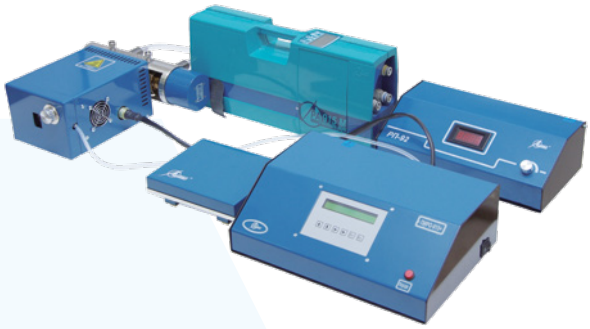
RA-915M

Zeeman mercury analyzer

Mercury determination in natural gas according to ASTM D5954-98(2014)e1 and ISO 6978-2:2003



INTRODUCTION

ASTM D5954-98(2014)e1 and **ISO 6978-2:2003** standards specify a method for determination of the mercury mass concentration down to 0.001 μg/m³ in pipeline quality natural gas. These standard methods are based on collection of mercury by amalgamation on a gold/platinum alloy with the follow-up desorption of atomic mercury and its determination by means of AAS or AFS. Lumex Instruments has developed a practical guidance for implementing **ASTM D5954-98(2014)e1** and **ISO 6978-2:2003** methods using **RA-915M** mercury analyzer.

MEASUREMENT METHOD

The method includes two consecutive stages:

- Gas sampling:
  A known volume of natural gas passes through a sampler with installed sampling tubes and a flow meter; mercury is accumulated on the sorbent due to amalgamation.
- Analysis:
  The sampling tube is heated up to 700–800°C, the collected mercury is released and its mass is measured using RA-915M mercury analyzer.

Reusable sampling tubes for mercury sampling from natural gas.

Procedure of the sorption trap analysis.

MEASUREMENT RANGE

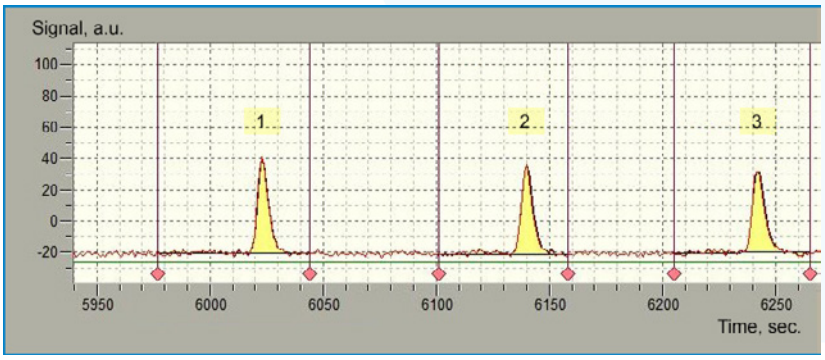
The measurement range of the mercury mass concentration in natural gas is **0.001–100 μg /m³**.

EQUIPMENT AND REAGENTS

The following equipment and materials are used for analysis:

- Gas sampler for sampling tubes according to ASTM D5954-98(2014)e1 and ISO 6978-2:2003;
- Mercury analyzer RA-915M with PYRO-915+ and RP-92 attachments;
- PC with Windows® and RAPID software;
- Kit for mercury determination in natural gas (includes sampling tubes, CRM of mercury ions, and activated carbon with mercury content ≤2 ppb).

EXAMPLES OF ANALYSIS



Results of analyses of the sampling tubes spiked with 0.5 ng of mercury:
1 – 0.514 ng;
2 – 0.515 ng;
3 – 0.506 ng.
One measurement takes 2 minutes.

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