HJ

NATIONAL ENVIRONMENTAL PROTECTION STANDARD

OF THE PEOPLE'S REPUBLIC OF CHINA

HJ 609-2011

The technical requirement for water quality automatic on-line monitor of chromium (VI)

水价铬水质自动在线监测仪技术要求

Issued on: February 11, 2011 **Implemented on: June 01, 2011**

Issued by: Ministry of Environmental Protection

Announcement

2011 No.12

Ministry of Environmental Protection

of the People's Republic of China

To implement "*Environmental Protection Law of the People's Republic of China*", protect environment, guarantee human health, normalize environmental monitoring work, now the "*The technical requirement for water quality automatic on-line monitor of chromium (VI)*" is approved as national environmental protection standard, and hereby it is issued.

The standard name and number are as follows:

The technical requirement for water quality automatic on-line monitor of chromium (VI) (HJ 609-2011)

This Standard will be implemented from June 1, 2001, published by China Environmental Science Press; the content of the standard can be checked on the website of Ministry of Environmental Protection (bz.mep.gov.cn).

The notice is hereby given.

February 11, 2011

Table of Contents

Foreword

To implement "*Environmental Protection Law of the People's Republic of China*" and "*Water Pollution Prevention Law of the People's Republic of China*", normalize the technical performance for water quality automatic on-line monitor of chromium (VI), improve the ability of water environment monitoring, this Standard is formulated.

This Standard specifies the performance, test method and technical requirement for water quality automatic on-line monitor of chromium (VI).

This Standard was first-time released.

This Standard was organized and formulated by Ministry of Environmental Protection - Department of Science, Technology and Standard.

Drafting organizations of this Standard: China Leather and Footwear Industry Research Institute, Beijing Technology and Business University, Universtar Science and Technology (Shenzhen) Co., Ltd., Hangzhou Focused Photonics Environmental Science and Technology Co., Ltd., Hunan Lihe Science and Technology Development Co., Ltd., Yiwen Environmental Science Technology Co., Ltd., and American Hach Company.

This Standard was approved by Ministry of Environmental Protection on February 11, 2011.

This Standard shall be implemented on June 1, 2011.

This Standard shall be interpreted by Ministry of Environmental Protection.

The technical requirement for water quality automatic on-line monitor of chromium (VI)

1 Scope

This Standard specifies the performance, test method and technical requirement for water quality automatic on-line monitor of chromium (VI).

This Standard applies to the production, application selection, and performance test of automatic on-line monitor of chromium compound ion (VI) in surface water, sanitary sewage and industrial waste water.

2 Normative references

The following documents or provisions are essential to the application of this document. For the undated documents, the effective versions are applicable to this document.

GB 7467 Water quality - Determination of chromium (VI) - Diphenylcarbazide spectrophotometric method

GB/T 13306 Plates

HJ 168 Environmental monitoring - Technical guideline on drawing and revising analytical method standards

HJ/T 212 Standard for data communication of pollution emission auto monitoring system

HJ 477 The technical requirement for data acquisition and transmission equipment of pollution emission auto monitoring system

3 Terms and definitions

The following terms and definitions are applicable to this Standard.

3.1

Zero drift

It refers to, adopting the zero calibration solution specified in this Standard as the sample to test continuously, in a certain period of time, the **percentage** OF changes of indicated value of water quality automatic on-line monitor of chromium (VI) RELATIVE

to the measuring range.

3.2

Measuring range drift

It refers to, adopting the measuring-range calibration solution specified in this Standard as the sample to test continuously, in a certain period of time, the **percentage** OF changes of indicated value of water quality automatic on-line monitor of chromium (VI) RELATIVE to the measuring range.

3.3

Mean time between failures

It refers to the **ratio** OF the total running time (hour) of water quality automatic on-line monitor of chromium (VI) during the period of test TO the failure frequency (times), expressed by “MTBF”, the unit is h/time.

4 Method principle and measuring range

4.1 Method principle

Water quality automatic on-line monitor of chromium (VI) can adopt spectrophotometric method or other analytical method.

In which, the principle of spectrophotometric method: in the acid solution, chromium compound ion (VI) and diphenylcarbazide (DPC) react and generate the purple compound; determine the spectrophotometer at 540mm wavelength. Above steps are automatically controlled and completed by the on-line monitor, from water-sample importing to concentration calculation, so as to realize the automation of chromium (VI) monitoring.

4.2 Structure of water quality automatic on-line monitor of chromium (VI)

Sampling/metering unit: includes sample, reagent importing part, and sample and reagent metering part.

Analytical unit: has the function of changing the measured value into electric signal output; through controlling the unit, complete the automatically on-line analysis of samples. At the same time, it shall also include the function aimed at zero and measuring-range calibration.

Controlling unit: includes system controlling hardware and software, with the functions such as data collecting, processing, display storage and data output.

4.3 Measuring range

displaying part shall be uniform and clear; there shall be no vignette, black spots, rainbow, bubble and flicker etc. It can use the displaying tips to do the comprehensive program operation; the character, symbol and mark of description function are neat.

6.1.3 There shall be no cracks, deformation, muddiness and glitch etc.; the surface coating shall be uniform, without corrosion, rust, detachment and abrasion. Product assembly shall be firm; and the components shall not be loose. The control of button, switch and lock etc. shall be flexible and reliable.

6.2 Performance requirements

6.2.1 Sampling/metering unit

6.2.1.1 It shall be made of anti-corrosive material so that the determination result will not be impacted because of the corrosion of reagents or actual waste water.

6.2.1.2 The measuring parts shall guarantee the accuracy of reagents and actual waste water sampling; the operating instructions shall clarify the maximum particle size of suspension that can go through the instrument internal pipeline.

6.2.1.3 It shall have internal pipeline self-cleaning function which can prevent from cross contamination between different samples.

6.2.2 Analytical unit

6.2.2.1 It shall be made of anti-corrosive material of which the structure shall be easy to be cleaned.

6.2.2.2 The output signal of determination value shall be stable. Within the determination measuring-range specified in this Standard, performance index shall comply with the requirements of Table 1.

6.2.2.3 It shall have the automatic zero calibration and measuring-range calibration function that can set up automatic calibration cycle to guarantee the accuracy of measured values.

6.2.3 Controlling unit

6.2.3.1 It shall have thee feedback function of failure information (over-range alarm, reagent absent alarm, metering component failure alarm).

6.2.3.2 It shall have analog and digital output interfaces. Through digital interface, remote control instructions can be received.

6.2.3.3 Data processing system shall store at least 12 months' raw data. It can set up condition inquiry and display historical data.

6.3 Safety requirements

6.3.1 Insulation resistance between power lead-wire and enclosure shall not be less than 20 MΩ.

6.3.2 It shall set up leakage protection device to avoid personal electric shock; It shall also set up overload protection device to prevent the instrument from accidental burning.

7 Operating instructions

Operating instructions of water quality automatic on-line monitor of chromium (VI) shall at least include the following contents: on-site installation conditions and methods, operating methods of automatic on-line monitor, usage of reagents, common failures handling, and waste-liquid handling.

_____ END _____

This is an excerpt of the PDF (Some pages are marked off intentionally)

------ The End ------