

expect**more**



MPA

Multi Purpose Analyzer

Discover the flexibility of FT-NIR spectroscopy

BRUKER *Optics*

MPA

Multi Purpose Analyzer

The **MPA™** is the result of almost 30 years of experience in the engineering and production of FT-NIR spectrometers. Designed to provide maximum flexibility and high performance, the **MPA™** sets new standards in FT-NIR analysis. A powerful tool for developing sophisticated methods for your laboratory and process needs, combined with easy operation and quality components.

Easy operation

Customizable workspaces, easy measurement modes and wizards to guide you through the setup of analytical methods are standard in the **OPUS™** spectroscopy software. All instrument parameters can be set with a mouse click. The smart display informs the user about the instrument status and indicates whether the measurement passed or failed. These factors make the operation of the instrument and the software so easy that even untrained personnel can operate the **MPA™** spectrometer.

High performance

The **MPA™** incorporates state-of-the-art optics for outstanding sensitivity and stability. The heart of the instrument is Bruker Optics' patented, permanently aligned **RockSolid™** interferometer, which is equipped with gold-coated optics for maximum efficiency and sensitivity. The permanent alignment provides consistent high quality results, less downtime and outstanding stability, a precondition for successful calibration transfer and low detection limits.

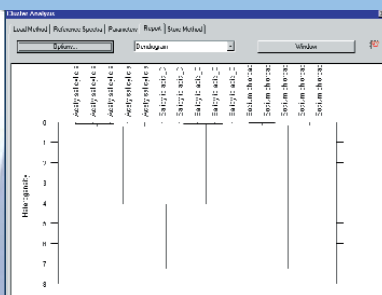
The **MPA™** FT-NIR spectrometer's digital electronics ensures optimum interferometer control, high sensitivity and long-term stability. Bruker Optics new **DigiTect™** 24-bit detector system guarantees low noise, making the **MPA™** a powerful high performance FT-NIR spectrometer.



rugged, robust, reliable



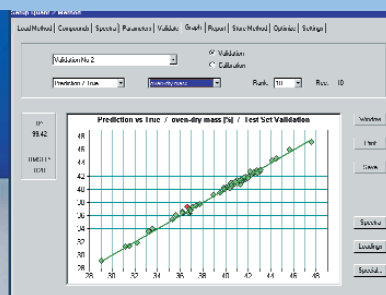
The display indicates the instrument status and whether your measurement passed or failed.



OPUS/IDENT is an intuitive and powerful software package for the identification of substances.



The user-friendly **OPUS/LAB** software is ideal for the daily routine analysis.



OPUS/QUANT software provides accurate quantitative analysis of complex mixtures.



MPA™ FT-NIR spectrometer

Hassle-Free Maintenance

MPA™ spectrometers are designed to be easily maintained by the user, thereby decreasing downtime and maintenance costs. Permanent online diagnostics continuously monitoring the instrument and advise the user of any problems. Consumable items such as the laser and the light source are designed for a long life, but if they need to be replaced, the system informs the user of the failure and automatically offers online help for the replacement procedure. The consumables are prealigned and can be easily and quickly changed.

PerformanceGuard™

All optical components installed in the MPA™ are permanently monitored by the online diagnostic system, PerformanceGuard™, which makes sure that your spectrometer operates correctly. A status light on the control panel and within the OPUS™ software informs the user of the current instrument status. Whenever a component is out of specification, the user is notified immediately.

Plug & Play Connectivity

All over the world, no matter where you are, plug in the power and Ethernet connection, and the MPA™ is ready for operation. The multi-range power supply and the Ethernet connection to the computer, or the local network, ensure this exceptional Plug & Play functionality. The Ethernet access to the MPA™ also allows remote control and diagnostics of the spectrometer via your intranet or the World Wide Web.

Food and Feed Industry

FT-NIR spectroscopy has largely replaced a number of wet chemical analysis methods. 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.



With the MPA™ integrating sphere, even heterogeneous materials can be analyzed without sample preparation in diffuse reflection. The use of easy-to-clean sample cups, beakers, Petri dishes or even plastic bags enable an efficient sample throughput at low cost. The transmission unit enables sample measurements to be preferred in both transmission and reflection.

The major application areas in the food and feed industry include dairy and meat, beverages, bakery ingredients and condiments as well as grains, seeds, feed and forage. Here, parameters like protein, fat, starch, moisture or dry matter can be analyzed as well as more specialized parameters like alcohol or nitrogen content.



The MPA™ is a complete solution for your quality control needs. The identification and qualification of your raw materials and the quantitative analysis of finished products can be performed in a matter of seconds to ensure the highest product quality and consumer safety.

Chemical Industry

For many years NIR technology has been used in a wide variety of chemical industries. The high information content in NIR spectra, measured in only a few seconds, allows the simultaneous analysis of many different components and system parameters with high precision.



Some of the many applications are:

Chemistry: hydroxyl value, acid number, saponification value, iodine number, moisture content, homogeneity, ...

Petrochemistry: octane- and cetane number, distillation-, flash- and cloud point, aromatic content, PIONA analysis, ...

Polymer chemistry: density, viscosity, cross-link density, end group analysis, stabilizer or monomer content, ...

Paper industry: cellulose content, fillers, glues and wet strength resins, silicon content, grammage, degree of wet expansion, ...



The content of highly complex mixtures can be determined simultaneously. It does not matter if the samples are solid or liquid and sample preparation is not necessary. The *MPA*[™] allows the non-destructive analysis of large quantities at the push of a button. Hence, it is an ideal tool to meet the requirements of the modern quality control analysis.



***MPA*[™] with complete accessory selection**

Method Development

The *MPA*[™] with its various measurement options is the ideal tool for your sophisticated method development. Initially it is often not obvious which sampling method is the best for the given task. With the *MPA*[™], simply try out several methods and compare the results. Liquid samples can be measured in the sample compartment using disposable vials or cuvettes, directly in their container using the fiberoptic probe or even in cups with the integrating sphere. Compare the composition of pharmaceutical substances in bulk form with the probe and then manufactured as tablets using the transmission unit or the integrating sphere. The possibilities are endless ...

OPUS/IDENT offers easy product identification with hierarchical libraries offering high selectivity and performance. The OPUS/QUANT software finds the best possible calibration automatically, making your method development a child's play.

The methods created are fully reproducible and transferable to other comparably equipped Bruker Optics spectrometers - even for online applications - due to the superior mechanical precision and outstanding stability of our instruments.



Flexibility

Choosing the best possible sampling method is crucial when solving a specific analysis task. With the MPA™, you have a complete solution at hand for your method development. The modular and compact instrument can easily be adapted to your needs. If at a later stage new applications arise, simply have the required sampling tool added; all combinations are possible at any time.

The MPA™ offers everything you need for the analysis of liquids, solids, powders and tablets. Powerful accessories like the automated 30-position sample wheel, which can be used for vials and tablets of all shapes and sizes, the sample rotator for the integrating sphere or up to two different fiber probes help you to achieve high sample throughput with excellent precision. The robustness of the instrument allows it to be used in the laboratory and factory floor. The MPA™ can be connected to your laptop via Plug & Play Ethernet and can even be placed on a utility cart to improve its mobility.

Selection of the different measurement accessories of the MPA™ is completely software controlled, without the need for any manual adaptation. The color display keeps you informed of the selected sampling tool and the status of your instrument. Any potential failure in the internal instrument test will be displayed as well as required maintenance operations such as changing the desiccant cartridge.

The OPUS™ measurement software can be completely configured to meet your needs. OPUS/LAB is an intuitive and easy-to-use software interface for your complete routine analysis tasks. It can be used by untrained personnel from the production line as well as by your experienced laboratory staff. OPUS/QUANT is a chemometric software package for setting up sophisticated methods for quantitative analysis. OPUS/IDENT uses hierarchical libraries for the identification of samples. All OPUS™ packages can be seamlessly integrated and use the full functionality of OPUS™.

power, precision, performance



Sample Compartment, with optional sample heater, allows easy measurements of liquids in cuvettes or disposable vials without having to open any drawers.



Integrating Sphere for measuring solids and pastes 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.



Transmission Unit with optional sample wheel, e.g. for the automated analysis of tablets in transmission and reflection simultaneously.



Validation

The MPA™ FT-NIR spectrometer is equipped with an automated filter wheel which houses standard materials and filters for testing instrument performance. Included in the OPUS™ software is AutoCheck™, an instrument test program which executes a series of performance tests using the standards in the filter wheel. This program evaluates the instrument performance and determines if the spectrometer is operating within specifications. In addition to the Bruker Optics' Validation Manual, this tool provides the user with a complete package to realize the demands of validation and ISO requirements. The implemented qualification routines meet USP, Ph.Eur, FDA and ASTM standards. OPUS™ allows a customized setup to satisfy your individual validation requirements and the status is always indicated to the user.

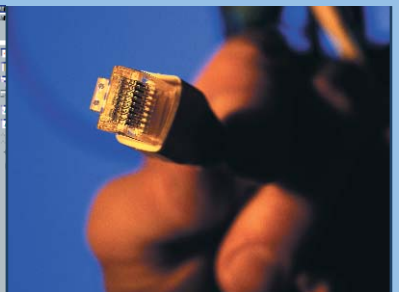
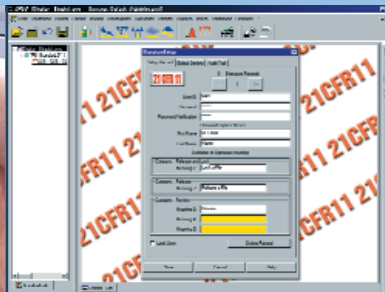
Full GMP and 21 CFR Part 11 compliance

OPUS™ spectroscopy software comes equipped with the necessary routines to assist laboratories that must conform to GMP and ISO standards. Extensive user management with multiple security levels, non-editable data files and complete audit trails are some of the many features of this comprehensive spectroscopy software. OPUS™ fully supports the demands of the 21 CFR Part 11 regulation (Electronic Records, Electronic Signatures) issued by the FDA.

Certification

Bruker Optics' products and services meet all quality standards, like the ISO 9001, successfully audited by several pharmaceutical corporations and regarded as a fully approved hardware and software supplier. Each customer receives a full set of certificates with the instrument.

simple, sensitive, superior

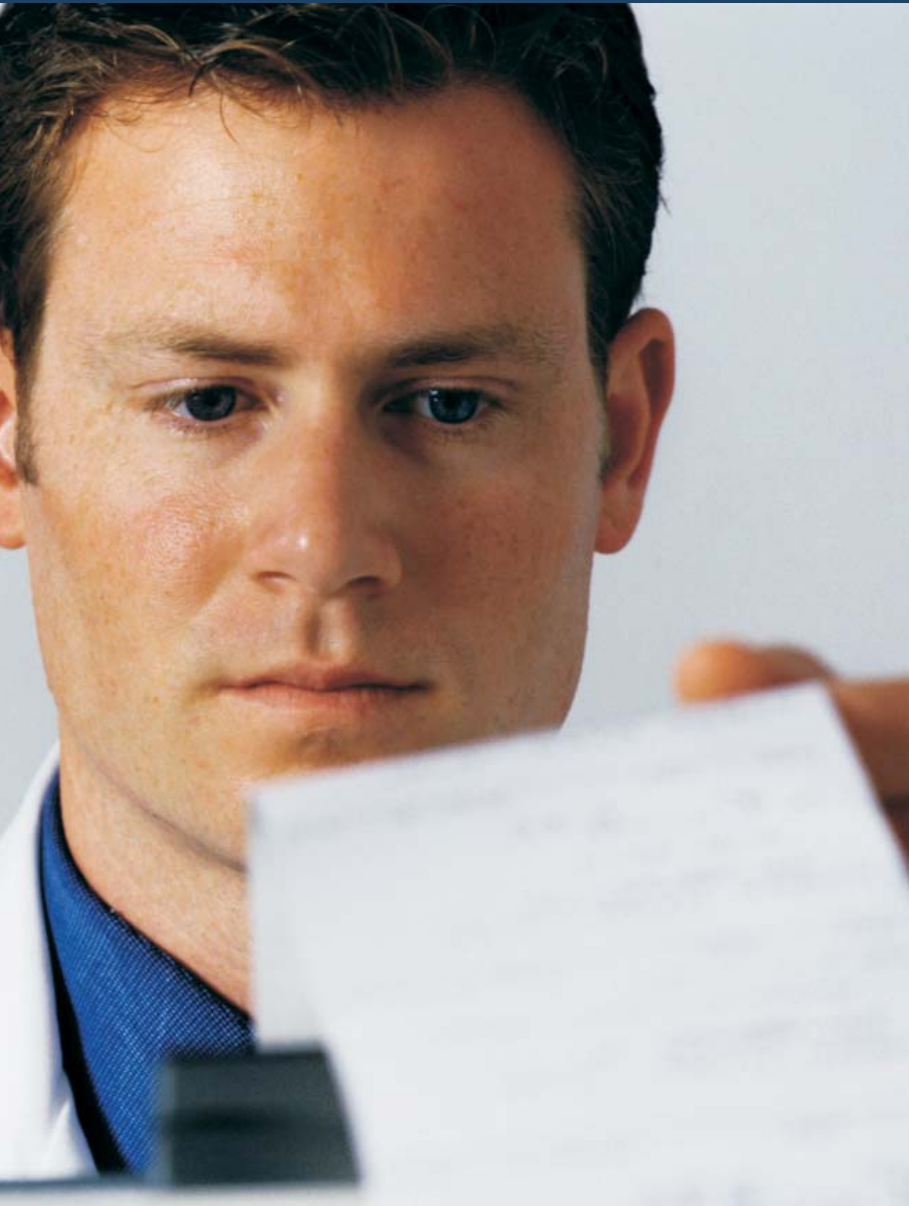


The Internal Validation Unit (IVU) ensures the correct measurement performance of the MPA™.

The MPA™'s prealigned laser and source can easily be exchanged.

MPA™ and OPUS™ offer full 21 CFR Part 11 and GMP compliance.

The MPA™ runs easily over a standard Ethernet connection with Plug & Play.



GMP and 21 CFR Part 11 compliance guaranteed

Calibration Transfer

As an exhaustive method development may be both time and resource intensive, the main prerequisite of the instrument is the transferability of the calibration methods to other instruments. This can only be guaranteed if the highest precision, stability and sensitivity are combined, as they are in the *MPA™*.

Changing optical components or even the complete instrument does not effect the validity of the calibration. A calibration transfer to other Bruker FT-NIR spectrometers is always possible without any additional manipulation of the data.

Methods created with the *MPA™* can therefore not only be employed on other laboratory spectrometers but also on all Bruker Optics process instruments. The step from the laboratory to the production line has never been easier.

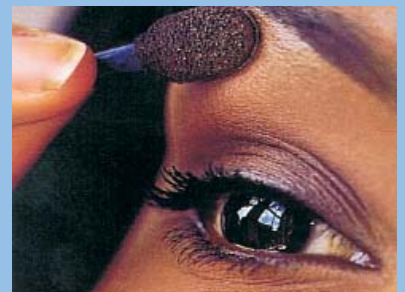
Pharmaceutical and Cosmetics Industry

FT-NIR technology is a fast and precise tool to effectively and cost efficiently solve a huge variety of application tasks in the pharmaceutical and cosmetics industry. In the receiving dock, raw material identities can be checked with hand held probes. Mis-labeled raw material deliveries can be detected and their quality checked to prevent product failures.



Tablets can be tested for content uniformity, residual moisture, potency, levels of excipient and hardness. This can be performed on individual tablets and through a blister pack. Due to the exceptional throughput and high measurement precision, even tablets with a low active ingredient can be analyzed with the *MPA™*.

The analysis of creams, ointments and pastes is carried out using the integrating sphere. The large measurement spot enables an examination of heterogeneous material. The sample cups can be easily cleaned in a dishwasher. Alternatively, disposable Petri dishes can be used.



A multitude of measurement tasks in process control, like monitoring of reactions, can be solved with FT-NIR spectroscopy. Due to the high precision of the *MPA™*, methods which were created in the laboratory can easily be transferred to the respective process spectrometer.



Bruker Optics is staffed by expert scientists and engineers that have an in-depth knowledge of instrumentation and applications. Our product specialists are available to assist you with method development either remotely or in your lab. FT-NIR application scientists will assist you in the selection and use of sampling accessories, choice of optical components and software operation. We offer customized instruction and support packages to fit your needs.

Bruker Optics spectrometers are designed to provide years of dependable trouble-free operation, but should a problem occur a network of Bruker companies and representatives throughout the world are ready to promptly respond to your needs. Professional installations, comprehensive applications support as well as high standard of post-delivery service are commitments Bruker Optics makes to each of its customers.

LASER CLASS 1



for more information, visit:
www.brukeroptics.com

North America

Bruker Optics Inc
19 Fortune Drive
Billerica, MA 01821
USA

tel: + 1 978 439 9899
fax: + 1 978 663 9177
www.brukeroptics.com
info@brukeroptics.com

Europe

Bruker Optik GmbH
Rudolf-Plank-Str. 27
D-76275 Ettlingen
Germany

tel: +49 7243 504-600
fax: +49 7243 504-698
www.brukeroptics.de
info@brukeroptics.de

Asia

Bruker Optik Asia Pacific Ltd.
Unit 601, 6/F, Tower I, Enterprise Square,
No. 9, Sheung Yuet Road,
Kowloon Bay, Hong Kong

tel: +852-2796-6100
fax: +852-2796-6109
asiapacific@brukeroptics.com.hk