

INNOVATIVE ACCESSORIES

MAXIMISING INSIGHTS
FROM **FINISHED PRODUCTS**
TO INLINE **AUTOMATED PRODUCTION**



We supply non-invasive optical solutions for the supervision, development and real-time inspection of processes and complex solid and liquid products.



Since its creation in 1893, CHAUVIN ARNOUX has been a pioneer in the development of measurement instruments, notably supporting the ground-breaking work of Marie Curie. At Indatech, we are proud to carry forward this remarkable legacy, continually advancing the science and technology of today and tomorrow.

As part of the CHAUVIN ARNOUX Group, Indatech specializes in innovative spectroscopy solutions tailored to meet the diverse needs of our clients in the pharmaceutical, biotechnological, and chemical industries. This catalogue highlights our range of cutting-edge solutions, designed to seamlessly integrate with any spectrometer—whether it's one of ours, detailed in our analyser catalogue, or another system you already use.

Building on decades of expertise, we provide technologies and approaches that enable precise measurements for a wide variety of liquid and solid products. From flow cells to optical probes, our products are engineered to ensure accuracy, reliability, and ease of use across even the most challenging applications.

Should you have specific requirements not covered by our standard offerings, our in-house engineering team is ready to develop custom solutions tailored to your needs. Please feel free to reach out to us directly for more information or to discuss your project.

Together, let's shape the future of process analysis.

ALL YOU NEED, AT ANY STAGE : INNOVATIVE ACCESSORIES FOR SPECTROSCOPY

Looking for a smart and reliable partner to meet your analytical challenges?

We deliver high-quality solutions tailored to your needs, with a focus on flexibility and performance. Designed in line with ICH Q8, Q9 and Q10 guidelines, our probes support Quality by Design (QbD) strategies and Process Analytical Technology (PAT) implementation. From lab to line, they enable real-time monitoring and control of critical process parameters and quality attributes, helping you achieve compliance and process excellence.

- **Laboratory Analysis:** Precisely measure samples straight from production—injectables, cartridges, tablets, or vials—without opening or damaging them. Get accurate insights into physicochemical properties in controlled settings.
- **In-line analysis in reactors:** Track chemical and biochemical reactions with precision, even in demanding environments. Our systems minimize interference like stray light and capture both absorption and scattering properties for in-depth analysis.
- **Analysis in Continuous Flow:** Monitor dynamic processes in pipelines or tubing with ease. Designed to fit various pipe sizes, our solutions ensure reliable results in real-time.
- **Solid Analysis:** From powders to tablets and freeze-dried products, our custom probes integrate seamlessly into complex systems, delivering robust performance in any environment.
- **Customization:** Need something unique? We customize probes and flow cells to your specific requirements, accommodating GMP, ATEX, and other pharma-related constraints. Collaborating with trusted partners, we ensure optimal cleanability and compliance.



LABORATORY ANALYSIS

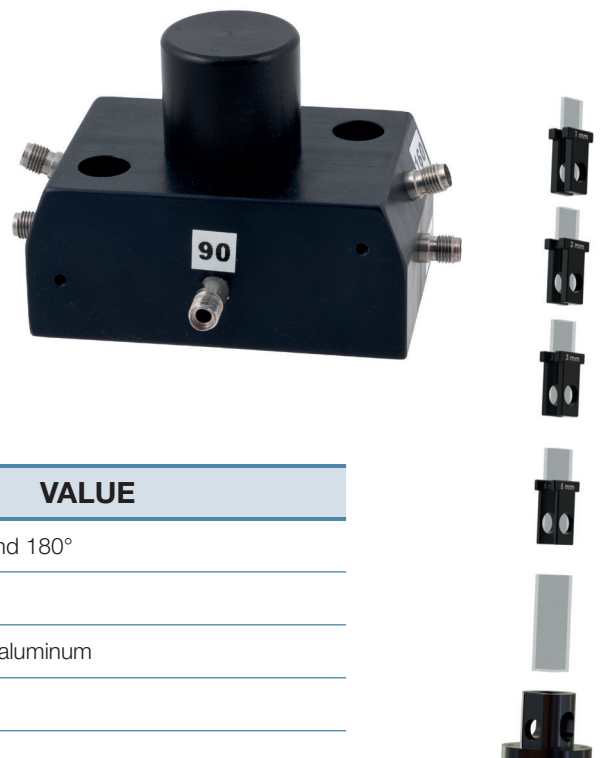
SECTION 1



GETTING INSIGHT OF CHEMICAL AND PHYSICAL ATTRIBUTES OF END PRODUCT WITH UV VIS NIR

For laboratory liquid analysis in UV or NIR, we offer a versatile cuvette holder compatible with any spectrometer equipped with SMA connectors. This holder allows measurements of various cuvette sizes and can also be adapted for specific sample types, such as injectable cartridges, insulin, or vials. Additionally, our systems provide multi-angle measurement capabilities, including backscattering, transmission, and non-collimated transmission. These features enable accurate **analysis of complex liquid samples containing particles or emulsions**. Indatech has developed a set of spacers that enables the use of shorter optical paths but keeping the same scattering angle. While the standard optical path (in transmission) is 10 mm, these spacers allow the use of cuvettes with optical paths of 2 mm, 3 mm, and 5 mm.

Compared to traditional spectroscopy, these advanced measurements offer valuable additional information especially with QbD workflows, helping you assess all critical parameters—especially when combined with powerful tools like AI or chemometrics.



SPECIFICATIONS	VALUE
Angles measured	20°, 90°, 160° and 180°
Connection type	SMA 905
Material	Black anodised aluminum
Possible cuvette pathlengths (mm)	2, 3, 5, 10
Possible adaptation on demand	Cartridges, vials

FAST AND SAFE CHEMICAL ANALYSIS OF END PRODUCT WITH RAMAN

We also offer a solution for laboratory analysis using a Raman spectrometer. Our system is designed to measure cuvettes as well as samples directly through their packaging. For instance, it allows measurements through an insulin cartridge, vaccine vial, or similar containers. The support block can be customized to ensure repeatable measurements.

Our **Vial Analyzer** further enhances safety with an integrated shutter that blocks the laser when the sample is removed, while also eliminating the effects of external light with a cover that fully encloses the system.

Additionally, the **Vial Analyzer** connects seamlessly to our optical probe block, which can also be used for inline measurements. This approach allows you to use the same probe to measure small samples for model development and later apply it for inline monitoring in your production process—whether in a reactor or on a sorting line.

We provide two options for the Raman system: the **785 nm** or the **830 nm block**, which reduces fluorescence from the glass or the sample itself.



SPECIFICATIONS	VALUE
Lens	Fused silica
Working distance	1 mm, can be customized up to 5 mm
Shutter	Manual
Probe compatibility	INDATECH Raman probe head (785 or 830 nm)
Material	Black anodised aluminum
Size (cm)	28 x 18.5
Default configuration	10 mm cuvette
Maximum sample size (cm)	5 x 4 x 8 (more on demand)

PH, CAPACITANCE, TEMPERATURE AND CALIBRATION TOOL

We provide other products manufactured by the CHAUVIN ARNOUX Group, a large and diverse organization. We offer pH probes, capacitance probes, and temperature measurement devices that can be used in the laboratory. Additionally, we supply certified liquids for calibrating pH meters. Don't hesitate to contact us for more information about these products—we have a wide range of options and numerous choices to meet your needs.



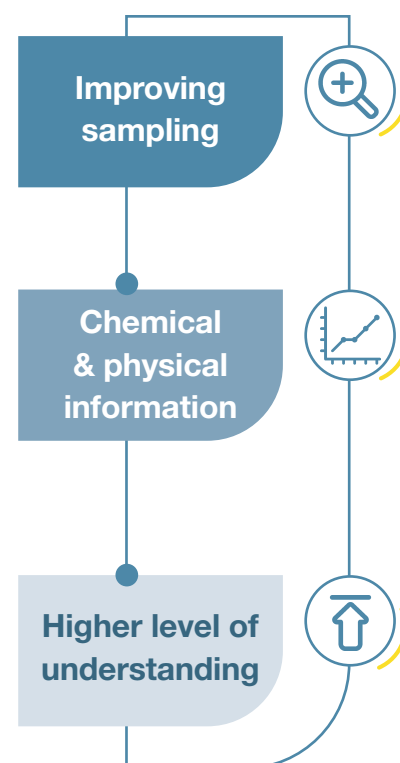


PROBES FOR BEAKER OR REACTOR / LIQUID PRODUCT

Reactor and beaker systems are widely used across various industries, including biotechnology and chemistry. Measuring directly within these systems requires robust probes equipped with appropriate connectors. The products to be inspected are often more complex than a clear liquid. To address this need, we have developed a range of solutions based on our patented SAM-Spec® technology.

Spatially Advanced Measurement by Spectroscopy (SAM-Spec®) is a new probe technology able to provide both physical and chemical information related to your complex liquid directly in the process in real time. Combining this advanced technology with our UV-Vis (Asuryan), or NIR (Hy-Ternity) spectrometer, several processes can be improved such as cell culture, emulsion synthesis, crystallization, polymerization, filtration, purification...

The technology uses light scattering and absorption based on several simultaneous acquisitions at different locations in order to obtain different types of information. Unlike standard approaches such as granulometers or turbidimeters, multiple wavelengths are used to illuminate the media. Scattering is generated at different wavelengths and will vary in function of the particle diameter, shape, absorption, and ratio between particle size and emission wavelength. For this reason, the spatio-spectral data will contain a maximum of both physical and chemical information.

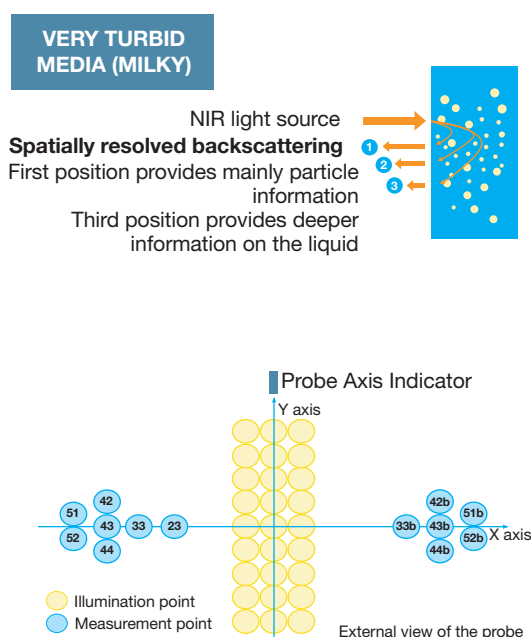


Potential applications:

- Mean particle or droplet size and density
- Nanolipid encapsulation
- Adsorption of molecule or cell on solid particle
- Polymer fraction
- Gel point (crystallization)
- Modification of particle shape
- Chemical concentration

PHYSICAL AND CHEMICAL ANALYSIS OF DENSE MEDIA WITH SAM-SPEC PATENTED TECHNOLOGY

For dense liquid phases, such as during highly concentrated crystallization processes or emulsions with a milky or opaque appearance, we offer a backscattering measurement solution based on our patented SAM-Spec technology. This technology relies on a multipoint measurement of the light source, allowing it to account for effects related to the size, number, and even the shape of particles. This approach allows to optimize photon pathlength as is usually done in transmission measurement.



The resulting data consist of multiple spectra captured at different distances from the light source enabling analysis over a larger volume, improved repeatability, and the ability to process more information through your chemometric or AI models. This allows for the simultaneous prediction of both physical and chemical properties of your products.

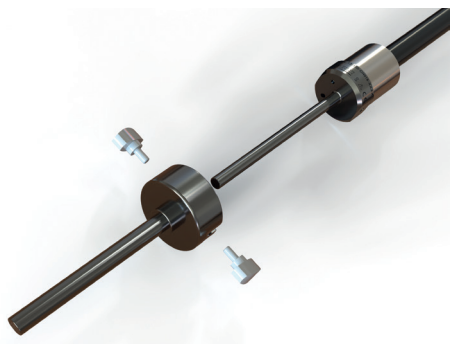
The probe features a threaded tip designed to attach directly to the reactor, equipped with a high-quality sapphire window sealed with durable adhesive. Our multipoint sensor is integrated into the probe and enables measurement with up to 13 points simultaneously, depending on the analyzer you are using.

SPECIFICATIONS	VALUE
Fiber type	Low-OH NIR optical fiber
Wavelength range	400 - 2200 nm
Fiber length	2 m typical (up to 50 m as an option)
Material	Stainless steel 316L
Number of measurement channels	13
Connection type	SMA 905
Sensor diameter (mm)	8.5
Sensor length (mm)	130
Sensor reference	SPC13-1300H



IMMERSION PIPE FOR SAM-SPEC PROBE

The 130 mm SAM-Spec probe can also be used for analysis of powder (blending) or complex turbid media. In order to protect optical fibers from direct contact with the product, we propose an immersion pipe with a protective sapphire window as an option.



The immersion pipe can be customized on request to add process connections such as a PG13.5, clamp or Swagelok connector...

SPECIFICATIONS	VALUE
Material	Stainless steel
Material of the window	Sapphire
Sealing	Glue (EPOTEK, FDA approved)
Size of screw to fix the probe	M5 x2
Angle of the probe tip	12°
Probe length (mm)	130

REFERENCE TOOL FOR REPRODUCIBLE GMP USE

As required by good manufacturing practice, it is necessary to measure the light intensity reference at the output of the probe with the best reproducibility.

This enables you to calculate absorbance values but also to control the probe along its life and detect possible critical problems.

The measurement needs to be as repeatable as possible. For this reason, Indatech has designed a specific tool containing a NIST certified 99% reflectance standard (same position and same distance from the Spectralon surface). Two options are available: one to perform sample measurements with the immersion pipe (including a 12° angle) and the other one directly with the probe.



CHEMICAL ANALYSIS WITH RAMAN

Raman spectroscopy is particularly well-suited for liquid analysis, especially for those containing water. Our system is composed of two distinct modules: the first houses the optical fibers and high-quality filters, while the second includes a measurement block that integrates reactor connectors and various optical configurations, particularly for the light path within the sample.

Additionally, we offer a patented, market-unique tip featuring a transfective mirror. This innovative design increases the measured volume, enhances measurement quality, and, most importantly, minimizes the impact of external light or reflections caused by nearby sensors close to the probe.

STANDARD UNIVERSAL PROBE HEAD

The VSP-OH probe block is intended for Raman measurement both in the laboratory and online. It incorporates several optical filters to ensure optimal measurement at 785 or 830 nm (no manipulation of filters by the operator). In order to provide optimal robustness and ease of cleaning, the probe body is made of stainless steel and the optical fibers are protected by a steel / plastic monocoil (smooth on the outside). The optical fibers are to be bought separately and their required length must be specified.

The unit is compatible with several types of accessories to adapt to different situations. For example, in the case of a twin-jet measurement, the block must be associated with an immersion nozzle, while in the laboratory it can be connected to the Vial Analyzer system.

This brings several advantages, with the major one being the modularity of the immersion fitting, providing greater adaptability for different types of applications, facilitating quick fitting changes according to the specific immersion requirements or the type of medium analyzed.



DEDICATED IMMERSION PIPE

In Raman spectroscopy, backscattering is the most frequently-used probe configuration, while the configuration for transmission is reserved for specific cases where it is advantageous to have the light pass through the sample. The configuration for transfection, combining the advantages of transmission and the traditional backscattering approach, while increasing the optical path length, was not yet available on the market.

This is why Indatech has developed this technology, alongside its classic probes, to draw on the advantages of each type. Each of these probes is available in a single configuration (which remains configurable), equipped with a screw-on probe tip which is interchangeable with other configurations, for R&D applications. Configurations without transfection are also available in welded form for use in production.





Raman probes have been designed in two distinct parts, the probe head (VSP-OH) and the immersion fitting (VSP-IM), so that these two elements are completely physically independent.

This also simplifies the sterilization and cleaning process, as the probe tip can be autoclaved, while the probe head remains protected. Lastly, this separation extends the life span of the equipment, because only the probe tip needs to be replaced in the event of wear or damage, facilitating maintenance and reducing costs. Indatech is also able to adapt its immersion pipe to other Raman probes on the market.

Technical specifications of the VSP-IM immersion probes

	STANDARD PIPE	TRANSFLECTION PIPE
Conditions of use	Temperature ≤ 200 °C; Pressure 15 bar	
Probe immersion depth (mm)	220*	
Probe diameter (mm)	12	
Working distance (mm)	0.5, 1.5, 3, 5, 7**	0.5
Measuring point (mm)	220	203 (slot width 2 mm)
Weight (g)	280 (with stainless steel cap for autoclaving)	
Connection type	PG 13.5	
Materials in contact	AISI 316L stainless steel; Kalrez®; Sapphire; Teflon®	
Autoclavability	Yes	
Compatibility	ROHS; REACH; USP class VI	

* Shorter immersion depths are available upon request

** Other Working Distances are available upon request



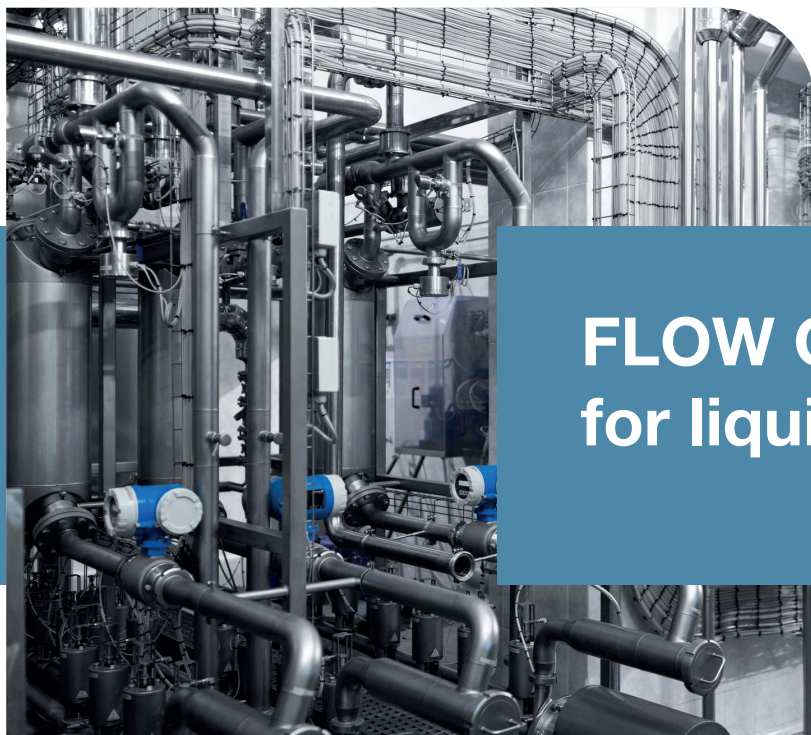
LASER SAFETY MANAGEMENT INTERLOCK

Our laser interlock system is designed to connect directly to the probe and the reactor, ensuring safe operation of Raman spectroscopy in production environments. Since Raman lasers are often classified as Class IIIB, it is essential to consider reflective surfaces such as stainless steel, which can complicate safety management.

The interlock provides an additional layer of protection by preventing laser activation unless the probe is securely fixed, significantly reducing risks during operation. It can also be connected to external components such as doors or other access points, ensuring compliance with strict safety protocols.

This solution is particularly valuable in critical environments, where both operator safety and process integrity are paramount.





FLOW CELL for liquid analysis in pipe

INNOVATIVE CONFIGURATION FOR UV VIS AND NIR

Indatech flow cells are designed to adapt to your process — from routine monitoring to the most demanding analytical challenges. Continuous monitoring is consistent with ICH recommendation on process control. Two configurations are available: single-channel and multi-channel.

The single-channel flow cell offers a streamlined design, ideal for applications where reliability and simplicity are key. Optimized for standard concentration ranges, it ensures fast integration and minimal maintenance. Its compatibility with non-contact cleaning systems makes it easy to maintain, while the optical path can be adjusted directly in the lab to fine-tune the signal and achieve optimal measurement conditions.

The multi-channel flow cell pushes performance further. With parallel channels, it increases optical throughput and signal quality, enabling enhanced sensitivity, broader dynamic ranges, and even trace-level detection. Each channel can be optimized with its own optical path, allowing the combination of UV-Vis and NIR analysis in a single device. This unique flexibility maximizes information extraction and opens new possibilities for method development and multiplexed analysis.

Both designs are engineered for inline process monitoring, whether in downstream purification, continuous liquid processing, or inline mixing operations. To simplify integration from lab to line, each version is available with dedicated connection kits — including Tri-Clamp, barbhose, and Swagelok — ensuring fast, secure, and compliant installation in any process environment.



The single-channel and multi-channel flow cells are available in two sizes.

For the single-channel cell, users can choose between an internal volume of 3 or 12 mL. For the multi-channel cell, internal volumes of 6 or 24 mL are proposed. Each cell is delivered with a set of spacers.



Made of anodized aluminum, these spacers are used to vary the optical path lengths between 0.5 and 20 mm according to the application and the concentration measured.

As an option, a base is proposed which can be used to raise the flow cell and facilitate its integration in the process. Various fittings may also be supplied for the same purpose.

Possible applications:

- In-line qualification of various steps in the downstream process (purification, ultra/diafiltration, chromatography, etc.)
- Studying the optimal path length for a given formulation at an R&D level prior to fixing the ideal path length for application in production
- Kinetics studies of the chemical and enzymatic reactions
- Detection of pollutants or industrial waste such as heavy metals or pesticides in water
- Verification of the effectiveness of the cleaning process (detection of traces of the API, detergent, solvents, etc.)



	SINGLE-CHANNEL		MULTI-CHANNEL	
Maximum temperature	Up to 200 °C (392 °F)			
Relative humidity	5-90%			
Number of measurement channels	1		3	
Internal volume (mL)	3 (2.4 mL < V _{int} < 3.14 mL)	12 (9.58mL < V _{int} < 15.7 mL)	6 (4.5 mL < V _{int} < 6.75 mL)	25 (9.9 mL < V _{int} < 28.3 mL)
Range of optical path lengths (mm)	0.5 - 10	0.5 - 20	0.5 - 10	0.5 - 20
External dimensions (mm)	132 × 84 x 38	182 x 92 x 50	130 x 129 x 55	182 x132 × 50
Weight (kg)	0.7	1.6	1.5	3
Maximum pressure	30 bar (725 Psi)			
Fiber optic connection	SMA type 905			
Spectral range	200 - 2500 nm			
Contact materials	AISI 316L stainless steel; Kalrez® 6230; silica glass or sapphire			
Cleaning	Cleaning and sterilization in place with a flow rate ≥ 200 mL/min			
Compatible with Ex environment	Yes (Group II, Ex zone 1, 2, 21, 22)			

FITTINGS*

DESCRIPTION	SIZE	REFERENCE
Clamp fitting	DN 10	FC-CL10
Swagelok® tube fitting	1/4-inch tube	FC-SW10-14
	3/8-inch tube	FC-SW10-38
Fitting for flexible hoses	3/8-inch hose	FC-FL10
Materials	AISI 316L	

* Standard fittings, others available on request

FLOW CELLS FOR RAMAN SPECTROSCOPY

We also offer flow cells with various configurations designed for Raman spectroscopy. The solution is composed of three main parts:

- **Optical Head:** This component houses the optical fibers and high-quality filters.
- **Short Immersion Pipe:** This part contains the window and focusing lens, ensuring precise measurements.
- **T-Type Switch Lock Connector:** This connector allows for a direct and secure connection to the flow system, ensuring reliability and ease of use.

This modular design ensures versatility and efficiency, making it ideal for a wide range of Raman spectroscopy applications.



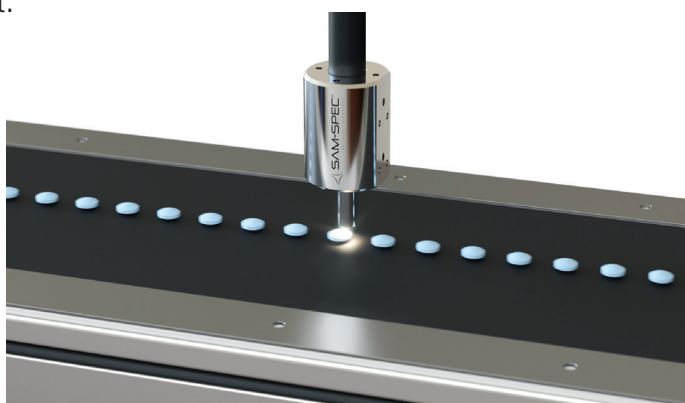
NON DESTRUCTIVE ANALYSIS OF SOLIDS (powder, lyocake, tablet, capsule)

Historically, Indatech has grown by developing unique solutions for the characterization of powders and solids, particularly based on research collaborations with various centers around the world. As a result, we proudly position ourselves as the only provider of these advanced technologies for tablet and powder analysis.

VIS-NIR ANALYSIS

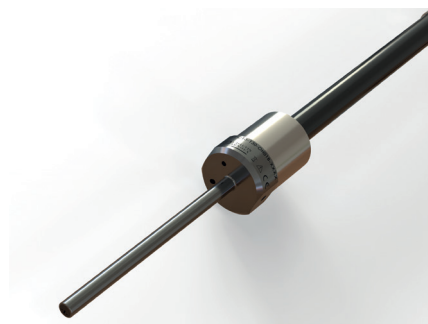
Our non-contact tablet measurement solutions are powered by SAM-Spec, a technology based on illuminating the sample at a single point and measuring it at multiple points across varying distances. This approach creates a sort of “image” of the sample, offering several key advantages:

- **Larger Measured Volume:** This increases accuracy and improves prediction performance.
- **Multiple Measurement Points:** These enable a higher sensitivity range for predicting active ingredient concentration within the tablet.
- **Physical Parameter Prediction:** The system can predict physical properties such as hardness and density.
- **Homogeneity Evaluation:** Similar to hyperspectral imaging, SAM-Spec can assess the uniformity of the sample.



These solutions allow for non-contact measurements. However, working with powders in specific environments such as in a feedframe or using the FFSIM from Expo Process Analytics, might require contact measurements. Our immersion probe with a sapphire window is suitable for such applications.

The probes are available in two different lengths to offer either compactness or the ability to pass through various walls to measure samples directly. When connected to our analyzers, the measurement points can be captured simultaneously. If paired with other spectrometers, a multiplexer will be required for operation.



SPECIFICATIONS	VALUE
Fiber type	Low-OH NIR optical fiber
Wavelength range	400 - 2200 nm
Fiber length	2 m typical (up to 50 m as an option)
Material	Stainless steel 316L
Number of measurement channels	13
Connection type	SMA 905
Sensor diameter (mm)	8.5
Sensor length (mm)	130 or 25
Sensor reference	SPC13-130OH or SPC13-025OH

REFERENCE TOOL FOR REPRODUCIBLE GMP USE

As required by good manufacturing practice, it is necessary to measure the light intensity reference at the output of the probe with the best reproducibility.

This enables you to calculate absorbance values but also to control the probe along its life and detect possible critical problems.

The measurement needs to be as repeatable as possible. For this reason, Indatech has designed a specific tool containing a NIST certified 99% reflectance standard.

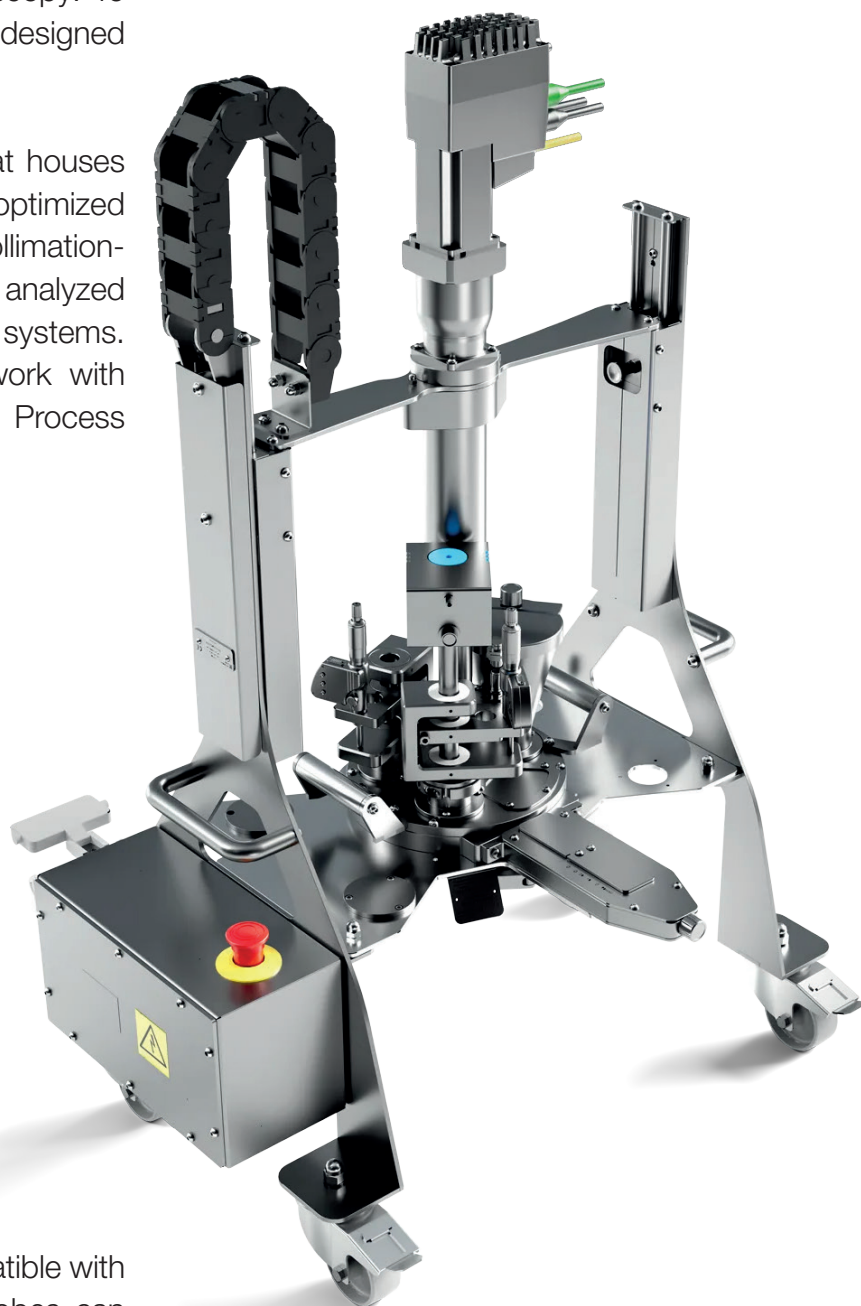
It fits perfectly with the probes in order to guarantee reproducible white reference measurements by ensuring a fixed position and distance from the Spectralon surface. This tool can be closed with a tap to protect the reference from environmental factors such as dust or humidity during storage.



RAMAN MEASUREMENT SOLUTIONS FOR SOLIDS AND POWDERS

Raman spectroscopy offers unique advantages by providing more specific and, in some cases, more precise identification of certain chemical parameters compared to NIR spectroscopy. To address this, we offer a Raman solution designed for solid and powder measurements.

Our system features a probe body that houses high-quality filters and a dedicated tip optimized for solids or powders. It uses a collimation-based approach to achieve a larger analyzed volume compared to traditional Raman systems. Our probes are perfectly suited to work with feedframe simulators such as Expo Process Analytics FFSIM.



Two probe options are available, compatible with **785 nm** or **830 nm** lasers. These probes can measure on a spectral range starting at **100 cm⁻¹**, providing additional information such as powder crystallinity in addition to chemical concentration.

CUSTOMISATION, QUALITY, REGULATION

SECTION 5



ENSURING QUALITY AND QUALIFICATION OF UV, VIS, NIR AND RAMAN PROBES

From development to production, Indatech probes provide the analytical solutions required to implement PAT strategies and to comply with ICH guidelines (Q8 Pharmaceutical Development, Q9 Quality Risk Management, Q10 Pharmaceutical Quality System). Whether for upstream monitoring, downstream purification, or solid dosage forms analysis, our technologies are designed to support Quality by Design approaches and to enable real-time process control.

We have the capability to customize any of our systems to meet the specific needs of our clients. This is often essential in GMP environments, particularly when clients have highly specialized or proprietary processes that may be patented.

Our team of optical and mechanical engineers is experienced in working directly with client-provided URS (User Requirement Specifications). Whether it's adapting existing systems or designing entirely new solutions, we ensure that the final product meets both technical and regulatory requirements.

By collaborating closely with our customers and industrial partners, we deliver tailored solutions that integrate seamlessly into their processes, providing the precision, reliability, and flexibility required for their unique applications.





OVERVIEW OF OUR ANALYSERS

COMPREHENSIVE RANGE OF ANALYZERS AND SOFTWARE

Indatech also provides analyzers and software for UV-Vis, NIR, and Raman measurements. Our advanced solutions are designed to meet the needs of various industries, offering precision and reliability across a wide range of applications.

For detailed information about these technologies, we invite you to consult our dedicated catalog, where you'll find more insights into our products and their capabilities. Don't hesitate to reach out for any inquiries or additional support!

REFERENCE TOOL FOR IQ OQ AND PQ

We also provide tools to support for IQ/OQ (Installation Qualification/Operational Qualification) for your instrument. Additionally, we propose kits to verify the qualification of your instrument according to pharmacopoeia standards, whether for UV-Visible, NIR or Raman spectroscopy. These kits include tools and NIST certified sample sets, provided in partnership with trusted suppliers, to ensure compliance and accuracy.



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