

A close-up photograph of the Mercurio CV analytical instrument. The device is white with a large, dark rectangular display screen. Below the screen, the text 'mercurio CV' and the 'swiss innotech' logo are visible. The device is mounted on a clear plastic stand. The background is a soft, out-of-focus grey.

mercurio CV  swiss innotech

mercurio CV

WORLDWIDE UNIQUE SYSTEM FOR
DETERMINATION OF MERCURY
IN PURE LIQUIDS AND GASES

M E R C U R Y

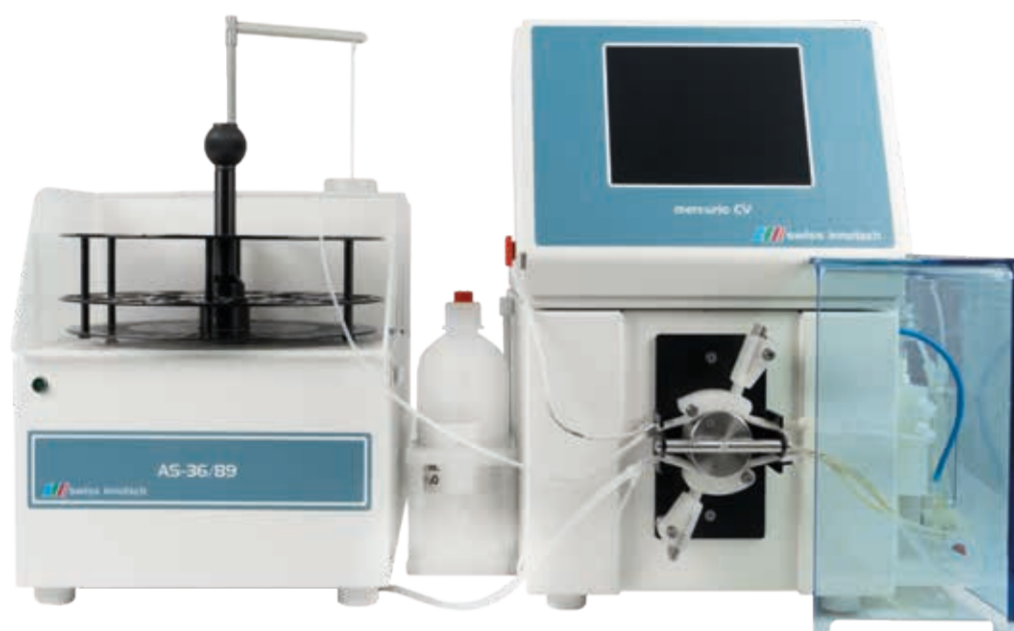
H g

THINK AHEAD

Through development of new technologies and the advancing industrialization, our environment is increasingly burdened. A considerable proportion of this burden is triggered by mercury. This metal is the most toxic non-radioactive element on our planet. It can be found everywhere in nature and is very dangerous to humans when it becomes gaseous.

For this reason, the determination of mercury in the trace area is a global challenge which needs to be mastered.

With our mercurio CV we have developed a system that can handle this challenge!



INDUSTRY SECTORS

APPLICATIONS

- | | | |
|-------------------------|---|--|
| • Environment | → | Drinking water, Groundwater, Seawater, Sewage, Surface water, Rainwater, Soil, Gases / Air, etc. |
| • Foods | → | Fish, Drinks, Cereals, Dairy products, etc. |
| • Medicine | → | Blood, Urine, Tissue, Serum, Saliva, etc. |
| • Research and Teaching | → | Universities, Research institutes, Material investigations etc. |
| • Geology | → | Rocks, Minerals, Ashes, etc. |
| • Industry | → | Paper, Plastics, Ceramics, Textiles, Waste gases, Sewage, Quality controls, etc. |
| • Petrochemical | → | Solvents, Oils, Petrochemical products, etc. |
| • Waste technology | → | Sewage sludge, Residues, etc. |

mercurio CV

A COMPACT WORKPLACE FOR THE DETERMINATION OF MERCURY IN PURE SAMPLES AND DIGESTIONS



- Hg-CV analysis system for daily routine use
- Optionally with unique double-beam technology, PC version, Gas-ACC-Unit, AFS technology and automatic sample changer
- Mercury determination down to the extreme trace range
- Inexpensive analysis due to low investment costs
- Best detection limits <math><0.0005\text{ ng}</math>
- Trouble-free analysis by Hg separation
- Measuring range from 0 to 1500 ng Hg with „dual signal technology“
- Compact system with color graphic terminal and application software
- Complete logging of all working parameters
- Elimination of spectroscopic perturbations
- Low operating costs per analysis

FAST AND RELIABLE ANALYSIS BY COLD VAPOR ATOMIC ABSORPTION TECHNIQUE

With the mercurio CV system, the total Hg analysis of a sample with response and measurement time is achieved in just 2-3 minutes. For even lower detection limits and trouble-free analysis, the extremely sensitive enrichment process can be changed within a few seconds. Interference due to non-specific absorption is eliminated. The new cuvette design allows different sample volumes from high Hg concentrations to extremely low levels <math><0.0005\text{ }\mu\text{g / L}</math> to be determined. The advantage here is the low contamination susceptibility of the system by a parallel flushing. Cleaning and rinsing is prevented after

high Hg values, therefore its no longer time consuming. The mercury analysis system with integrated AA spectrometer, automatic 6-channel pump, gas / liquid separation unit and the special low-pressure plasma Hg lamp ensures excellent sensitivity. The efficient evaporation and enrichment offers a range of application from 0 to 1500 ng Hg without dilution steps. The mercurio CV can also check and calibrate the pump delivery channels before each use. The system is based on the cold vapor atomic absorption method (CV-AAS) and can optionally be equipped with the atomic fluorescence spectroscopy technique (AFS).

STANDARDIZED ANALYSIS OF MERCURY

The standards for the determination of mercury must be strictly observed worldwide. Our mercurio CV supports all common methods and guarantees standard-compliant analysis of mercury according to:

- EPA 245.1, EPA 245.2, EPA 245.5, EN ISO 12846, EN 13806, etc. (AAS-Technology)
- EPA 245.7, EPA 1631, EN ISO 17852, etc. (AFS-Technology)
- EPA Method 30B, EPA Method IO-5, EN 15852/2010, HJ-910/2018 (Gas-ACC-Technology)

AMALGAM-TECHNOLOGY

The amalgam technique allows complete Hg retention for the entire measurement range and automatic elimination of spectral interference. Thanks to 100 times improved sensitivity, extremely accurate readings can be achieved.

DUAL-SIGNAL TECHNOLOGY

Dual signal technology guarantees maximum selectivity and precision. Thanks to 2 signals per sample, a measuring range of 0.00005 to 1500 ng Hg is covered.

WET-CHEMICAL PARTS

Parts such as the gas separation unit, mixing block or connectors are designed outside the unit so they can be quickly and easily cleaned or replaced. The transport gas is automatically dried without expensive additional gas. Additionally the transport gas lines to the amalgam trap and measuring cuvettes are monitored by a droplet sensor. This results in an extremely high sensitivity of about 20 pg Hg (1% A) and a detection limit of <0.0005 ng Hg.

INDIVIDUAL C L A I M S

PC-VERSION THE ALTERNATIVE TO THE TERMINAL

In the PC version, the terminal of the mercurio CV system is replaced by a PC software package. The control of the device and evaluation of the data is made possible directly on a personal computer with WINDOWS operating system. This makes the PC workstation in the lab also the control panel for the mercurio CV.

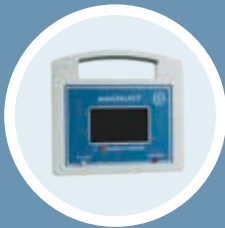
DOUBLE-BEAM TECHNOLOGY HIGHEST STABILITY ENSURES PRECISE RESULTS

The new, protected double-beam technology compensates the signal drift after a few seconds of being switched on. As a result, the device is quickly in an optimal operating condition. The double-beam arrangement works without energy loss, offers the highest long-term stability and better detection limits. Another advantage is the compensation of the lamp drift with temperature fluctuations in the working area.

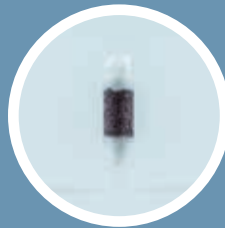
ATOMIC ABSORPTION (AAS) AND ATOMIC FLOURESCENCE (AFS) IN ONE SYSTEM

Optionally, the mercurio CV system can be equipped with the AFS or AAS / AFS combination technique. The AFS technique is preferred when excellent detection limits and large linear ranges are required. The AAS technique scores with robustness in comparison to gas-phase interference and is designed to handle difficult matrices.

ALL IN ONE



autoCOLLECT-G



Hg-Gold-Cartridge



Gas-ACC-Unit



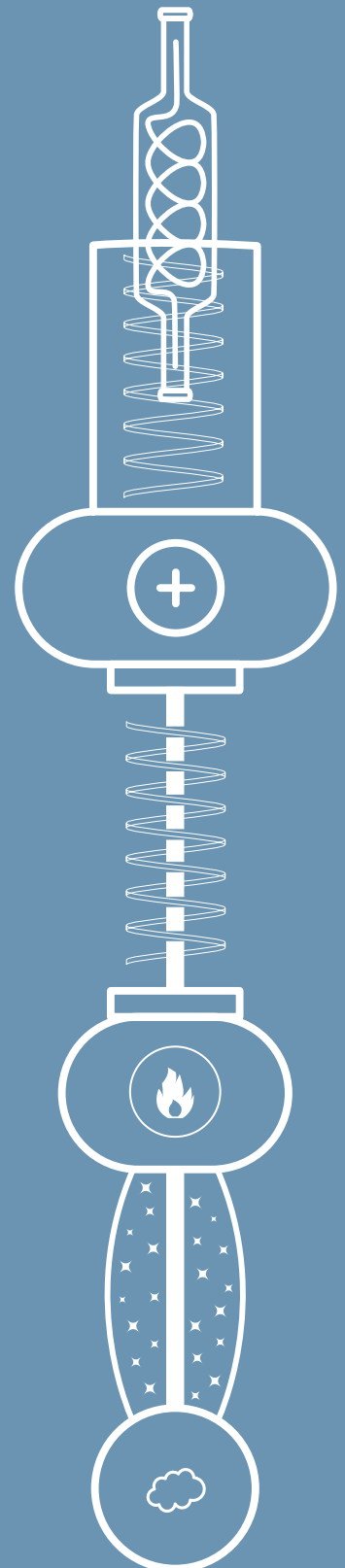
mercurio CV

GAS-ACC-ANALYSIS WITH HG-GOLD CARTRIDGE

The Gas-ACC-Unit, together with our proprietary Hg-Gold cartridges, enables Hg analysis in gases. The metallic mercury (Hg^0) is collected with special gold-coated quartz cartridges. For the mercury determinations in gases only the appropriate method must be selected and already the mercurio CV system becomes a Hg gas analyzer. For standard measurements and for creating calibration curves, only an empty cartridge is used instead of the collecting cartridge.

AUTOCOLLECT-G AND MERCURIO CV IN COMBINATION

With the expanded Gas-ACC-Unit, the mercurio CV is transformed from a Hg analyzer for pure, aqueous samples to a multifunctional system for liquids and gases. In a few minutes, the collected samples of the autoCOLLECT-G can be analyzed directly in the mercurio CV device. The mercury in gases is collected with the autoCOLLECT-G system locally in mobile use. Gas volume, temperature and air pressure are automatically recorded. By using our Hg-Gold cartridges, only metallic mercury (Hg^0) is retained in the form of Au amalgam. The accumulated data is imported directly from the autoCOLLECT-G into the dataset of the mercurio CV via USB interface. The finished collected Hg-Gold cartridge is then used at the Gas-ACC-Unit of mercurio CV and already the analysis can be started.



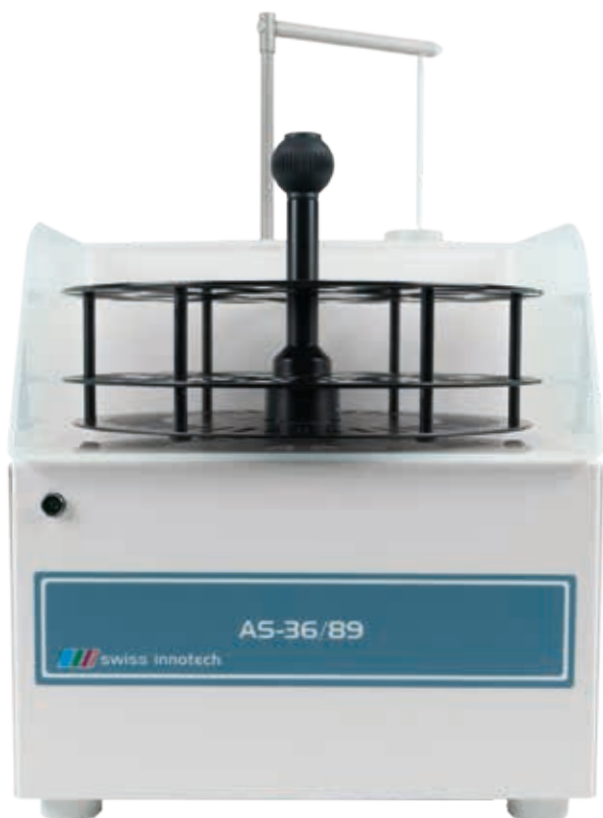
AS 36/89

AUTOMATIC



AUTOMATIC SAMPLE CHANGER

The use of the sample changer with built-in rinsing module allows automatic measurement of aqueous samples. There is a sample turntable with 36 samples with 50 ml each and a second variant with 89 samples with 10 ml each. The device program automatically recognizes the sample holder used in each case, which is operated and controlled directly via the mercurio CV touchscreen. An automatic volume adjustment optimizes the limits of determination. The sample capillary moves into the flushing position after each sample (overflow system), cleans the tubing, prevents contamination and reduces the blank value.



A U T O M A T I C
C H E M I C A L S - C L E A N I N G
F O R C O L D V A P O R T E C H N O L O G Y



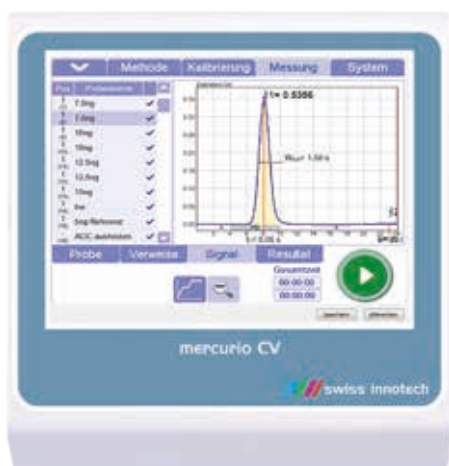
The Hg-PUR system automatically cleans the chemicals such as stannous chloride and acids for the cold vapor technique. The system is connected to the peristaltic pump and the gas supply of the cold vapor unit. The cleaning in the Hg-PUR takes place without the use of additional chemicals during the reaction. Expensive cleaning with helium or nitrogen overnight is no longer necessary. As a result, the time and cost expenditure is significantly reduced.

CLEAN

CHEMISTRY

SIMPLY

SMART!

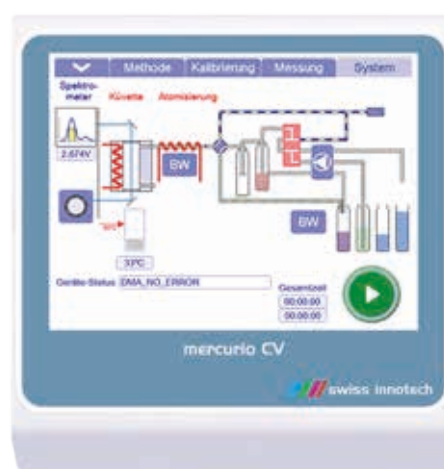


μCONTROL TERMINAL

The mercurio CV is controlled by a compact terminal with an easy-to-read, bright and full-colour touch-screen display. Optimum handling is ensured by the variably adjustable viewing angle of the screen. The terminal has various USB and RS 232 interfaces, LAN interface and video interfaces for a possible camera connection. Optionally, a PC version is also available in which the terminal is replaced by a standard desktop PC or laptop and equipped with our intelligent control and evaluation software easyCONTROL.

easyCONTROL SOFTWARE

The easyCONTROL is user-friendly and optimally tailored to meet one's needs. Multilingual and equipped with matching icon symbols. It supports all methods, displays the element signals graphically, automatically calculates the concentration and outputs the calculated values in tabular form. „Just one touch“ is required to call up and start the stored methods DIN-EN and US-EPA. The complete measurement logs with results can be printed out directly or via a PC as report with diagrams.



FACTS / PROPERTIES

Technology	CV-AAS (cold vapor technology)
Working range	0 to 1500 ng Hg
Sample volume	0.05 ml to 50 ml
Detection limit	< 0.0005 ng
Wavelength	253.65 nm
Conformity	CE-Sign
Warranty	12 Month

TECHNICAL DATA

Power supply	220 V to 240 V / 50 Hz
Power consumption	max. 500 VA (heating phase)
Screen	Touchscreen (coloured)
Software	easyCONTROL (Hg-Software)
Accessories	Power cable, Pump hoses
Dimensions WxDxH	32 x 46 x 40 cm (with terminal)
Weight	16 kg

THINK AHEAD

Our solutions for
laboratories

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