

## DIRECT AA **MERCURY** DETERMINATION IN BIOSAMPLES

### INTRODUCTION

Mercury is recognized by WHO as one of the top 10 chemicals or groups of chemicals of major public health concern.

Mercury exposure level is determined by analysis of blood, hair, nails, and other biosamples. The use of atomic absorption **mercury analyzer RA-915M** with Zeeman background correction equipped with **PYRO-915+** pyrolytic attachment provides **direct mercury determination** in all these biological samples at a ppb level that enables fast screening of population exposure to mercury, risk groups revealing, treatment and rehabilitation control. The equipment can be used at stationary and mobile laboratories.

### MEASUREMENT METHOD

The measuring method is based on the direct thermal atomization of mercury from a sample using a **PYRO-915+ attachment** and its consequent determination by flameless AAS with Zeeman background correction (ZAAS) using a **RA-915M mercury analyzer**.

This technique does not involve preconcentration on a gold trap and "cooling step", thereby eliminating errors brought about by sample pre-treatment. The use of ZAAS combined with a "dry" converter provides the highest sensitivity with no interferences from the sample matrix. Ambient air is used for combustion, so that no cylinders with oxidizer or compressed gases and "clean room" environment are required.

***The total time needed for determination of mercury is not longer than 2 minutes.***

### MEASUREMENT RANGE

Biosamples	Sample weight,	Measurement range, ppb
Hair, Nail	5 – 50 mg	2 – 200,000
Blood	50 – 200 µl	
Urine	50 – 200 µl	
Tissues, Skin	5 – 300 mg	

### ANALYSIS FEATURES

- Direct analysis, sample digestion with strong acids is not necessary.
- It is only sample homogenization that is needed for sample preparation.
- Control of non-selective absorption during the measurement process allows optimizing of sample weight.
- Low running cost (no reagents and compressed gases such as oxygen or argon are needed).
- SRMs with any matrix (both liquid and solid) can be used for calibration.

### EQUIPMENT AND REAGENTS

The following equipment and materials are used for analysis:

- Mercury analyzer RA-915M with PYRO-915+ attachment;
- PC with Windows® XP/Vista/7/8/10 and RAPID software;
- SRM of mercury.

The contents on this paper are subject to change without notice.

To get more specific information, please contact the representative by [sales@lumexinstruments.com](mailto:sales@lumexinstruments.com)