

Cyclic Voltammetric Stripping (CVS)

Flexible automation
Reliable results

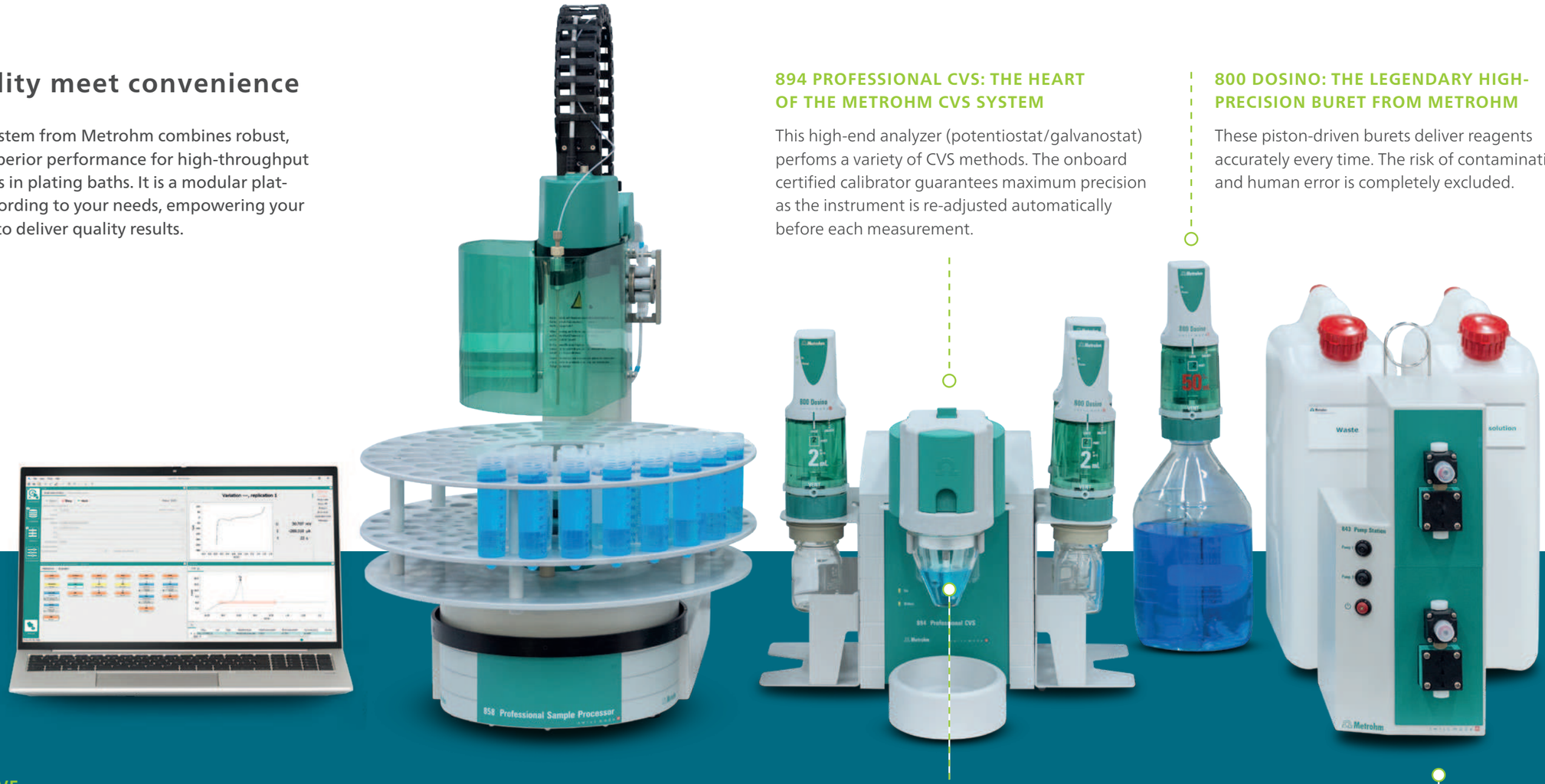
PEOPLE
YOU
CAN
TRUST

Metrohm

Automated Cyclic Voltammetric Stripping (CVS) from Metrohm

Safety and quality meet convenience

The fully automated CVS system from Metrohm combines robust, Swiss-made quality with superior performance for high-throughput analysis of organic additives in plating baths. It is a modular platform that can be scaled according to your needs, empowering your process-control laboratory to deliver quality results.



VIVA SOFTWARE: POWERFUL AND INTUITIVE

viva manages everything, end-to-end. It coordinates the sample and liquid handling, executes the CVS methods, automatically analyzes curves, and delivers the results. It is intuitive to use and provides all relevant information such as the system status and results at a glance.

858 PROFESSIONAL SAMPLE PROCESSOR: MAXIMIZE SAMPLE THROUGHPUT

The sample processor enables automatic processing of large sample series. It is controlled through the **viva** software which offers maximum flexibility to couple samples with specific methods and execute measurements according to your priorities.

894 PROFESSIONAL CVS: THE HEART OF THE METROHM CVS SYSTEM

This high-end analyzer (potentiostat/galvanostat) perfoms a variety of CVS methods. The onboard certified calibrator guarantees maximum precision as the instrument is re-adjusted automatically before each measurement.

METROHM CVS ELECTRODES: CERTIFIED SWISS QUALITY

Metrohm CVS electrodes are Swiss-made. Each electrode is inspected, tested, and certified ensuring consistent results year after year.

800 DOSINO: THE LEGENDARY HIGH-PRECISION BURET FROM METROHM

These piston-driven burets deliver reagents accurately every time. The risk of contamination and human error is completely excluded.

843 MEMBRANE PUMP STATION: CONVENIENCE MATTERS

The Pump Station automates rinsing and removal of waste solutions ensuring safe and consistent operation.

Applications

CVS analysis of organic additives

The combined effect of organic additives such as brighteners, suppressors, and levelers on metal deposition is complex. The chemistry of the plating bath must be monitored and adjusted to achieve quality deposits, ultimately limiting defective products and wasted materials. CVS analysis measures the influence of organic additives on the metal deposition process. Thus, the results are truly representative of their functionality in the plating bath.



The most important techniques

- Cyclic Voltammetric Stripping (CVS)
- Cyclic Pulse Voltammetric Stripping (CPVS)
- Chronopotentiometry (CP) in galvanostatic or open-circuit potential (OCP) conditions

The most common applications

- Suppressor determination with Dilution Titration (DT)
- Brightener determination with Modified Linear Approximation Technique (MLAT)
- Leveler determination with Response Curve (RC)

	Technique		Calibration			
	CVS	CPVS	DT	RC	LAT	MLAT
Suppressor/ carrier	✓	✓	✓	✓		
Brightener/ accelerator	✓	✓		✓	✓	✓
Leveler	✓	✓	✓	✓		

✓ Commonly used
✓ Additionally supported



When your needs extend beyond CVS
The 884 Professional VA instrument is your perfect partner for R&D of plating bath chemistry.

- An exchangeable measuring head facilitates switching between different chemical systems without the risk of cross-contamination.
- A full suite of voltammetric analysis and CVS methods are available in the same instrument and software

Industries

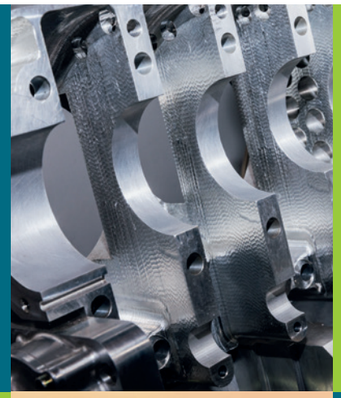
Various industries trust in the Professional CVS instruments from Metrohm

Their widespread use speaks to our commitment to delivering reliable methodologies and developing strong partnerships with our clients.

CVS (cyclic voltammetric stripping) analysis is the industry standard method for analyzing organic additives in plating baths and is specified by major plating bath manufacturers.



Semiconductor packaging



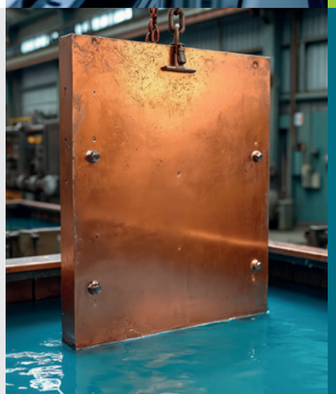
Surface finishing



Components for battery production



Photovoltaic manufacturing



Plating bath supply chain



Printed circuit board manufacturing

viva software

viva is the powerful and intuitive software that powers Metrohm's CVS and voltammetry systems. **viva** controls and coordinates the liquid handling, sample measurement, and data analysis while offering a simple and efficient workflow.

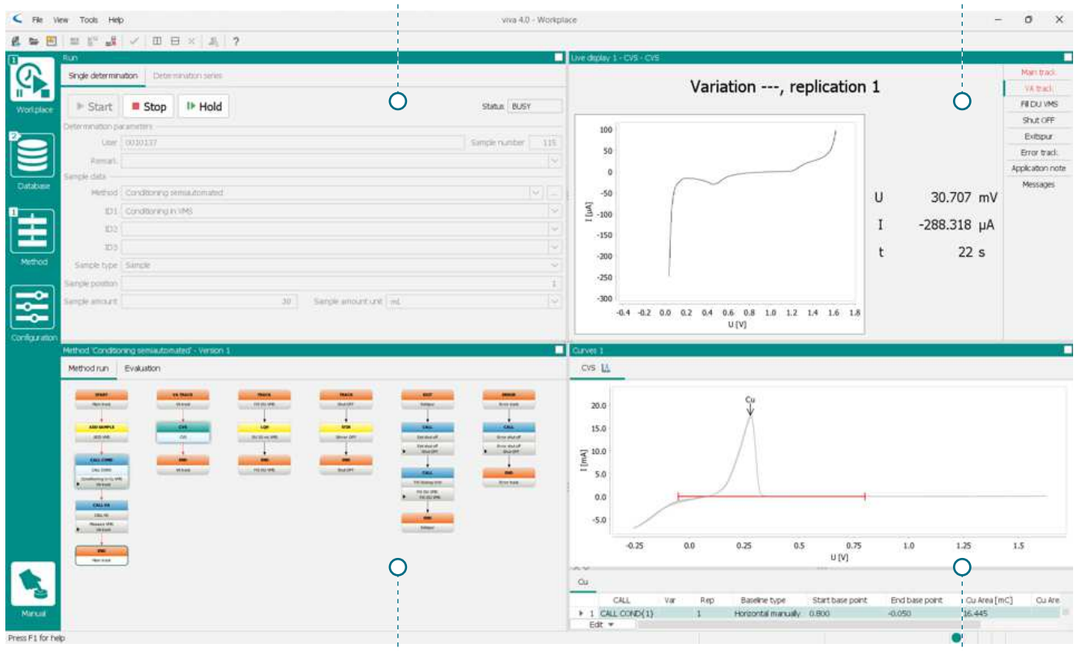
Your **viva** workplace:

RUN

Execute measurements with sample and series information in prominent view.

LIVE DISPLAY

Intuitively shows the current measurement and execution status.

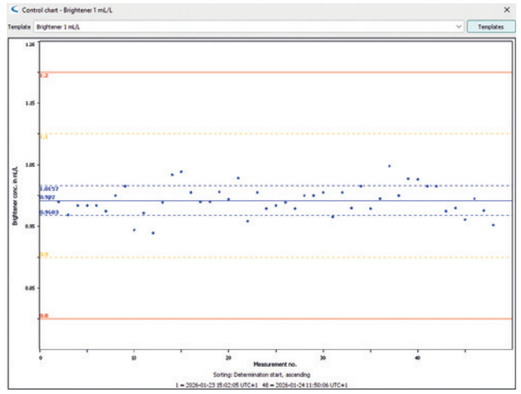


METHOD

View parameters and visualize the running method.

CURVES

View the overlaid voltammograms and the calibration curve.

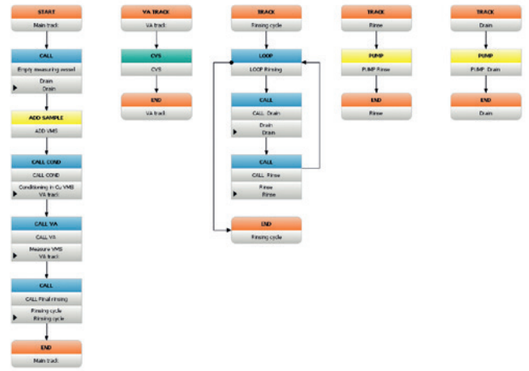


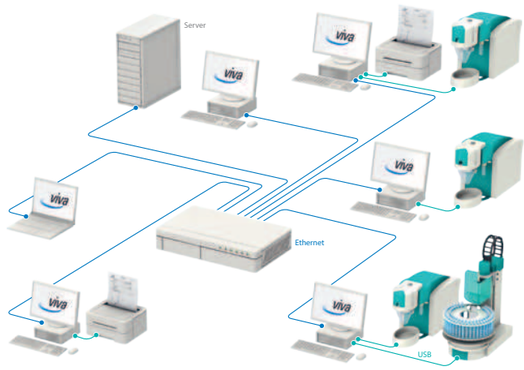
Monitor results and follow trends

Define and visualize warning and intervention limits. Results that are outside of the boundaries are clearly marked and easy to interpret.

Advanced flexibility

Task-focused method programming makes it possible to go beyond fixed methods and customize as needed. Practical user administration ensures that access to functionality is appropriate for each operator.



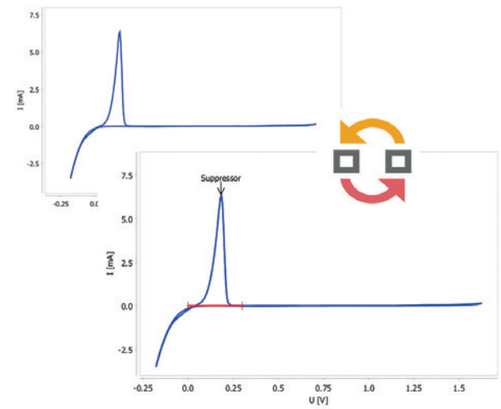


Options for stand-alone or client-server configurations

Client/server configurations facilitate multi-workstation collaboration and increase data security through the centralization of methods and data storage.

Reprocessing of results is efficient and secure in **viva**

Result parameters may be adjusted after the measurement, and retroactive calibration is possible. Batches of up to 200 determinations can be reprocessed in minutes. All versions of the data set, including the original data prior to reprocessing, are securely archived.



Ideal configurations

Metrohm's modular approach offers maximum flexibility. Whether it's 2 samples daily, or 24/7 continuous operation, the set-up is tailored to your requirements and can always be extended with additional functionality.

Flexible automation options include sample management, dosing of sample and auxiliary solutions, rinsing and waste collection.



Semi-automated

Manual sample introduction and rinsing; automated CVS analysis



Automated

Completely unattended analysis after placing the samples on the rack



Automated with additional dosing capabilities

Autonomous CVS analysis with the flexibility to handle diverse samples and methods

Various automation options

Various sample processing options are available to meet your priorities in terms of throughput, flexibility, bench space optimization, budget, and operator efficiency.

919 IC Autosampler plus for CVS



A budget-friendly option for the automated analysis of a moderate number of samples daily.

858 Professional Sample Processor



Ideal for processing a high number of samples daily.

858 Sample Processor with Dosino for Sample Transfer



Offers the highest capacity for sample handling and eliminates the need for manual pipetting.

Two instrument versions



The 894 Professional CVS is a dedicated instrument for CVS analysis offering a complete suite of CVS techniques



The 884 Professional VA extends the functionality of the 894 beyond CVS, offering additional electroanalytical techniques such as differential pulse and square wave voltammetry.

From lab to process



Metrohm’s reputation for high-quality CVS instrumentation is built on decades of experience in CVS analysis

Our CVS product family extends seamlessly beyond the analytical laboratory straight to the production floor.

The 2060 CVS Process Analyzer contains the same foundational hardware and software as our CVS laboratory instrumentation. This ensures that CVS measurements carried out in the laboratory can be perfectly replicated on the production floor.





Quality service and application support – worldwide



Metrohm is a Swiss company with a strong global presence. We are present in over 80 countries worldwide ensuring that all our customers are served consistently and efficiently.

Our CVS support network includes local offices and sub-offices in virtually every country in the Asia Pacific region, including a dedicated CVS support center in China.

Metrohm is an independent company owned by the Metrohm Foundation. We are committed to delivering uncompromising quality in our products, services, and support.
No matter where you are in the world, we are the CVS experts that you can trust.

Metrohm
Swiss Quality



ORDERING INFORMATION

Fully automated configurations	
MVA-20: Fully automated for small sample series	
2.894.1210	894 Professional CVS semiautomated
2.919.0120	919 IC Autosampler plus for CVS
2.843.0240	843 Membrane Pump Station for Professional CVS systems
6.2141.300	Remote cable
2.800.0010	800 Dosino (2x)
6.5339.500	Equipped with 2 dosing units
MVA-21: Fully automated for large sample series	
2.894.1210	894 Professional CVS semiautomated
2.858.0110	858 Professional Sample Processor
2.843.0240	843 Membrane Pump Station for Professional CVS systems
6.2141.300	Remote cable
2.800.0010	800 Dosino (2x)
6.5339.500	Equipped with 2 dosing units
Partially automated	
2.894.1210	894 Professional CVS semiautomated with 2 Dosinos
2.894.1310	894 Professional CVS semiautomated with 3 Dosinos
Manual	
2.894.0210	894 Professional CVS manual
CVS electrode kits	
6.5339.000	CVS electrode equipment with 1 mm platinum electrode
6.5339.010	CVS electrode equipment with 2 mm platinum electrode
6.5339.060	CVS electrode equipment with 2 mm platinum electrode for intensive use

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