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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

HJ 549-2016

Replacing HJ 549-2009

**Ambient air and stationary source emissions. Determination of
hydrogen chloride. Ion chromatography**

环境空气和废气 氯化氢的测定 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 Atmospheric Pollution, the protection of human health, regulate the ambient air and waste gas in the determination of hydrogen chloride, the development of this standard.

This standard specifies the determination of ambient air and hydrogen chloride in waste gas by ion chromatography.

This standard is the "ambient air and waste hydrogen chloride determination of ion chromatography (provisional)" (HJ 549-2009) repair Set.

This standard was first published in 2009, the original standard drafting unit for the Beijing Environmental Protection Monitoring Center. This time for the first time the main contents of the amendments and amendments are as follows.

- revised method limits, reagents and materials, instruments and equipment, sample collection, analysis steps, results calculations with the express clause.
- complements the principle of the method, quality assurance and quality control part of the content.
- Added warnings, terms and definitions, interference and elimination, precision and accuracy, and cautionary terms.

From the date of implementation of this standard, the original standard "Determination of ambient air and waste hydrogen chloride ion chromatography (provisional)" (HJ 549-2009).

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

The drafting of this standard. Beijing Environmental Protection Monitoring Center.

The standard verification unit. Jiangsu Province Environmental Monitoring Center, Peking University Environmental Engineering Laboratory, Beijing physical and chemical analysis Center, Beijing Environmental Protection Monitoring Center, Beijing Haidian District Environmental Protection Bureau Monitoring Station and Beijing Fangshan District Environmental Protection Monitoring station.

The environmental protection department of this standard approved on May 13, 2016.

This standard has been implemented since August 1, 2016.

This standard is explained by the Ministry of Environmental Protection.

Ambient air and waste gas - Determination of hydrogen chloride - Ion chromatographic method WARNING. Hydrogen chloride is harmful to the human body. When sampling, wear protective equipment in a sampling environment to avoid inhalation or contact with skin and eyes.

1 Scope of application

This standard specifies the determination of ambient air and hydrogen chloride in waste gas by ion chromatography.

This standard applies to the determination of hydrogen chloride in ambient air and waste gas.

For ambient air, when the sampling volume is 60 L (standard state) and the volume of volume is 10.0 ml, the detection limit is 0.02 mg/m³, the determination of the lower limit of 0.080 mg/m³.

For the fixed source of waste gas, when the sampling volume of 10 L (standard state), the volume of volume is 50.0 ml, the method check Limit of 0.2 mg/m³, the determination of the lower limit of 0.80 mg/m³.

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.

Determination of particulate matter and sampling method of gaseous pollutants in exhaust

gas of fixed pollution sources GB/T 16157 Technical Guidelines for Unorganized Emissions Monitoring of Air Pollutants Technical specification for manual monitoring of ambient air quality HJ 664 ambient air quality monitoring point layout technical specifications (Trial)

3 Terms and definitions

The following terms and definitions apply to this standard.

Hydrogen chloride hydrogen chloride Hydrogen chloride as defined in this standard refers to hydrogen chloride gas in the form of gaseous or mist droplets.

4 Principle of the method

Water or alkaline absorption solution, respectively, to absorb ambient air or fixed sources of waste gas in the hydrogen chloride, the formation of chloride ions the sample was injected into an ion chromatograph for separation and determination. Detection by conductivity detector, according to retention time qualitative, peak area or peak height Quantitative.

5 Interference and elimination

Granular chloride has interference with the measurement, sampling can be used PTFE filter or quartz filter to remove its interference. Chlorine gas Interference with the determination of the use of acid absorption liquid in series alkaline absorption liquid sampling, respectively, to absorb hydrogen chloride and chlorine can remove its interference.

6 Reagents and materials

Unless otherwise stated, analytical reagents conforming to national standards are used for analysis. The test water is a resistivity $\geq 18 \text{ Mohm} \cdot \text{cm}$ of fresh deionized water.

6.1

Sulfuric acid. $\rho(\text{H}_2\text{SO}_4) = 1.84 \text{ g/ml}$.

6.2

sodium hydroxide (NaOH). excellent grade pure.

6.3

Potassium hydroxide (KOH). excellent grade pure.

6.4

potassium chloride (KCl). excellent grade pure. Before use, should be $105^\circ\text{C} \pm 5^\circ\text{C}$ bake 2 h, placed in a dryer to cool to room temperature, prepare use.

6.5

alkaline absorption solution. $c(\text{NaOH}) = 30 \text{ mmol/L}$ or $c(\text{KOH}) = 30 \text{ mmol/L}$.

Weigh 1.20 g of sodium hydroxide (6.2), dissolve in water and set to 1000 ml of polyethylene vials, mix; or weigh 1.68 g Potassium hydroxide (6.3), dissolved in water and fixed to 1000 ml of polyethylene bottles, and mix well. Pro is now available.

6.6

Rinse stock solution. according to the instrument model and column instructions for the use of conditions for preparation. In $0^\circ\text{C} \sim 4^\circ\text{C}$ cold, sealed can be saved for 3 months.

6.7

Eluent. Dilute the eluent (6.6) to obtain eluent.

Note 1: If the instrument model has automatic on-line generation of eluent function, can be automatically generated.

Note 2: The eluent should be degassed before use to avoid bubbling into the ion chromatographic system.

6.8

Chloride stock solution. $\rho(\text{Cl}^-) = 1000 \text{ mg/L}$.

Accurately weighed 0.5257 g potassium chloride (6.4), dissolved in water and volume to 250 ml volumetric flask, mix. Transferred to polyethylene the bottle is refrigerated at 4°C and the seal can be stored for 6 months. You can also purchase commercially available standard solutions.

6.9

Chloride standard solution, $\rho(\text{Cl}^-) = 100 \text{ mg/L}$.

Remove 10.00 ml of chloride stock solution (6.8), diluted with water volume to 100 ml volumetric flask, mix, with the current allocation.

6.10

sulfuric acid absorption solution, $c(\text{H}_2\text{SO}_4) = 0.05 \text{ mol/L}$.

Remove 2.7 ml of sulfuric acid (6.1), slowly add the appropriate amount of water, after cooling diluted volume to 1000 ml volumetric flask, mix.

Cold storage at 4°C can be stored for 3 months.

6.11

sodium hydroxide solution, $c(\text{NaOH}) = 0.1 \text{ mol/L}$.

Weigh 4.0 g sodium hydroxide (6.2), dissolve in water, cool, set to 1000 ml volumetric flask. Into the polyethylene bottle, Cold storage at 4°C can be stored for 3 months.