



DIRECT DETERMINATION OF MERCURY CONTENT IN AMBIENT AIR

INTRODUCTION

Mercury, being widespread in environment, has toxic effect on a human organism even at a low concentration. Therefore, quantitative determination of mercury in various environments is one of the most important environmental monitoring problems. The use of a mercury analyzer RA-915M (Light-915) with Zeeman background correction provides direct real-time continuous determination of mercury in air within the overall possible range of mercury concentration in ambient air.

MEASUREMENT METHOD

The method of mercury concentration measuring in air is based on determination of atomic mercury by AAS with Zeeman background correction employed in each of the **RA-915M (Light-915) mercury analyzers**.

The portable analyzer is placed at a sampling point and the air continuously flows into its analytical cell. The measurement results are displayed on the screen of the display and control unit of the analyzer or the display of a connected PC. The blank signal is regularly checked by passing the air through an absorption filter. Serviceability check is performed using a built-in test cell.

A special "Monitoring" mode provides long-term measurements automatically.

MEASUREMENT RANGE

The measurement ranges of the mass concentration of mercury in air are:

0.5–20,000 ng/m³ (RA-915M, multipath cell);

500–200,000 ng/m³ (RA-915M, single-path cell);

0.1–3000 µg/m³ (Light-915).

Technical capabilities of the analyzer multipath cell provide the following detection limits to be obtained:

1 ng/m³ (at time response 1 sec);

0.5 ng/m³ (at time response 10 sec) in accordance with EN 15852:2010 standard).

ANALYSIS FEATURES

- Low limit of detection, wide range of measurement.
- High selectivity.
- Real-time measurement.
- Stable calibration.
- Direct mercury determination without its preliminary pre-concentration on a sorbent.
- Capability to perform field analysis and survey on a moving vehicle (automobile, helicopter, river or sea vessel).
- Data logger for results of 122-hour measuring in the "Monitoring" mode.
- Low maintenance, low running cost.

EQUIPMENT AND REAGENTS

The following equipment and materials are used for analysis:

- Mercury analyzer RA-915M (Light-915);
- PC with Windows[®] XP/Vista/7/8 and RAPID software.

The information in this leaflet is supplemental. To get more specific information on this method, please contact the developer of this method LUMEX INSTRUMENTS Group.

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