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HJ

INDUSTRY STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

HJ 84-2016

Replacing HJ/T 84-2001

Determination of Water Inorganic Anions (F-, Cl-, NO2-, Br-, NO3-, PO43-, SO32-, SO42-) - Ion Chromatography Method

水质 无机阴离子（F-、Cl-、NO2-、Br-、NO3-、PO43-、SO32-、SO42-）的测定 离子色谱法（发布稿）

(English Translation)

Issued on: July 26, 2016 **Implemented on: October 1, 2016**

Issued by: Ministry of Ecology and Environment

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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, Human health, regulate the determination of inorganic anions in water, the development of this standard.

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

This standard is a revision of the "Determination of Water An Inorganic Anion by Ion Chromatography" (HJ/T 84-2001).

This standard was first published in 2001, the original standard drafting unit for the Shenyang City Environmental Monitoring Center Station. This is the first revision, repair the main contents are as follows.

- Added two anions (Br-, SO3) 2-), the method of detection limit;

- added an eluent system;

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- increased quality assurance and quality control provisions;

- revised sample storage time;

- revised sample pretreatment method;

- Revised the results of calculations and representations.

Since the date of implementation of this standard, the original standard "Determination of water quality inorganic anion ion chromatography" (HJ/T 84-2001) abolished.

Appendix A and Appendix B of this standard are informative.

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

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

The standard verification unit. Xiamen University School of Chemistry and Chemical Engineering, Guangzhou University Analysis and Testing Center, Gansu Province Jiayuguan City Environmental Protection Monitoring station, Beijing Physical and Chemical Analysis and Testing Center, Inner Mongolia Hulunbeier City Environmental Monitoring Station, Guangdong Environmental Protection Engineering Vocational College and Jingmen City, Hubei Province Environmental Protection Monitoring Station.

The environmental protection department of this standard approved on July 26, 2016.

This standard has been implemented since October 1, 2016.

This standard is explained by the Ministry of Environmental Protection.

Warning. Chemical sodium fluoride, sodium nitrite and other chemical reagents used in the experiment are harmful to human health.

It is required to wear protective equipment to avoid contact with skin and clothing.

1 Scope of application

This standard specifies the determination of soluble inorganic anions in water by ion chromatography.

This standard applies to the determination of 8 soluble inorganic anions in surface water, groundwater, industrial waste water and domestic sewage.

When the injection volume of 25 μl, the method of 8 kinds of soluble inorganic anion method detection limit and determination of the lower limit in Table 1.

Table 1 Method Detection limit and lower limit of determination (mg/L)

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2 Normative reference documents

The contents of this standard refer to the following documents or their terms. Any annotated file that does not specify the date, its valid version Applicable to this standard.

Technical Guidance for Water Quality Sampling Technical specification for surface water and wastewater monitoring Technical specification for groundwater environmental monitoring

3 Principle of the method

The anions in the water quality samples were separated by anion chromatography, and the controlled conductivity detectors were detected, Time qualitative, peak height or peak area quantification.

4 Interference and elimination

4.1
Some of the hydrophobic compounds in the sample may affect the chromatographic separation and column life. RP Column or C18 column treatment to eliminate or reduce its impact.

4.2
Heavy metals and transition metals in the sample can affect the life of the column and can be reduced by H column or Na column influences.

4.3
pairs of retention time similar to the two anions, when the concentration difference between the larger and low concentration of ions measured, Dilute, adjust the flow rate, change the proportion of sodium carbonate and sodium bicarbonate concentration, or the use of hydroxide leaching, etc. to eliminate and reduce Less interference.

4.4
When sodium carbonate and sodium bicarbonate eluent is used, the water can interfere with the determination of F-, and the sample can be separated from the standard solution.

Do not add the same amount of the same concentration and equal volume of eluent to reduce the water negative peak on the F- interference.

5 Reagents and materials

Unless otherwise stated, analytical reagents conforming to national standards are used for analysis. Experimental water for the resistivity >= 18 Mohm · cm (25 ° C) and filtered through a 0.45 μm microporous membrane.

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5.1
sodium fluoride (NaF). excellent grade, should be used before the 105 °C ± 5 °C dry constant weight, placed in a dryer to save.

5.2
sodium chloride (NaCl). excellent grade, should be used before the 105 °C ± 5 °C dry constant weight, placed in a dryer to save.

5.3
potassium bromide (KBr). excellent grade, should be used before the 105 °C ± 5 °C dry constant weight, placed in a dryer to save.

5.4
sodium nitrite (NaNO2). excellent grade, should be placed in the dryer before use for 24 h.

5.5
potassium nitrate (KNO3). excellent grade, should be used before the 105 °C ± 5 °C dry constant weight, placed in a dryer to save.

5.6
potassium dihydrogen phosphate (KH2PO4). excellent grade pure, should be used before the 105 °C ± 5 °C dry constant weight, placed in the dryer in the preservation.

5.7
sodium sulfite (Na2SO3). excellent grade, should be placed in the dryer before use for 24 h.

5.8
Formaldehyde (CH2O). purity 40%.

5.9
anhydrous sodium sulfate (Na2SO4). excellent grade pure, should be used before the 105 °C ± 5 °C dry constant weight, placed in the dryer in the preservation.

5.10
Sodium carbonate (Na2CO3). Before use should be dry at 105 °C ± 5 °C constant weight, placed in a dryer to save.

5.11 Sodium bicarbonate (NaHCO3). should be used in the dryer before the balance 24h

5.12 Sodium hydroxide (NaOH). excellent grade pure.

5.13 Fluoride standard stock solution. rho (F -) = 1000 mg/L.

Accurately weighed 2.2100 g sodium fluoride (5.1) dissolved in the amount of water, the full

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