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HJ

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

HJ 895-2017

**Water quality. Determination of methanol and acetone.
Headspace gas chromatography**

水质 甲醇和丙酮的测定 顶空气相色谱法

(English Translation)

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Foreword

In order to implement the "Law of the People's Republic of China on Environmental Protection" and the "Law of the People's Republic of China on Prevention and Control of Water Pollution", protect the environment, Protection of human health, standardize the determination of methanol and acetone in water, the development of this standard.

This standard specifies the determination of surface water, groundwater, industrial wastewater, domestic sewage and seawater methanol and acetone in the headspace /Gas chromatography.

Appendix A of this standard is an informative annex.

This standard is released for the first time.

This standard by the Environmental Protection Department of Environmental Monitoring Division and Science and Technology Standards Division to develop.

This standard was drafted. Jiangsu Provincial Environmental Monitoring Center.

This standard verification unit. Taizhou Environmental Monitoring Center Station, Suzhou City Environmental Monitoring Center, Nanjing Environmental Monitoring Center Station, Dalian City Environmental Monitoring Center, Jinan City Environmental Monitoring Center and Shanghai Environmental Monitoring Center.

This standard MEP approved on December 21, 2017.

This standard since February 1, 2018 implementation.

This standard is interpreted by the MEP.

Water quality - Determination of methanol and acetone - Headspace/gas chromatography
Warning. Chemicals used in the experiment, such as methanol and acetone, are harmful to human health. Solution preparation and sample pretreatment Procedures should be carried out in the fume hood, operation should be required to wear protective gear to avoid contact with the skin and clothing.

1 Scope of application

This standard specifies the determination of methanol and acetone in water headspace/gas chromatography.

This standard applies to the determination of methanol and acetone in surface water, groundwater, industrial wastewater, domestic sewage and sea water.

When the sampling volume is 10 ml, the detection limit of methanol method is 0.2 mg/L, the lower limit of determination is 0.8 mg/L; the acetone the detection limit was 0.02 mg/L and the limit of determination was 0.08 mg/L.

2 Normative references

This standard references the following documents or the terms of them. For undated references, the effective version applies in this standard.

GB 17378.3 Marine monitoring code - Part 3. Sample collection, storage and transport HJ/T 91 Technical Specifications for Surface Water and Sewerage Monitoring HJ/T 164 Groundwater Environmental Monitoring Technical Specifications

3 Method principle

Under certain temperature conditions, the volatile components in the sample in the headspace bottle volatilize to the liquid space to generate the vapor pressure, After the two phases of the liquid reach the thermodynamic equilibrium, the volatile organic compounds in the gas phase are separated by gas chromatography and detected by hydrogen flame ionization Detector for testing. Chromatographic retention time qualitative, external standard method.

4 Interference and elimination

When using polyethylene glycol stationary phase column separation, when the sample concentration of ethyl acetate is higher than 25 mg/L methanol production Health interference, methyl acetate will interfere with acetone, you can use the stationary phase of 6% cyanopropyl benzene 94% Dimethylsiloxane color Column separation, if necessary, using gas chromatography - mass spectrometry for qualitative confirmation.

5 Reagents and materials

Unless otherwise stated, analytical grade reagents that meet national standards are used.

5.1

Experimental water.

Double distilled water or pure water equipment for the preparation of water. The concentration of target compound in experimental water should be below the detection limit of the method, otherwise should be pre-treatment, can be boiled by heating after 15 min stamped with cooling, or by purging the inert gas to go in addition to experimental water interference with methanol and acetone.

5.2

Hydrochloric acid (HCl). $\rho = 1.19 \text{ g/ml}$.

5.3

hydrochloric acid solution. 1 1.

2 Measure 100 ml of hydrochloric acid (5.2) and add to 100 ml of experimental water (5.1) and mix well.

5.4

Sodium chloride (NaCl). excellent grade pure.

Heat at 400 ° C for 2 h to remove any organic matter that may have adsorbed to the surface. After cooling, store in a clean reagent bottle.

5.5

Ascorbic acid (C₆H₈O₆).

5.6

Methanol (CH₃OH). pesticide residues.

5.7

acetone (CH₃COCH₃). pesticide grade.

5.8

Standard solution of methanol and acetone I. rho (CH₃OH) ~3 x 10⁴ mg/L, rho (CH₃COCH₃) ~3 x 10³ mg/L.

Pipette appropriate amount of experimental water (5.1) in 100 ml volumetric flask, placed on a balance weighing. Carefully dropped a few drops of methanol (5.6) to weight gain of about 3.0 g (accurate to 0.1 mg), re-weighed, calculated according to the difference between the weight of two accurate accession of methanol the amount. Continue carefully dropping a few drops of acetone (5.7) to a weight gain of about 0.3 g (accurate to 0.1 mg), reweigh, according to the last two Calculate the exact mass of acetone added to the difference between the weighings. With experimental water (5.1) set the volume to the mark, shake, calculate a Alcohol and acetone standards using the exact concentration of liquid I (accurate to 1 mg/L). Pro use now with.

5.9

Methanol and acetone standard solution II. rho (CH₃OH) ~ 300 mg/L, rho (CH₃COCH₃) ~ 30 mg/L.

Accurate Pipette 1.00 ml methanol and acetone standard solution I (5.8) in 100 ml volumetric flask, with the experimental water (5.1) Set the volume, shake well.

5.10

Nitrogen. Purity >=99.999%.