

CCS Z 16

HJ

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

HJ 789-2016

**Water quality. Determination of Acetonitrile. Direct injection
/Gas chromatography**

水质 乙腈的测定 直接进样气相色谱法

(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 acetonitrile in water, the development of this standard.

This standard specifies the direct injection/gas chromatography for the determination of acetonitrile in water.

This standard is the first release.

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

The main drafting unit of this standard. Dalian Environmental Monitoring Center.

The standard verification unit. Liaoning Province Environmental Monitoring Experimental Center, Shenyang City Environmental Monitoring Center Station, Jinzhou City Environmental Monitoring Central station, Tianjin Environmental Monitoring Center, Jiangsu Province Environmental Monitoring Center and Suzhou Environmental Monitoring Center Station.

The environmental protection department of this standard approved on March 29, 2016.

This standard has been implemented since May 1, 2016.

This standard is explained by the Ministry of Environmental Protection.

Water quality - Determination of acetone - Direct injection/gas chromatography Warning.
The acetonitrile used in the experiment is harmful to human health. The standard solution preparation process should be carried out in the fume hood.

Should be required to wear protective equipment, to avoid contact with skin and clothing.

1 Scope of application

This standard specifies the direct injection/gas chromatography for the determination of acetonitrile in water.

This standard is applicable to the determination of acetonitrile in surface water, groundwater, industrial waste water and domestic sewage.

When the injection volume was 1.0 μl , the detection limit of acetonitrile was 0.04 mg/L and the lower limit was 0.16 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 filtered samples were injected directly into a gas chromatograph and separated by a column and tested with a nitrogen and phosphorus detector. To keep Qualitative and external standard method.

4 Reagents and materials

4.1

Experimental water. secondary distilled water or water prepared by pure water equipment.

Before use, subject to a blank test to confirm that there is no interference to the target compound in the retention time interval or target combination the detection concentration is lower than the method detection limit.

4.2

acetonitrile (CH₃CN). pure chromatography.

4.3

acetonitrile standard stock solution. ρ (CH₃CN) $\sim 1 \times 10^3$ mg/L.

Prepared with acetonitrile (4.2) at room temperature at 20 ° C. Remove the appropriate amount of test water (4.1) in a 100 ml volumetric flask (4.2) to about 100 mg (accuracy to 0.1 mg), and weigh again, according to the difference between the two weighing weights determines the exact addition of acetonitrile. With the experimental water (4.1) constant volume to the mark, shake, calculate the standard the exact concentration of the quasi-stock solution (accurate to 1 mg/L). Transfer to a brown reagent bottle equipped with a polytetrafluoroethylene screw cap at 4 ° C the following cold storage, dark and sealed can be kept for 3 months. You can also purchase commercially available certified materials (in water as solvent).

4.4

acetonitrile standard use of liquid. ρ (CH₃CN) = 10.0 mg/L.

(4.1) and a certain volume of acetonitrile standard stock solution (4.3) in a 100 ml volumetric flask, Experimental water (4.1) constant volume to the mark, shake. Pro is now available.

4.5

high purity nitrogen. purity $\geq 99.999\%$.

4.6

Hydrogen. purity $\geq 99.95\%$.

4.7

Air. Dehumidified silica gel dehumidification and dehydrocarbon removal of hydrocarbons, or oil-free compressed air purified by 5 Å molecular sieve.

4.8

Water phase needle filter. Polyethersulfone or mixed cellulose ester, 13 mm x 0.45 µm.

5 Instruments and equipment

Unless otherwise stated, the use of the national standard A-class glass gauge is used for the analysis.

5.1

Gas Chromatograph. with capillary column shunt/splitless inlet, equipped with nitrogen and phosphorus detector (NPD).

5.2

Column. quartz capillary column, 30 m x 0.32 mm, film thickness 1.0 μm (polyethylene glycol -20 M fixative), or Other equivalent columns.

5.3

Reagent Bottle. 100 ml brown reagent bottle with polytetrafluoroethylene screw cap.

5.4

Sampling vials. 40 ml brown wide mouth sampling vial with PTFE cap screw cap.

5.5

Vials. 2 ml, equipped with polytetrafluoroethylene liner screw cap.

5.6

balance. one thousandth of a balance.

5.7

Volumetric flask. Class A, 100 ml.

5.8

General laboratory equipment and equipment commonly used.

6.1 Collection of samples

Refer to the relevant provisions of HJ/T 91 and HJ/T 164. Use a 40 ml brown wide mouth with a Teflon screw cap Sampling bottle (5.4) Samples are collected and the collected sample should be filled with sampling vials and sealed. Each batch of samples should be at least one full the procedure is blank (with the same batch of experimental water instead of the sample).

6.2 Transport and storage of samples

After the collection of samples should be refrigerated below 4 °C, dark, sealed and transported. If not timely analysis, should be at 4 °C to Under the cold storage, dark and sealed preservation, storage period of not more than 6 d. There should be no organic interference in the sample storage area.

6.3 Preparation of the sample

The collected samples were filtered to a 2 ml vial (5.5) with an aqueous needle filter (4.8), to be tested.