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Specifications and test procedures for automatic/on-line monitoring of Lead in Water

铅水质自动在线监测仪技术要求及检测方法

(English Translation)

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Foreword

In order to implement the Environmental Protection Law of the People's Republic of China and the Law of the People's Republic of China on the Prevention and Control of Water Pollution, Automatic on-line monitoring instrument technical performance, improve the ability of China's water environment monitoring work, the development of this standard.

This standard provides the lead water quality automatic on-line monitoring instrument technical requirements and performance indicators and testing methods.

This standard is the first release.

This standard is organized by the Ministry of Environmental Protection Science and Technology Standards Division.

The main drafting unit of this standard. China Environmental Monitoring Station.

This standard is approved by the Ministry of Environmental Protection on October 22, 2015.

This standard is implemented as of December 1, 2015.

This standard is explained by the Ministry of Environmental Protection.

Technical requirements and testing methods for automatic on - line monitoring of lead water quality

1 Scope of application

This standard specifies the technical requirements, performance indicators and testing methods of lead water quality automatic on-line monitor.

This standard applies to the production of water quality automatic on-line monitor design,

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application selection and performance testing.

For the different applications of lead water quality automatic on-line monitor (hereinafter referred to as "instrument"), provides a two-type instrument the detection range.

I-type instrument detection range. 0.005 ~ 0.2 mg/L, mainly used in surface water, groundwater and drinking water monitoring.

The detection range of the II type instrument is 0.2 ~ 2 mg/L, which is mainly used in the monitoring of domestic sewage and industrial wastewater.

2 Normative reference documents

The contents of this standard refer to the following documents or their terms. Those who do not specify the date of the reference file, the effective version of the appropriate for this standard.

GB 4208 enclosure protection class (IP code) GB/T 7470 Water quality - Determination of lead - Dithizone spectrophotometric method Methods for determination of copper, zinc, lead and cadmium in water - Atomic absorption spectrophotometric method GB 7475 GB/T 13306 signs HJ/T 212 Pollution Source Online Automatic Monitoring (Monitoring) System Data Transmission Standard

3 Terms and definitions

The following terms and definitions apply to this standard.

Standard check with standard solution the instrument measures the standard solution and determines the accuracy of the measurement results.

The lower limit of quantification the instrument can determine the minimum concentration of the substance to be measured, subject to the indication of the indication error.

Memory effect

The degree of influence of the instrument on the next measurement after a standard solution or water sample is measured.

Standard sample

The instrument was measured before adding a certain concentration of standard solution before and after the actual water samples, calculated after adding the standard solution measured value the percentage of the amount added relative to the theoretical addition.

Zero drift

In the absence of unplanned instrument maintenance and calibration under the premise of the required cycle to continuously measure the concentration value for the detection 2

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range of the lower limit of the standard solution, the measured value of the instrument and the relative deviation between the initial value.

Range drift

In the absence of unplanned instrument maintenance and calibration under the premise of the required cycle to continuously measure the concentration value for the detection the upper limit of the range of 80% of the standard solution, the measured value of the instrument and the relative deviation between the initial value.

Data efficient availability of data the number of test data that meets the required test data in the minimum maintenance cycle is the percentage of all test data.

Indication error

The relative error between the measured value and the true value of the instrument.

Environmental temperature stability the instrument measures the error of the standard solution, measured value and reference value at different ambient temperatures.

3.10

Ion interference

Instrument to add the interference of the standard solution to measure the measured value and the true value of the indication error.

3.11

Run the log

During the operation of the instrument automatically record the test conditions, fault, maintenance and other status information and daily calibration, parameter changes, etc.

Maintenance records.

3.12

Consistency conformity the degree of parallelism of the measured values of multiple instruments under the same test conditions.

3.13

Minimum maintenance period During the inspection process, the instrument is not subjected to any manual maintenance (including replacement of reagents, calibration equipment, etc.) until the instrument the device can not maintain the normal measurement status or the total run time (hours) of the measurement result that does not meet the relevant requirements.

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4.1 Instrument composition

The basic composition of the instrument shown in Figure 1, mainly contains the following units.

3 Figure 1 The basic components of the instrument Injection/metering unit. including water samples, standard solution, reagents and other imported parts (water-containing channels and standard solution channels) and metering part.

Digestion unit. the water sample lead element and its compounds into lead ion part.

Analysis unit. by the reaction module and the detection module, through the control unit to complete the automatic analysis of the material to be measured, and converts the measured value into a portion of the electrical signal output.

Control unit. including the system control hardware and software, to achieve injection, digestion, drainage and other operations of the part.

4.2 Basic requirements

4.2.1

The instrument should mark the product nameplate in the eye-catching area, the content should include the production unit, the production date, the product number, the range Wai, power, working conditions and other conditions, in line with GB/T 13306 requirements.

4.2.2

The display should be free of stains and damage. All display interface should be Chinese, and the characters are uniform, clear, no dark corners of the screen, Dark spots, rainbow, bubbles, flashing and so on, according to the display prompts for the whole program operation.

4.2.3

Chassis shell should be made of corrosion-resistant materials, the surface without cracks, deformation, pollution, burrs and other phenomena, the surface coating are Uniform, no corrosion, rust, shedding and wear.

4.2.4

product assembly should be strong, no loose parts, buttons, switches, door locks and other components flexible and reliable.

4.2.5

The main parts shall have corresponding identification or textual description.

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