

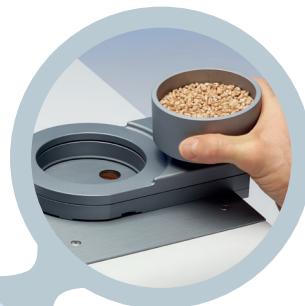
# • FT-NIR

## Discover the Flexibility of Near Infrared Spectroscopy

Choosing the best possible sampling method is crucial when solving a specific analysis task. Near-Infrared Spectroscopy (NIR) is an ideal technique for both on-line and laboratory analysis. It offers several advantages over traditional methods, including the ability to make measurements remotely over fiber optics, rapid results and multiplexing capability.

NIR spectroscopy has largely replaced a number of wet chemical analysis methods. With the fiber optics and the integrating sphere sampling techniques, NIR spectroscopy does not require any sampling preparation. It is a fast and precise tool for the non-destructive analysis of liquids, solids and paste-like materials, saving costs by reducing time and reagent use.

Analysis of food, feed and agricultural products.



Dedicated solutions for the analysis of pharmaceuticals.



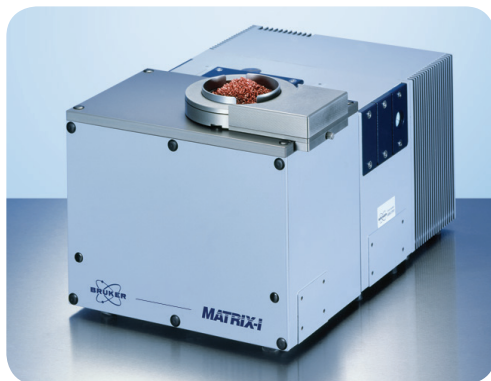
For the chemical and petrochemical industry.



## TANGO

Faster, simpler, more secure - with TANGO your NIR analysis speeds up. TANGO has exactly what users require of an FT-NIR spectrometer suitable for industrial use: robustness, high precision and straightforward operator guidance.

The proven FT-NIR technology by Bruker was combined with an easy-to-use touch screen operation and a small footprint, perfect for those laboratories with limited space.



## MATRIX-I

A rugged FT-NIR spectrometer designed for QA/QC analysis, equipped with an integrating sphere, permitting a fast and easy analysis using the diffuse reflectance technology. Samples can be measured directly in their containers or poured into standard cups. This method is ideal for measuring large amounts of materials and is particularly useful for analyzing inhomogeneous samples or large particle size items such as grains or seeds.

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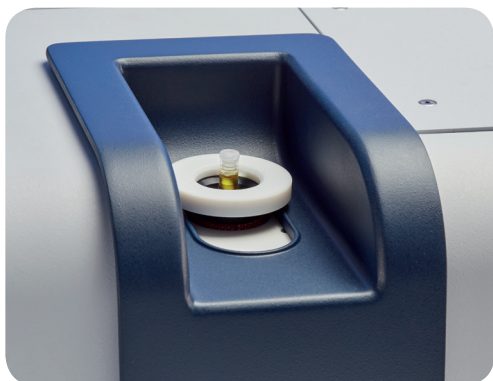
- The choice for quality control in the laboratory and at-line



#### MPA II

The new FT-NIR spectrometer MPA II is designed to meet the demands of today's and tomorrow's quality control. It combines outstanding flexibility and high performance with an easy-to-operate interface.

The MPA II offers everything you need for the analysis of liquids, semi-solids, solids, powders and tablets.



Sample Compartment, with sample heater and automated background capability, allows easy measurements of liquids in cuvettes or disposable vials.



Integrating Sphere for measuring solids and semi-solids in diffuse reflection. An optional sample rotator assures a high reproducibility for heterogeneous samples.



Fiber Optic Probes for measuring samples directly in containers, e.g. in the warehouse. Up to two different probes can be connected for solids and liquids.



Transmission Unit with optional sample wheel, e.g. for the automated analysis of vials or solid samples such as tablets in transmission and vials in reflection.

FT-NIR

# • Process Analytical Technologies

## Process Analytical Technologies

Today, many companies are not only striving to manufacture high quality products, but also to increase production efficiency by installing the analytical systems directly into their production plants. This improves process verifiability and gives the company the opportunity to optimize material use.

Bruker's technology base includes FT-IR and FT-NIR spectroscopy. This allows us to offer a choice of analytical solutions based on application or sampling point. The robust design of our spectrometers enables use in tough conditions in the production plant.

Our application and development support ensures your success, a staff of dedicated engineers and chemists participate in every phase of a project from feasibility studies to installation, calibration, training service and support.

- The Industry's most comprehensive range of solutions based on vibrational spectroscopy
- At-line, on-line, in-line real-time process monitoring
- Various sampling in-situ and non-contact sampling probes and accessories
- Process-ready, rugged instruments that can be customized and run with a wide range of communication protocols
- Dedicated process software, and validation solutions

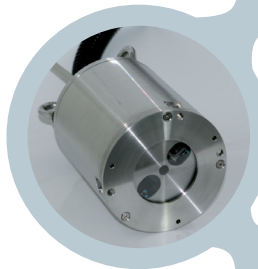
## FT-NIR Measurement Heads and Probes

A wide range of fiber optic probes is available for the MATRIX-F series – from immersion probes for liquids to reflection probes for solid materials. For contactless measurements, Bruker offers emission heads which collect the reflected light from the sample, also as fully ATEX certified version for gas and dust Ex-zones.

Process ready,  
rugged  
instruments.



Immersion, flow  
cell and non-  
contact fiber optic  
probes.



Professional  
installation &  
integration.



## Process Applications

For many years, vibrational spectroscopy has been used in a wide range of industries. Fast measurements and high information content allows the simultaneous analysis of many different parameters with high precision.

- Chemical: hydroxyl value, acid number, saponification value, iodine number, moisture content, homogeneity, ...
- Pharmaceutical: quality control of incoming goods, reaction control, mixing and drying processes, coating quality, ...
- Petrochemical: octane- and cetane number, distillation-, flash- and cloud point, aromatic content, PIONA analysis, ...
- Polymers: density, viscosity, cross-link density, end group analysis, stabilizer or monomer content, ...
- Food & Beverage: protein, fat, moisture, sugars, salt content, Iodine value, acidity, dry matter, amino acids, ...

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- **At-line, on-line & in-line process monitoring and control**



#### **MATRIX-F FT-NIR Spectrometers**

The award winning MATRIX-F FT-NIR spectrometers allow direct measurement in process reactors and pipelines, leading to a better understanding and control of the process. Its innovative design provides consistent high-quality results, less downtime and direct method transfer.



#### **MATRIX-MF FT-IR Spectrometers**

Utilizing the information-rich mid-IR region in both laboratory and process environments, the MATRIX-MF is a process-ready spectrometer that is ideal for real-time monitoring and analysis of chemical and biological reactions.



#### **TANDEM on-line Tablet Characterization PAT Tool**

TANDEM is a fully automatic on-line PAT tool that allows the collection of process data and control the tablet compression process. The system provides both physical (weight, thickness, diameter, hardness) and chemical (e.g. content uniformity, API content) characteristics of pharmaceutical tablets.

# • Bruker Optics

## Applications Consulting

Whether it's a routine quality control application or a sophisticated research project, our customer oriented application experts can help you find the right tool or method to achieve your goal. Bruker Optics staffs their applications laboratories around the world with spectroscopists who have expertise in customer applications. Our goal is to provide customers with prompt, efficient and knowledgeable support throughout the operating life of your system.

## Training Courses

Bruker Optics offers training courses worldwide to familiarize new users with our instruments and to tutor our more experienced users on the latest techniques. The training courses are scheduled at our facilities in the US and Europe, or they can be tailored to fit your own specific requirements and availability. Experienced, factory-trained specialists present the comprehensive lectures, which include hands-on training.

## Bruker Customer Service & Support

Bruker Optics' experienced service & support team will provide you with the product expertise and guidance required to provide assistance according the regulatory ISO 13485 Medical Device Management.

Additionally, we offer a variety of service & support features on our portfolio to cover your individual needs. Our maintenance and service agreements offer you immediate access to service and support resources, and protect you from the risk of restriction in system usage.

**Bruker Optics is ISO 9001  
and ISO 13485 certified.**

Laser class 1 product.

Covered by one or more of the following patents: DE102004025448; DE19940981.  
Additional patents pending.

[www.bruker.com/optics](http://www.bruker.com/optics)

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