



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/RA-915+/RA-915Light with Zeeman background correction provides direct real-time continuous determination of mercury in air from 0.5 ng/m^3 within the overall possible range of mercury concentration in ambient air.

MEASURING 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/RA-915+/RA-915Light 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:

$0.5\text{--}20,000 \text{ ng/m}^3$ (RA-915+/915M, multipath cell);

$500\text{--}200,000 \text{ ng/m}^3$ (RA-915+/915M, single-path cell);

$0.1\text{--}3000 \text{ }\mu\text{g/m}^3$ (RA-915Light).

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

2 ng/m^3 (at time response 1 sec);

0.5 ng/m^3 (at time response 10 sec in accordance with EN 15852:2010 standard).

ANALYSIS FEATURES

- Direct mercury determination without its preliminary pre-concentration on a sorbent. This brings about low cost and short time of analysis, and enhances the validity and accuracy of analysis.
- 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.

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