experiments.

Specifications

Mechanical

Size: 35 cm W × 28 cm D × 26 cm H
(13.5" W × 10.9" D × 10.2"H)
Weight: 10 kg (22 lbs)
Regulatory Approvals: CE, ETL
RoHS and China RoHS compliant

Optical

High sensitivity DLA-TGS detector
Diode laser
Anti-fog CaF_2 coated KBr windows (ZnSe available)

Electronics

24-bit oversampling digitizer
Optimized analog amplifier
USB 2.0 communications

Diagnostics

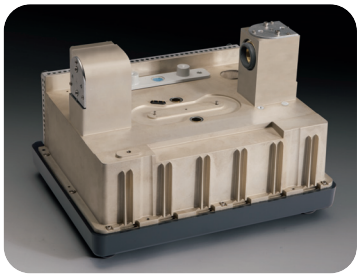
Humidity, heat, accelerometer diagnostics
Internal polystyrene, NIST-traceable
Performance Verification ASTM E1421
User-serviceable parts include source, desiccant, sample compartment windows, power supply

Performance Specifications

Spectral Range
– 7800-350 cm^{-1} optimized, mid-infrared KBr beamsplitter
Sensitivity (signal-to-noise ratio, 2200 – 2100 cm^{-1})
– 8000:1 peak to peak in five seconds
– 22,000:1 peak to peak in one minute
Spectral Resolution: better than 0.8 cm^{-1}

Minimum PC Requirements

Microsoft® Windows® XP OS, 1 GB RAM, 16 GB HDD, USB 2.0, 800 × 600 CRT/LCD display, accel graphics card



Built tough – rugged magnesium-alloy construction

Designed for Long Life with Minimal Operating Costs

Designed to operate with minimal maintenance in tough non-laboratory conditions, the Nicolet iS5 spectrometer offers several features that provide excellent performance over many years of service while providing low operating and maintenance costs.

- Temperature-controlled diode reference laser, providing stable performance over the lifetime of the spectrometer
- Dynamically-aligned interferometer provides exceptional stability and performance, while Auto-Align feature optimizes performance with changes in environment
- Anti-vibration interferometer mount to maintain high sensitivity while protecting the bench from shock and vibration
- Electronic humidity sensor protects the optics by warning user when long-life desiccant package requires recharge or replacement. Internal temperature sensor and accelerometer optimize electronics and optical performance if bench is used in demanding environments
- ZnSe sample compartment window option for extremely humid environments

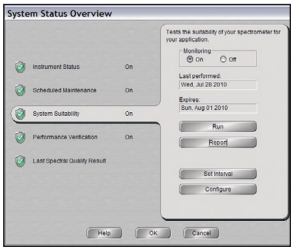
Easily exchanged, automatically recognized accessories

Source replacement without opening the instrument or calling service

Easy desiccant replacement for maximum instrument protection

System Performance Verification (SPV)

- Status indicators for all iD family sampling accessories
- Assurance that the system is working properly and is ready for your analysis
- Automatic accessory recognition and experiment set up ensures you get the best possible data



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