

RA-915 series

ZEEMAN AA SPECTROMETER



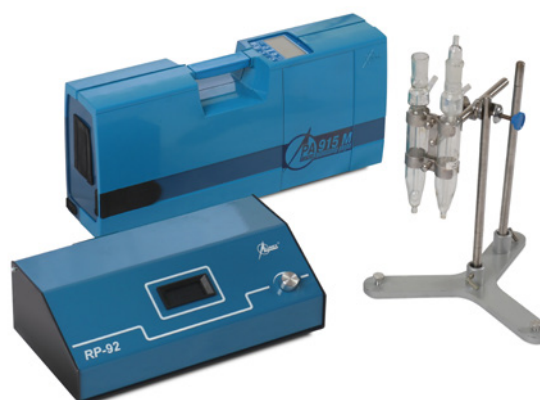
Total mercury determination in water by CVAAS

INTRODUCTION

Mercury determination in surface, drinking and waste waters is one of the most popular analyses used for environment pollution and sanitary control.

MEASUREMENT METHOD

The method is based on the cold-vapor technique (CVAAS). Samples of natural and waste water must be pre-treated using the appropriate standard digestion procedures. Detection limit (DL) is 0.00005 ng of Hg which corresponds to 0.0001 µg/L (0.1 ng/L) for sample volume 5 mL. The working range of the method is determined by the measured mercury concentration in the blank sample and starts from 50 % of Cblank value.



RA-915M + RP-92

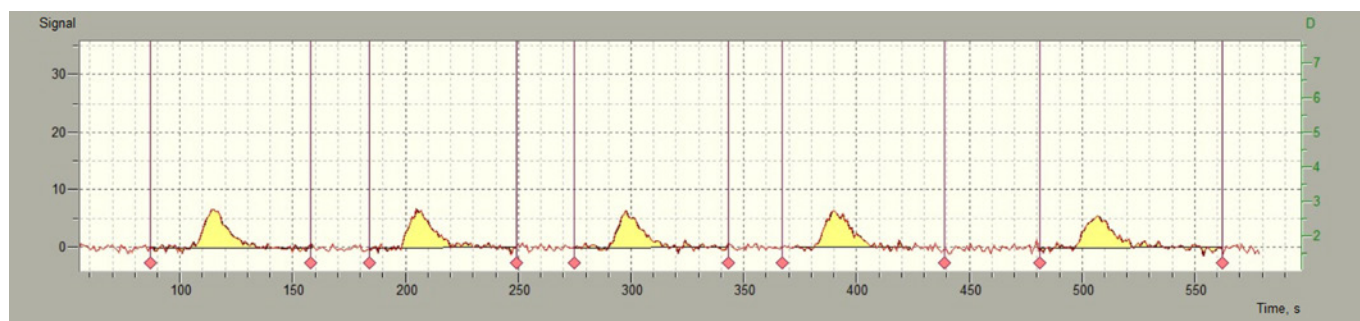


Fig. 1. Peaks corresponding to injection of the 0.005 ng of Hg (10 mL of the Hg ions stock solution with concentration 0.5 ng/L).

EQUIPMENT AND REAGENTS

The following equipment and materials are used for analysis:

- Mercury analyzer RA-915M with RP-92 or URP attachment;
- PC with Windows® 7/8/10 and RAPID software;
- Lumex Instruments kit, order No 0300003071.

COMPATIBLE METHODS LIST

- EPA Method 245.1
- ISO 12846:2012
- ASTM D3223-17
- AOAC Official Method 977.22
- APHA/AWWA/WEF Standard Method 3112
- HJ 597-2011
- GB 8538-2016
- IS 3025: Part 48:1994
- IS 12041:1987
- TCVN 7877:2008

Directives & standards for drinking water	Limits, µg/L
WHO Guidelines for drinking water quality (2011)	6
Drinking Water Directive 98/83/EC	1
US EPA National Secondary Drinking Water Regulations	2
TR EAEU 044/2017 Technical Regulation on Packaged Water	0.2 / 0.5 / 1
Japan Drinking Water Quality Standards (2015)	0.5
GB 5749-2006 Standards for drinking water quality	1
GB 2762-2017 National food safety standard – Maximum levels of contaminants in foods	1
IS 10500:2012 Drinking Water – Specification	1
QCVN 01:2009/BYT National technical regulation on drinking water quality	1
Brazil Portaria de consolidação No 5, Anexo 7 do Anexo XX	1
Código Alimentario Argentino. Capitulo XII	1

For water samples with a relatively high mercury content (above 2 µg/L), a rapid method of direct pyrolysis (without any sample pre-treatment) can be provided by RA-915M analyzer combined with PYRO-915+ attachment. The complete analysis takes 1–2 minutes.

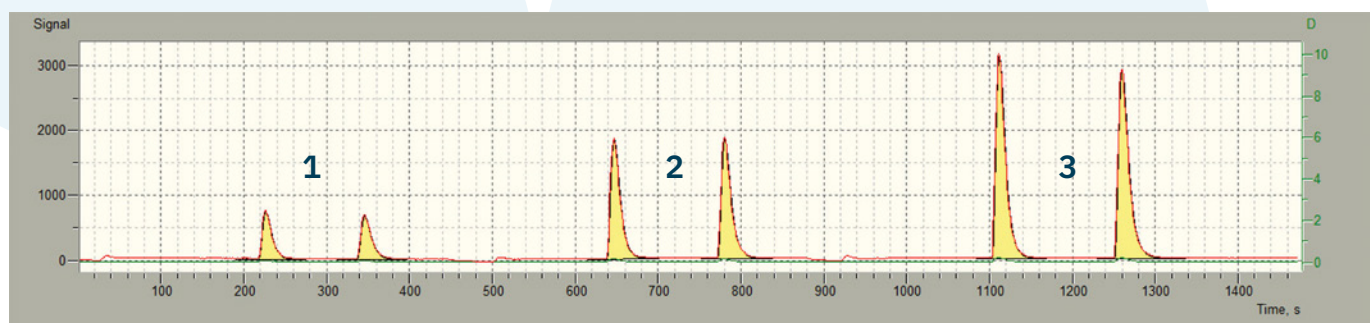


Fig. 2. Examples of analysis of the surface (1) and waste (2, 3) water using EPA Method 245.1.

Water samples	Measured value, µg/l
1 OK L4-14	0.51±0.10
2 OK 13-10	1.9±0.5
3 OK C3-13	5.2±0.7



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