



# Solutions for **mercury** analysis



## ADVANTAGES

Lumex Instruments analyzers are supersensitive highly selective real-time instruments that do not require any chemicals and any compressed gases for the operation. Thereby most of the samples are analyzed directly avoiding time-consuming sample preparation. Robust design, low running and maintenance cost are the distinctive features of the instruments.

## ZEEMAN SPECTROSCOPY

Operation of all our mercury analyzers is based on differential Zeeman Atomic Absorption Spectrometry using high frequency modulation of light polarization (ZAAS-HFM).

## WORLD RECOGNITION

Lumex Instruments mercury analyzers are used by thousands customers worldwide for research, environmental and industrial applications, and we are doing our best to give our full support to the customers wherever our solutions are installed.



**ENVIRONMENTAL APPLICATIONS**



**EMISSIONS MONITORING**



**INDUSTRIAL APPLICATIONS**



**FOOD ANALYSIS**



**HUMAN BIOMONITORING**



**HEALTH & SAFETY**



**OIL & GAS INDUSTRY APPLICATIONS**



**SCIENTIFIC RESEARCH**

# Lumex Mercury Analysers



**RA-915M** is a supersensitive highly selective mercury analyzer that allows real-time operation for air and gases under lab and field conditions. Moreover, RA-915M is a versatile portable multifunctional analyzer capable of analyzing gaseous, liquid and solid samples when combined with RP-92 Cold Vapor and Pyro-915+ Pyrolysis attachments. Its wide dynamic measuring range covers up to six orders of magnitude. The analyzer is robust and easy to use. It is equipped with a built-in performance verification test cell and auto zero function. No chemicals, no compressed gases are needed for the operation.



**PYRO-915+ attachment** implements unique advantages of Zeeman AAS: direct analysis of any solid and liquid samples excluding sample preparation procedures. The PC programmable heating modes and full control over atomization process makes it possible to optimize analysis conditions for specific samples over a wide range of the mercury concentrations.



**RP-92 attachment** is designed for fast, sub-ppt analysis of liquid samples using classical Cold Vapor technique.



**RP-91NG attachment** provides direct analysis of hydrocarbon gases of complex composition. The technique significantly simplifies sampling and enables analyses both from the gas stream and from gas containers (Tedlar® bags, cylinders, etc.).



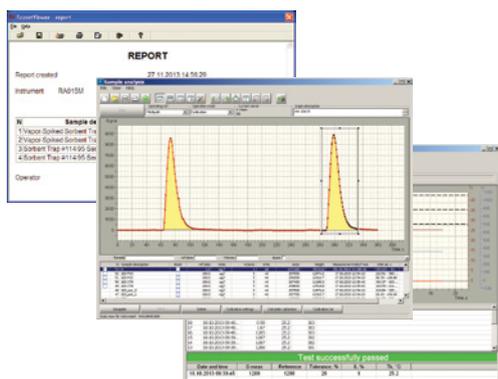
**RA-915 Lab** is a unique laboratory analyzer for routine and specific analyses of solid and liquid samples of any composition. Direct analysis does not involve sample pre-treatment and compressed gases. The analyzer has low limit of detection, wide dynamic range, long-term calibration stability. RA-915 Lab is optionally equipped with autosampler for 45 positions.



**Light-915** is a compact light-weight instrument for workplace monitoring, pollution revealing and mapping, and mercury spill clean-up verification. As compared to RA-915M, it is equipped with a shorter analytical cell to expand the measurement range up to mg/m<sup>3</sup> and simpler interface and is intended for measuring higher mercury concentrations. Data logger has capacity for 122 hrs data acquisition.

## Software

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Powerful **RAPID software** provides serviceability check up, data acquisition, storage and processing for continuous monitoring and all kinds of samples analyses.

RAPID software enables thermoscanning option for mercury thermospeciation study and closed-loop automatic temperature adjustment control for analysis of samples with very high mercury concentration.

## Lumex Mercury Monitors

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**RA-915AM** is designed for the continuous mercury concentration measuring in ambient and indoor air, in hydrocarbon and process gases. This stand-alone monitor has the highest sensitivity and selectivity and is optimized for long-term unattended continuous measurements. No compressed gases are required. Optional multiplexer enables sampling from 2 to 16 points.

It operates in automatic mode, including automatic zero drift and span drift correction, automatic recalculation to standard conditions, self-diagnostic and preventive maintenance functions.

## Stack gas sampling and analysis

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**Sorbent Trap method** is the most cost-effective and accurate method for mercury measurement in flue and process gases. For over 15 years, the method has been widely used in power generation industry, cement production industry, etc. Sorbent traps are fine-tuned and customized to different types of source conditions. They provide total mercury measurement as well as speciated mercury measurement (oxidized and elemental mercury). The reliability of Sorbent Trap method is RATA proven. Traps are specifically designed to assure the best US EPA Method 30B performance.



**The OLM30B** is a dual train, fully functional sampling system, complete with mass flow controllers, vacuum gauges, a Watlow controller with thermocouple input and probe power port.

The system is fully compliant with US EPA Method 30B and the most portable sampling system with exceptionally steady flow control.

# Applications

## ENVIRONMENTAL APPLICATIONS

analyses of soils and sediments, biota, ambient air, passive air samplers, natural and waste waters, precipitations, contaminated sites revealing and mapping

## EMISSIONS MONITORING

analyses of stack/flue gases, fly ash, coal and other fuels, sludge, gypsum, absorbents, etc.

## INDUSTRIAL APPLICATIONS

analyses of raw materials, process gases, quality control, waste management

## FOOD ANALYSIS

analyses of all kinds of food products (fish, meat, cereals, vegetables, beverages, etc.)

## HUMAN BIOMONITORING

exhaled air, urine, hair, and blood analyses

## HEALTH & SAFETY

workplace monitoring, human health and safety risk assessment

## OIL & GAS INDUSTRY APPLICATIONS

monitoring of hydrocarbon gas, analyses of crude oil and gas condensate, naphtha, sludge, stratal and waste waters

## SCIENTIFIC RESEARCH

geochemistry, biogeochemistry, volcanology, medicine, toxicology

### Matrix

### Configuration of the equipment

Ambient air	RA-915M, Light-915, RA-915AM
Natural gas and other gases	RA-915AMNG, RA-915M with RP-91NG
Water, aqueous solutions, sub-ppt +	RA-915M with RP-92 (Cold vapor)
Water, aqueous solutions, ppb +	RA-915M with PYRO-915+, RA-915 Lab
Solid samples (soils, rocks, sediments)	RA-915M with PYRO-915+, RA-915 Lab
Stack gases with sorbent traps	RA-915M with PYRO-915+, RA-915 Lab
Coal and other solid fuels	RA-915M with PYRO-915+, RA-915 Lab
Oil and oil products	RA-915M with PYRO-915+, RA-915 Lab
Biological samples (tissues, blood, hair, etc.)	RA-915M with PYRO-915+, RA-915 Lab
Biological samples (urine)	RA-915M with RP-92 (Cold vapor)
Foodstuff, animal feeding, raw materials	RA-915M with PYRO-915+, RA-915 Lab



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