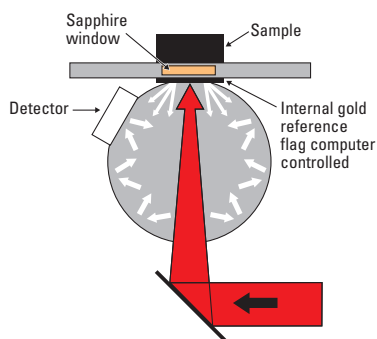


The Thermo Scientific Smart NIR integrating sphere provides the best method of analysis of diffuse reflection. This leads to easier sample handling and increased throughput. The integrating sphere enhances the near-infrared capabilities of Thermo Scientific Nicolet™ FT-IR spectrometers.

Smart NIR Integrating Sphere

Optimized near-infrared collection of solids and powders for high-performance Nicolet FT-IR spectrometers



The Smart Near-Infrared (NIR) integrating sphere accessory for Thermo Scientific FT-IR spectrometers provides a high-productivity module for the analysis of solids and powders. Ideal for raw material identification and determination of compositions, sampling can be performed through glass and other packaging materials.

Integrating spheres are incredibly efficient collectors of diffusely reflected energy. Near-infrared energy enters the integrating sphere, the energy then strikes the computer controlled internal gold reference, and is diffusely reflected. The reflected light is collected by the sphere and directed onto the dedicated InGaAs detector. When it is time for sample collection, the gold reference moves out of the path, the near-infrared energy passes through the sapphire window onto the sample, and energy that is diffusely reflected by the sample is analyzed.

The diameters of the sphere, detector, and sample window size have been carefully optimized to make collection even more efficient. The scattered near-infrared energy is collected with greater than 95% efficiency.

Benefits

When it comes to measuring powders and solids, the Smart NIR integrating sphere has significant advantages over traditional techniques:

- Minimal sample preparation is required.
- The testing is non-destructive.
- Collect spectral data through glass and other packaging without touching your material – protecting your samples from contamination and protecting you from exposure to potentially hazardous materials.
- Sampling throughput is increased because you can simply place the sample on top and begin the experiment.
- The top surface of the integrating sphere allows unobstructed access to the sampling window for large samples.
- The sapphire window has a chemical resistant and leak-proof seal, while the stainless steel platform is highly resistant to solvents and scratching.
- With the optional tablet spinners, you can average diffuse reflectance measurements of heterogeneous powders, polymer pellets, and other granulated samples for more uniform answers.

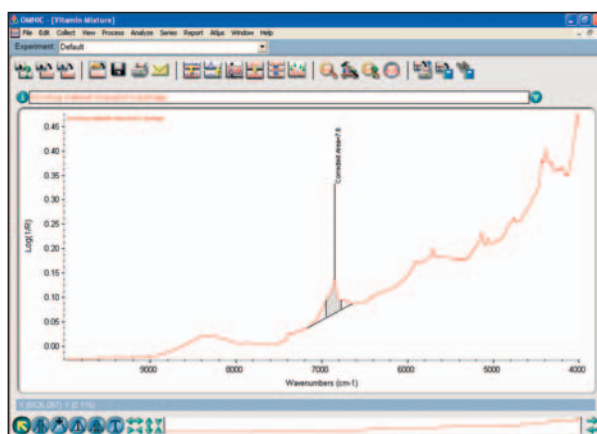


Smart Accessories

Because of the “smart” system, the spectrometer recognizes the integrating sphere as soon as it's placed in the sample compartment. It then automatically optimizes the entire system for your specific analysis. This automatic recognition eliminates errors and saves time by maintaining appropriate experimental conditions. As part of the Thermo Scientific Smart Accessory line, the Smart NIR integrating sphere is designed for near-infrared configured Thermo Scientific spectrometers.

Flexible Software

The Smart NIR integrating sphere and spectrometer are controlled by Thermo Scientific OMNIC™, an advanced software package for FT-IR spectroscopy. With the flexibility of OMNIC you can perform tasks from collecting infrared spectra to performing quantitative analysis. All commands are conveniently arranged in menus, or can be entered from the keyboard. Continuous updates during data collection provide instant feedback for optimizing the signal and reducing noise, which saves valuable time.



Analysis of multivitamin powder shown in OMNIC software

Coupled with the chemometrics package Thermo Scientific TQ Analyst™, the Smart NIR integrating sphere can be used to build quantitative or qualitative analysis methods.

An online tutorial demonstrates important features of the product, shows proper use and care of your accessory, and offers tips for analyzing various samples.



Tutorial illustrating the installation of the optional sample spinner

The Smart NIR integrating sphere is your best tool for the analysis of diffuse reflection, which results in easier sample handling and increased throughput.



Specifications

Detector	Dedicated Room Temperature InGaAs Detector
Range	10000 to 4000 cm^{-1}
Integrating Sphere	Greater than 95% collective efficiency
Integrating Sphere	Diffuse reflective gold surface
Sampling Window	Sapphire window with chemical resistant and leak-proof seal
Sampling Surface	Cast Aluminum
Reference	Internal computer controlled diffuse reflectance flag for problem free backgrounds
Sample Spinners	Two sizes of spinners for heterogenous samples with low OH quartz

Ordering Information

Smart NIR Integrating Sphere for Nicolet FT-IR

840-172400	Smart Accessory module
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Options

840-095700	Sample Spinner with 4.78 cm low OH quartz with powder sampling cup window
840-147400	Large Sample Spinner with 12 cm low OH quartz with powder sampling cup window

External Reflectance Options

869-106500	Gold NIR Diffuse Reflection Standard (99.9% reflective)
470-173800	Spectralon Reference (99% reflective)
470-173700	Polystyrene reference sample