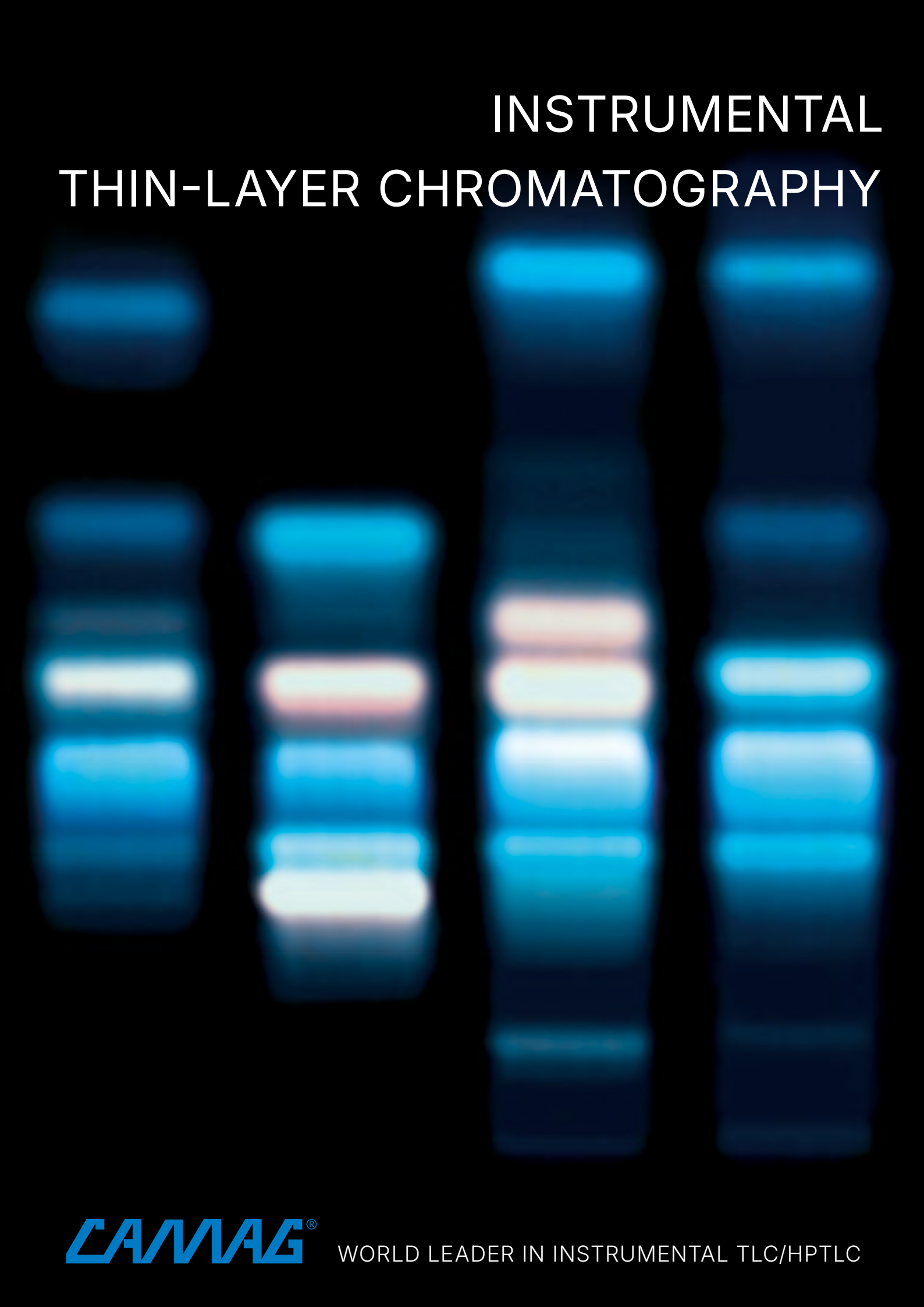
INSTRUMENTAL THIN-LAYER CHROMATOGRAPHY



CAMAG®

WORLD LEADER IN INSTRUMENTAL TLC/HPTLC

CAMAG – WORLD LEADER IN INSTRUMENTAL TLC/HPTLC

For more than 65 years, CAMAG has been shaping the future of thin-layer chromatography. Founded in 1958 and rooted in Switzerland, we are recognized worldwide as the leading manufacturer of instruments and software for Thin-Layer Chromatography (TLC) and High-Performance Thin-Layer Chromatography (HPTLC). What sets us apart is more than high-end technology – it is trust.

Every day, laboratories in over 100 countries across the globe rely on CAMAG products to ensure quality, safety, and compliance in pharmaceutical, botanical, food, forensic, and environmental, and other industries. Driven by science and inspired by our customers, we do more than build instruments – we build confidence.

With CAMAG TLC/HPTLC products, you get Swiss-made precision and a partner who supports you every step of the way. All CAMAG instruments are developed, manufactured, and tested in Switzerland. Developed in close collaboration with leading universities and research institutions, CAMAG solutions embody Swiss innovation at its best.

Manufacturing takes place in Muttenz using high-quality components sourced from trusted suppliers, ensuring exceptional build quality and durability. ISO 9001:2015 certified processes guarantee reproducibility, consistent results, and dependable performance throughout the entire product lifecycle.

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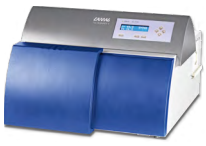

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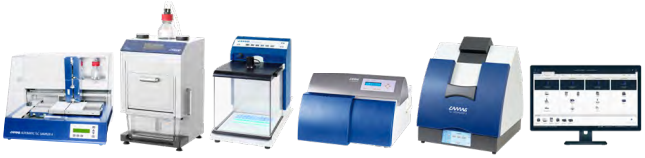

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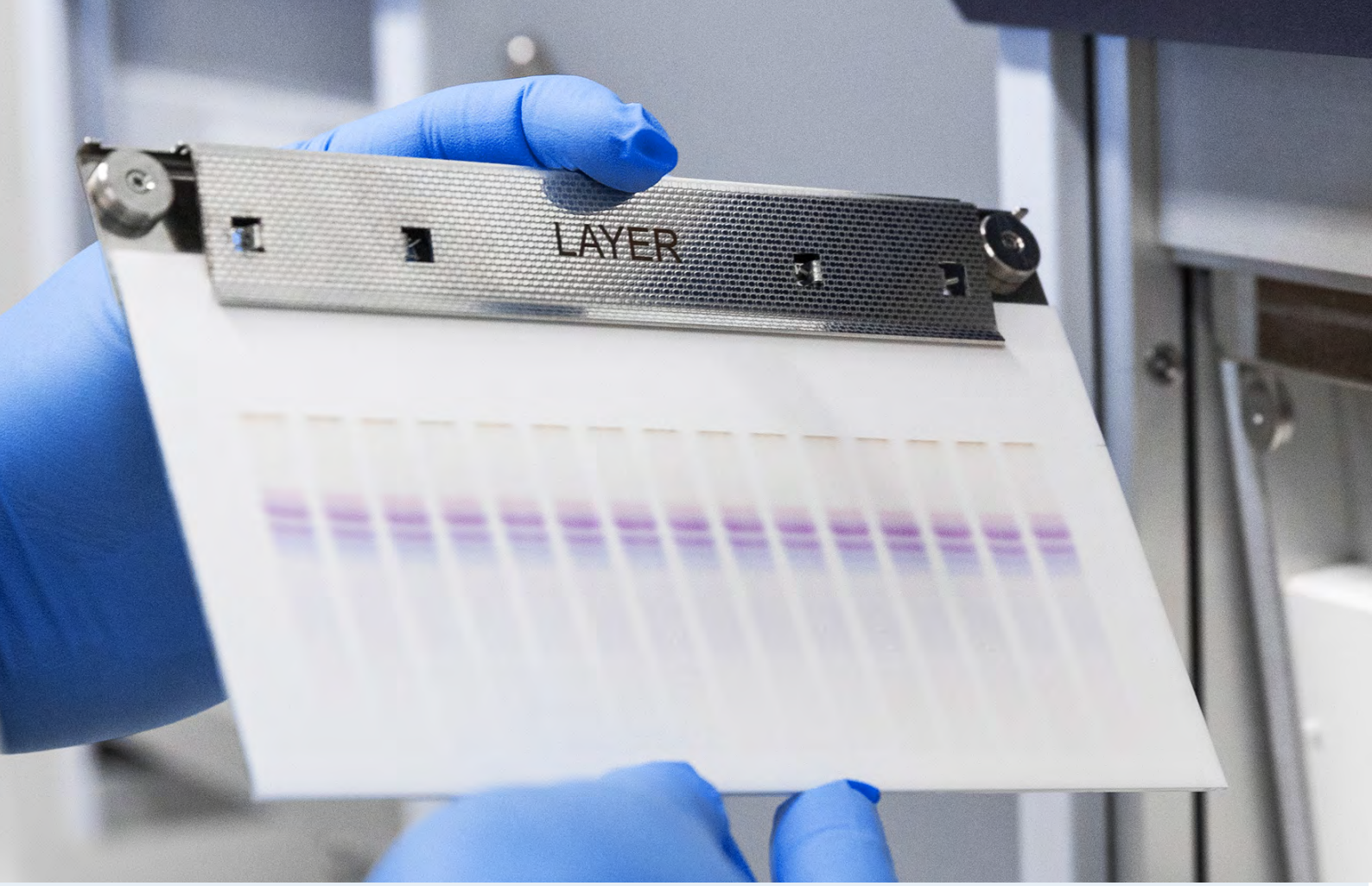


HIGH-PERFORMANCE THIN-LAYER CHROMATOGRAPHY

High-Performance Thin-Layer Chromatography (HPTLC) represents the modern evolution of conventional TLC. Relying on highly efficient layers and advanced instrumentation ensures precise sample application, standardized development, and reliable, software-controlled evaluation.

Conventional TLC still serves as a practical, low-cost option for simple separations in many laboratories. HPTLC differs from column-based techniques through its flat stationary phase and open system. Each step is handled independently, which offers strong flexibility and allows many samples to be processed in parallel, making the technique rapid and cost-effective.

HPTLC provides several key advantages: direct visualization under visible or UV light, wide compatibility with pre- and post-derivatization reagents, and a full overview of results since all fractions remain on the plate. Sample preparation is often simple because the stationary phase is single use.

Standardized HPTLC methods can be validated for qualitative and quantitative analysis. For cGMP/GLP regulated environments, Installation Qualification (IQ) and Operation Qualification (OQ) support compliance, and CAMAG software ensures secure operation and data handling.

APPLICATION FIELDS

PHARMACEUTICALS

- Identity and purity checks
- Stability and content uniformity testing
- Assay of active ingredients

In the pharmaceutical industry, ensuring the quality, safety, and efficacy of drug products is of utmost importance. HPTLC offers a reliable and efficient method for analyzing complex mixtures. From quality control to impurity profiling, HPTLC ensures that pharmaceutical products are safe, effective, and compliant with regulatory standards. Its versatility and cost-effectiveness make it an ideal choice for pharmaceutical applications in both research and production environments.

HERBAL DRUGS

- Authentication of plant materials
- Fingerprinting of complex extracts
- Detection of adulteration

HPTLC stands out as the preferred method for analyzing herbal drugs due to its precision and reliability. Moreover, CAMAG offers analytical systems specifically designed to cater to the intricate needs of both qualitative and quantitative herbal drug analysis by HPTLC. Furthermore, its ability to detect adulteration and provide comprehensive chemical fingerprints ensures the authenticity, purity, and efficacy of herbal drugs. Thus, herbal drug analysis by HPTLC enables manufacturers to uphold high quality standards, thereby ensuring safe and effective herbal products for consumers globally.

FOOD

- Analysis of additives, preservatives, pesticides
- Quality and authenticity testing
- Stability and shelf-life control

HPTLC's ability to analyze these diverse food ingredients efficiently is vital for ensuring food safety and excluding contaminants. HPTLC excels in managing the complexity and diversity of food matrices and plays a crucial role in quality control, screening for contaminants, and testing for additives in the food industry. HPTLC offers a reliable and cost-effective approach for quality control, authenticity verification, and detecting contaminants. It helps manufacturers ensure their products meet safety and quality standards, protecting both brand reputation and consumer health.

COSMETICS

- Verification of raw materials
- Detection of banned substances
- Control of dyes and preservatives

HPTLC is a preferred method for analyzing substances in complex matrices, like those found in formulated cosmetic products. HPTLC for cosmetics analysis is widely used in laboratories around the world for routine quality control, particularly for confirming or rejecting the identity of raw materials in cosmetics. From analyzing natural ingredients to detecting harmful contaminants, HPTLC ensures that cosmetic products meet regulatory standards and consumer expectations. Its versatility ensures that cosmetic products are safe, effective, and compliant with industry standards, helping manufacturers maintain quality and build consumer trust.

FORENSICS

- Drug and poison screening
- Document forgery detection
- Analysis of dyes and inks

In forensic science, precision and reliability are paramount. HPTLC plays a crucial role in forensic investigations, providing a fast, accurate, and reproducible method for analyzing complex samples. The applications in forensic analysis using HPTLC extend from screening for illicit drugs to dyestuff analysis and the identification of toxic substances. HPTLC's ability to visualize multiple samples in parallel significantly enhances sample throughput, making it an invaluable asset in forensic laboratories. Additionally, HPTLC is an ideal tool for the comprehensive analysis of cannabinoids in hemp products, offering fast and cost-effective solutions for quality control, potency testing, and the detection of contaminants.

ENVIRONMENTAL

- Residue analysis in soil and water
- Process monitoring
- Wastewater control

HPTLC is an essential tool in environmental analysis, offering precise and efficient detection of pollutants in air, water, soil, and biological samples. It enables the identification of harmful substances such as pesticides, industrial chemicals, heavy metals, and Persistent Organic Pollutants (POPs), ensuring compliance with environmental regulations. In addition to pollutant detection, HPTLC is widely used for wastewater analysis, microplastic detection, and biomonitoring, where it assesses the accumulation of toxins in organisms. Its high sensitivity allows the detection of even trace contaminants, making it particularly suited for largescale environmental studies.

BIOTECHNOLOGY

- Cleaning Validation
- In-Process Control
- Quality Control of Finished Products

HPTLC is an advanced chromatographic technique that enables the separation, visualization, and quantification of a wide range of biomolecules. It offers greater sensitivity, reproducibility, and efficiency compared to traditional TLC, making it particularly useful in HPTLC applications in biotechnological analysis and research. HPTLC is an invaluable tool in biotechnology, particularly for analyzing substances in complex matrices such as those encountered during fermentation and cell culture cultivation. Its robustness and tolerance to diverse matrices make it ideal for a range of analytical tasks in the biotech industry, including process control, quality control, and cleaning validation.

CHEMICAL

- Cleaning Validation
- Raw Material Testing
- Reaction Monitoring

In the chemical industry, precise and reliable analysis of complex mixtures is essential for research, development, and quality control. HPTLC is a powerful and versatile analytical technique that offers efficient, cost-effective solutions for the separation, identification, and quantification of chemical compounds. HPTLC ensures the accurate monitoring of chemical processes, supporting product quality, safety, and regulatory compliance. Its ability to handle complex mixtures makes it indispensable for various chemical applications, including raw material testing, reaction monitoring, and impurity profiling.

OTHER APPLICATIONS

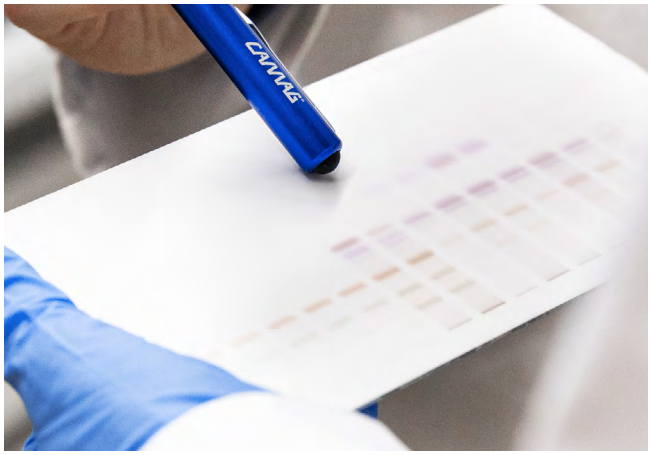
- Lipidomics
- Metabolomics
- Medical research

HPTLC is a versatile and cost-effective analytical technique used for research and routine quality control, capable of analyzing diverse analytes directly from complex matrices. Beyond traditional applications, HPTLC is valuable in lipidomics, metabolomics, and medical research due to its flexibility. CAMAG's HPTLC systems enable precise qualitative and quantitative analysis of non-volatile analytes from various sample types. HPTLC allows for rapid comparison of multiple samples, checking for adulteration, monitoring purity and stability, and identifying and quantifying active ingredients.

BENEFITS

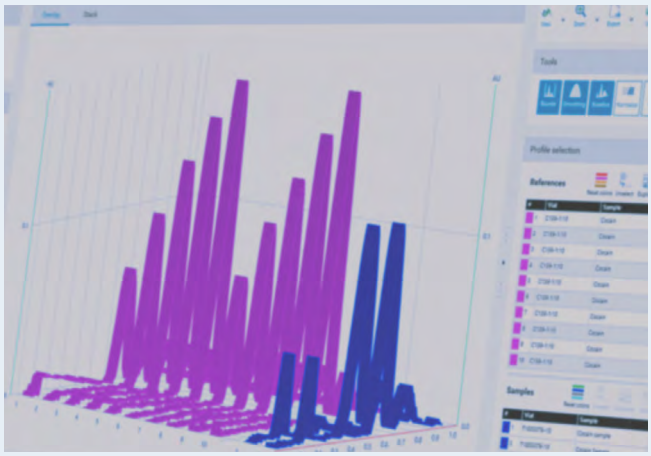
VISUAL EVALUATION AND FLEXIBLE USE

The visual aspect of HPTLC enables the evaluation and subsequent processing of individual substances separated on the plate. It is the preferred method for analyzing substances in complex matrices, such as plant materials, lipid samples, or samples with high sugar content. The HPTLC fingerprint visually confirms or rejects sample identity. This highly flexible analytical technique allows for the adaptation of methods to meet specific needs at each stage of the process.



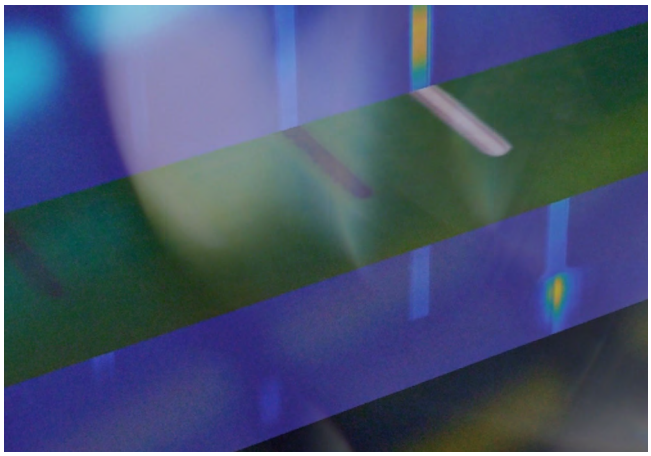
REPRODUCIBLE ANALYSIS AND RELIABLE QUANTIFICATION

Quantitative analysis of analytes can be accomplished by using densitogram data generated by scanning the references and the unknown samples on the plate. The image profiles from an HPTLC fingerprint offer semi-quantitative insights into a sample by evaluating the intensity of the bands. Modern HPTLC is an advanced analytical technique that incorporates sophisticated instrumentation, standardized protocols, and validated methods. This enables users to consistently obtain reproducible results within a cGMP/GLP-compliant environment.



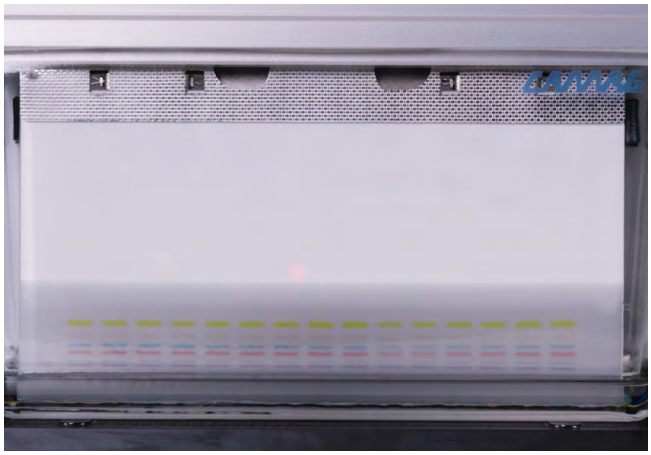
MULTIPLE DETECTION OF SEPARATED ANALYTES

Another advantage of HPTLC is the ability to apply multiple detection methods on the same sample and plate, including UV, VIS, fluorescence, derivatization, or effect-directed analysis. Unlike other chromatographic techniques, the separated analytes remain on the plate after separation.



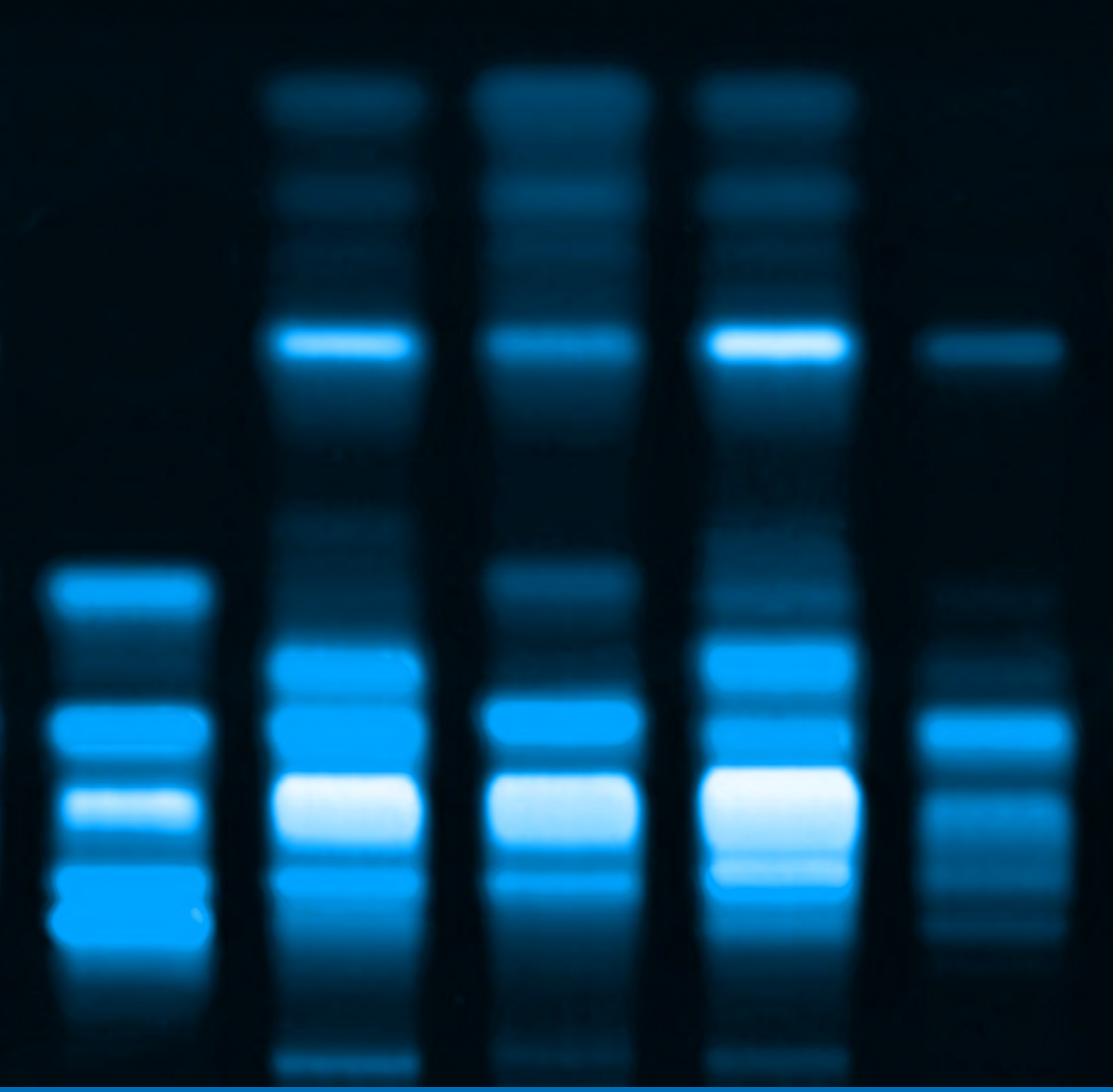
PARALLEL ANALYSIS OF MULTIPLE SAMPLES, NO CROSS-CONTAMINATION

HPTLC enables parallel analysis with minimal sample preparation, allowing at least 15 samples to be developed and analyzed simultaneously under identical conditions. It offers high efficiency through short run times, low solvent use per sample, and eliminates cross-contamination by using single-use plates.

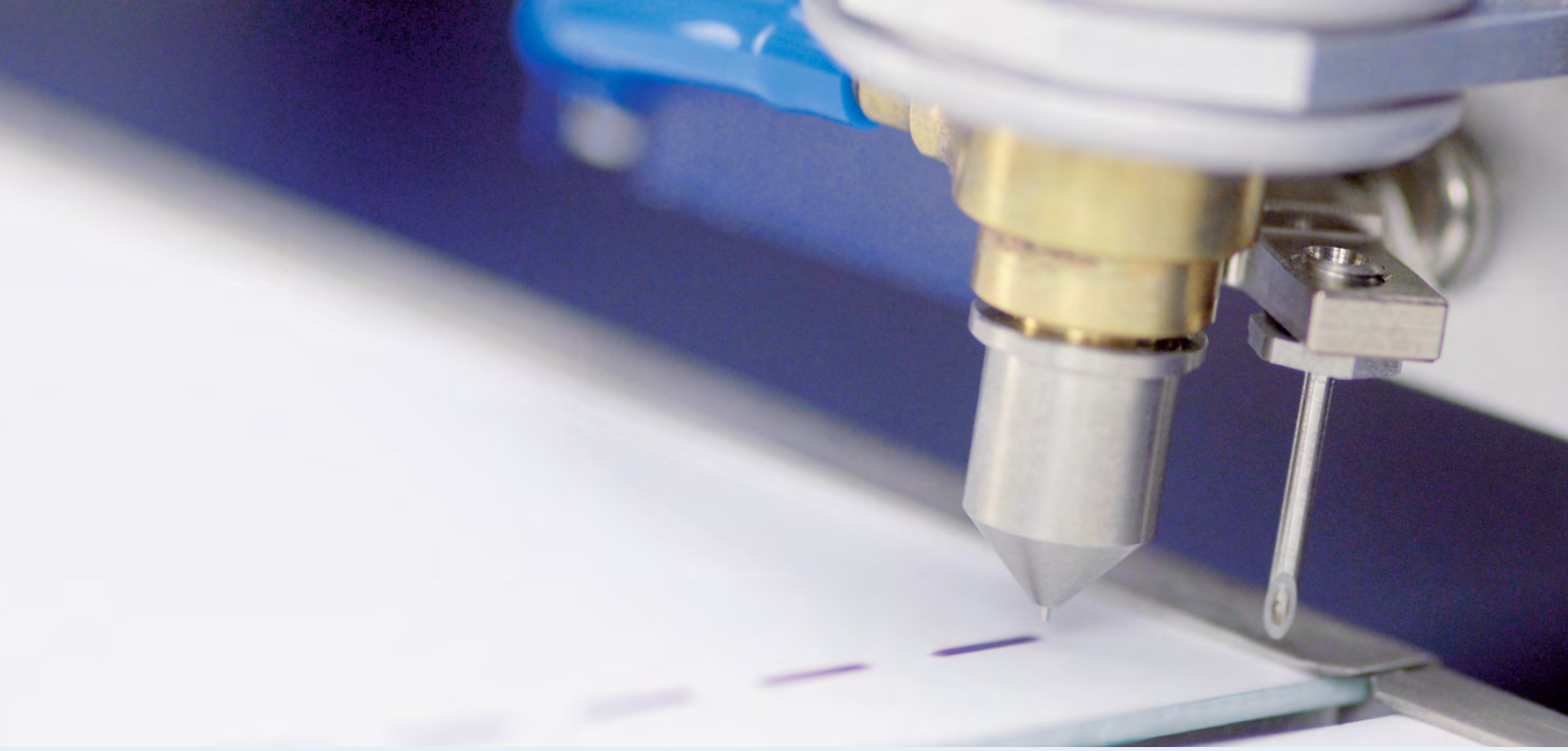


MASS SPECTROMETRY COUPLING

HPTLC-MS coupling allows for verification of the chemical structure of analytes by Mass Spectrometry. Analytes can be directly eluted from the plate and the eluate can be injected into an MS or collected for further offline analysis.



APPLICATION



THE BASIS FOR REPRODUCIBLE ANALYTICAL RESULTS

Application of samples, reference standards and/or reference materials is the first step in the workflow of TLC/HPTLC and it affects significantly the quality of the result at the end of the process.

The choice of the application technique and the device depend on the requirements of precision, sample volumes, number of analyses and the desired grade of automation.

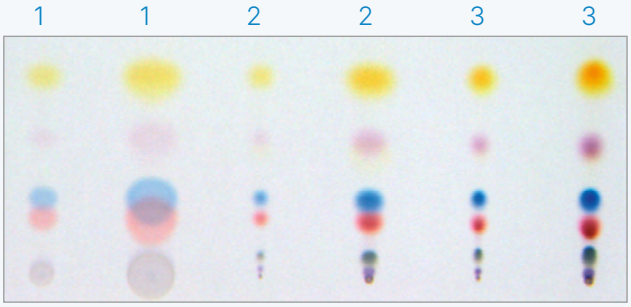
Spotwise sample application using a fixed volume capillary is the simplest way. Sample volumes of 0.5 to 5 µL can be applied as spots onto conventional layers without intermediate drying, on HPTLC layers it is up to 1 µL per spot.

Bandwise application by spray-on techniques allows the application of significantly larger volumes. Starting zones in the form of narrow bands ensure the best resolution that can be achieved with the chromatographic system selected.

Effect of the solvent and the technique of sample application on the chromatogram

Mobile phase: toluene; detection: white light

Test dye mixture (0.5 and 5 µL) dissolved in
1: methanol 2: toluene 3: hexane



Developed plate after contact application of spots

Developed plate after spray-on application of bands

AUTOMATIC TLC SAMPLER 4 (ATS 4)

THE KEY TO QUALITY AND REPRODUCIBILITY

The CAMAG ATS 4 offers fully automatic sample application for qualitative and quantitative analyses as well as for preparative separations. It is suited for routine use and high sample throughput.

Samples are either applied as spots through contact transfer (0.1–5 µL) or as bands or rectangles (0.5 to > 50 µL) using the spray-on technique. Starting zones in the form of narrow bands offer the best separation attainable with a given chromatographic system. Application in the form of rectangles allows precise application of large volumes without damaging the layer. Prior to chromatography, these rectangles are focused into narrow bands with a solvent of high elution strength.

The ATS 4 allows "overspotting", i.e. a sequential application from different vials onto the same position. This technique can be used e.g. in pre-chromatographic derivatization, spiking, etc.

The optional Heated Spray Nozzle for the ATS 4 enables heating at 60 °C, cutting the time required for the application of aqueous solutions about in half. This is useful e.g. for trace analysis where comparatively large sample volumes have to be applied in order to reach a low detection limit.

KEY FEATURES

- Fully automatic sample application, suitable for routine use
- Application of spots, bands, or rectangles
- Spray-on application of sample volumes between 0.5 and 50 µL
- Any plate format up to 20 × 20 cm
- Software-controlled by *visionCATS*
- Heated Spray Nozzle (option)

Ordering Information

022.7400 **CAMAG® Automatic TLC Sampler 4 (ATS 4)** incl. accessories (*visionCATS* software required)

022.7410 **CAMAG® Automatic TLC Sampler 4 (ATS 4)** incl. heated spray nozzle (*visionCATS* software required)

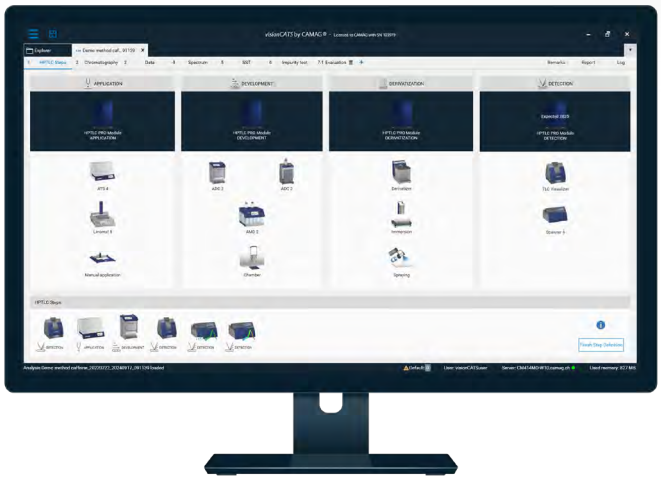
Note

The ATS 4 with *visionCATS* meets all the requirements of cGMP/GLP and can be IQ/OQ qualified. If the instrument shall be used in a 21 CFR Part 11 environment, the *visionCATS* option "21 CFR Part 11" is required.

Detailed ordering information: www.camag.com/ats4

OPERATION WITH *visionCATS* HPTLC SOFTWARE

Precise sample application is a crucial factor for the quality of the HPTLC analysis and the results obtained. When using visionCATS HPTLC software with its easy to navigate user interface to control the ATS 4, a fully automated sample application for routine use and high sample throughput is supported.



The dialog box for instrument parameters offers user-friendly default combinations. For instance, the user can select the solvent type most similar to the solvent actually used. The software will then automatically adapt the instrument defaults to optimize its application regarding viscosity, volatility and surface tension. Another example of a pre-selected combination is the filling/rinsing quality which determines how often the syringe is rinsed, the filling process repeated, etc. All these pre-selections can be individually adjusted to a specific task.

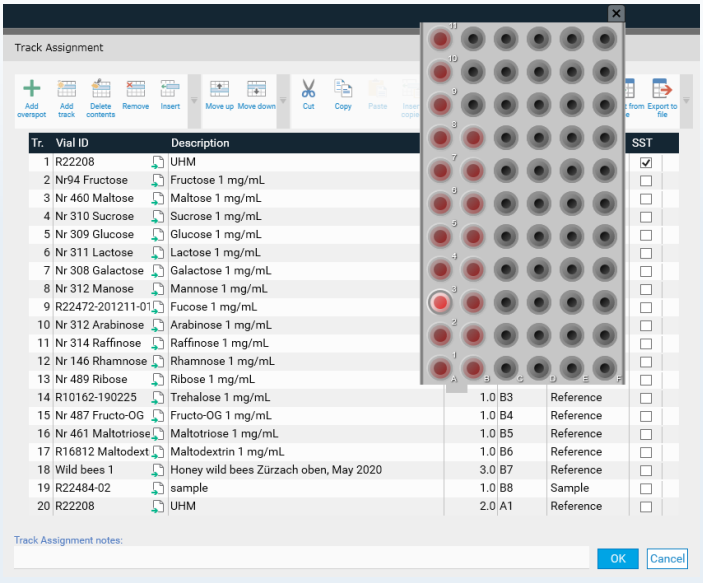
The dialog for entering the sequence of samples is clearly arranged and easy to use. Tracks can be automatically arranged evenly spaced across the plate, sample designations can be inserted from a prepared list, etc. The program progress is displayed on screen as long as the instrument remains connected to the computer.

APPLICATION SETTINGS

The dialog box for ATS 4 application settings offers user-friendly default combinations. All pre-defined parameters can be individually adjusted.

SEQUENCE TABLE

Easy sequence setup with *visionCATS*: the sequence table holds all information required to fully automated run a series of samples, e.g. vial position in the rack, application volume, sample name, etc.



LINOMAT 5

PRECISION AND REPRODUCIBILITY

With the CAMAG LINOMAT 5 samples are sprayed onto TLC/HPTLC plates in the form of bands with nitrogen or compressed air. Sample application is automatic, only changing the syringe (filling, inserting and rinsing) is manual. Samples are applied in narrow bands under controlled pressure, ensuring reproducibility and improved resolution during development. The Linomat is suitable for small sample throughput.

The LINOMAT 5 is controlled by *visionCATS*, the new generation of HPTLC software. Instrument handling is now easier and more convenient. Simply select a plate format, fill in the sequence table and start working.

For those who use the LINOMAT 5 infrequently, a stand-alone mode is available. Up to ten methods can be entered either manually via the keypad or downloaded to the instrument from a computer running a licensed *visionCATS* program. In stand-alone mode the keypad is used to enter sample application parameters or to select a saved method.

KEY FEATURES

- Semi-automatic application
- Application of spots or bands
- Spray-on application
- Any plate format up to 20 × 20 cm
- Software-controlled by *visionCATS*
- Compliance with cGMP/GLP and 21 CFR Part 11

Ordering Information

022.7808	**CAMAG® LINOMAT 5**, including one dosing syringe 100 µL (without *visionCATS* Software)
695.0014	Dosing Syringe 100 µL for LINOMAT 5
695.0015	Dosing Syringe 500 µL for LINOMAT 5

Note

The LINOMAT 5 with *visionCATS* meets all the requirements of cGMP/GLP and can be IQ/OQ qualified. If the instrument shall be used in a 21 CFR Part 11 environment, the *visionCATS* option "21 CFR Part 11" is required.

Detailed ordering information: www.camag.com/linomat5

NANOMAT 4

The CAMAG NANOMAT 4 serves for easy application of samples in the form of spots onto TLC and HPTLC layers, precisely positioned and without damage to the layer. The actual sample dosage is performed with a disposable capillary pipette, which is precisely guided, thus ensuring that the chromatogram can be scanned automatically according to a programmed pattern.

The NANOMAT 4 is suitable for TLC and HPTLC plates and sheets up to 20 × 20 cm.

CAPILLARY PIPETTES

The capillary pipettes are loaded into the dispenser in magazines. Capillaries of 0.5, 1.0, 2.0, and 5.0 µL volume are available. Each capillary size requires an appropriate dispenser magazine. With the Universal Capillary Holder capillary pipettes are taken from the dispenser, then filled with sample solution and placed against the applicator head of the Nanomat 4.

smartCUT

The CAMAG smartCUT is designed for the convenient and accurate cutting of TLC and HPTLC glass plates into defined pieces of any format.

- Cuts glass plates with a thickness up to 3 mm
- Makes smooth cuts on sensitive layers
- Desired size can be read directly from a scale
- Easy handling

Ordering Information

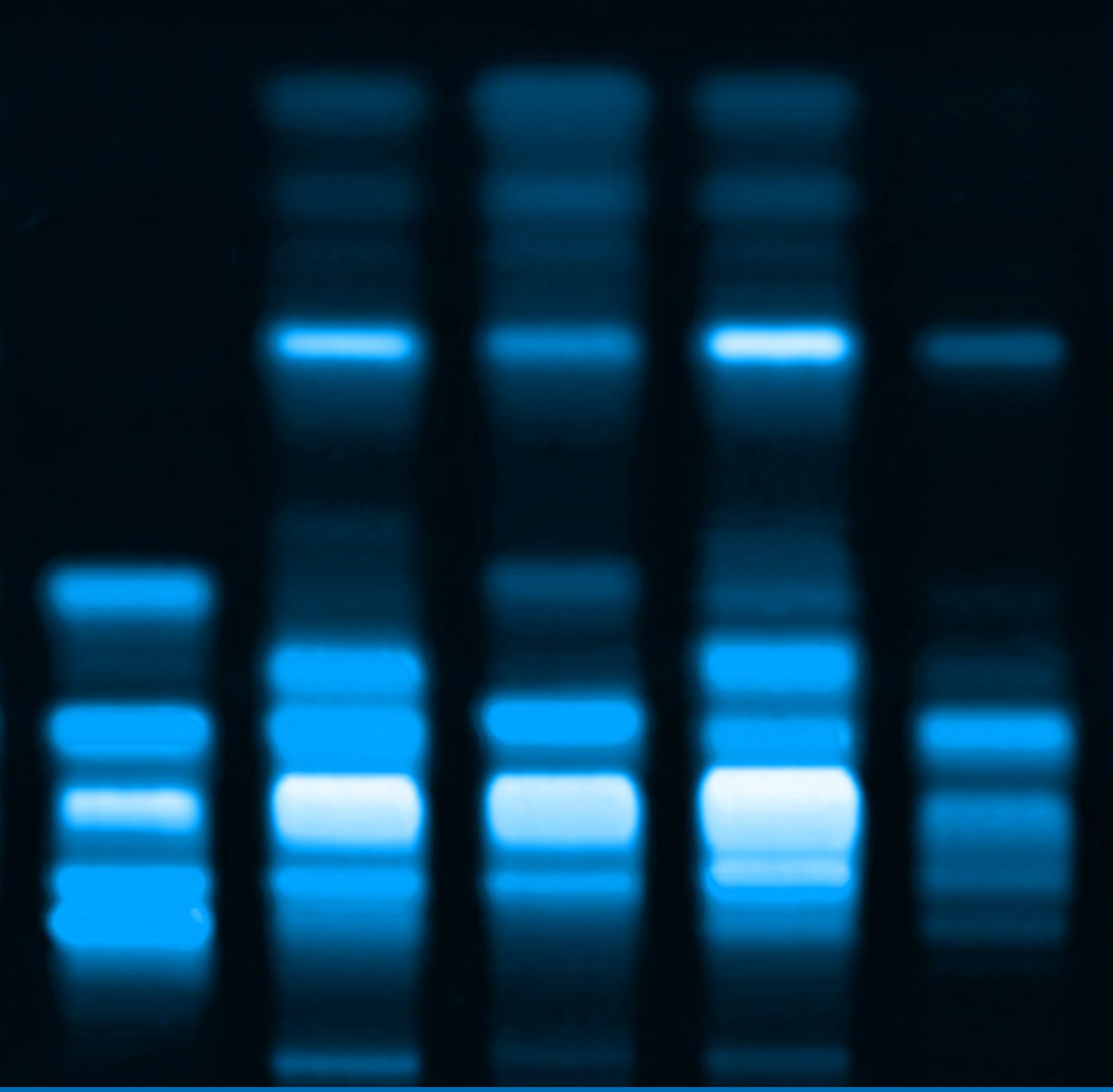
022.4300	**CAMAG® smartCUT** plate cutter (for TLC/HPTLC glass plates up to 20 x 20 cm)

Ordering Information

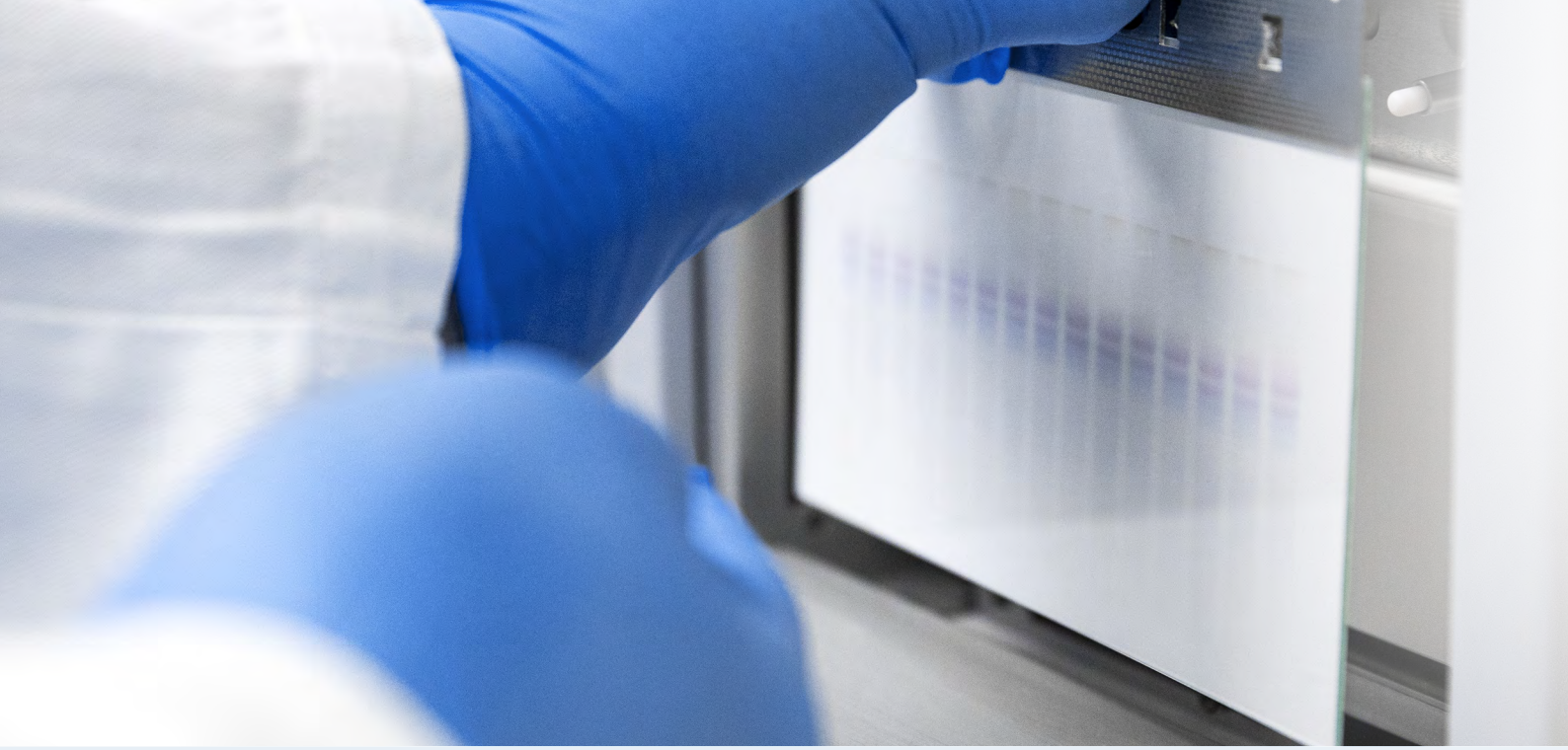
040.1500	**CAMAG® NANOMAT 4** Complete-Kit, consisting of:
022.4730	CAMAG® Nanomat 4
022.7655	Capillary Dispenser
022.7786	Universal Capillary Holder
022.7661	Dispenser Magazine for 1 µL Capillary Pipettes
022.7771	Disposable Capillary Pipettes 1 µL, pack of 5 x 100

022.7660	Dispenser Magazine for 0.5 µL capillaries, without capillaries
022.7661	Dispenser Magazine for 1 µl capillaries, without capillaries
022.7662	Dispenser Magazine for 2 µL capillaries, without capillaries
022.7665	Dispenser Magazine for 5 µL capillaries, without capillaries

022.7770	Capillary Pipettes 0.5 µL, pack of 5 x 100
022.7771	Capillary Pipettes 1 µL, pack of 5 x 100
022.7772	Capillary Pipettes 2 µL, pack of 5 x 100
022.7775	Capillary Pipettes 5 µL, pack of 5 x 100



DEVELOPMENT



THE KEY TO HIGH-QUALITY RESULTS

Development is the key step in the HPTLC workflow. This is where analytes are separated according to their chemical properties. The precision of this step greatly impacts the quality of the final result.

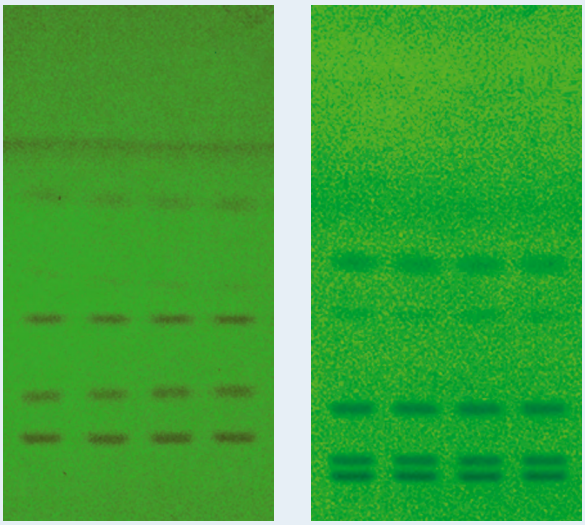
The choice of developing chamber and configuration (saturated, unsaturated, or preconditioned) directly affects reproducibility and resolution. Unlike other chromatographic systems, HPTLC introduces a gas phase that interacts with the mobile and stationary phases, influencing separation performance.

Automated chambers, such as the ADC 3, remove operator variability and enable standardized conditions. They control parameters like humidity, solvent migration distance, and drying, ensuring consistency – especially in regulated environments.

CAMAG also offers manual solutions such as the Twin Trough Chamber, which are ideal for method development and troubleshooting.

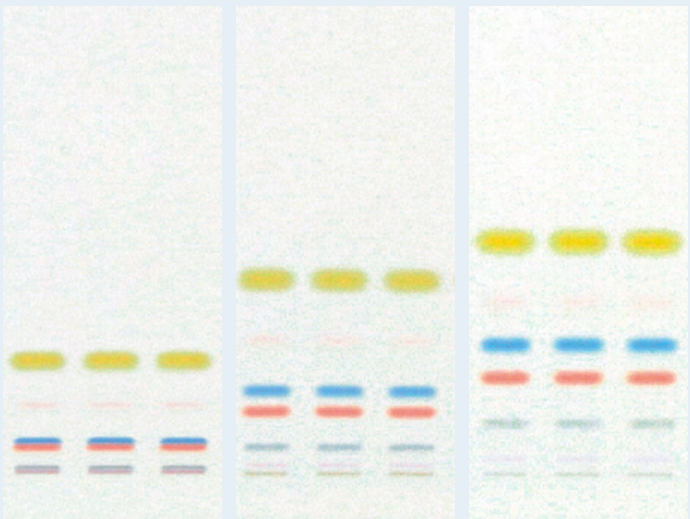
PRECONDITIONING EFFECT DURING DEVELOPENT

Without preconditioning | With preconditioning



HUMIDITY EFFECT

Influence of relative humidity (activity of the layer) with the same solvent migration distance



18% | 47% | 75%

AUTOMATIC DEVELOPING CHAMBER 3 (ADC 3)

THE STANDARD FOR REPRODUCIBLE DEVELOPMENT

The CAMAG ADC 3 sets a new benchmark for reproducible chromatogram development in HPTLC. All critical steps – chamber saturation, plate activation, pre-conditioning, development, and final drying – are fully automated and controlled through visionCATS software.

Designed for 20 × 10 cm plates, the system includes a built-in Twin Trough Chamber and integrated humidity control, allowing chromatography under defined atmospheric conditions. This ensures unmatched consistency between runs and across laboratories.

The ADC 3 is especially suited for regulated environments requiring strict compliance with cGMP/GLP and 21 CFR Part 11. Analysts benefit from greater productivity, as the fully automated process frees time during development runs.

KEY FEATURES

- Fully automated chromatogram development
- Integrated Twin Trough Chamber (20 × 10 cm)
- Built-in humidity control for enhanced reproducibility
- Software-controlled by *visionCATS*
- Compliance with cGMP/GLP and 21 CFR Part 11

Ordering Information

022.8600	**CAMAG® ADC 3** incl. Twin Trough Chamber 20 × 10 cm, For fully automatic development of TLC/HPTLC plates of 20 x 10 cm, including Twin Trough Chamber for ADC 3 (022.5262), for 20 x 10 cm plates, 100 – 240 V
022.5262	CAMAG® Twin Trough Chamber for ADC 3, for 20 x 10 cm plates
022.8376	Filter paper for chamber saturation ADC 3, pack of 100
022.8373	Foils clamping device complete for ADC 3/ADC 2 (from S/N 130601)

Note

The ADC 3 with *visionCATS* meets all the requirements of cGMP/GLP and can be IQ/OQ qualified. If the instrument shall be used in a 21 CFR Part 11 environment, the *visionCATS* option "21 CFR Part 11" is required.

Detailed ordering information: www.camag.com/adc3

DESIGNED FOR THE LABORATORY

The ADC 3 simplifies lab work with efficiency, reliability, and flexibility. Whether you're handling routine quality control or complex samples, it seamlessly adapts to your workflow. *visionCATS* HPTLC software allows you to define all parameters to meet your specific needs, offering complete control and full traceability.

CONSISTENT RESULTS ACROSS LABS

The ADC 3 minimizes variability arising from both operators and laboratory environments, ensuring repeatable results every time.

PRECISION THROUGH AUTOMATION

Fully automated plate handling and built-in system checks reduce user errors and improve reliability.

INCREASED PRODUCTIVITY

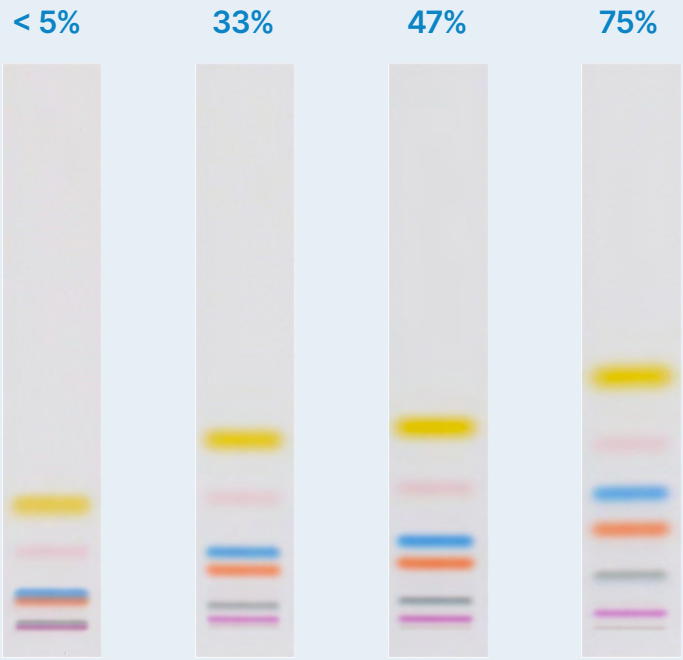
Automated plate development allows analysts to multitask during runs, improving overall workflow efficiency.

REGULATORY COMPLIANCE

visionCATS integration enables secure parameter control, traceability, and data recording, supporting compliance with cGMP/GLP and 21 CFR Part 11.

HUMIDITY CONTROL FOR CONSISTENT RESULTS

Chromatographic separation on HPTLC plates is affected by humidity, which can vary by season and location. The ADC 3 features a fully integrated humidity control, automatically regulating relative humidity around the plate. This enables both standardized and custom settings, ensuring reproducible results under changing environmental conditions.



Humidity effect on test dye separation

Developing solvent: toluene

FLAT BOTTOM CHAMBER

The CAMAG Flat Bottom Chamber permits the plate to be developed under conditions of partial or complete saturation of the tank atmosphere with solvent vapors. The degree of layer presaturation cannot be controlled unless additional accessories are used.

Ordering Information

CAMAG® Flat Bottom Chamber

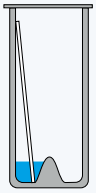
022.5259	for plates 20 x 20 cm, with stainless steel lid
022.5250	for plates 20 x 20 cm, with glass lid
022.5257	for plates 20 x 20 cm, without lid
022.5150	for plates 10 x 10 cm, with stainless steel lid
022.5151	for plates 10 x 10 cm, without lid
022.5244	Saturation pads (20 x 20 cm) for all chamber sizes, pack of 100. For manual use in all glass chambers.

TWIN TROUGH CHAMBER

The CAMAG Twin Trough Chambers offer several ways to specifically affect the TLC/HPTLC separation in order to improve it. Also it reduces the required volume of developing solvent compared to Flat Bottom Chambers.

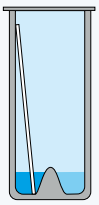
Low solvent consumption

20 mL of solvent are sufficient for a 20 x 20 cm chamber, 10 mL for the 20 x 10 cm chamber and 5 mL for a 10 x 10 cm chamber. This reduces not only solvent consumption but also disposal problems.



Reproducible preconditioning of the layer with solvent vapor

Developing solvent is placed in the trough opposite to the plate. Preconditioning can be performed with any solvent and for any duration. Development is started when developing solvent is placed into the trough with the plate.



Ordering Information

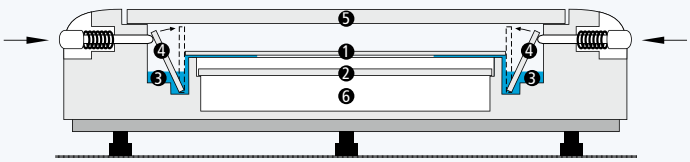
CAMAG® Twin Trough Chamber

022.5254	for 20 x 10 cm plates, with stainless steel lid
022.5255	for 20 x 20 cm plates, with glass lid
022.5256	for 20 x 20 cm plates, with stainless steel lid
022.5258	for 20 x 20 cm plates, without lid
022.5155	for 10 x 10 cm plates, with stainless steel lid
022.5156	for 10 x 10 cm plates, without lid
022.5244	Saturation pads (20 x 20 cm) for all chamber sizes, pack of 100. For manual use in all glass chambers.

HORIZONTAL DEVELOPING CHAMBER

In the CAMAG Horizontal Developing Chambers, the HPTLC plates is can be developed from both opposing sides towards the middle. This permits the number of samples to be doubled as compared with development in a tank, provided the separation distance of 45 mm, i.e. 50 mm minus 5 mm distance from the edge, is sufficient. This chamber type is often used for screening purposes.

Plates can be developed in sandwich as well as in unsaturated and saturated chamber configuration. The chamber is suitable for all kinds of solvents.



1	HPTLC plate (layer facing down)
2	Glass plate for sandwich configuration
3	Reservoir for developing solvent
4	Glass strip
5	Cover plate
6	Conditioning tray

Ordering Information

022.8535 **CAMAG® Horizontal Developing Chamber** for plates 20 x 10 cm

022.8530 **CAMAG® Horizontal Developing Chamber** for plates 10 x 10 cm

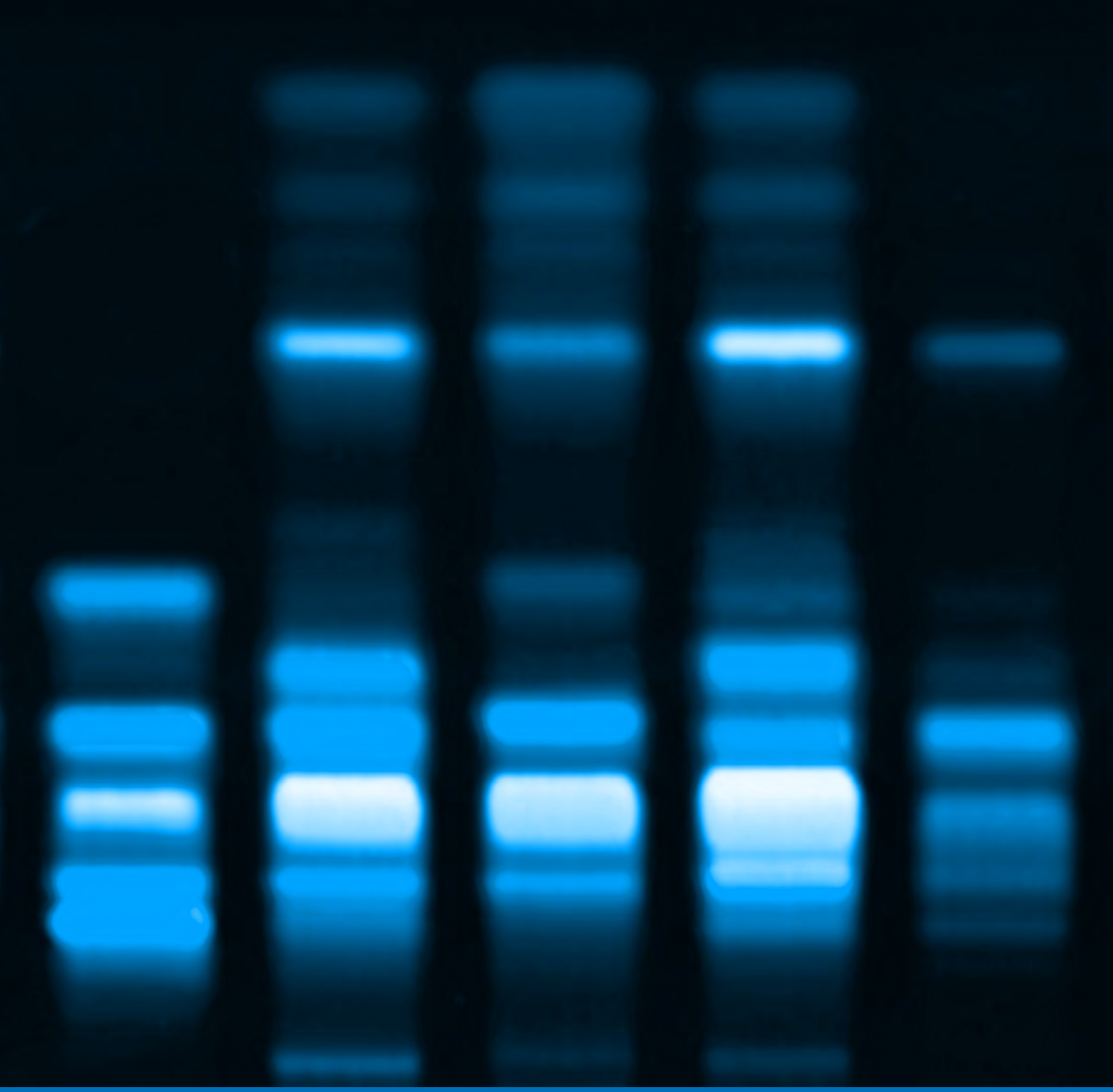
smartALERT SOLVENT FRONT MONITOR

The CAMAG smartALERT serves for dependable monitoring the development of a glass plate in a glass developing chamber.

- Gives acoustic and visual notice when the mobile phase has reached the desired developing distance
- Replaces a timer or stop watch
- Works with glass chambers for plate sizes 20 × 20, 20 × 10 and 10 × 10 cm
- Battery operated

Ordering Information

022.5300 **CAMAG® smartALERT** solvent front monitor



DERIVATIZATION

ENHANCED DETECTION AND SENSITIVITY

It is an inherent advantage of TLC/HPTLC that all fractions remain stored on the plate and can be readily derivatized after chromatography. Substances that do not respond to visible or UV light can be rendered detectable. In many cases, substances or classes of substances can be identified by specific reagents, enabling their selective detection.

Pre-chromatographic derivatization is possible by over-spraying the sample application zones with the Linomat 5 or the Automatic TLC Sampler 4.

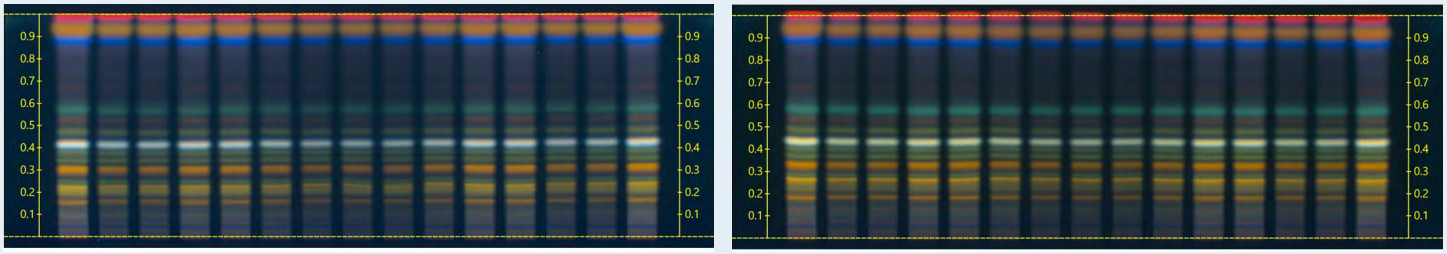
For the transfer of liquid reagents for post-chromatographic derivatization, one can choose between spraying or dipping. Dipping and automated spraying are the preferred techniques, particularly when a quantitative evaluation is intended.

Usually reagent transfer by spraying can not be circumvented when two reagent solutions have to be applied in sequence without intermediate drying, for instance diazotation followed by coupling.

Whenever reagents are transferred by spraying, an efficient reagent mist removing device should be used to protect laboratory personnel against poisonous or irritating sprays or solvent vapors.

In most cases the derivatization reaction needs to be completed by heat treatment. Heating the plate at the desired temperature with a plate heater specifically designed for this purpose is highly recommended. An oven used for this purpose will become permanently contaminated.

COMPARISON OF REAGENT TRANSFER BY AUTOMATED SPRAYING AND DIPPING



Derivatization of Ginkgo leaf extracts with Natural Product reagent and polyethylenglycol solution by spraying with 2 mL (left) and dipping in 200 mL (right)

DERIVATIZER

THE BENCHMARK FOR AUTOMATED DERIVATIZATION

The CAMAG DERIVATIZER sets the benchmark for automated reagent transfer in thin-layer chromatography with its patented "micro droplet" spraying technology, ensuring highly reproducible and precise results. This device combines ease of use with exceptional versatility, accommodating a wide range of reagents and handling diverse physicochemical properties – such as viscosity – through four color-coded nozzles.

With six distinct spraying modes, users can fine-tune the process to meet specific analytical requirements, optimizing efficiency and flexibility in chromatographic workflows. By delivering consistent, uniform derivatization, the Derivatizer enhances data quality and throughput, making it an essential instrument for laboratories focused on accuracy and performance.

KEY FEATURES

- Unsurpassed homogeneous reagent distribution
- Reproducible and user-independent results
- Low reagent consumption (2-4 mL)
- Intuitive handling and easy cleaning
- Hood for 20 × 10 cm and/or 20 × 20 cm plates
- Environmentally friendly and safe handling through a closed system

Color-coded spray nozzles

Ordering Information

022.6000	**CAMAG® DERIVATIZER** with hoods for 20 x 10 and 20 x 20 cm plates
022.6010	CAMAG® Derivatizer with hood for 20 x 10 cm plates
022.6020	CAMAG® Derivatizer with hood for 20 x 20 cm plates

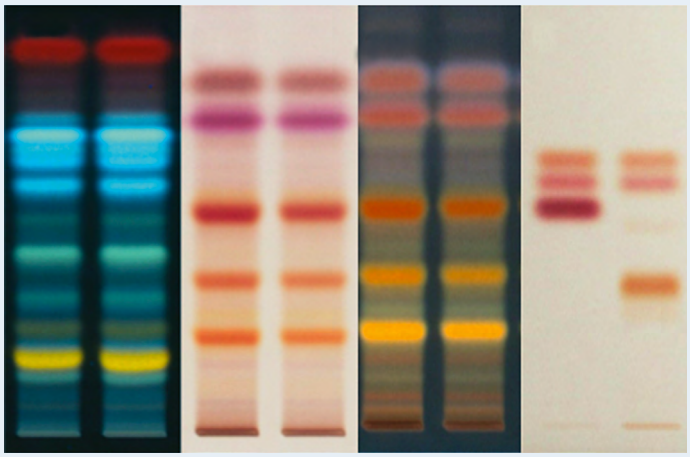
Detailed ordering information: www.camag.com/derivatizer

The nozzle generates an extremely fine reagent mist, which evenly distributes in the chamber and gradually condenses on the TLC/HPTLC plate.

Any residue remaining in the gas phase is automatically aspirated by the integrated pump and collected in the wash bottle behind the instrument.

RESULTS

Visual observation of results achieved with the Derivatizer reveals a very high homogeneity.



A B C D

Natural product reagent/Polyethylene glycol solution in UV 366 nm (**A**), Anisaldehyde reagent in white light (**B**) and in UV 366 nm (**C**), and Fast blue salt B reagent in white light (**D**)

The following most common reagents have been tested and validated for use with the Derivatizer:

- Sulfuric acid reagent (10 % in methanol)
- Anisaldehyde reagent
- Natural product reagent
- Polyethylene glycol solution
- Iodine solution (0.5 % in ethanol)
- Dragendorff reagent
- Fast blue salt B reagent
- Ehrlich's reagent
- Phosphomolybdic acid reagent
- Ninhydrin reagent
- Copper(II) sulfate reagent
- Aniline-diphenylamine-phosphoric acid reagent
- Vanillin reagent
- Potassium hydroxide solution (5 % in methanol)
- Various aqueous solutions (enzymatic solutions, *etc.*)

For alternative spraying reagents and reagents problematic to spray, please visit: www.camag.com/derivatizer

CHROMATOGRAM IMMERSION DEVICE 3

The CAMAG Chromatogram Immersion Device 3 ensures precise and reproducible derivatization by automating the controlled dipping of TLC and HPTLC plates. It features adjustable dipping speeds (25–45 mm/s) and customizable immersion times (1–8 seconds or continuous), ensuring uniform coverage without tide marks.

Compatible with 10 cm and 20 cm plate heights, this device is suitable for various applications. Battery-powered for portability, it enhances precision, efficiency, and reproducibility, making it an essential tool for chromatographic workflows.

Ordering Information

022.6606	**CAMAG® CHROMATOGRAM IMMERSION DEVICE 3**, for TLC and HPTLC plates up to 20 x 20 cm, without dip tank
022.6627	Dip tank for plates 20 × 20 cm with lid
022.6628	Dip tank for plates 20 × 10 cm with lid
022.6619	Bench top rack for three dip tanks

TLC SPRAYER

The CAMAG TLC Sprayer is an advanced electro-pneumatic device designed for precise and uniform application of derivatization reagents on TLC plates. It produces a fine aerosol that ensures even coverage and efficient reagent use.

Equipped with two interchangeable spray heads, it supports both low-viscosity and higher-viscosity reagents, offering flexibility for diverse applications.

The rechargeable, propellant-free design enhances ease of use while improving the accuracy and reproducibility of chromatographic analyses.

Ordering Information

022.6530	**CAMAG® TLC SPRAYER**, complete with spray head type A and B, reagent bottle 100 mL, reagent bottle 50 mL
022.6535	Pack of 5 spray heads type A and 1 type B
022.6538	Pack of 6 spray heads type B
022.6536	Reagent bottle 100 mL with cap, pack of 6
022.6537	022.6537 Reagent bottle 50 mL with cap, pack of 6
022.6539	Service kit for TLC Sprayer

GLASS REAGENT SPRAYER

This all glass reagent sprayer is a low-cost alternative to the TLC Sprayer. It comes with a rubber pump but may also be operated from a compressed air or nitrogen supply.

Ordering Information

022.6100 **CAMAG® Glass Reagent Sprayer**, with 100 mL Erlenmeyer flask

TLC PLATE HEATER 3

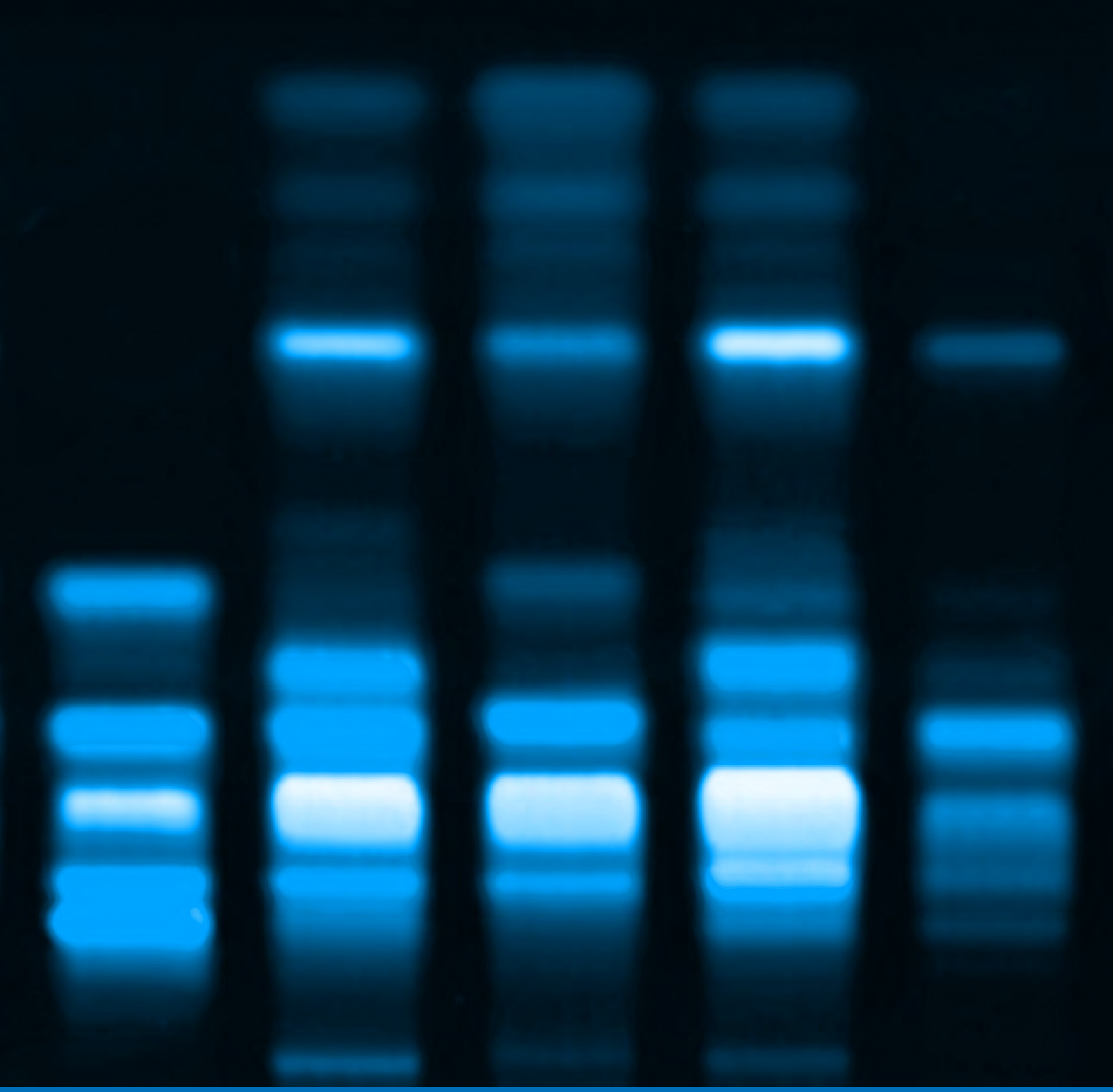
Designed for heating a plate to a selected temperature after a staining reagent has been applied.

The CAMAG PLATE HEATER 3 has a NEXTREMA® heating surface which is resistant to all common reagents and is easily cleaned. The 20 × 20 cm heating surface has a grid to facilitate correct positioning of the TLC/HPTLC plate.

Programmed and actual temperature are digitally displayed. The temperature is selectable between 25 and 200 °C. The plate heater is protected from overheating.

Ordering Information

022.3306 **CAMAG® TLC PLATE HEATER 3**, Stainless steel housing, flat ceramic top, for TLC/HPTLC plates up to 20 x 20 cm, digital temperature display, temperature range 25–200 °C.



DETECTION

UV LAMP 4

The CAMAG UV Lamp 4 is designed primarily for use in a TLC/HPTLC laboratory. Users benefit from a convenient one-button operation for each UV tube. In order to reduce the user's risk of UV radiation exposure, the UV Lamp 4 is equipped with two safety features: in addition to the built-in timer (which automatically switches off the lamp after 10 minutes) a tilt sensor automatically turns off the lamp in case the lamp is tilted more than 30 degrees. Beyond optimized handling and improved safety features, the UV Lamp 4 comes with a more homogeneous illumination and higher UV light intensity.

KEY FEATURES

- Two UV tubes for illumination (UV 254 nm and UV 366 nm, each 8 W)
- Convenient handling through one button operation for each UV tube
- Homogeneous illumination
- High level of user safety through tilt sensor and timer

Ordering Information

040.2000	**CAMAG® UV CABINET 4**, incl. CAMAG® UV LAMP 4 and CAMAG® Viewing Box 4
022.9160	**CAMAG® UV LAMP 4**, 254/366 nm, 2 x 8 W
022.9060	CAMAG® Viewing Box 4
352.0010	Light tube short-wave UV, 254 nm, 8 W
352.0011	Light tube long-wave UV, 366 nm, 8 W

UV CABINET 4

The CAMAG UV Cabinet 4, a combination of the UV Lamp 4 and the Viewing Box 4, is specially designed for UV observation with minimal influence of ambient light. Thanks to a compact footprint, the UV Cabinet 4 requires only minimum space. The observation port has a built-in UV filter in the viewing window ensuring effective eye protection. The interior is accessible via a roller shutter on the front.

KEY FEATURES

- Chromatogram inspection with minimal influence of ambient light
- Eye protection through UV filter in the viewing window
- Minimum space requirements through compact footprint

TWO TYPES OF UV LIGHT ARE REQUIRED FOR INSPECTING CHROMATOGRAMS:

Long-wave UV light 366 nm

Under long-wave UV light fluorescent substances appear as bright, often differently colored zones, on a dark background. The sensitivity increases with the intensity of the UV light and also with the efficiency visible light is eliminated.

Short-wave UV light 254 nm

Under 254 nm UV light substances absorbing light of that wavelength appear as dark zones on a bright background, when the TLC/HPTLC layer contains a fluorescent indicator excited by UV 254 nm.

TLC VISUALIZER 3

ULTIMATE CLARITY AND PRECISION IN HPTLC IMAGING

The visual display of the entire chromatogram, with references and samples side by side, is a unique advantage of High-Performance Thin-Layer Chromatography (HPTLC), enabling easy evaluation of multiple samples simultaneously.

The CAMAG TLC Visualizer 3 is a top-tier imaging and documentation system offering superior performance in white light, long-wave UV (366 nm), and short-wave UV (254 nm), providing uniform illumination. Equipped with a next-generation industrial camera and CMOS image sensor, it delivers premium-quality images.

Integrated with *visionCATS* HPTLC software, the TLC Visualizer 3 detects even faint zones with exceptional reproducibility, all while ensuring compliance with cGMP/GLP and 21 CFR Part 11 standards.

KEY FEATURES

- Powered by *visionCATS* HPTLC software
- Reproducible high-quality images acquired under homogenous illumination with the selected light
- High-dynamic-range imaging (HDRI)
- Side-by-side display of tracks from different plates
- Viewing window to check the plate safely under UV illumination
- Image-based profile generation, subsequent peak integration and calibration
- Compliance with cGMP/GLP and 21 CFR Part 11

ILLUMINATION MODES

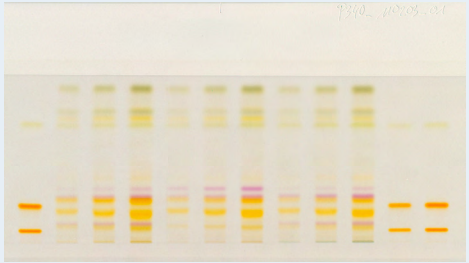


Image of chromatogram in white light

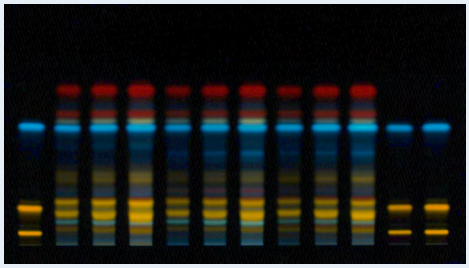


Image of chromatogram in UV 366 nm

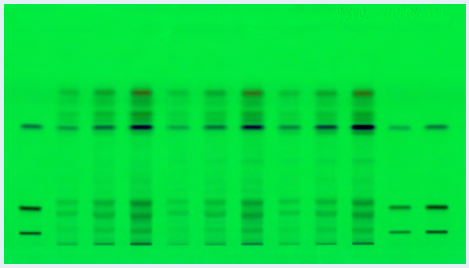


Image of chromatogram in UV 254 nm

HIGH-END HPTLC IMAGING

Designed for supporting the HPTLC workflow, the *visionCATS* software platform controls instruments and manages data. The best-in-class HPTLC software features a variety of sophisticated image enhancement tools exploiting the full potential of the TLC Visualizer 3 and enables the automatic acquisition of premium-quality images based on the parameters specified in the method.

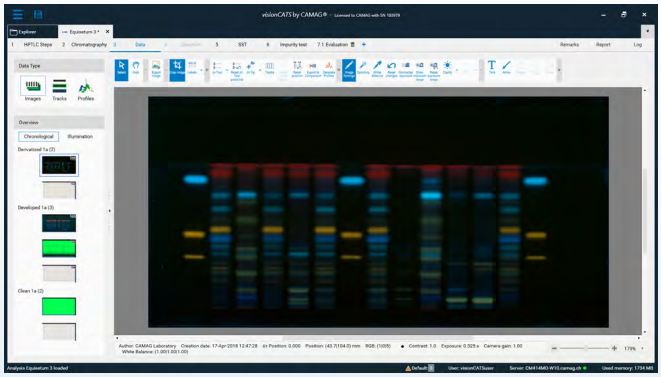
COMPARISON VIEWER

With *visionCATS* integration, the TLC Visualizer 3 allows extraction and export of selected sample tracks from acquired images for easy comparison. References and samples from the same or different plates and detection modes can be displayed side by side, ensuring full traceability of all data for regulatory compliance.

IMAGE ENHANCEMENT

visionCATS supports low-noise, high dynamic range imaging (HDRI) and includes a comprehensive set of image enhancement tools. Sophisticated algorithms guarantee the highest image quality for identification of even the faintest zones.

Spot Amp efficiently supports the localization of even the smallest fractions on the plate by increasing or decreasing the contrast of the zones (top: Spot Amp off, bottom: Spot Amp on).



Exposure Normalization allows the post-processing of the image by normalizing the exposure. This tool is designed to visually compare images from different plates with virtually the same exposure settings.

Clean Plate Correction corrects irregularities like fluorescence indicator patterns or layer thickness variations, enhancing detection of faint zones and producing high-quality corrected images.

Clarify virtually changes the illumination setting after capturing and makes very faint zones visible on an unchanged background.

Ordering Information

022.9850	**CAMAG® TLC VISUALIZER 3** documentation system with 12 mm lens. Suited for object formats up to about 21 x 28 cm (20 x 20 cm TLC plates). *visionCATS* software is not included.
022.9860	**CAMAG® TLC VISUALIZER 3** documentation system with 16 mm lens*. Suited for object formats up to about 16 x 21 cm (20 x 10 and 10 x 10 cm TLC/HPTLC plates). *visionCATS* software is not included.

Note

The TLC Visualizer 3 with *visionCATS* meets all the requirements of cGMP/GLP and can be IQ/OQ qualified. If the instrument shall be used in a 21 CFR Part 11 environment, the *visionCATS* option "21 CFR Part 11" is required.

Detailed ordering information: www.camag.com/tlcvisualizer3

TLC SCANNER 4

ADVANCED QUANTITATIVE HPTLC ANALYSIS

The CAMAG TLC SCANNER 4 offers exceptional precision in measuring absorbance and fluorescence on TLC and HPTLC plates, providing an accurate densitogram for each track (sample) on the plate and a UV-VIS spectrum for any detected peak of the densitogram. It captures compound reflections in absorption or fluorescence modes to generate spectrally selective "Peak profiles from densitometry".

Covering a wide spectral range of 190–900 nm, it supports both UV and visible light detection by single or multi wavelength scan, ensuring high versatility and sensitivity across various analytes.

All functions of the TLC SCANNER 4 are controlled by *visionCATS* software. Only positioning of the plate to be measured is performed manually with the assistance of the UV internal illumination if needed.

KEY FEATURES

- Powered by *visionCATS* HPTLC software
- Measurement of reflection, either in absorbance and/or fluorescence
- Spectral range from 190 to 900 nm
- Any plate format up to 20 × 20 cm
- Spectra recording up to 100 nm/s
- Spectrum Library
- Compliance with cGMP/GLP and 21 CFR Part 11

Ordering Information

027.6200 **CAMAG® TLC SCANNER 4** (*visionCATS* required)

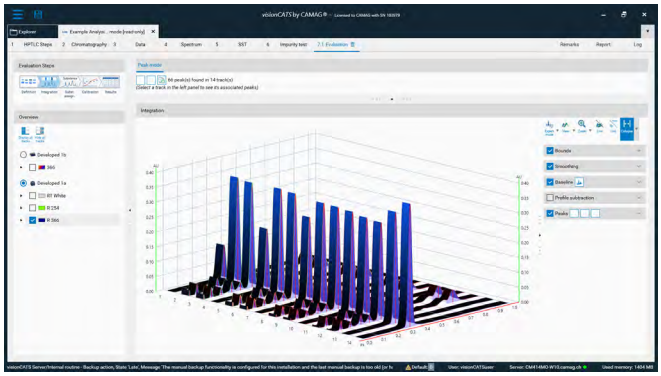
Detailed ordering information: www.camag.com/tlcscanner4

Note

The TLC SCANNER 4 with *visionCATS* meets all the requirements of cGMP/GLP and can be IQ/OQ qualified. If the instrument shall be used in a 21 CFR Part 11 environment, the *visionCATS* option "21 CFR Part 11" is required.

EVALUATION WITH *visionCATS*

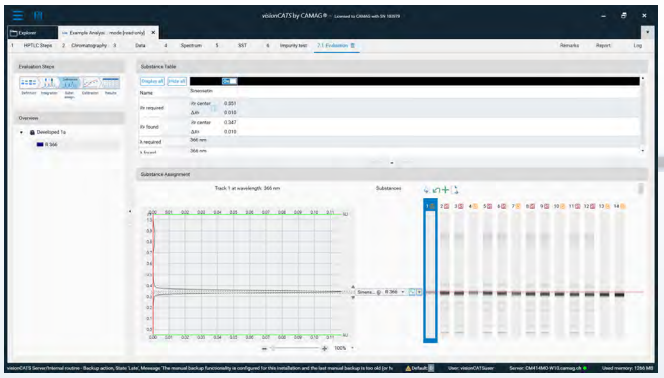
visionCATS controls the TLC Scanner 4 and enables quantitative evaluation of the generated densitometric data. To determine the substance concentration in a sample, five different quantification functions (*e.g.* linear and polynomial) are available. Several scanning steps (*e.g.* scanning the plate after development and scanning the same plate after derivatization) and up to five different evaluations can be performed (with data obtained from single wavelength, multiple wavelengths or a combination of measurements in absorption and fluorescence detection mode).



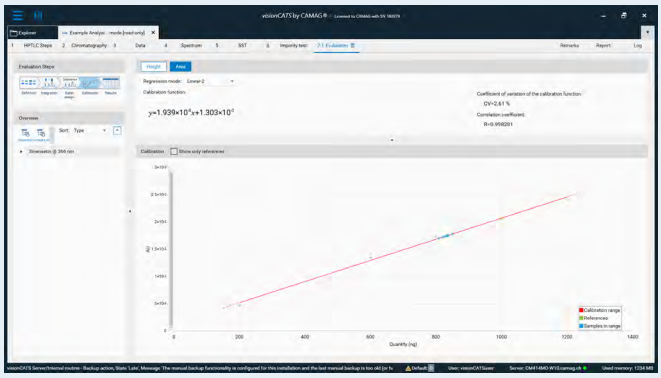
3D View and Peak Integration: densitograms are displayed in 3D, top or front view. Several peak integration and baseline correction settings can be selected.

THE SCANNER ULTIMATE PACKAGE

- Multi Wavelength: this feature offers the possibility to perform a multi-wavelength scan with up to 31 selected wavelengths or a combination of measurements in absorption and fluorescence detection mode.
- Scanner Quantification: this feature allows to quantify each individual substance on the plate. Five different quantification functions are available for evaluation to determine the concentration of the substance in a sample. In one analysis file up to five evaluation steps can be performed in multiple plate states (*e.g.* plate after development and same plate after derivatization).
- Spectrum Scanning: this feature includes the measurement of the spectrum of each individual substance on the plate including the evaluation of the substance purity by comparison with reference standard.



Peak Assignment: the separated compounds are assigned. For quantification, data from the multi-wavelength scan at the optimum wavelength for each compound is used.



Calibration Curve: for evaluation the best fitting calibration model is used. Quantification can be done via peak height or area.

SPECTRUM LIBRARY Option

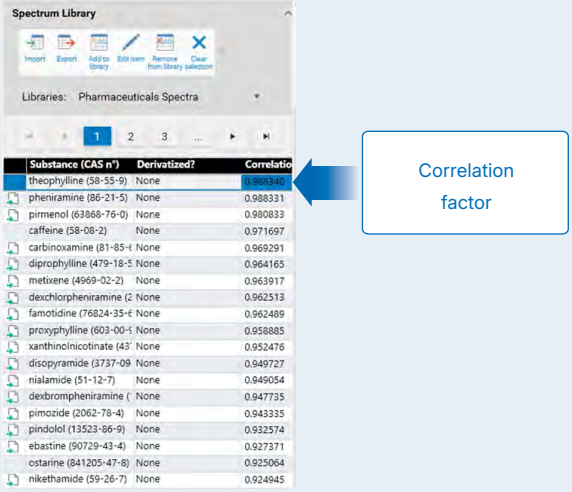
visionCATS includes the Spectrum Library, along with specialized libraries, offering significant benefits for HPTLC users in pharmacognosy, forensic science, and pharmaceutical quality control. This feature enables users to compare UV spectra obtained from the TLC Scanner 4 with a carefully curated library, improving analysis accuracy and efficiency.

FASTER, MORE ACCURATE IDENTIFICATION

Quickly compare unknown samples with reference spectra for precise compound identification. A well-maintained spectrum library streamlines this process, reducing analysis time and enhancing reliability.

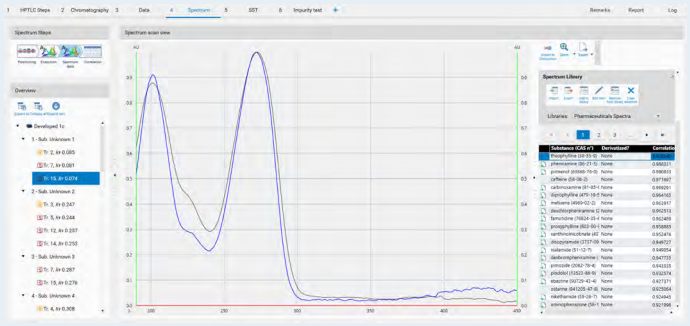
EFFICIENT DATA INTERPRETATION

Eliminate the need for manual spectrum analysis. With the help of Pearson correlation-based comparison, analysts can rapidly interpret results, making HPTLC analysis more efficient than ever.



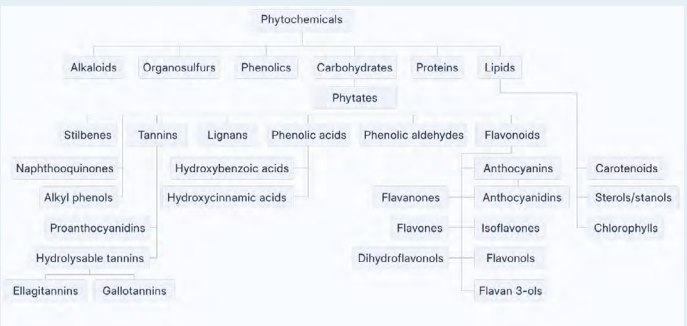
RELIABLE DETECTION OF ADULTERATION AND CONTAMINANTS

Easily identify counterfeit drugs, adulterated herbal products, or impurities in pharmaceutical and dietary supplements. For example, the Pharmaceuticals Library can detect synthetic drugs in supplements – such as spotting theophylline with a correlation factor of 0.988.



ACCELERATED RESEARCH AND DEVELOPMENT

Researchers can leverage a comprehensive reference database to identify active compounds in medicinal plants or develop new formulations. The Phytochemicals Library further simplifies classification by helping users determine the phytochemical class of an unknown zone.



TLC
MS-INTERFACE 2

SUBSTANCE IDENTIFICATION AND CONFIRMATION

The CAMAG TLC-MS Interface 2 is a highly convenient and versatile instrument allowing for rapid and contamination-free elution of TLC/HPTLC zones with direct transfer to a mass spectrometer.

Through the pioneering concept of hyphenating High-Performance Thin-Layer Chromatography with Mass Spectrometry unequivocal substance identification is possible. The TLC-MS Interface 2 can be easily coupled with any LC-MS system without adjustments or mass spectrometer modifications. Depending on the MS system, a substance can be identified within a minute via its mass spectrum, or for an unknown substance zone, the respective sum formula can be obtained. Furthermore, interesting zones can be eluted into vials for further investigations with, e.g. NMR, (ATR-)FTIR, ESI-MS, and MALDI-MS.

The chromatogram zones are eluted from the HPTLC plate with methanol or another suitable solvent with the flow speed appropriate for the LC-MS system. The round elution head is used for circular zones and the oval elution head for zones in the form of bands. After elution the eluate is either directly transferred to the mass spectrometer or collected in a sample vial for further offline analysis.

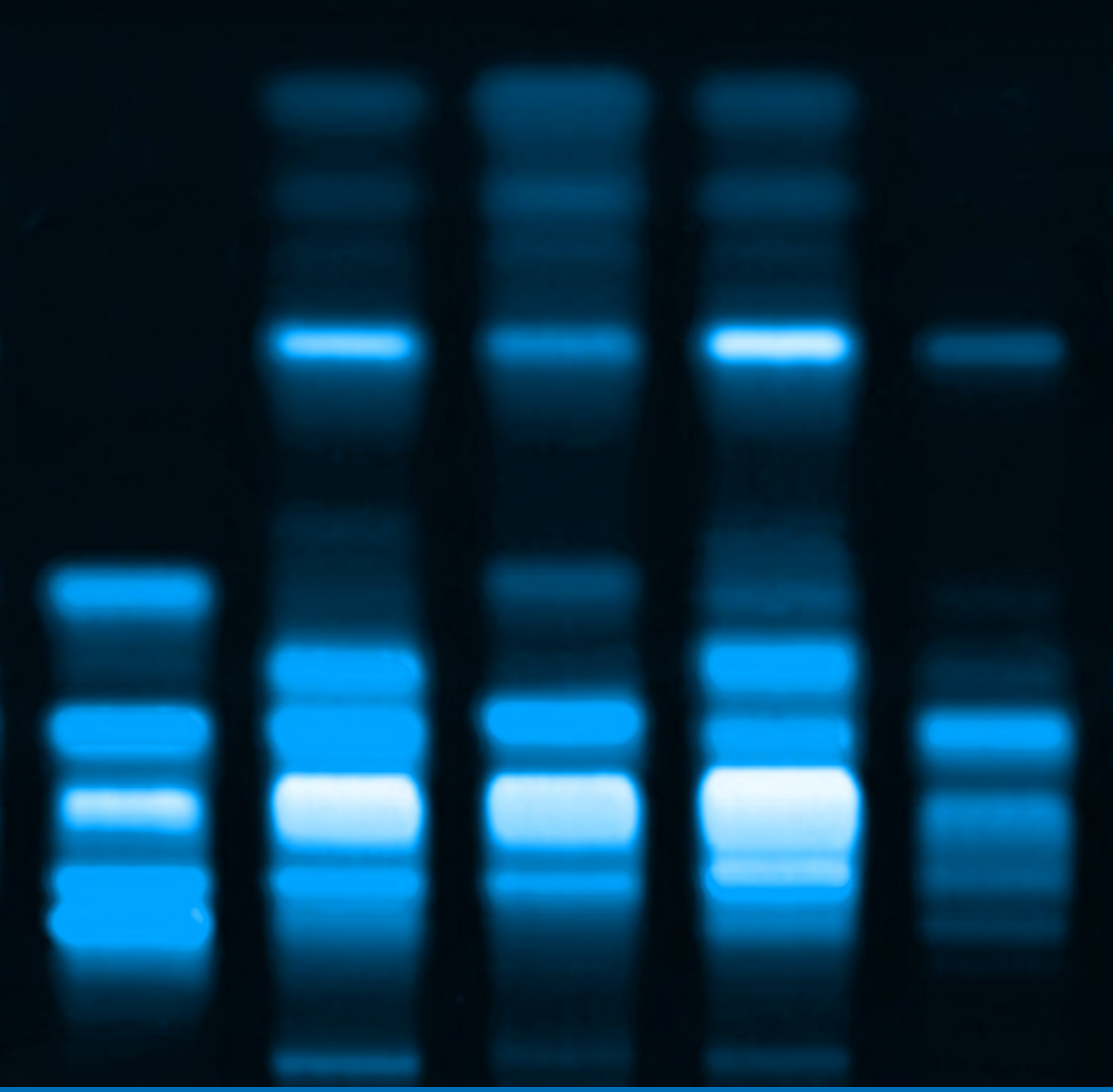
KEY FEATURES

- Rapid and contamination-free elution of selected zones
- Direct transfer to a mass spectrometer
- Battery-operated integrated crosshair laser enables accurate positioning of the plate
- Compatible with any LC-MS system
- Substance confirmation within a minute
- Easy handling ensures accurate and reproducible plate positioning
- Low solvent consumption

Ordering Information

022.8440 **CAMAG® TLC-MS Interface 2** with oval elution head (4 × 2 mm)
022.8441 **CAMAG® TLC-MS Interface 2** with round elution head (4 mm)

Detailed ordering information: www.camag.com/tlc-ms2



SOFTWARE

visionCATS HPTLC SOFTWARE

HPTLC ANALYSIS – MADE EASY

visionCATS is built for simplicity and intuitive operation, streamlining the entire HPTLC workflow by controlling HPTLC instruments while efficiently managing data.

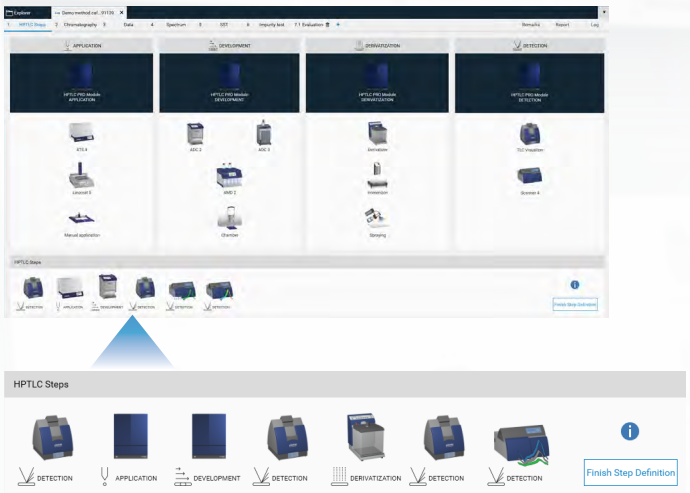
With its user-friendly interface, *visionCATS* guides users smoothly through the entire chromatographic process, from sample setup to report generation. Starting is easy – select a default method, fill in the sample table, choose a developing solvent, and select a derivatization reagent. Detection parameters can be customized as needed, and *visionCATS* leads users through each step.

Creating custom methods is equally straightforward. Users can easily select the required steps, and the sample-oriented design enables the creation of virtual plates by combining tracks from different plates. This feature is especially useful for batch-to-batch comparisons and long-term stability testing.

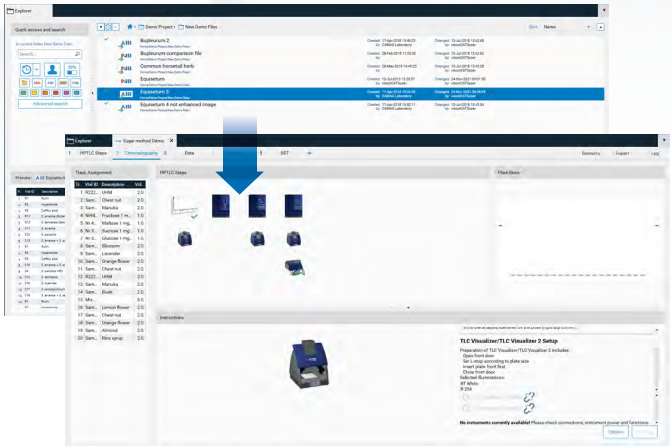
Finding relevant samples is made faster with a robust search tool in the file explorer. Users can search by text, date, samples, methods, or analysis files, with extended preview options. Custom search filters can also be created, allowing for even more streamlined navigation and data retrieval.

KEY FEATURES

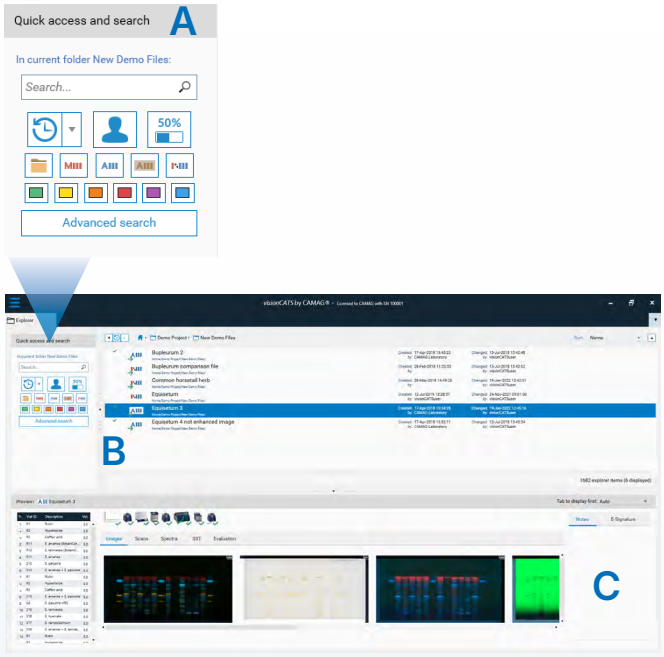
- Client/Server architecture
- User friendly and modern design
- Powerful user accounts management
- Automatic scheduled data backup
- Diagnostics for software and instruments
- Comparison Viewer
- Image Enhancement Tools
- Scanning Densitometry
- Quantitative Analysis
- HPTLC Method Library
- Spectrum Library
- AI Tools
- Regulatory Compliance



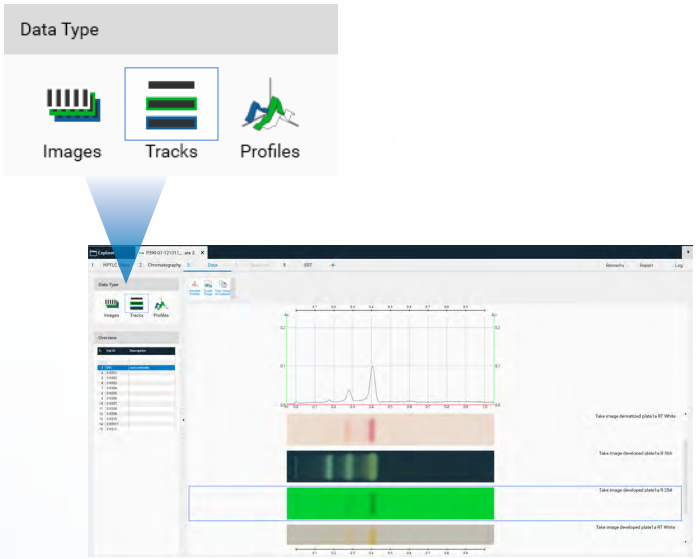
Create your own method with a few mouse clicks



Guided Analysis: select a method and *visionCATS* will guide you



File Explorer: search entry for name, ID or keyword **A**; file results **B**; preview of a selected analysis with the thumbnail of the captured images **C**



Sample View: all available data related to the sample are displayed

Ordering Information

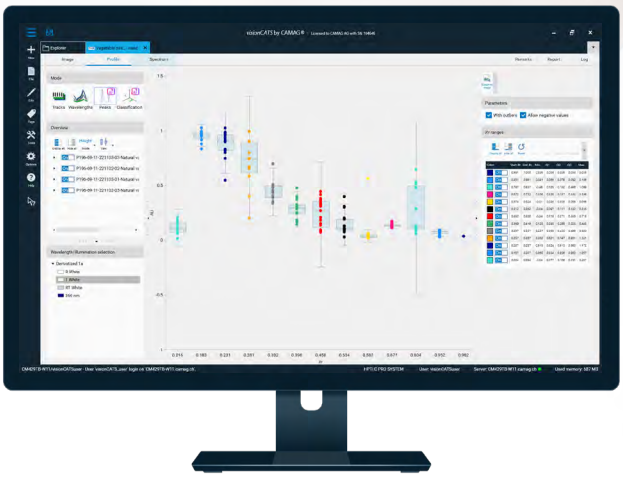
028.0000	**CAMAG® HPTLC Software *visionCATS***: Basic Version
028.1000	CAMAG® HPTLC Software *visionCATS*: *visionCATS* Ultimate
028.2000	CAMAG® HPTLC Software *visionCATS*: Visualizer Ultimate Package
028.2010	CAMAG® HPTLC Software *visionCATS*: Visualizer Qualitative Package
028.2020	CAMAG® HPTLC Software *visionCATS*: Visualizer Enhanced Evaluation Package
028.3000	CAMAG® HPTLC Software *visionCATS*: Scanner Ultimate Package
028.4000	CAMAG® HPTLC Software *visionCATS*: Option "21 CFR Part 11"
028.4200	*visionCATS* Option "Spectrum Library" for the use with CAMAG® TLC SCANNER 4 (027.6200)
028.4300	*visionCATS* Option "AI Tools"
028.5000	*visionCATS* license for a second client
028.5100	*visionCATS* license for a third, fourth and fifth client, each
028.5200	*visionCATS* license for a sixth and all subsequent clients, each
028.7000	"Forensics Spectra" for *visionCATS* Option Spectrum Library
028.7100	"Phytochemicals Spectra" for *visionCATS* Option Spectrum Library
028.7200	"Pharmaceuticals Spectra" for *visionCATS* Option Spectrum Library

AI TOOLS Option

PEAKS ACCEPTANCE CRITERIA – SMARTER UNDERSTANDING OF PEAK DATA

The Peaks Tool enables users to compare substances and define statistically reliable acceptance ranges.

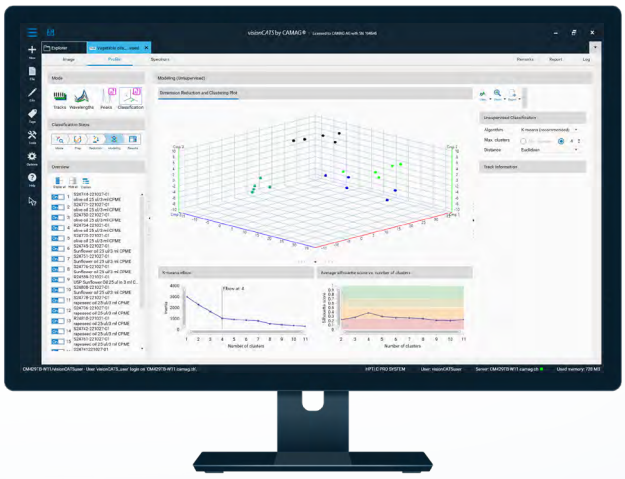
- Show acceptance limits for peak data (area and height) using Min / Max or Confidence Interval algorithm, with the ability to exclude outliers for more robust criteria.
- Quickly assess signal patterns (R_F, peak height, and area) using interactive scatter plots or box plots.
- Automatically group peaks by track, analysis, and wavelength, while allowing adjustment of R_F ranges to maintain consistency across different plates.

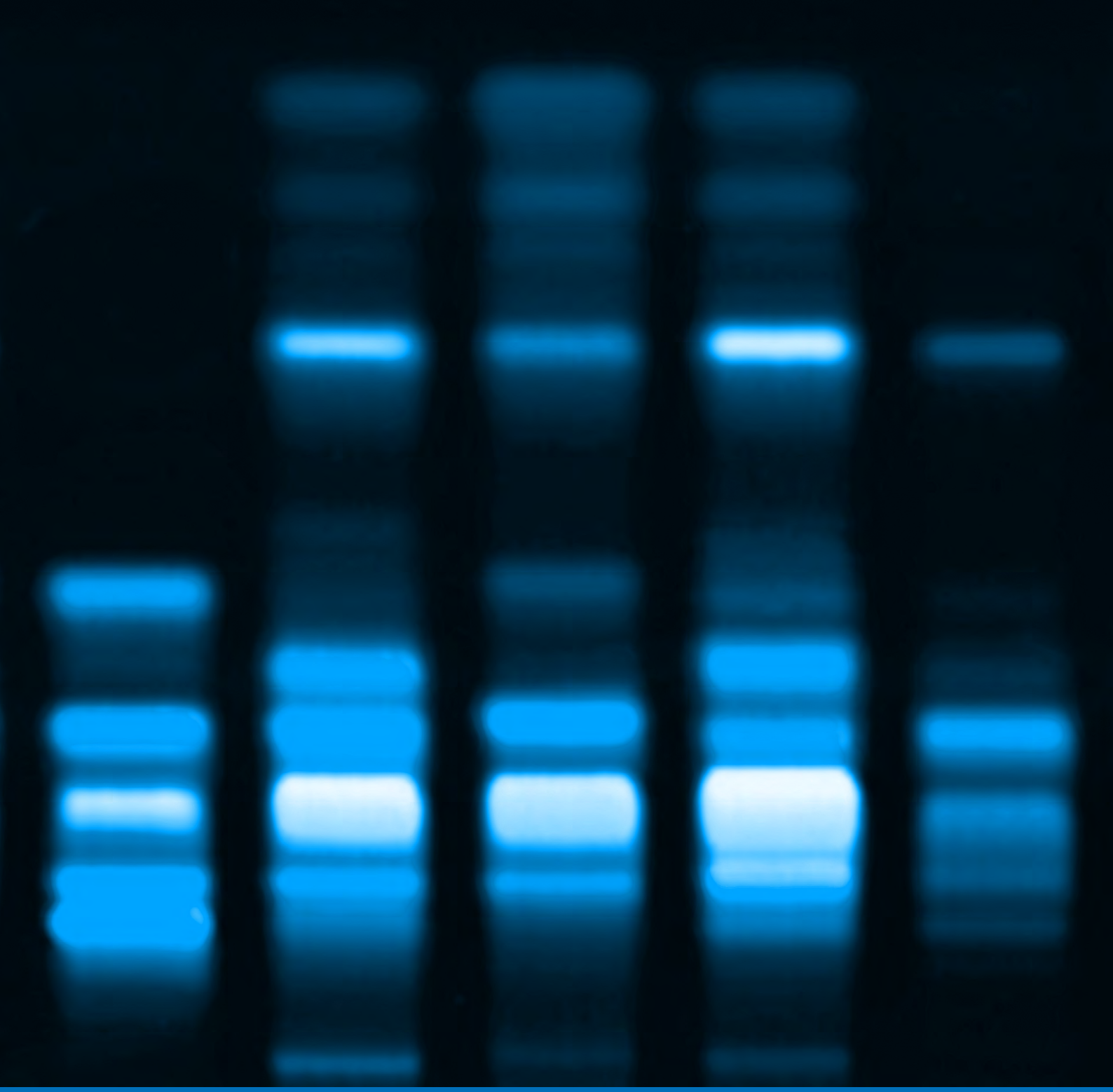


CLASSIFICATION – TURNING DATA INTO KNOWLEDGE

The Classification tool brings AI-driven pattern recognition and grouping into *visionCATS*, removing subjective interpretation in data evaluation.

- Choose between predictive modeling using labeled references data (Supervised Classification) or exploratory clustering for unlabeled data (Unsupervised Classification).
- Utilize dimensionality reduction techniques such as PCA or t-SNE, combined with comprehensive preprocessing, to reduce noise and enhance algorithmic performance.
- Explore results through high-resolution 2D and 3D visualizations, revealing hidden patterns and relationships within the dataset.





COMPLETE SYSTEM EXAMPLES
CONSUMABLES
SERVICES

COMPLETE SYSTEM EXAMPLES

QUALITATIVE SYSTEM

HPTLC System for qualitative analyses based on image documentation and comparison viewer with *visionCATS* software for control of instruments. Suitable for laboratories dealing with few samples.

QUANTITATIVE SYSTEM

HPTLC System for quantitative analyses based on densitometric evaluation and image documentation with *visionCATS* software for control of instruments. Suitable for laboratories with high sample throughput.

Visit www.camag.com/contact-us and contact your local CAMAG supplier to find the best solution for your requirements.

CONSUMABLES

MERCK Pre-coated Layers for High-Performance Thin-Layer Chromatography (HPTLC)

Item ID	Designation	Layer (µm)	Size (cm)	Quantity/Pack
034.1552	MERCK HPTLC plates silica gel 60 WR F_{254}s	200	20 x 10	25
034.2668	MERCK HPTLC plates Diol F_{254}	200	10 x 10	25
034.3124	MERCK HPTLC plates RP-18 W F_{254}s	200	10 x 10	25
034.3724	MERCK HPTLC plates RP-18 F_{254}s	200	10 x 10	25
034.3725	MERCK HPTLC plates RP-8 F_{254}s	200	10 x 10	25
034.3726	MERCK HPTLC plates RP-2 F_{254}s	200	10 x 10	25
034.5445	MERCK HPTLC plates LiChrospher Si 60 F_{254}s	180	20 x 10	25
034.5548	MERCK HPTLC aluminium sheets silica gel 60 F_{254}	200	20 x 20	25
034.5628	MERCK HPTLC plates silica gel 60 F_{254}	200	10 x 10	25
034.5629	MERCK HPTLC plates silica gel 60 F_{254}	200	10 x 10	100
034.5642	MERCK HPTLC plates silica gel 60 F_{254}	200	20 x 10	50
034.5647A	MERCK HPTLC plates NH2 F_{254}s	200	10 x 10	25
034.5647B	MERCK HPTLC plates LiChrospher Si 60 WR F_{254}s	100	20 x 10	25
034.5648	MERCK HPTLC plates silica gel 60 F_{254}, ultra-pure for pharmacopoeial methods	200	20 x 10	50
034.6464	MERCK HPTLC plates CN F_{254}s	200	10 x 10	25

MERCK Pre-coated Layers for Thin-Layer Chromatography (TLC)

Item ID	Designation	Layer (µm)	Size (cm)	Quantity/Pack
034.1798	MERCK TLC plates silica gel 60 F_{254}, concentration zone	250	20 x 10	25
034.5423	MERCK TLC plates RP-18 F_{254}s	200	10 x 20	50
034.5554	MERCK TLC aluminium sheets silica gel 60 F_{254}	200	20 x 20	25
034.5559	MERCK TLC aluminium sheets RP-18 F_{254}s	200	20 x 20	20
034.5715	MERCK TLC plates silica gel 60 F_{254}	250	20 x 20	25
034.5729	MERCK TLC plates silica gel 60 F_{254}	250	10 x 20	50
034.5805	MERCK LuxPlate Si 60 F_{254}	250	20 x 20	25

CAMAG® Test Dye Mixtures

032.8007	Test Dye 7 (powder) for IQ/OQ of Derivatizer
032.8012	Test Dye 12 (evaporated) in 10 mL vial, required for IQ/OQ of ATS 4, LINOMAT 5
032.8013	Test Dye 13 (evaporated) in 10 mL vial, containing three dyes, used for demonstration purposes only
032.8014	Test Dye 14 (powder 1.8 mg) in 30 ml bottle for IQ/OQ of ATS 4 and LINOMAT 5

SERVICES

INSTRUMENT QUALIFICATION

For customers working in a cGMP/GLP regulated environment, quality and traceability of results have highest priority. CAMAG supports these efforts with highly reliable products and qualification services. The customer's compliance strategy is optimally supported with CAMAG's Installation Qualification (IQ) and Operation Qualification (OQ).

Installation Qualification (IQ)

This qualification is performed at the site and time of installation. It documents that all key aspects of the installation comply with the manufacturer's specifications, codes, safety and design parameter

Operation Qualification (OQ)

This qualification is performed subsequent to installation and is repeated at certain intervals recommended by the manufacturer or defined by the customer. It documents that all modules of the equipment perform consistently throughout the specified operating ranges.

Performance Qualification (PQ)

PQ is an ongoing task with the customer's samples and procedures including preventive maintenance and regular tests, such as system suitability and quality control analyses with creation of QC-charts.

CAMAG LABORATORY

Established in 2002 and known worldwide as a center of competence in HPTLC aiming at developing reliable, cost-efficient methods of analysis in various fields of application, with focus on quality control of herbal drugs and botanical dietary supplements.

We publish results of our fundamental and applied research in peer reviewed journals and textbooks.

We collaborate closely with the **International Association for the Advancement of HPTLC**.

We provide:

- Consultancy on analytical questions concerning HPTLC
- Feasibility studies on request
- On-site and remote training courses on method development, operating CAMAG instruments and software, and running qualitative and quantitative analysis
- Application Notes, scientific publications and validated ready to use methods for the *visionCATS* method library

CAMAG BIBLIOGRAPHY SERVICE (CBS)

CAMAG has been publishing the customer magazine CAMAG Bibliography Service (CBS) since 1965. Today, CBS follows a continuous publication model, releasing one article every two months. These contributions highlight recent examples of HPTLC in practice and are compiled into a comprehensive annual issue at the end of each year. The articles, mainly contributed by customers from research and industry, cover a broad range of application fields and demonstrate practical HPTLC solutions.

APPLICATION NOTES

HPTLC is the method of choice for many analytical tasks and a broad range of Application Notes is available for download. The Laboratory HPTLC develops and validates HPTLC methods for herbal drugs, food, cosmetics, forensics, and other application fields. By following these methods, using the recommended instruments and software, reproducible results are guaranteed. A standardized methodology according to the International Association for the Advancement of HPTLC is followed.

CUMULATIVE CAMAG BIBLIOGRAPHY SERVICE (CCBS)

With the CCBS Online Search, you can perform your own detailed search of TLC/HPTLC literature and find relevant information. Our CCBS database includes more than 12,500 abstracts of publications between 1982 and today. The database covers most relevant scientific journals in the field of Planar Chromatography including also various non-English publications in German, French, Spanish, Portuguese, and Chinese.

The CCBS features additional practical information for the analyst in the lab, for example details on the mobile phase or the detection. With CCBS the analyst is able to find relevant TLC/HPTLC publications which might be helpful for solving a particular analytical question.

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GLOBAL PRESENCE

CAMAG markets its products directly from the headquarters in Muttenz/Switzerland, and in Germany and the United States through their subsidiaries.

In more than 70 other countries CAMAG is represented by selected companies.

CAMAG distributors regularly send their product specialists for education and training to our headquarters. Furthermore CAMAG organizes training courses overseas.

The task of CAMAG product specialists is to advise customers in system selection and application competence and in the operation of their CAMAG systems. Service engineers of our distributors are regularly trained in Muttenz.

To our customers and distributors a comprehensive set of information is available at www.camag.com.

CAMAG is a flexible, customer-oriented and scientifically sound company, which in its 60 years company history has profiled as a valued partner in all areas of thin-layer chromatography.

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