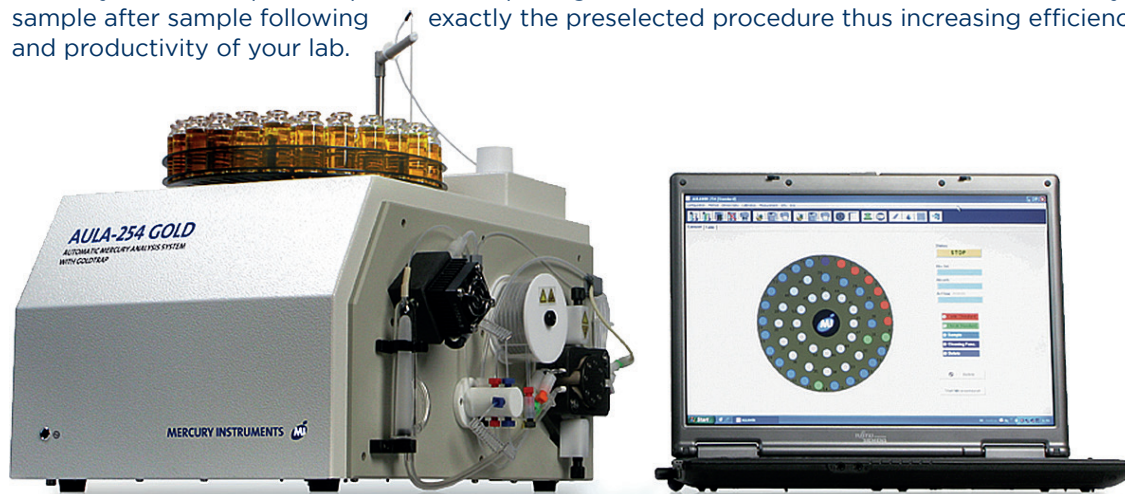


## Automatic Mercury Analyzer AULA-254 Gold

### LABORATORY

The Automatic Mercury Analyzer AULA-254 Gold is designed for fully automatic determination of mercury traces in liquid samples and sample digests. The instrument carries out routine analysis: sample after sample following exactly the preselected procedure thus increasing efficiency and productivity of your lab.



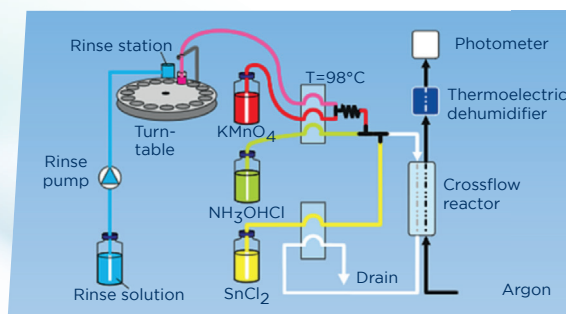
### MAIN APPLICATIONS

- Environmental monitoring: Water, soils, sludge ...
- Analysis of foodstuffs: fish, innards, plants ...
- Medicine: urine, blood, saliva, hair ...
- Chemical industry: process monitoring, quality control ...
- Geochemistry, mining
- Petrochemistry
- Metallurgy and material testing
- Applicable to EPA Methods: 245.1, 245.7, 1631, 7470, 7471A ...

### SPECIFIC FEATURES

- Fully automated flow analysis system
- Compact modular construction
- Integrated GoldTrap for maximum of sensitivity: <math><1 \text{ ng/l}</math>
- Wide linear measuring range
- Easy to operate with AULAWIN software
- Automatic purging after exceedance of mercury concentration
- Minimized memory effect
- Thermoelectric dehumidifier
- Low reagent consumption
- Safety for the user

### RELIABLE AND PROVEN MEASUREMENT METHOD



Schematic flow diagram: AULA-254 Gold with Automatic Sample Digester ASD

The working principle of the system is based on the continuous flow method. First the mercury contained in the sample is transformed into the elemental state by addition of a reducing agent to the sample flow. In a cross-flow reactor the mercury is stripped with a gas stream and carried into the optical cell made entirely of fused silica. There the quantitative determination of mercury is obtained by measuring UV absorption at a wavelength of 253,7 nm at room temperature. This analytical technique is commonly known as cold vapor atomic absorption spectrometry (CVAAS), a method that has proved to be extremely sensitive and selective for many years.

## OPTION: Automated Sample Digestion module (ASD)

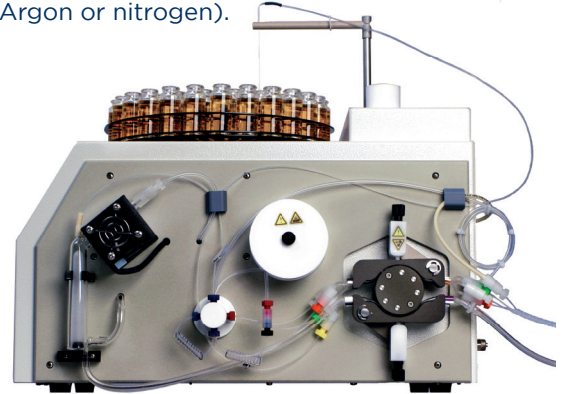
The AULA-254 can be equipped with an optional sample preparation system for aqueous and digested samples. The digestion procedure derives from standard methods commonly used in the laboratory.

The sample is automatically drawn from the auto-sampler vial and is continuously mixed with a strong oxidizing reagent (e.g. potassium permanganate, bromide-bromate). Subsequently the sample/oxidant mixture is heated to approx. 98 °C in a heated coil. After the oxidation step hydroxylamine hydrochloride and tin-(II)-chloride are added for reduction of mercury into the elemental state which is then extracted by a stream of carrier gas (Argon or nitrogen).

Normally it takes less than 4 minutes to perform an automatic analysis.

### TECHNICAL SPECIFICATIONS

Measuring principle:	UV absorption (CVAAS), wavelength = 253.7 nm
Principle of preconcentration:	Amalgamation on gold, thermal desorption by rapid heating (MI GoldTrap)
UV source:	Electrodeless low-pressure mercury lamp (EDL)
Stabilization method:	Reference beam method
Optical cell:	Fused silica (Suprasil) l = 230 mm heated, approx. 45°C
Measuring range:	<ul style="list-style-type: none"> <li>• 10 ng/l to 50 µg/l (GoldTrap off)</li> <li>• 1 ng/l to 5 µg/l (GoldTrap on)</li> </ul>
Detection limit:	<ul style="list-style-type: none"> <li>• &lt;50 pg Hg (GoldTrap off)</li> <li>• &lt;5 pg Hg (GoldTrap on)</li> </ul>
Carrier gas:	argon (optional nitrogen), 4-6 l/h; stabilized with electronic mass flow controller
Autosampler:	53 place random access, on turntable
Sample vials:	10 ml, glass; aluminium foil disc covers
Sample consumption:	approx. 1 ml
Heating coil temperature:	approx. 98 °C (AULA-ASD only)
Zero drift:	none, Auto zero before each measurement
Measuring duration:	typ. 60 - 180 seconds
Software:	AULA-WIN, Windows™ compatible
Power supply:	<ul style="list-style-type: none"> <li>• 110 V AC/ 60 Hz;</li> <li>• 230 V AC / 50 Hz</li> </ul>
Power consumption:	approx. 100 VA (AULA-254-ASD: 120 VA)
Dimensions (WxHxD):	37 x 38 x 44 cm
Bench space requirements (W x D):	approx. 50 x 70 cm (PC not included)
Weight:	approx. 14 kg (PC not included)



### Standards for the AULA- 254 Gold

Compliant with:

ISO 6637 (fruit, vegetables and derived products)  
 ISO 11212-2 (starch and derived products)  
 ISO 16772 (soil quality)  
 ISO 17733 (workplace air)

European methods:

EN 1483 (water quality)  
 EN 12497 (paper and board-paper in contact with foodstuffs)  
 EN 13806 (foodstuffs)  
 EN ISO 12846 (water quality)

EPA methods:

7470A (liquid waste)  
 7471A (solid or semisolid waste)  
 245.1 (drinking, surface, and saline waters, domestic and industrial wastes)  
 245.5 (soils, sediments, bottom deposits and sludge type materials)  
 245.6 (tissues)

ASTM E538 (caustic soda and potash)

FSIS USDA Food Safety and Inspection Service Method for Mercury Determination in Food

The Ontario Hydro Method (stack gas)

Product developed and manufactured in Germany by:

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