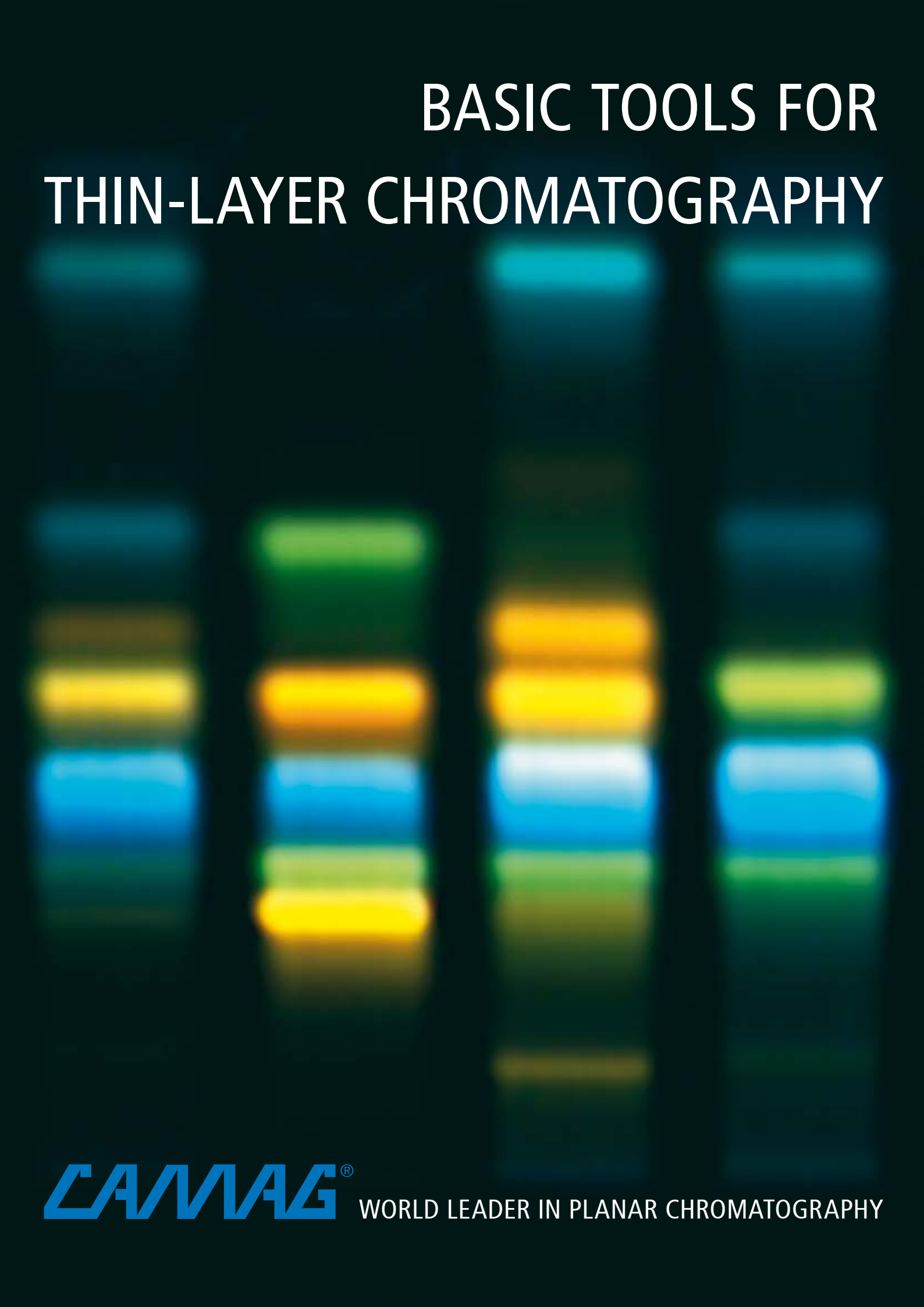
BASIC TOOLS FOR THIN-LAYER CHROMATOGRAPHY



CAMAG®

WORLD LEADER IN PLANAR CHROMATOGRAPHY

Basic Tools for Thin-Layer Chromatography

Since 1961, CAMAG is dedicated to the development and manufacturing of instruments, software and consumables for all steps of the TLC/HPTLC procedure. CAMAG products are truly Swiss made and have an excellent reputation throughout the world.

Thin-Layer Chromatography (TLC) is a simple, flexible and cost efficient separation technique for both qualitative and quantitative analysis, enabling simultaneous analysis of many substances with minimal time requirement. TLC can be performed manually in easy and inexpensive ways. Therefore it is found in almost all laboratories as a convenient tool for simple and rapid separations. As the expectations grow concerning quality and value of an analysis, there are suitable instruments available for all steps of TLC.

High-Performance Thin-Layer Chromatography (HPTLC) is the most advanced form of TLC and comprises the use of chromatographic layers of utmost separation efficiency and the employment of state-of-the-art instrumentation for all steps in the procedure: precise sample application, standardized reproducible chromatogram development and software controlled evaluation. HPTLC is an entire concept that includes a widely standardized methodology based on scientific facts as well as the use of validated methods for qualitative and quantitative analysis. HPTLC meets all quality requirements of today's analytical labs, even in a fully regulated environment.

This catalog focuses on the basic tools suitable for your TLC/HPTLC application.

For further information on the full range of CAMAG products, please visit our website at www.camag.com or see our major instruments catalog.

Application Fields

Pharmaceutical

- Quality control
- Content Uniformity Test (CUT)
- Identity- and purity checks
- Stability tests, etc.

Herbals

- Identification
- Stability tests
- Detection of adulteration
- Assay of marker compounds, etc.

Clinical applications

- Lipids
- Metabolism studies
- Drug screening
- Doping control, etc.

Forensics

- Detection of document forgery
- Investigation of poisoning
- Dyestuff analyses, etc.

Cosmetics

- Identity of raw material
- Preservatives, colouring materials, etc.
- Screening for illegal substances, etc.

Food and Feed

- Quality control
- Additives (e. g. vitamins)
- Pesticides
- Stability tests (expiration), etc.

Environment

- Water
- Soil
- Residue analysis, etc.

Industrial applications

- Process development and optimization
- Process monitoring
- Cleaning validation, etc.

Overview

Sample Application

CAMAG Nanomat 4 and Capillary Dispenser

The 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

- Conventional TLC plates including self-coated plates up to 20 × 20 cm
- HPTLC plates 10 × 10 cm and 20 × 10 cm
- TLC and HPTLC 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.

Ordering information

040.1500 CAMAG® Nanomat 4 Complete-Kit

022.4730	**CAMAG® Nanomat 4,**
022.7655	Capillary Dispenser,
022.7786	Universal Capillary Holder,
022.7661	Dispenser Magazine for 1 µL capillaries,
022.7771	Disposable Capillary Pipettes 1 µL, pack of 5 × 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 × 100
022.7771	Capillary Pipettes 1 µL pack of 5 × 100
022.7772	Capillary Pipettes 2 µL pack of 5 × 100
022.7775	Capillary Pipettes 5 µL pack of 5 × 100

Further information at www.camag.com/nanomat

Alternative Tools for Manual Sample Application

Multipurpose Spotting Guide

- The CAMAG Multipurpose Spotting Guide is used for setting up chromatograms on conventional 20 × 20 cm layers
- The Multipurpose Spotting Guide can also be used in combination with the Capillary Dispenser system (see Nanomat 4) to make manual sample application more convenient.

Capillary Guide

The Capillary Guide 022.7718 automatically inserts the Disposable Glass Capillaries 022.7725–022.7730 into the Universal Capillary Holder 022.7786.

Disposable Glass Capillaries

- Disposable glass capillaries for manual sample application of 0.5, 1, 2, or 5 µL
- Color coded vials containing 100 pieces
- The capillaries are hand-held and can be positioned with the Multipurpose Spotting Guide.

Graduated disposable micropipettes

- Graduated in microliters, these 5 µL glass capillaries are suitable for qualitative analysis on conventional TLC layers

Ordering information

022.7718 Capillary guide
022.7725 Disposable Capillaries 0.5 µL, vial of 100
022.7726 Disposable Capillaries 1.0 µL, vial of 100
022.7727 Disposable Capillaries 2.0 µL, vial of 100
022.7729 Disposable Capillaries 5.0 µL, vial of 100
022.7730 Disposable Capillaries 10.0 µL, vial of 100
022.7731 Disposable glass capillaries 0.5 µL 022.7725, shelf pack of 10 vials
022.7732 Disposable glass capillaries 1.0 µL 022.7726, shelf pack of 10 vials
022.7733 Disposable glass capillaries 2.0 µL 022.7727, shelf pack of 10 vials
022.7734 Disposable glass capillaries 5.0 µL 022.7729, shelf pack of 10 vials
022.7142 Graduated Disposable Micropipettes 5 µL, pack of 250
022.4230 CAMAG Multipurpose Spotting Guide for 20 × 20 cm plates, with scoring pin
022.4233 Scoring pin
022.4235 TLC Plate Scraper

Chromatogram Development

CAMAG Flat Bottom Chamber

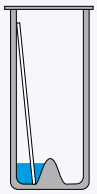
This is the classical developing tank for TLC/HPTLC. It permits the plate to be developed under conditions of partial or complete saturation of the tank atmosphere with solvent vapors. The degree of layer presaturation cannot be controlled unless additional accessories are used.

CAMAG Twin Trough Chamber

The 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.

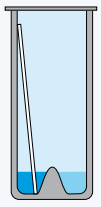
Twin Trough Chamber:
Low solvent consumption

20 mL of solvent are sufficient for a 20 × 20 cm chamber, 10 mL for the 20 × 10 cm chamber and 5 mL for a 10 × 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® Flat Bottom Chamber

022.5259 for plates 20 × 20 cm, with stainless steel lid
022.5250 for plates 20 × 20 cm, with glass lid
022.5257 for plates 20 × 20 cm, without lid

022.5150 for plates 10 × 10 cm, with stainless steel lid
022.5151 for plates 10 × 10 cm, without lid

022.5275 light-weight for plates 20 × 20 cm, with glass lid
022.5270 light-weight for plates 20 × 10 cm, with glass lid

CAMAG® Twin Trough Chamber

022.5256 for plates 20 × 20 cm, with stainless steel lid
022.5255 for plates 20 × 20 cm, with glass lid
022.5258 for plates 20 × 20 cm, without lid

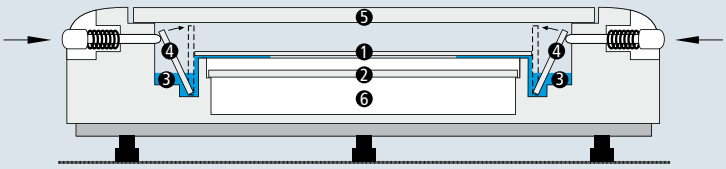
022.5254 for plates 20 × 10 cm, with stainless steel lid
022.5253 for plates 20 × 10 cm, with glass lid
022.5251 for plates 20 × 10 cm, without lid

022.5155 for plates 10 × 10 cm, with stainless steel lid
022.5156 for plates 10 × 10 cm, without lid

CAMAG Horizontal Developing Chamber

In the 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 inserted to establish sandwich configuration
3 Reservoir for developing solvent
4 Glass strip for solvent transfer by capillary action
5 Cover plate
6 Conditioning tray

CAMAG smartAlert solvent front monitor

The 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

Saturation pads

These 20 × 20 cm sheets of thick filter paper are used to line the inner walls of a developing tank for saturating the chamber atmosphere with solvent vapors. They are suitable for all Flat Bottom and Twin Trough Chambers. These pads are also handy for many other uses in a TLC laboratory.

Ordering information

022.8535	CAMAG® Horizontal Developing Chamber for plates 20 × 10 cm
022.8530	CAMAG® Horizontal Developing Chamber for plates 10 × 10 cm
022.5300	CAMAG® smartAlert solvent front monitor
022.5244	Saturation Pads, pack of 100

CAMAG HPTLC Vario System

Key features

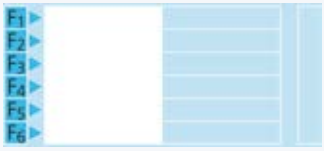
- Development with six different solvents can be tested side by side.
- Sandwich configuration as well as tank configuration can be simulated side by side, making results directly comparable.
- Six different conditions of pre-equilibration, including relative humidity, can be tested simultaneously.
- These variations of developing conditions can be freely combined.

Time saving optimization of separation conditions using the HPTLC Vario System

Application examples, schematic: F_1 … = developing solvents, C_1 … = conditioning liquids

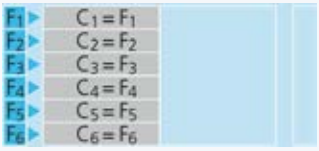
Optimization of the developing solvent

Development with 6 different solvents side by side, without preconditioning = development in sandwich configuration.



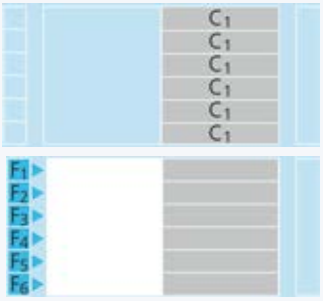
Optimization of the development solvent

Development with 6 different solvents side by side whereby the conditioning troughs contain the same six solvents = simulated tank development



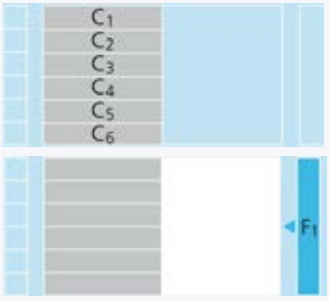
Optimization of the development solvent after uniform layer preconditioning

First step: pre-equilibration of all six tracks with the same conditioning liquid; then development with six different solvents (in sandwich configuration).



Optimization of preconditioning

Pre-equilibration with six different conditioning liquids; then development of all tracks with the same solvent.



Ordering information

022.8550 CAMAG® HPTLC Vario System, consisting of
022.8555 CAMAG® HPTLC Vario Chamber and
022.8556 HPTLC Scoring Unit

Derivatization

CAMAG TLC Sprayer

The TLC Sprayer consists of a charger and a pump unit with two kinds of spray heads. Spray head type A is for spray solutions of normal viscosity, *e.g.* lower alcohol solutions. Spray head type B is for liquids of higher viscosity, *e.g.* sulfuric acid reagents.

Key features

- Easy to use, with electro-pneumatic spray function
- Formation of fine aerosol with particles of 0.3 to 10 µm
- Low reagent consumption

CAMAG 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. The Erlenmeyer flask may be closed with a standard glass stopper.

CAMAG Chromatogram Immersion Device 3

For proper reagent transfer, the chromatogram must be immersed and withdrawn at a controlled uniform speed. By maintaining a well defined vertical speed and immersion time, derivatization conditions can be standardized and "tide marks", which can interfere with densitometric evaluation, are avoided.

Key features

- Uniform vertical speed, freely selectable between 2.5 cm/s and 4.5 cm/s
- Immersion time selectable between 0 and 8 seconds and indefinitely
- The device can be set to accommodate 10 cm and 20 cm plate height
- Battery operated, independent of power supply

022.6530 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 Reagent bottle 50 mL with cap, pack of 6
022.6539 Service kit for TLC Sprayer

022.6100 Glass Reagent Sprayer, all glass, with 100 mL Erlenmeyer flask

022.6606 CAMAG® Chromatogram Immersion Device 3 for TLC and HPTLC plates up to 20 × 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

CAMAG TLC Plate Heater 3

The TLC Plate Heater is designed for heating a TLC/HPTLC plate to a selected temperature after a staining reagent has been applied.

The Plate Heater has a CERAN® 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.

CAMAG TLC Spray Cabinet 2

The TLC Spray Cabinet is designed for the complete removal of excessive spray mist while spraying a TLC/HPTLC plate with reagent.

There is no deflection of the spray jet before it reaches the plate, an effect often encountered in a normal laboratory fume hood. Particles rebounding from the plate are completely removed. The Spray Cabinet is also useful for drying plates after development, with or without the assistance of a hair dryer.

The cabinet is made of PVC. The blower, a radial fan driven by a motor outside of the fume duct, produces an airflow of 130 cubic feet (3.7 cubic meter) per minute. The bottom of the spray cabinet has a built in tray, which is removable for easy cleaning.

Ordering information

022.3306 CAMAG® TLC Plate Heater 3
Stainless steel housing, flat ceramic top, for TLC plates up to 20 × 20 cm, digital temperature display, temperature range 25–200° C.

022.6230 CAMAG® TLC Spray Cabinet 2 with blower and flexible exhaust hose 1.5 m

022.6232 CAMAG® TLC Spray Cabinet 2 without blower, for connection to existing forced flow conduit, with 1.5 m flexible exhaust hose 127 mm diameter

022.6226 Exhaust hose extension 1.5 m with adapter

Further information can be found at www.camag.com/derivatization

Chromatogram Evaluation

CAMAG UV Lamp 4

The 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 (1 × UV 254 nm, 1 × UV 366 nm, each 8W)
- Convenient handling through one button operation for each UV tube
- High level of user safety through tilt sensor and timer
- Homogeneous illumination

CAMAG UV Cabinet 4

The 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

Important notice

Two types of UV light are required for inspecting thin-layer 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 layer contains a fluorescent indicator excited by UV 254 nm.

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 × 8 W

022.9060 CAMAG® Viewing Box 4

TLC Basic Kit
Test Dyes Mixtures

The CAMAG Basic Kit has been composed so that a lab can efficiently start working with TLC. This assembly is configured to a allow upgrading to a complete system for quantitative TLC without items becoming redundant.

040.1000 CAMAG® TLC Basic Kit, consisting of

- 022.4730 **CAMAG® Nanomat 4**
- 022.4300 **CAMAG® smartCut plate cutter** to cut TLC/HPTLC glass plates up to 20 × 20 cm
- 022.5155 **CAMAG® Twin Trough Chamber** for 10 × 10 cm plates, with stainless steel lid
- 022.5256 **CAMAG® Twin Trough Chamber** for 20 × 20 cm plates, with stainless steel lid
- 022.5300 **CAMAG® smartAlert solvent front monitor** (only suitable for glass plates)
- 022.9060 **CAMAG® Viewing Box 4** for CAMAG UV lamps of the 022.91XX series
- 022.9160 **CAMAG® UV lamp 4** dual wavelength 254/366 nm, 2 × 8 W
- 022.6100 Glass Reagent Sprayer, all glass, with 100 mL Erlenmeyer flask
- 022.5244 Saturation pads, pack of 100 (20 × 20 cm)
- 022.7650 Capillary dispenser consisting of universal capillary holder (022.7786), one dispenser magazine for 1 µL capillaries (022.7661and one package of 5 × 100 disposable capillary pipettes 1 µL (022.7771)
- 022.7662 Dispenser magazine for 2 µL capillaries, without capillaries
- 022.7665 Dispenser magazine for 5 µL capillaries, without capillaries
- 022.7772 Disposable capillary pipettes 2 µL, pack of 5 × 100
- 022.7775 Disposable capillary pipettes 5 µL, pack of 5 × 100
- 034.5715 MERCK TLC plates silica gel 60 F 254, 20 × 20 cm, pack of 25

CAMAG Test Dye Mixtures

Test dye mixtures are useful for functional checks on individual steps in the TLC procedure and for studying the influence of specific parameters.

Ordering information

032.8001	Test Dye Mixture I, Toluene, 30 mL – for silica gel
032.8002	Test Dye Mixture II, Toluene, 30 mL – for aluminium oxide
032.8003	Test Dye Mixture III, Toluene, 10 mL – for HPTLC siliga gel
032.8006	Test Dye VI, powder for 30 mL – for IQ/OQ under *visionCATS* Software
032.8007	Test Dye VII (powder) – for IQ/OQ on Derivatizer
993.0015	Ethanol Solution standards for OQ tests, 2 vials of 10 mL with certificate
993.0016	Test Dye for AMD 2 OQ, Toluene, 10 mL

TLC/HPTLC Plates

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

Designation	layer (µm)	size (cm)	quant./pkg
034.5628 HPTLC plates silica gel 60 F_{254}	200	10 × 10	25
034.5629 HPTLC plates silica gel 60 F_{254}	200	10 × 10	100
034.3726 HPTLC plates RP-2 F_{254}	200	10 × 10	25
034.3725 HPTLC plates RP-8 F_{254s}	200	10 × 10	25
034.3124 HPTLC plates RP-18 W F_{254s}	200	10 × 10	25
034.3724 HPTLC plates RP-18 F_{254s}	200	10 × 10	25
034.6464 HPTLC plates CN F_{254s}	200	10 × 10	25
034.2668 HPTLC plates Diol F_{254}	200	10 × 10	25
034.5647A HPTLC plates NH2 F_{254s}	200	10 × 10	25
034.5642 HPTLC plates silica gel 60 F_{254}	200	20 × 10	50
034.5648 HPTLC plates silica gel 60 F_{254}, ultra pure for pharmacopoeial methods	200	20 × 10	50
034.1552 HPTLC plates silica gel 60 WR F_{254s}	200	20 × 10	25
034.5548 HPTLC aluminium sheets silica gel 60 F_{254}	200	20 × 20	25
034.5445 HPTLC plates LiChrospher® Si 60 F_{254s}	180	20 × 10	25
034.5647B HPTLC plates LiChrospher® Si 60 WR F_{254s}	100	20 × 10	25

MERCK Precoated Layers for Thin-Layer Chromatography (TLC)

Designation	layer (µm)	size (cm)	quant./pkg
034.5729 TLC plates silica gel 60 F_{254}	250	10 × 20	50
034.5715 TLC plates silica gel 60 F_{254}	250	20 × 20	25
034.1798 TLC plates silica gel 60 F_{254}, with concentration zone	250	20 × 20	25
034.5423 TLC plates RP-18 F_{254s}	200	10 × 20	50
034.5554 TLC aluminium sheets silica gel 60 F_{254}	200	20 × 20	25
034.5559 TLC aluminium sheets RP-18 F_{254s}	200	20 × 20	20
034.5805 LuxPlate Si 60 F_{254}	250	20 × 20	25

CAMAG smartCut plate cutter

Convenient and precise cutting of TLC/HPTLC plates

- 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

CAMAG Services

CAMAG HPTLC Laboratory

CAMAG HPTLC Laboratory offers analytical support with focus on HPTLC (High-Performance Thin-Layer Chromatography). The pharmaceutical, botanical and food industries are facing increasingly stringent regulation concerning product safety and quality. HPTLC is a fully reproducible, standardized, and cGMP-compliant technique. It can be the method of choice for many analytical tasks.

1) Feasibility studies

Following a detailed discussion of the analytical goal with the customer, the lab can evaluate whether HPTLC or TLC can offer an advantageous solution.

2) Consulting and training

CAMAG helps you get started! Whether you intend setting up a new lab, ensuring compliance with cGMP, or you are dealing with the authorities concerning registration, we can offer HPTLC solutions that save you time, hassle and money. Select one of our courses or let us provide customized training at your site to stay up-to-date with new developments in HPTLC technology. Let us show you how to optimally use your equipment, get reliable results, and develop and validate methods yourself.

3) Applied research

We offer guest residences at our laboratory for students, scholars, and researchers to engage in research projects. These are focused on, but not limited to practical aspects of HPTLC and analysis of botanicals. We publish results in journals, textbooks, through conferences and seminars as well as on our website. It is our goal to make available to the public high quality data illustrating the capabilities of HPTLC.

Education and training

CAMAG is also your partner when it comes to education and training in the field of High-Performance Thin-Layer Chromatography. Select one of our courses to stay up to date with new developments in HPTLC methodology and technology. Let us show you how to properly use your equipment, get reliable results, and develop and validate methods yourself.

CAMAG offers HPTLC training courses on the following topics:

- HPTLC Today: qualitative and quantitative HPTLC; coupling techniques; gradient development; HPTLC bioautography
- HPTLC for the analysis of botanicals
- Method development and validation in HPTLC

CAMAG Bibliography Service (CBS) Planar Chromatography

CAMAG has been publishing the customer magazine CAMAG Bibliography Service CBS since 1965. The CBS is issued two times per year and focuses on recent examples of HPTLC in practice. Typical examples from research and industry, mainly written from customers, are demonstrated in each issue. Articles come from a broad variety of application fields.

Cumulative CAMAG Bibliography Service (CCBS)

With the CCBS Online Search, you can directly search for information within the CAMAG website. The CCBS covers more than 11'000 abstracts of TLC/HPTLC 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.

Visit **www.camag.com/ccbs** and choose your preferred search option:

- Full text search
- Browse and search by CBS classification
- Alphabetical Search
- Search by CBS edition

Application Notes

HPTLC is the method of choice for many analytical tasks – a broad range of Application Notes is available for download. Registered users can download the Application Notes for free.

CAMAG Laboratory 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.

CAMAG – Global Presence

CAMAG markets its products in Switzerland directly from the headquarters, 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, *e.g.* in the Far East. 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 web-based information offer is available: **www.camag.com** for product and company information, **www.camag-laboratory.com** for applications.

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 Planar Chromatography.

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