

HJ

INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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Water quality. Determination of iodide. Ion chromatography

水质 碘化物的测定 离子色谱法

(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, Protection of human health, regulate the determination of iodine in water methods, the development of this standard.

This standard specifies the determination of surface water and groundwater iodide ion chromatography.

This standard is the first release.

Appendix A to this standard is an informative appendix.

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

The main drafting unit of this standard. Hunan Province Environmental Monitoring Center Station.

The certification unit of this standard. Changsha City Environmental Monitoring Center Station, Zhuzhou City Environmental Monitoring Center Station, Hengyang City Environmental Monitoring Station, Sichuan Province Environmental Monitoring Station, Shaoyang City Environmental Monitoring Station, Shimadzu Enterprise Management

(China) Co., Ltd. Shanghai analysis heart.

This standard is approved by the Ministry of Environmental Protection on December 4, 2015.

This standard has been implemented since January 1, 2016.

This standard is explained by the Ministry of Environmental Protection.

Determination of water quality iodide - Ion chromatography

1 Scope of application

This standard specifies the determination of iodide in water by ion chromatography.

This standard applies to the determination of iodide in surface water and groundwater.

When the injection volume is 250 μ l, the detection limit of this method is 0.002 mg/L and the lower limit of determination is 0.008 mg/L.

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.

Technical specification for surface water and wastewater monitoring Technical specification for groundwater environmental monitoring

3 Principle of the method

The sample was passed into the anion separation column with the eluent, and the iodide ion (I-) was separated and detected with a conductivity detector. According to iodine Qualitative retention time, external standard method.

4 Interference and elimination

Common anions such as F-, Cl-, NO₂-, NO₃-, PO₄³⁻, SO₄²⁻ have no interference with the determination of iodide;

Ions such as Ag, Fe³⁺, Cu²⁺, Zn²⁺ and so may affect the determination of iodide, cation exchange column (Na type or H-type) to remove the interference material; sample containing surfactants, oils, pigments and other macromolecules organic matter, the choice of C18 or RP solid phase extraction column to remove organic matter.

5 Reagents and materials

Unless otherwise stated, analytical pure chemical reagents are used in accordance with national standards. Experimental water for non-iodide high Pure water, conductivity less than 1.0 $\mu\text{S}/\text{cm}$, and filtered through a 0.45 μm water microporous membrane (5.10).

5.1

potassium iodide (KI). excellent grade pure, before use at 110 °C drying to constant weight.

5.2

potassium hydroxide (KOH). excellent grade pure.

5.3

sodium hydroxide (NaOH). excellent grade pure.

5.4 Iodide standard stock solution. $\rho(\text{I}^-) = 1000 \text{ mg/L}$

Weigh 1.3080 g potassium iodide (5.1), dissolved in water and set to 1000 ml; frozen at 4 °C, dark can save for one year.

Or use a commercially available standard solution.

5.5 Iodide standard intermediate liquid. $\rho(\text{I}^-) = 100 \text{ mg/L}$

Remove 10.00 ml of iodide standard stock solution (5.4), diluted with water volume to 100 ml, with the current allocation.

5.6 Iodide standard use of liquid. $\rho(\text{I}^-) = 10 \text{ mg/L}$

Remove 10.00 ml of iodide standard intermediate (5.5), diluted with water volume to 100 ml, with the current allocation.

5.7 Potassium hydroxide solution. $c(\text{KOH}) = 40 \text{ mmol/L}$

2.24 g of potassium hydroxide (5.2) was weighed and dissolved in water and allowed to settle to 1000 ml. The mixture was stored in a polyethylene bottle.

use.

5.8 Sodium hydroxide saturated solution. at room temperature, take appropriate sodium hydroxide solid (5.3) dissolved in 100 ml of water, stirring Dissolve it, and then continue to add sodium hydroxide solid (5.3), stirring until the solid precipitation is no longer continue to dissolve.

Standing, take clear solution, spare.

5.9 Carrier gas. High purity nitrogen ($\geq 99.99\%$).

5.10 Water Microporous Membrane. 0.45 μm .

6 Instruments and equipment

6.1

Ion Chromatograph (with Conductivity Detector).

6.2

column. anion separation column (polydiorylene benzene/ethyl vinyl benzene, with alkanol quaternary ammonium functional groups, hydrophilic, High-capacity columns) and anionic guard columns.

6.3

Continuous self-regenerated anionic film suppressor or equivalent performance suppressor.

6.4

Disposable syringes. 5 ml.

6.5

Microporous membrane filter. 0.45 μm water microporous membrane (5.10).

6.6

Polyethylene bottles or brown glass bottles. 500 ml.

6.7

Pretreatment Column. Cation exchange column (Na type or H type), solid phase extraction column (C18 or RP).

6.8

Common laboratory equipment and equipment.

7.1 Collection and storage of samples

The collection of samples was carried out in accordance with the relevant provisions of HJ/T 91 and HJ/T 164. Place the water sample immediately after placing it in a polyethylene bottle or Brown glass bottle (6.6), add sodium hydroxide saturated solution (5.8) to adjust the pH to about 12, as soon as possible analysis. If not Timely analysis, should be 0 °C ~ 4 °C cold storage, dark preservation, and within 24 h to complete the determination.

7.2 Preparation of the sample

The collected sample (7.1) was filtered through a 0.45 μm water microporous membrane (5.10) and the initial filtrate was discarded. After collection, the filtrate is tested.