

HJ

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Stationary source emission - Determination of sulfuric acid mist - Ion chromatography

固定污染源废气 硫酸雾的测定 离子色谱法(暂行)

(English Translation)

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Foreword

This standard is formulated to implement the "Environmental Protection Law of the People's Republic of China" and "Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution"; protect the environment; guarantee human health; and stipulate the monitoring methods of sulfuric acid mist in exhaust gas of stationary pollution source.

This standard specifies the ion chromatography for determining the sulfuric acid mist in stationary source emission.

This standard is organized and formulated by Department of Science, Technology and Standards of Ministry of Environmental Protection of the People's Republic of China.

Main drafting organization of this standard. Beijing Municipal Environmental Monitoring Center.

This standard was approved by Ministry of Environmental Protection on December 30, 2009.

The standard shall be implemented on April 1, 2010.

The Ministry of Environmental Protection is responsible for the interpretation of this standard.

Stationary source emission - Determination of sulfuric acid mist - Ion chromatography (on trial)

1 Scope of application

This standard specifies the ion chromatography for determining the sulfuric acid mist in stationary source emission

This standard applies to the determination of sulfuric acid mist in the stationary source emission.

For the organized emission, when the filter cartridge is used for preparing 250mL sample, the detection limit of this method is 0.12 μ g/mL; when sample volume is 400L, the detection limit is 0.08mg/m³, the lower limit of determination is 0.3mg/m³, and the upper limit of determination is 500mg/m³.

For the fugitive emission, when the filter membrane is used for preparing 250mL sample, the detection limit of this method is 0.12 μ g/mL; when sample volume is 3m³, the detection limit is 0.01mg/m³, and the lower limit of determination is 0.04mg/m³.

2 Normative references

The articles contained in the following documents have become part of this standard when they are quoted herein. For the undated documents so quoted, the latest editions shall be applicable to this standard.

GB/T 16157 The determination of particulates and sampling methods of gaseous pollutants emitted from exhaust gas of stationary source

HJ/T 55 Technical guidelines for fugitive emission monitoring of air pollutants

HJ/T 373 Technical specifications of quality assurance and quality control for monitoring of stationary pollution source (on trial)

3 Method and principle

In this method, glass fiber filter cartridge or quartz fiber filter cartridge is used for collecting particulate matter sample in organized emission; superfine glass fiber filter membrane or quartz fiber filter membrane is used for collecting particulate matter in fugitive emission.

Use water to extract. After removing the metal cation through pre-treatment column, inject the sample into ion chromatograph. Determine the nature in accordance with the retention sampling point inside the exhaust funnel for isokinetic sampling. Appropriately select sampling time according to the concentration of sulfuric acid mist. Meanwhile, determine the necessary temperature, pressure and other parameters. After sampling, carefully take out filter cartridge. Place it into 250mL ground conical flask with stopper. Rinse the sampling mouth and elbow with a little of distilled water. Collect and combine the cleaning lotion into the conical flask. Cover up the flask with stopper. Bring it back to laboratory. Dry the sampling mouth with cotton swab. Dry the elbow with suction bulb for standby. During each sampling, at least three filter cartridges of samples shall be collected; take their average value.

7.1.2 Fugitive emission

It shall be implemented in accordance with HJ/T 55 "Technical Guidelines for Fugitive Emission Monitoring of Air Pollutants". Use the medium-volume particulate matter sampler equipped with filter membrane to collect particulate matter sample at 100L/min for 30min.

If the concentration of sulfuric acid mist is too low, the sampling time can be extended appropriately. In order to eliminate the interference of background sulfate from ambient air, reference point shall be set up at upwind direction of fugitive emission; and ambient background sample shall be collected at the same time under the same conditions.

Record the sampling conditions.

7.2 Sample preservation

The sample in the filter cartridge is put into the ground conical flask with stopper, after collection. The filter membrane sample is folded to put into the clean paper bags for

preservation, after collection.

7.3 Sample preparation

Select any one of the following sample preparation methods.

7.3.1 Ultrasonic extraction method

Cut the samples collected in (7.1) (be sure not to shake off dust particles). Place them into a 250mL ground conical flask with stopper. Add 150mL of deionized water for immersing. Place the conical flask into ultrasonic cleaner. Take out after 30min. Cool down. Filter the leaching solution into a 250mL volumetric flask with medium-speed quantitative filter paper (5.6). Rinse the conical flask and sample residues for (3-4) times, with a little amount of deionized water. Collect and combine the cleaning lotion into the volumetric flask. Add 1.0mol/L or 0.10mol/L sodium hydroxide solution to neutralize the solution to pH 7-9. Dilute to marked line with water.

7.3.2 Heating and leaching method

Cut the samples collected in (7.1) (be sure not to shake off dust particles). Place them into a 250mL ground conical flask with stopper. Add 150mL of water to immerse the samples. Place a glass funnel on the flask mouth. Place it into electric furnace or on electric hot

11 Precautions

In-series connect 2 striking absorption flasks that contain absorption liquid, at the back of

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